

July 2, 2003  
10077.004

Oregon Department of Environmental Quality  
Northwest Region  
2020 SW Fourth Avenue  
Suite 400  
Portland, Oregon 97201-4987

**VIA Email/Hand Delivery**

**Attention: Anna Coates**

**Subject: Work Plan Addendum  
Phase 1 Ground Water Assessment  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon  
DEQ ECSI File #2277**

Dear Ms. Coates:

Enclosed are three bound and one unbound copies of the above-referenced document. This work plan addendum is being submitted to you on behalf of the Astoria Area-Wide PRP group as described in "RI/FS and IRAM Development Work Plan, Phase 1," dated July 15, 2002. This proposed plan is intended to comply with the terms of DEQ Order No. ECSR-NWR-01-11.

Please call me at (503)768-5121 if you have any questions or comments.

Sincerely,  
***EnviroLogic Resources, Inc.***

<<ORIGINAL SIGNED>>

Thomas J. Calabrese, R.G.  
Principal/Hydrogeologist

cc: Distribution list attached

clients/port of astoria/004 GWCharacterization/Phase1MW Plan/deq070203.doc

Ms. Anna Coates  
July 2, 2003  
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**ASTORIA AREA-WIDE PETROLEUM SITE  
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## **RI/FS WORK PLAN ADDENDUM**

### **PHASE 1 GROUND-WATER ASSESSMENT**

#### **Remedial Investigation/Feasibility Study Astoria Area-Wide Petroleum Site Astoria, Oregon**

July 1, 2003



Prepared by:

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**RI/FS WORK PLAN ADDENDUM  
PHASE 1 GROUND-WATER ASSESSMENT**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon  
DEQ ECSI File #2277**

**July 1, 2003**

**Prepared for:  
Astoria Area-Wide PRP Group**

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**RI/FS WORK PLAN ADDENDUM  
PHASE 1 GROUND-WATER ASSESSMENT**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

**July 1, 2003**

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This report has been prepared by *EnviroLogic Resources, Inc.*, of Portland, Oregon.

*EnviroLogic Resources, Inc.* Project No. 10077.004

By

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**RI/FS WORK PLAN ADDENDUM  
PHASE 1 GROUND-WATER ASSESMENT**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

**1.0 INTRODUCTION**

This work plan presents the rationale, methods, and procedures to be used for the installation and sampling of a ground-water monitoring-well network at the Astoria Area-Wide Petroleum Site. The proposed ground-water monitoring network is based on data collected from the Phase 1 Remedial Investigation/Feasibility Study (RI/FS) field activities and historical information documented in the RI/FS and Interim Remedial Action Measures (IRAM) Work Plan, Phase 1 (RI/FS Work Plan) (*EnviroLogic Resources*, July 2002). The Phase 1 field activities were completed at the site in August and September 2002. The soil analytical results for the Phase I RI/FS field activities are presented in the Technical Memorandum, Phase 1 Source/Soil Characterization (Phase 1 Soil TM) dated January 30, 2003 (*EnviroLogic Resources*, 2003).

The RI/FS is being performed pursuant to a Unilateral Order issued in December 2001 by the Oregon Department of Environmental Quality (DEQ) (No. ECSR-NWR-01-11) to eight entities. The Order requires these current and former facility owners, and operators involved in industrial and commercial activities to investigate and potentially cleanup properties within the Astoria Area-Wide site. ChevronTexaco Products Company (ChevronTexaco), Delphia Oil Company (Delphia), McCall Oil and Chemical Company (McCall), Ed Niemi Oil Company (Niemi Oil), Flying Dutchman and Harris Enterprises (Harris/Van West), Port of Astoria (the Port), Qwest Communications International (Qwest), and Shell Oil Company (Shell), collectively potentially responsible parties (PRPs), are identified in the Order and have agreed to comply with its requirements. The following is a list of the consultants representing each PRP:



<b>PRP</b>	<b>CONSULTANT</b>
ChevronTexaco	SAIC
Delphia Oil	Maul Foster & Alongi, Inc.
Harris/Van West	Kleinfelder, Inc.
McCall Oil	Anchor Environmental, LLC
Niemi Oil	AMEC, Inc.
Port of Astoria	<i>EnviroLogic Resources, Inc.</i>
Qwest	Tetra Tech EM, Inc.
Shell Oil	Hart Crowser, Inc.

The areas within which the investigations are focused are termed the Astoria Area-Wide Petroleum Site (Astoria Area-Wide) and the Regional Study Area (RSA). The boundary of the RSA is shown in Figure 1. Figure 2 shows the locations of each of the properties subject to the Order.

## **2.0 BACKGROUND**

The Astoria Area-Wide site includes facilities and properties located at and near the Port of Astoria in Astoria, Oregon (Figure 1). The RSA includes the Astoria Area-Wide site and the surrounding areas. The RSA is located in Section 7, Township 8 North, Range 9 West, and Section 12, Township 8 North, Range 10 West, Willamette Base and Meridian. The Astoria Area-Wide site includes property bounded by Portway to the northeast, the Columbia River to the northwest, Hamburg Street (including the former McCall bulk plant) to the southwest, and Marine Drive to the southeast.

The topography of the area consists of a prominent hill overlooking the RSA from the southeast. West Marine Drive (US Highways 26, 30, and 101) is located on a topographic bench, at the base of the prominent hill, approximately 15 feet above the level of the Port facilities. The Columbia River flows to the west on the northwest side of the RSA. Youngs Bay lies to the southwest.

The area around the Port has been used for petroleum storage and distribution since the 1920s. Aboveground storage tanks (AST), underground storage tanks (UST), and pipelines are present on several of the facilities subject to this investigation. Historically, the area was home to at least four bulk petroleum storage facilities and five vehicle fueling or service stations between West Marine Drive and the Columbia River in the RSA. Inactive pipelines associated with several of the former bulk fuel storage facilities extend onto Pier 2. A complete site history and a summary of remedial actions completed at the Astoria Area-Wide site are presented in the RI/FS Work Plan (*EnviroLogic Resources*, July 2002).

The occurrence of free product or light non-aqueous phase liquids (LNAPL) has been documented at several locations within the Astoria Area-Wide site. Currently LNAPL is only known to be present in monitoring wells located near the Port office in the vicinity of a 1993 diesel release from the McCall Oil pipeline. Historically LNAPL was also present in two monitoring wells situated between the Niemi Oil Cardlock and the Harris/Van West properties in

the vicinity of a 1990 release from Harris/Van West and in a trench between the Youngs Bay Texaco and Qwest properties in the vicinity of a 1997 gasoline release at Youngs Bay Texaco.

### **3.0 LOCAL HYDROGEOLOGY**

Based on a review of all the boring logs completed as part of the Phase 1 soil characterization activities, most of the Astoria Area-Wide site is underlain by gray and light brown sand fill. Lenses of silt and clay are present in the fill as well as gravel, wood, and other organics. In addition, two native materials were encountered beneath the site: native river deposits and the Astoria Formation. The native materials were encountered at depth, consistent with the conceptual hydrogeologic model presented in the RI/FS Work Plan.

Native river deposits consisting of dark greenish-gray silty sandy clay with cobbles were encountered beneath the Qwest site at a depth of 9 feet below ground surface (bgs). Mudstone and yellowish-red and yellowish-brown silts were encountered in soil borings located at the Harris/Van West site and the Youngs Bay Texaco site. The mudstone and silts were encountered near the base of the borings from depths of 14 to 18 feet bgs. The mudstone and silt is interpreted to be part of the Astoria Formation.

Depth to ground water was generally encountered between 7 and 11 feet bgs at the site, except along West Marine Drive. The three sites along West Marine Drive have a ground surface elevation approximately 15 feet above the remainder of the site and the depth to ground water was generally 22 feet bgs. Boring logs and a summary of physical and engineering parameters of selected soil samples is presented in the Phase 1 Soil TM.

#### **4.0 RESULTS OF PHASE I GROUND-WATER ACTIVITIES**

In August and September 2002 the Phase 1 source/soil characterization field work was completed at the site in accordance with the RI/FS Work Plan. The Phase 1 investigation included the advancement of 139 direct-push soil borings. A total of 94 ground-water samples were collected from 86 temporary wells installed in the new soil borings (eight QA/QC samples were collected). Soil and ground-water sampling and analytical procedures were performed as outlined in the Field Sampling Plan (Appendix A of the RI/FS Work Plan) and the Quality Assurance Project Plan (Appendix B of the RI/FS Work Plan). Appendices D through K of the Phase 1 Soil TM include the laboratory ground-water analytical reports. Modifications to the RI/FS Work Plan were noted in the Phase I Soil TM. The Phase 1 temporary well point locations are shown on Figure 3.

The majority of ground-water samples collected from beneath the Astoria Area-Wide site were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), semi-volatile organic compounds (SVOCs) and lead. Other constituents analyzed for in certain Phase 1 ground-water samples includes an expanded list of volatile organic compounds (VOCs), eight metals, hydrocarbon identification, polychlorinated biphenols (PCBs), and formaldehyde, depending on the nature of the source being investigated. Table 1 presents a listing of chemicals detected in ground water samples during the Phase 1 RI. The physicochemical properties of these chemicals are presented in Table 2. The values listed in Table 2 were derived from the DEQ risk-based decision making (RBDM) spreadsheet (DEQ, 1999) and the Handbook of Environmental Data on Organic Chemicals (Verschueren).

#### **4.1 OVERVIEW OF STATISTICAL DATA ANALYSIS**

Statistical analyses of the ground-water chemistry data collected at the Astoria Area-Wide site were conducted and are presented in Table 1. These statistical analyses were performed to help describe the analytical data, and are not intended to be used for purposes of assessing human health or ecological risk.

Table 1 presents the number of samples analyzed and the number of samples with detections. From this the frequency of detection is calculated:

Number of samples with detections/Total number of samples x 100= Frequency of Detection (%)

The other statistical analyses performed include the arithmetic mean, geometric mean, and standard deviation. The arithmetic mean is defined as the weighted average value of a data population:

Arithmetic mean = Sum of the observations/Number of observations.

The geometric mean is calculated by:

$$\text{Geometric mean } y = \sqrt[n]{y_1 y_2 y_3 \dots y_n}$$

The standard deviation is a measure of how widely values are dispersed from the average value (mean):

$$\text{Standard Deviation} = \sqrt{\frac{n \sum x^2 - (\sum x)^2}{n(n-1)}}$$

When calculating the means and standard deviation, non-detects and any result containing an “R” value qualifier were discarded. Therefore, the means and standard deviation describe the detected concentrations rather than the dataset as a whole. Data Qualifiers used in the database are presented in Table 3.

## **4.2 SUMMARY OF PHASE 1 GROUND WATER ANALYTICAL RESULTS**

A total of 94 ground-water samples representing 86 unique temporary wells were submitted for analysis during the Phase 1 investigation. Eight field duplicate samples were also submitted. One ground-water sample was collected from a second temporary well point (TW-319(D)), drilled directly adjacent to the first temporary well point (TW-307(D)) but collected at a different depth. Quality control/quality assurance samples are discussed in Appendix D through K of the Phase 1 Soil TM. The analytical results from the Phase 1 ground-water samples are summarized in Table 4 through Table 11. Figures 4 through 12 show the estimated distribution of representative

contaminants of interest (COIs). These figures show the locations of temporary well points where the ground-water samples were obtained and the concentration. Where appropriate, concentrations of COIs are contoured.

A review of the Phase 1 ground-water data suggests three primary areas of impacted ground-water are present beneath the site (Figure 4). The sources of the constituents that make up these plumes, i.e. gasoline or diesel, have not yet been defined. Petroleum hydrocarbon identification indicates that both gasoline and diesel releases have impacted the ground water at the site. An almost even split exists between ground-water samples that had gasoline-range hydrocarbons (17 samples) and diesel-range hydrocarbons (16 samples) detected. However, the use of hydrocarbon identification to distinguish between gasoline and diesel sources may not be appropriate in this case due to the various ages, unknown volumes, and different nature of the dissolved constituents present in gasoline and diesel releases. For example, a review of the analyses performed may not be able to differentiate between a relatively recent large diesel release and a weathered gasoline release of less volume. In any case, it does appear that within these three primary plumes multiple sources are present. Each plume is discussed below.

#### **4.2.1 Eastern Plume**

Ground water is impacted with COIs beneath the Val's Texaco, Delphia Oil, and the former Shell property. Additional work is proposed to characterize potential impacts beneath Industry Street and downgradient of the former Shell site. The down gradient extent of the plume is not yet completely delineated. Hydrocarbon identification analytical results from soil and ground-water indicate that ground-water in the eastern plume is impacted by gasoline and diesel constituents.

#### **4.2.2 Central Plume**

This plume extends from the northwestern property corner of the former Harris/Van West service station, underneath the Niemi Cardlock facility and easternmost portion of the Qwest site, then across Industry Street, through the Port property (former furniture/steelworks) and at least to the south side of Portway. The downgradient limit of the plume is not defined by the Phase 1 investigation.

The apparent upgradient source area for this plume is not clearly defined. The Harris/Van West site has had a documented historical release of gasoline with LNAPL in the vicinity of the apparent upgradient boundary of this plume. Remediation related to this release included LNAPL recovery and removal of impacted soil. The potential ground-water impacts resulting from off-site migration were not determined. Analytical results from soil and/or ground-water samples collected from beneath the Niemi Cardlock indicate both gasoline and diesel constituents. This indicates that a second source for the plume may be present at the Niemi Cardlock facility. Both gasoline and diesel are stored at the Niemi Cardlock and both constituents may be contributing.

A 10,000-gallon gasoline UST and pump island at the adjacent Qwest facility was installed in 1962. In 1973, the UST was moved to its present location on the property; however, the previous location of the tank is unknown. In May 1987, the UST was glass armor-lined and in 1997, the tank was decommissioned. The decommissioning was conducted in place because the tank partially underlies the Qwest Astoria SOC building. The old UST location has never been identified and may be a possible source of gasoline and/or diesel in this portion of the Qwest site. There are no currently identified sources of gasoline or diesel in this portion of the former furniture/steelworks site. The sewer line between the Niemi Cardlock and Qwest sites is inferred to be a secondary source (migration pathway) of a petroleum release from an as yet unspecified primary source.

#### **4.2.3 Western Plume**

The western plume has two components, a dissolved phase and a LNAPL phase. The upgradient source for this plume is not clearly defined. The inferred source area of this plume is primarily near the former Mobil/Niemi Oil Bulk facility and southeastern corner of the former furniture manufacturing site. Historical facilities in these areas were the Mobil/Niemi Oil above ground storage tanks (ASTs) and ancillary equipment, as well as a boiler facility associated with the former furniture manufacturing operations. In these areas gasoline appears to be the primary plume constituent. Gasoline and diesel appear to be constituents of the plume along the northern portion of the former Mobil/Niemi Oil Bulk Plant site. The results of the Phase 1 investigation



suggest that the dissolved-phase plume extends underneath Portway where it potentially commingles with the LNAPL plume. The presence of LNAPL was not observed in Phase 1 borings completed at the former Mobil/Niemi Oil Bulk Plant nor the former furniture manufacturing facility. The downgradient limit of the dissolved-phase plume was not defined by the Phase 1 investigation. However, petroleum-impacted ground-water and LNAPL have been detected in the vicinity of the Port offices and maintenance shop. At this time, a direct connection between the plume found beneath the former Mobil/Niemi Oil Bulk Plant and furniture manufacturing sites and the hydrocarbon seep observed into Slip 2 has not been confirmed.

The LNAPL portion of this plume extends from the Port parking area along Portway, down/cross gradient to the Port maintenance shop and is inferred to be underneath the Port office building and extend to surface water in Slip 2 (observed sheen/seeps). A documented diesel release from a McCall pipeline in this vicinity is the inferred source of the LNAPL plume. Free product has been sampled and preliminarily identified as coming from a diesel source.

### **4.3 MONTHLY MONITORING**

In accordance with the RI/FS Work Plan, monthly water level and free-product measurements have been made in the existing monitoring well network located in the vicinity of the McCall pipeline diesel spill near the Port offices. The monitoring well measurements are shown in Table 12. Field methods for monitoring activities are included in the RI/FS Work Plan.

#### **4.3.1 LNAPL Thickness**

The depth to product, product thickness, and depth to water are measured using an interface probe. The product thickness is shown on Figure 13. Monitoring wells MW-1(M), MW-3(M), MW-4(M), MW-8(M), and MW-9(M) contain measurable free product. For the April 14, 2003, measurement event, MW-4(M) contained 2.61 feet of product, MW-3(M) contained 1.23 feet of product, and MW-9(M) contained 1.57 feet of product. The product thickness in the wells varies month to month (Table 12). Monitoring wells MW-2(M), MW-6(M), MW-7(M), MW-10(M), and MW-11(M) have not contained a measurable amount of free product since the monthly measuring program began in September 2002.

### **4.3.2 Ground-Water Elevations**

The ground-water flow direction in the vicinity of the pipeline diesel spill near the Port offices appears to be toward the north. The ground-water flow direction for the entire Astoria Area-Wide site may vary from the flow direction for this very localized area. Once the new monitoring wells are installed throughout the Astoria Area-Wide site, a better understanding of the overall gradient will be achieved. The ground-water elevations have increased through the wet winter season, and are expected to slowly decrease as the dry summer season continues. Ground-water elevations presented on Figure 13 have been corrected for the presence of free product using an assumed petroleum hydrocarbon specific gravity of 0.85.

Tidal influences also have an effect on the ground-water elevations, but corrections for this have not been made. The amount and range of influence the tide has on the water levels is still unclear at this time. By comparing the measured tide elevations to the measured ground-water elevations, there appears to be a direct correlation in MW-1(M) and lag in response in MW-6(M). The lag may be a result of the amount of time it takes for the hydraulic pressure to transmit to MW-6(M).

## **5.0 MODIFICATIONS TO RI/FS WORK PLAN**

Based on the results of the Phase 1 ground-water sampling completed in August and September 2002, two modifications to the RI/FS Work Plan are recommended. One of the modifications is a more stringent decontamination procedure for drilling equipment. This is covered in Section 1.3 of the Phase 1 Soil TM. The second modification is to reduce ground-water analytical requirements. PCBs and formaldehyde were not detected in any of the soil samples submitted for analysis. Therefore, we are recommending that no additional analyses for these constituents be conducted and they not be included as COIs for the Astoria Area-Wide RI.

## **6.0 GROUND-WATER CHARACTERIZATION PLAN**

The basic objective of the ground-water characterization plan is to collect sufficient data to start characterizing the type and extent of ground-water contamination present at the Astoria Area-Wide site and the potential sources. The monitoring well network will be extensive enough to provide an understanding of the ground-water flow directions and horizontal gradients beneath the study area. COIs in ground-water have been detected in three general areas, designated as the western, central and eastern plumes. A discussion of the proposed program for each plume is presented below. The proposed monitoring well locations are shown on Figure 14. Field methods and procedures as well as monitoring well construction are presented in the RI/FS Work Plan (Appendix A and Appendix E).

During the first sampling event all groundwater samples will be analyzed for HCID, VOCs, SVOCs, dissolved metals, and major anions and cations. Based on the results of the Phase 1 activities, PCBs or formaldehyde are not present at the site and additional testing for these compounds is not warranted. After reviewing the initial round of ground-water analytical data a revised chemical analytical schedule will be developed for approval.

### **6.1 AREAS REQUIRING NO ADDITIONAL GROUND-WATER CHARACTERIZATION**

Ground-water analytical results from the former Astoria Oil Services facility and Youngs Bay Texaco facility generally yielded no detected COIs except metals. At this time we are not recommending installation of ground water monitoring wells in these areas except for one upgradient “clean/background” monitoring well on the Youngs Bay Texaco facility.

### **6.2 UP-GRADIENT MONITORING WELLS**

We are recommending two up-gradient monitoring wells be installed at the Astoria Area-Wide site. One well will be placed east of the Youngs Bay Texaco site and one at the Val’s Texaco site. These monitoring wells will be placed along the southeastern boundary of the Astoria Area-Wide site adjoining West Marine Drive. The locations of the proposed monitoring wells are shown in Figure 14.

### **6.3 WESTERN PLUME**

To investigate the ground-water conditions in the vicinity of the western plume we are recommending the installation of 11 monitoring wells. These monitoring wells will be located along Industry Street, Portway, the Port property and the former Mobil/Niemi Oil Bulk Plant facility.

- We are proposing two up-gradient monitoring wells along Industry Street to define the upper extent of the western plume. The purpose is that ground-water samples from these monitoring wells would represent background conditions.
- We are proposing five monitoring wells on the former Mobil/Niemi Oil Bulk and former furniture manufacturing facilities. One of the monitoring wells is located in the southwestern portion facility and the goal is it will define the southwestern edge of the plume. The remaining four monitoring wells are located to assist in determining source areas, if any from these former facilities.
- The remaining four monitoring wells will be located in the vicinity of the Port maintenance shop and office building. One monitoring well will be installed to replace MW-5(M) (which after several field attempts cannot be located). The purpose in replacing MW-5(M) is to define the southern extent of the LNAPL plume. One proposed monitoring well is located to the west of the maintenance shop to define the western boundary of the dissolved phase plume. The remaining two monitoring wells are located to assist in defining the extent of the free product plume and boundary of the dissolved phase plume.
- Additional down-gradient characterization of the plume (north of the Port office building and north of MW-11(M)) is being done as part of the central plume characterization.

### **6.4 CENTRAL PLUME**

To investigate the ground-water conditions in the vicinity of the central plume we are recommending the installation of 11 monitoring wells. The monitoring wells will be located on the Harris/Van West site, Qwest site, Niemi Oil Cardlock site, former steelworks site and the Port property in the west of the former water tank. The proposed monitoring well locations are shown on Figure 14.

- We are proposing one monitoring well in the western corner of the Harris/ Van West site to define the up-gradient extent of this plume and to evaluate the success of the previous remedial activities.

- One monitoring well is proposed for the Qwest site. The purpose of this monitoring well is to define the western boundary of the plume and to characterize the plume along the eastern boundary of the Qwest site.
- Three monitoring wells are proposed for the Niemi Oil Cardlock site. One of these monitoring wells is located to define the eastern boundary of the plume and the remaining two monitoring wells are located to determine potential sources of the plume and also evaluate the impact of the sewer line located between Niemi Oil and Qwest.
- Four monitoring wells are located along Industry Street and in the vicinity of the former steelworks. The purpose of these proposed monitoring wells is to characterize conditions near the sewer line, the interior of the plume, the western boundary of the plume, and the eastern boundary of the western plume. The eastern boundary of the central plume is being characterized as part of the eastern plume.
- The remaining two proposed monitoring wells are located north of Portway in the vicinity of the former water tank and east of the LNAPL plume. The purpose of these monitoring wells is to define the downgradient limits of the central plume and to determine the down-gradient co-mingling, if any, of the western and central plumes.

## **6.5 EASTERN PLUME(S)**

To investigate the ground-water conditions in the vicinity of the eastern plume(s) we are recommending the installation of 10 monitoring wells. The monitoring wells will be located at Val's Texaco, Delphia Oil bulk plant, the former Shell bulk plant and the former steelworks.

- One monitoring well is proposed for the Val's Texaco site immediately to the north of the service islands to evaluate elevated concentrations of COIs in this area.
- Four monitoring wells are proposed for the vicinity of the Delphia Oil bulk plant property. Two are located along the property line adjoining Val's Texaco to determine the western and eastern extent of COIs. The remaining two monitoring wells are located along the northern property boundary to define the eastern and western extent of COIs.
- One monitoring well is located along Industry Street near the railroad tracks to characterize the extent of COIs across Industry Street.
- One monitoring well is proposed along the boundary between the former steelworks and the former Shell bulk plant facility to characterize ground-water conditions between the central and eastern areas.

- Three monitoring wells are proposed in the vicinity of the former Shell bulk plant facility. One along the eastern property line, one along the north central property line ,and one in the central portion to characterize the nature and extent of COIs, if any, in this area.

## **6.6 McCALL BULK PLANT**

Temporary well point analytical results detected minimal concentrations of COIs except metals from this site. We are proposing installation of three monitoring wells at this site to assist in characterizing the ground-water gradient and flow direction and because of observations made during remedial activities conducted at the site. During Phase 1 activities greater than 6,000 tons of soil were excavated. During excavation activities sheen was observed on the ground water in the excavation.

## **7.0 CONCLUSIONS**

Ground-water analytical data collected from temporary well points during the Phase 1 field activities have identified groundwater impacts in three areas of at the Astoria Area-Wide site. The source of the contamination appears to be fuel hydrocarbons; both diesel and gasoline range. Because ground-water samples were not collected from every site and ground-water analysis was not uniform from site to site our interpretations may be significantly refined after the ground-water monitoring network is installed and sampled.

We are proposing to install 37 monitoring wells to evaluate the nature and extent of COIs and to adequately characterize the direction of ground-water flow and gradient. Field methods, monitoring well construction, aquifer and tidal influence evaluation, health & safety and analytical plans are also presented in the RI/FS Work Plan and will be followed during the ground-water investigations. A proposed modification to analytical testing described in the RI/FS Work Plan includes suspending testing for PCBs and formaldehyde.



## 7.0 REFERENCES

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***TABLES***

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**TABLE 1  
CHEMICALS DETECTED IN GROUND WATER AND SUMMARY STATISTICS**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Chemical</b>	<b>Total Number of Analyses</b>	<b>Number of Analyses with a Detection</b>	<b>Frequency of Detection (Percent)</b>	<b>Maximum Value (ug/L)</b>	<b>Arithmetic Mean</b>	<b>Geometric Mean</b>	<b>Standard Deviation</b>
Diesel Range Organics	60	16	27	9040	2030	980	2660
Gasoline Range Organics	50	17	34	9340	1750	750	2530
Heavy Oil Range Organics	49	1	2	624	624	624	NA
1,2,4-Trimethylbenzene	53	23	43	3040	339	24	728
1,3,5-Trimethylbenzene	53	15	28	958	119.5	24	244
4-Isopropyltoluene	24	4	17	15.1	10.0	8.7	5.8
Benzene	106	61	58	3060	177	5.7	549.7
Ethylbenzene	106	52	49	2110	223	26.6	469
Isopropylbenzene	53	25	47	128	25.7	8.4	30.5
Methylene chloride	24	1	4	5.08	5.08	5.08	NA
Methyl-t-butyl ether	53	1	2	0.14	0.14	0.14	NA
n-Butylbenzene	24	7	29	18.2	6	3	6.6
n-Propylbenzene	53	30	57	416	58.5	9.9	92.8
sec-Butylbenzene	24	4	17	6.25	3.7	2.7	2.7
Styrene	24	1	4	1	1	1	NA
tert-Butylbenzene	24	1	4	0.65	0.65	0.65	NA
Tetrachloroethene	24	2	8	0.41	0.41	0.41	0
Toluene	106	46	43	192	26	5	47
o-Xylene	24	8	33	172	42	9.6	60.5
m,p-Xylene	24	7	29	1350	438.8	90	520.9
Xylenes	82	46	56	3870	277	41.5	703
Acenaphthene	58	18	31	7.37	0.97	0.45	1.7
Anthracene	58	4	7	0.14	0.1	0.1	0.03
Chrysene	58	1	2	0.0161	0.0161	0.0161	NA
Fluorene	58	19	33	17.2	1.7	0.5	3.85
Naphthalene	111	48	43	965	102.8	15	199
Phenanthrene	58	10	17	39.9	5	0.95	12
Arsenic, Total	18	16	89	64.6	8	4	15
Barium	18	18	100	229	35	21.5	51
Chromium	37	23	62	156	12.8	4.6	31.9
Lead	62	24	39	50.8	6	2.5	10.8
Selenium	15	3	20	2.17	1.5	1.5	0.6
Silver	17	1	6	1	1	1	NA

**TABLE 2  
PHYSICAL AND CHEMICAL PROPERTIES OF CONSTITUENTS DETECTED**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Constituents	Molecular Weight (g/mol)	Water Solubility (mg/L 25degC)	Specific Gravity	Vapor Pressure		Henry's Law Constant (atm-m <sup>3</sup> /mol)	Koc (ml/g)	LogKow	logPoct
				(ug/m <sup>3</sup> )	(mm Hg 25 deg C)				
Diesel	142	32			4.50E-02	2.90E-04	4500	7200.00	
Gasoline									
Lube Oil									
Heavy Oil									
1,2,4-Trimethylbenzene	120.19	2.60E-01		6.16E+04	341 (at 140 deg C)	5.70E-03	3.70E+03		3.8
1,2-Dibromoethane	187.88	3.40E+03		4.53E+07	11 (at 20 deg C)	3.20E-04	2.81E+01		
1,2-Dichloroethane	99	8.52E+03		3.45E+08	61 (at 20 deg C)	9.74E-04	1.74E+01		
1,3,5-Trimethylbenzene	120.19	5.00E+1		1.60E+07	1.82 (at 20 deg C)	7.70E-03	8.20E+02		3.42
1,4-Dichlorobenzene	147.01	79 (at 25 deg C)			0.6 (at 20 deg C)				3.39 (at 20 deg C)
2-Butanone	72.1	352000 (at 10 deg C)			77.5 (at 20 deg C)				0.26
4-Isopropyltoluene	134.22								
Acetone	58.08				270 (at 30 deg C)				-0.24
Benzene	78.11	1.75E+03		4.04E+08	76 (at 20 deg C)	5.55E-03	5.89E+01		2.13 (at 20 deg C)
Bromomethane	94.95	900 (at 20 deg C)							
Carbendisulfide	76.14	2100 (at 20 deg C)			260 (at 20 deg C)				1.84 to 2.16
Chloroform	119.38	9300 (at 25 deg C)			160 (at 20 deg C)	0.15 (at 25 deg C)			1.97 (at 20 deg C)
Chloromethane	51	6500 (at 30 deg C)			5 atm (at 20 deg C)	0.36 (at 25 deg C)			0.91 (at 23 deg C)
Ethylbenzene	106.17	1.69E+02		5.54E+07	7 (at 20 deg C)	7.88E-03	3.63E+02		3.15
Isopropylbenzene	120	3.00E+01		1.62E+07		1.30E-02	2.20E+03		
Methylenechloride	84.93	16700 (at 25 deg C)			349 (at 20 deg C)	-1.04 (at 25 deg C)			
methyl tert-butyl ether	88	5.10E+04		1.25E+09		5.87E-04	1.12E+01		
n-Butylbenzene	134.21				1 (at 23 deg C)				
n-Propylbenzene	120.19	1.40E+01		7.57E+06	2.5 (at 20 deg C)	1.30E-02	2.80E+03		3.57 or 3.68
sec-Butylbenzene	134.21				1.1 (at 20 deg C)				
tert-Butylbenzene	134.21				1.5 (at 20 deg C)				4.11
Tetrachloroethene	165.83	150 (at 25 deg C)			14 (at 20 deg C)	0.7 (at 25 deg C)			2.53
Toluene	92.1	5.26E+02		1.45E+08	22 (at 20 deg C)	6.64E-03	1.82E+02		2.69 (at 20 deg C)
Trichloroethene	131.5	1100 (at 25 deg C)			60 (at 20 deg C)	0.4 (at 25 deg C)			2.42
o-Xylene	106.17	175 (at 20 deg C)			5 (at 20 deg C)				2.77
m-Xylene	106.16				6 (at 20 deg C)				3.2



**TABLE 3**  
**DATA QUALIFIER DEFINITIONS**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

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**U** The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

**J** The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

**UJ** The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

**J-** The analyte was positively identified; the associated numerical value appears to be bias low.

**UJ-** The analyte was not detected above the reporting limit. However, the reporting limit appears to be bias low and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

**C** Common laboratory contaminant

**B** The analyte was also identified in a field or laboratory blank associated with this sample or sample group.

**R** The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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**TABLE 1**  
**PETROLEUM HYDROCARBONS IN GROUND WATER**

**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Diesel Range Organics</b>	<b>Gasoline Range Organics</b>	<b>Lubeoil</b>	<b>Heavy Oil Range Organics</b>
			mg/L	mg/L	mg/L	mg/L
MW-1(F)	MW-1-082302	8/23/2002	0.25 U	0.143		0.5 U
TW-100(C)	SB100(C)W	8/22/2002	0.25 U	0.08 U		0.5 U
TW-103(C)	SB103(C)W	8/22/2002	0.25 U	0.08 U		0.5 U
TW-104(C)	SB104(C)W	8/22/2002	0.25 U	0.08 U		0.5 U
TW-200(C)	SB200(C)W	8/22/2002	0.25 U	0.08 U		0.5 U
TW-201(C)	SB201(C)W	8/22/2002	0.25 U	0.08 U		0.5 U
TW-202(C)	SB202(C)W	8/22/2002	0.25 U	0.08 U		0.5 U
TW-203(C)	SB203(C)W	8/22/2002	0.471	0.158		0.5 U
TW-204(C)	SB204(C)W	8/22/2002	0.25 U	0.08 U		0.5 U
TW-204(C)	SB204(C)W2	8/22/2002	0.25 U	0.08 U		0.5 U
TW-400(F)	TW-400(F)	8/22/2002	0.25 U	0.08 U		0.5 U
TW-401(F)	TW-401(F)	8/23/2002	0.25 U	0.08 U		0.5 U
TW-402(F)	TW-402(F)	8/23/2002	0.25 U	0.08 U		0.5 U
TW-405(F)	TW-405(F)	8/22/2002	0.25 U	0.675		0.5 U
TW-406(F)	TW-406(F)	8/22/2002	0.25 U	5.38		0.5 U
TW-407(F)	TW-407(F)	8/22/2002	0.25 U	1.66		0.5 U
TW-408(F)	TW-408(F)	8/22/2002	0.367	0.182		0.5 U
TW-409(F)	TW-409(F)	8/22/2002	0.25 U	0.08 U		0.5 U
TW-600(N)	TW-600(N)	9/13/2002	ND	DET		ND
TW-601(N)	TW-601(N)	9/13/2002	ND	DET		ND
TW-602(N)	BT-602(N)	9/13/2002	ND	ND		ND
TW-602(N)	TW-602(N)	9/13/2002	ND	ND		ND
TW-603(N)	TW-603(N)	9/13/2002	ND	ND		ND
TW-608(N)	TW-608 (N)	9/13/2002	ND	ND		ND
TW-612(N)	TW-612(N)	9/12/2002	4.7	9.34		0.5 U
TW-616(N)	TW-616(N)	9/12/2002	0.25 U	0.08 U		0.5 U
TW-619(N)	TW-619(N)	9/12/2002	0.25 U	1.56		0.5 U
TW-623(N)	TW-623(N)	9/12/2002	0.25 U	2.28		0.5 U



**TABLE 1**  
**PETROLEUM HYDROCARBONS IN GROUND WATER**

**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Diesel Range Organics</b>	<b>Gasoline Range Organics</b>	<b>Lubeoil</b>	<b>Heavy Oil Range Organics</b>
			mg/L	mg/L	mg/L	mg/L
TW-624(N)	TW-624(N)	9/12/2002	ND	ND		ND
TW-625(N)	BT-625(N)	9/12/2002	0.25 U	0.08 U		0.5 U
TW-625(N)	TW-625(N)	9/12/2002	0.25 U	0.08 U		0.5 U
TW-800(Q)	TW-800(Q)-10.5	8/27/2002	0.25 U	0.08 U		0.5 U
TW-801(Q)	TW801(Q)-10	8/26/2002	0.25 U	0.08 U		0.5 U
TW-803(Q)	TW-803(Q)-9	8/26/2002	0.25 U	0.08 U		0.5 U
TW-805(Q)	TW-805(Q)-10	8/26/2002	0.25 U	0.119		0.5 U
TW-806(Q)	TW-806 (Q)-11	8/28/2002	0.25 U	0.401	0.5 U	
TW-810(Q)	TW-810 (Q)-8	8/28/2002	0.303	0.08 U	0.5 U	
TW-814(Q)	TW814(Q)9	8/27/2002	0.286 U	0.08 U		0.571 U
TW-816(Q)	TW-816(Q)-12	8/27/2002	0.25 U	0.08 U		0.5 U
TW-818(Q)	TW-818 (Q)-11	8/28/2002	0.25 U	0.08 U	0.5 U	
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002	0.309	0.41	0.5 U	
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002	0.34	0.718	0.5 U	
TW-820(Q)	TW-820 (Q)-10	8/29/2002	0.25 U	0.439	0.5 U	
TW-822(Q)	TW-822 (Q)-9	8/29/2002	0.335	2.74 J	0.5 U	
TW-824(Q)	TW-824(Q)-9	8/28/2002	0.25 U	0.08 U		0.5 U
TW-825(Q)	TW-825(Q)-8.5	8/27/2002	0.294 U	0.08 U		0.588 U
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002	0.25 U	0.08 U	0.5 U	
TW-826(Q)	TW-826(Q)-9	8/27/2002	0.312 U	0.08 U		0.625 U
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002	0.429	0.08 U	0.5 U	
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002	0.48	0.08 U	0.5 U	
TW-833(Q)	TW-833 (Q)-11C	8/28/2002	0.25 U		0.5 U	
TW-900(S)	SB-900(TW)	8/26/2002	0.25 U			0.5 U
TW-903(S)	SB-903(TW)	8/26/2002	6.66			1 U
TW-904(S)	SB-904(TW)	8/26/2002	0.758			0.5 U
TW-905(S)	SB-905(TW)	8/26/2002	1.44			0.5 U
TW-906(S)	SB-906(TW)	8/27/2002	2.63			0.5 U

**TABLE 1  
 PETROLEUM HYDROCARBONS IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
 Astoria Area-Wide Petroleum Site  
 Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Diesel Range Organics</b>	<b>Gasoline Range Organics</b>	<b>Lubeoil</b>	<b>Heavy Oil Range Organics</b>
			mg/L	mg/L	mg/L	mg/L
TW-908(S)	SB-908(TW)	8/27/2002	0.688			0.624
TW-909(S)	SB-909(TW)	8/27/2002	0.25 U			0.5 U
TW-910(S)	SB-910(TW)	8/26/2002	3.52			0.5 U
TW-911(S)	SB-911(TW)	8/27/2002	9.04			0.5 U

**TABLE 5  
RBDM VOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	1,2,4- Trimethylbenzene ug/L	1,2- Dibromoethane ug/L	1,2- Dichloroethane ug/L	1,3,5- Trimethylbenzene ug/L	Benzene ug/L	Ethylbenzene ug/L
MW-1(F)	MW-1-082302	8/23/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-1(F)	MW-1-082302	8/23/2002					0.5 U	0.5 U
TW-100(C)	SB100(C)W	8/22/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-103(C)	SB103(C)W	8/22/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-104(C)	SB104(C)W	8/22/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-200(C)	SB200(C)W	8/22/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-201(C)	SB201(C)W	8/22/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-202(C)	SB202(C)W	8/22/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-203(C)	SB203(C)W	8/22/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-204(C)	SB204(C)W	8/22/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-204(C)	SB204(C)W2	8/22/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-304(D)	SB-304-D-9.0	8/19/2002					174	39.1
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002					151	30.8
TW-305(D)	SB-305-D-9.0	8/19/2002	3040	10 U	10 U	958	489	1760
TW-306(D)	SB-306-D-9.0	8/19/2002					372	222
TW-307(D)	SB-307-D-9.0	8/19/2002					934	47.1
TW-309(D)	SB-309-D-9.0	8/19/2002	0.34 J	0.5 U	0.5 U	0.58	19.2	0.93
TW-311(D)	SB-311-D-10.0	8/19/2002					24.2	4.13
TW-312(D)	SB-312-D-10.0	8/19/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-313(D)	TW-313-D-22.0	8/20/2002					255	1280
TW-314(D)	TW-314-D-22.0	8/20/2002					68.3	90.9
TW-318(D)	TW-318-D-22.0	8/20/2002	0.66 J	0.5 U	0.5 U	0.5 U	0.71	0.95
TW-319(D)	SB-319-D-14.0	8/19/2002					0.5 U	0.337 U
TW-400(F)	TW-400(F)	8/22/2002					0.5 U	0.5 U
TW-401(F)	TW-401(F)	8/23/2002					0.5 U	0.5 U
TW-402(F)	TW-402(F)	8/23/2002					0.5 U	0.5 U
TW-405(F)	TW-405(F)	8/22/2002					4.23	22.2
TW-406(F)	TW-406(F)	8/22/2002					14.2	249
TW-407(F)	TW-407(F)	8/22/2002					11.6	9.05
TW-408(F)	TW-408(F)	8/22/2002					0.853	3.98
TW-409(F)	TW-409(F)	8/22/2002					0.5 U	0.5 U
TW-600(N)	TW-600(N)	9/13/2002	7.35	2.5 U	2.5 U	2.5 U	2.5 U	799
TW-601(N)	TW-601(N)	9/13/2002	192	1 U	1 U	1 U	1 U	119
TW-602(N)	BT-602(N)	9/13/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-602(N)	TW-602(N)	9/13/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-603(N)	TW-603(N)	9/13/2002	1.72	0.5 U	0.5 U	0.5 U	0.5 U	1.13
TW-608(N)	TW-608 (N)	9/13/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-612(N)	TW-612(N)	9/12/2002	50 U	25 U	25 U	25 U	2610	312
TW-612(N)	TW-612(N)	9/12/2002					3060	533
TW-616(N)	TW-616(N)	9/12/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-616(N)	TW-616(N)	9/12/2002					0.5 U	0.5 U
TW-619(N)	TW-619(N)	9/12/2002	9.5	2.5 U	2.5 U	2.5 U	3.4	80.6
TW-619(N)	TW-619(N)	9/12/2002					8.18	99.5
TW-623(N)	TW-623(N)	9/12/2002	22.2	0.5 U	0.5 U	20.8	0.5 U	16.1
TW-623(N)	TW-623(N)	9/12/2002					6.04	25.4
TW-624(N)	TW-624(N)	9/12/2002	31.5	0.4 U	0.4 U	50.5	0.4 U	34.8
TW-625(N)	BT-625(N)	9/12/2002					0.5 U	0.5 U

**TABLE 5  
RBDM VOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	1,2,4- Trimethylbenzene ug/L	1,2- Dibromoethane ug/L	1,2- Dichloroethane ug/L	1,3,5- Trimethylbenzene ug/L	Benzene ug/L	Ethylbenzene ug/L
TW-625(N)	TW-625(N)	9/12/2002					0.5 U	0.5 U
TW-700(P)	TW-700(P)	8/21/2002	803	2 U	2 U	272	2 U	358
TW-701(P)	TW-701(P)	8/20/2002	204	4 U	4 U	5 U	40.3	933
TW-702(P)	TW-702(P)	8/21/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-703(P)	TW-703(P)	8/21/2002	53.8	0.8 U	0.8 U	33.5	3.3	172
TW-704(P)	TW-704(P)	8/21/2002	1.22	0.4 U	0.4 U	6.07	0.16 J	1.46
TW-706(P)	TW-706(P)	8/21/2002	113	2 U	2 U	40.8	106	195
TW-707(P)	TW-707(P)	8/21/2002	0.5 U	0.4 U	0.4 U	0.5 U	1.41	2.87
TW-708(P)	BT-708(P)	8/20/2002	10 U	5 U	5 U	5 U	1230	154
TW-708(P)	TW-708(P)	8/20/2002	10 U	5 U	5 U	5 U	976	80.9
TW-709(P)	TW-709(P)	8/21/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-710(P)	TW-710(P)	8/21/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-711(P)	BT-711(P)	8/21/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-711(P)	TW-711(P)	8/21/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-712(P)	TW-712(P)	8/21/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-714(P)	TW-714(P)	8/21/2002	914	10 U	10 U	115	83.8	2110
TW-716(P)	TW-716(P)	8/20/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-717(P)	TW-717(P)	8/20/2002	0.5 U	0.4 U	0.4 U	0.5 U	0.4 U	0.4 U
TW-718(P)	TW-718(P)	8/21/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-719(P)	BT-719(P)	8/23/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-719(P)	TW-719(P)	8/23/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-720(P)	TW-720(P)	8/23/2002	1810	10 U	10 U	119	28	1530
TW-800(Q)	TW-800(Q)-10.5	8/27/2002					0.5 U	0.5 U
TW-801(Q)	TW801(Q)-10	8/26/2002					0.5 U	0.5 U
TW-803(Q)	TW-803(Q)-9	8/26/2002					0.5 U	0.5 U
TW-805(Q)	TW-805(Q)-10	8/26/2002					1.98	2.26
TW-806(Q)	TW-806 (Q)-11	8/28/2002					20.3	0.5 U
TW-810(Q)	TW-810 (Q)-8	8/28/2002					0.5 U	0.5 U
TW-814(Q)	TW814(Q)9	8/27/2002					0.5 U	0.5 U
TW-816(Q)	TW-816(Q)-12	8/27/2002					0.5 U	0.5 U
TW-818(Q)	TW-818 (Q)-11	8/28/2002					0.5 U	0.5 U
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002					8	7.78
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002					13.7	11
TW-820(Q)	TW-820 (Q)-10	8/29/2002					11	30.2
TW-822(Q)	TW-822 (Q)-9	8/29/2002					31.3 J	111 J
TW-824(Q)	TW-824(Q)-9	8/28/2002					2.4	0.5 U
TW-825(Q)	TW-825(Q)-8.5	8/27/2002					0.5 U	0.5 U
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002					0.506	0.5 U
TW-826(Q)	TW-826(Q)-9	8/27/2002					0.5 U	0.5 U
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002					0.5 U	0.5 U
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002					0.5 U	0.5 U
TW-900(S)	SB-900(TW)	8/26/2002					2.72	0.977
TW-901(S)	SB-901(TW)	8/26/2002	468	2.5 U	2.5 U	147	5.92	7.82
TW-901(S)	SB-901(TW)	8/26/2002					2.5 U	7
TW-902(S)	SB-902(TW)	8/26/2002					0.5 U	1.51
TW-903(S)	SB-903(TW)	8/26/2002	79.8	0.5 U	0.5 U	17.4	0.5 U	12.8
TW-903(S)	SB-903(TW)	8/26/2002					0.5 U	14

**TABLE 5  
RBDM VOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	1,2,4- Trimethylbenzene ug/L	1,2- Dibromoethane ug/L	1,2- Dichloroethane ug/L	1,3,5- Trimethylbenzene ug/L	Benzene ug/L	Ethylbenzene ug/L
TW-904(S)	SB-904(TW)	8/26/2002	1.6	0.5 U	0.5 U	0.35 J	0.5 U	0.5 U
TW-904(S)	SB-904(TW)	8/26/2002					0.5 U	0.26 J
TW-905(S)	SB-905(TW)	8/26/2002	35.6 J	0.5 U	0.5 U	7.17 J	0.5 U	18.9 J
TW-905(S)	SB-905(TW)	8/26/2002					2.5 U	46.4
TW-906(S)	SB-906(TW)	8/27/2002	15.6	0.5 U	0.5 U	3.89	0.5 U	0.15 J
TW-906(S)	SB-906(TW)	8/27/2002					0.5 U	0.5 U
TW-908(S)	SB-908(TW)	8/27/2002	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-908(S)	SB-908(TW)	8/27/2002					0.5 U	0.5 U
TW-909(S)	SB-909(TW)	8/27/2002					0.5 U	0.5 U
TW-910(S)	SB-910(TW)	8/26/2002					0.5 U	0.803
TW-911(S)	SB-911(TW)	8/27/2002	0.27 J	0.5 U	0.5 U	0.5 U	0.718	13
TW-911(S)	SB-911(TW)	8/27/2002					0.34 J	5.41

**TABLE 5  
RBDM VOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Isopropylbenzene ug/L	Methyl-t- butyl ether ug/L	n-Propylbenzene ug/L	o-Xylene ug/L	Toluene ug/L	Xylene, Isomers m & p ug/L	Xylenes ug/L
MW-1(F)	MW-1-082302	8/23/2002	2 U	2 U	0.5 U		0.5 U		1 U
MW-1(F)	MW-1-082302	8/23/2002					0.5 U		1 U
TW-100(C)	SB100(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-103(C)	SB103(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-104(C)	SB104(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-200(C)	SB200(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-201(C)	SB201(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-202(C)	SB202(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-203(C)	SB203(C)W	8/22/2002	0.4 J	0.4 U	0.88	0.4 U	0.4 U	0.8 U	
TW-204(C)	SB204(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-204(C)	SB204(C)W2	8/22/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-304(D)	SB-304-D-9.0	8/19/2002					10.9		73.1
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002					10.2		56.1
TW-305(D)	SB-305-D-9.0	8/19/2002	128	40 U	416		186		3870
TW-306(D)	SB-306-D-9.0	8/19/2002					83.3		106
TW-307(D)	SB-307-D-9.0	8/19/2002					76		135
TW-309(D)	SB-309-D-9.0	8/19/2002	3.75	2 U	5.72		2.09		5.13
TW-311(D)	SB-311-D-10.0	8/19/2002					1.6		3.17 U
TW-312(D)	SB-312-D-10.0	8/19/2002	0.17 J	2 U	0.32 J		0.5 U		1 U
TW-313(D)	TW-313-D-22.0	8/20/2002					40.6		316
TW-314(D)	TW-314-D-22.0	8/20/2002					9.8		81.3
TW-318(D)	TW-318-D-22.0	8/20/2002	2 U	2 U	0.14 J		0.5 U		2.03
TW-319(D)	SB-319-D-14.0	8/19/2002					0.5 U		0.724 U
TW-400(F)	TW-400(F)	8/22/2002					0.5 U		1 U
TW-401(F)	TW-401(F)	8/23/2002					0.5 U		1 U
TW-402(F)	TW-402(F)	8/23/2002					0.5 U		1 U
TW-405(F)	TW-405(F)	8/22/2002					0.86		62.7
TW-406(F)	TW-406(F)	8/22/2002					7.59		474
TW-407(F)	TW-407(F)	8/22/2002					1.63		17.3
TW-408(F)	TW-408(F)	8/22/2002					0.5 U		1.47
TW-409(F)	TW-409(F)	8/22/2002					0.5 U		1 U
TW-600(N)	TW-600(N)	9/13/2002	34	10 U	89.2		28		840
TW-601(N)	TW-601(N)	9/13/2002	29.1	4 U	49.3		1.1		107
TW-602(N)	BT-602(N)	9/13/2002	2 U	2 U	0.5 U		0.5 U		1.19
TW-602(N)	TW-602(N)	9/13/2002	2 U	2 U	0.5 U		0.5 U		1.39
TW-603(N)	TW-603(N)	9/13/2002	2 U	2 U	1.19		0.5 U		3.65
TW-608(N)	TW-608(N)	9/13/2002	2 U	2 U	0.5 U		0.5 U		1 U
TW-612(N)	TW-612(N)	9/12/2002	100 U	100 U	98		102		250
TW-612(N)	TW-612(N)	9/12/2002					145		353
TW-616(N)	TW-616(N)	9/12/2002	2 U	2 U	0.5 U		0.5 U		1 U
TW-616(N)	TW-616(N)	9/12/2002					0.5 U		1 U
TW-619(N)	TW-619(N)	9/12/2002	12	10 U	17.6		7.85		61.8
TW-619(N)	TW-619(N)	9/12/2002					11.7		81.3
TW-623(N)	TW-623(N)	9/12/2002	9.57	2 U	23.2		0.68		27.9
TW-623(N)	TW-623(N)	9/12/2002					3.3		40.1
TW-624(N)	TW-624(N)	9/12/2002	24.3	0.4 U	60.7	11.2	1.65	47.1	
TW-625(N)	BT-625(N)	9/12/2002					0.5 U		1 U

**TABLE 5  
RBDM VOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Isopropylbenzene	Methyl-t-butyl ether	n-Propylbenzene	o-Xylene	Toluene	Xylene, Isomers m & p	Xylenes
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-625(N)	TW-625(N)	9/12/2002					0.5 U		1 U
TW-700(P)	TW-700(P)	8/21/2002	70.8	2 U	131	172	5.35	898	
TW-701(P)	TW-701(P)	8/20/2002	41.2	4 U	81.9	27.8	85.7	1350	
TW-702(P)	TW-702(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-703(P)	TW-703(P)	8/21/2002	42.3	0.8 U	58	29.9	30.9	229	
TW-704(P)	TW-704(P)	8/21/2002	17.8	0.4 U	23.8	3.69	1.07	5.98	
TW-706(P)	TW-706(P)	8/21/2002	14.2	2 U	26.6	91.6	19	540	
TW-707(P)	TW-707(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.27 J	0.41	1.14	
TW-708(P)	BT-708(P)	8/20/2002	32.5	20 U	88.5		43.6		69.9
TW-708(P)	TW-708(P)	8/20/2002	27.8	20 U	73.2		31.9		57.4
TW-709(P)	TW-709(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-710(P)	TW-710(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-711(P)	BT-711(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-711(P)	TW-711(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-712(P)	TW-712(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-714(P)	TW-714(P)	8/21/2002	73.2	40 U	277		33.6		1450
TW-716(P)	TW-716(P)	8/20/2002	0.5 U	0.4 U	0.5 U	0.4 U	0.4 U	0.8 U	
TW-717(P)	TW-717(P)	8/20/2002	0.5 U	0.4 U	0.14 J	0.49	0.38 J	0.8 U	
TW-718(P)	TW-718(P)	8/21/2002	2 U	2 U	0.5 U		0.5 U		1 U
TW-719(P)	BT-719(P)	8/23/2002	0.4 J	2 U	0.41 J		0.5 U		1 U
TW-719(P)	TW-719(P)	8/23/2002	2 U	2 U	0.35 J		0.5 U		1 U
TW-720(P)	TW-720(P)	8/23/2002	56.2	40 U	188		192		2650
TW-800(Q)	TW-800(Q)-10.5	8/27/2002					0.5 U		1 U
TW-801(Q)	TW801(Q)-10	8/26/2002					0.5 U		1 U
TW-803(Q)	TW-803(Q)-9	8/26/2002					0.5 U		1 U
TW-805(Q)	TW-805(Q)-10	8/26/2002					0.5 U		6.87
TW-806(Q)	TW-806 (Q)-11	8/28/2002					1.13		1 U
TW-810(Q)	TW-810 (Q)-8	8/28/2002					0.5 U		1 U
TW-814(Q)	TW814(Q)9	8/27/2002					0.5 U		1 U
TW-816(Q)	TW-816(Q)-12	8/27/2002					0.5 U		1 U
TW-818(Q)	TW-818 (Q)-11	8/28/2002					0.5 U		1 U
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002					0.581		7.93
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002					3.17		6.49
TW-820(Q)	TW-820 (Q)-10	8/29/2002					1.05		11.6
TW-822(Q)	TW-822 (Q)-9	8/29/2002					2.89 J		336 J
TW-824(Q)	TW-824(Q)-9	8/28/2002					0.5 U		1 U
TW-825(Q)	TW-825(Q)-8.5	8/27/2002					0.5 U		1 U
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002					0.5 U		1 U
TW-826(Q)	TW-826(Q)-9	8/27/2002					0.5 U		1 U
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002					0.5 U		1 U
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002					0.5 U		1 U
TW-900(S)	SB-900(TW)	8/26/2002					0.701		1 U
TW-901(S)	SB-901(TW)	8/26/2002	16.3	10 U	32.4		1.03		64.1
TW-901(S)	SB-901(TW)	8/26/2002					2.5 U		55.6
TW-902(S)	SB-902(TW)	8/26/2002					0.907		137
TW-903(S)	SB-903(TW)	8/26/2002	4.76	2 U	7.85		4.32		146
TW-903(S)	SB-903(TW)	8/26/2002					4.51		146

**TABLE 5  
RBDM VOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Isopropylbenzene	Methyl-t-butyl ether	n-Propylbenzene	o-Xylene	Toluene	Xylene, Isomers m & p	Xylenes
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-904(S)	SB-904(TW)	8/26/2002	0.17 J	2 U	0.27 J		0.5 U		1 U
TW-904(S)	SB-904(TW)	8/26/2002					0.5 U		0.63 J
TW-905(S)	SB-905(TW)	8/26/2002	1.83 J	2 U	1.86 J		0.81 J		193 J
TW-905(S)	SB-905(TW)	8/26/2002					2.5 U		406
TW-906(S)	SB-906(TW)	8/27/2002	1.16 J	2 U	2.04		0.25 J		8.89
TW-906(S)	SB-906(TW)	8/27/2002					0.5 U		12.8
TW-908(S)	SB-908(TW)	8/27/2002	2 U	0.14 J	0.5 U		0.5 U		1 U
TW-908(S)	SB-908(TW)	8/27/2002					0.5 U		1 U
TW-909(S)	SB-909(TW)	8/27/2002					0.5 U		1 U
TW-910(S)	SB-910(TW)	8/26/2002					0.5 U		1.43
TW-911(S)	SB-911(TW)	8/27/2002	1.1 J	2 U	0.8		1.1		5.65
TW-911(S)	SB-911(TW)	8/27/2002					0.43 J		2.22



**TABLE 6**  
**RBDM SVOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Acenaphthene ug/L	Anthracene ug/L	Benzo(a)anthracene ug/L	Benzo(a)pyrene ug/L	Benzo(b) fluoranthene ug/L	Benzo(k) fluoranthene ug/L
MW-1(F)	MW-1-082302	8/23/2002	0.0811	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
MW-1(F)	MW-1-082302	8/23/2002						
TW-100(C)	SB100(C)W	8/22/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-100(C)	SB100(C)W	8/22/2002						
TW-103(C)	SB103(C)W	8/22/2002						
TW-104(C)	SB104(C)W	8/22/2002						
TW-200(C)	SB200(C)W	8/22/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-200(C)	SB200(C)W	8/22/2002						
TW-201(C)	SB201(C)W	8/22/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-201(C)	SB201(C)W	8/22/2002						
TW-202(C)	SB202(C)W	8/22/2002	0.157	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-202(C)	SB202(C)W	8/22/2002						
TW-203(C)	SB203(C)W	8/22/2002	1.09	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-203(C)	SB203(C)W	8/22/2002						
TW-204(C)	SB204(C)W	8/22/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-204(C)	SB204(C)W	8/22/2002						
TW-204(C)	SB204(C)W2	8/22/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-204(C)	SB204(C)W2	8/22/2002						
TW-304(D)	SB-304-D-9.0	8/19/2002	5 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002	5 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-305(D)	SB-305-D-9.0	8/19/2002	7.37	50 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-305(D)	SB-305-D-9.0	8/19/2002						
TW-306(D)	SB-306-D-9.0	8/19/2002	0.622	0.14	0.05 U	0.01 U	0.01 U	0.01 U
TW-307(D)	SB-307-D-9.0	8/19/2002	5 U	5 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-309(D)	SB-309-D-9.0	8/19/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-309(D)	SB-309-D-9.0	8/19/2002						
TW-311(D)	SB-311-D-10.0	8/19/2002	0.0567	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-312(D)	SB-312-D-10.0	8/19/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-312(D)	SB-312-D-10.0	8/19/2002						
TW-313(D)	TW-313-D-22.0	8/20/2002	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
TW-314(D)	TW-314-D-22.0	8/20/2002	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
TW-318(D)	TW-318-D-22.0	8/20/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-318(D)	TW-318-D-22.0	8/20/2002						
TW-319(D)	SB-319-D-14.0	8/19/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-400(F)	TW-400(F)	8/22/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-600(N)	TW-600(N)	9/13/2002	0.195	0.05 U	0.25 U	0.25 U	0.25 U	0.25 U
TW-600(N)	TW-600(N)	9/13/2002						
TW-601(N)	TW-601(N)	9/13/2002	0.191	0.05 U	2.5 U	0.01 U	0.01 U	0.01 U
TW-601(N)	TW-601(N)	9/13/2002						
TW-602(N)	BT-602(N)	9/13/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-602(N)	BT-602(N)	9/13/2002						

**TABLE 6**  
**RBDM SVOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-602(N)	TW-602(N)	9/13/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-602(N)	TW-602(N)	9/13/2002						
TW-603(N)	TW-603(N)	9/13/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-603(N)	TW-603(N)	9/13/2002						
TW-608(N)	TW-608 (N)	9/13/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-608(N)	TW-608 (N)	9/13/2002						
TW-612(N)	TW-612(N)	9/12/2002	1.15	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
TW-612(N)	TW-612(N)	9/12/2002						
TW-616(N)	TW-616(N)	9/12/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-616(N)	TW-616(N)	9/12/2002						
TW-619(N)	TW-619(N)	9/12/2002	0.142	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-619(N)	TW-619(N)	9/12/2002						
TW-623(N)	TW-623(N)	9/12/2002	0.37	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-623(N)	TW-623(N)	9/12/2002						
TW-624(N)	TW-624(N)	9/12/2002	5 U	5 U	5 U	5 U	5 U	5 U
TW-624(N)	TW-624(N)	9/12/2002						
TW-625(N)	BT-625(N)	9/12/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-625(N)	TW-625(N)	9/12/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-700(P)	TW-700(P)	8/21/2002	1 U J	1 U J	1 U J	1 U J	1 U J	1 U J
TW-700(P)	TW-700(P)	8/21/2002						
TW-701(P)	TW-701(P)	8/20/2002						
TW-702(P)	TW-702(P)	8/21/2002	0.05 U J	0.05 U J	0.01 U J	0.01 U J	0.01 U J	0.01 U J
TW-702(P)	TW-702(P)	8/21/2002						
TW-703(P)	TW-703(P)	8/21/2002						
TW-704(P)	TW-704(P)	8/21/2002						
TW-705(P)	TW-705(P)	8/20/2002	0.0571 U J	0.0571 U J	0.0114 U J	0.0114 U J	0.0114 U J	0.0114 U J
TW-706(P)	TW-706(P)	8/21/2002						
TW-707(P)	TW-707(P)	8/21/2002						
TW-708(P)	BT-708(P)	8/20/2002	2 U J	2 U J	2 U J	0.01 U J	0.01 U J	0.01 U J
TW-708(P)	BT-708(P)	8/20/2002						
TW-708(P)	TW-708(P)	8/20/2002	2.5 U J	2.5 U J	2.5 U J	2.5 U J	2.5 U J	2.5 U J
TW-708(P)	TW-708(P)	8/20/2002						
TW-709(P)	TW-709(P)	8/21/2002						
TW-710(P)	TW-710(P)	8/21/2002	0.05 U J	0.05 U J	0.01 U J	0.01 U J	0.01 U J	0.01 U J
TW-710(P)	TW-710(P)	8/21/2002						
TW-711(P)	BT-711(P)	8/21/2002						
TW-711(P)	TW-711(P)	8/21/2002						
TW-712(P)	TW-712(P)	8/21/2002	0.05 U J	0.05 U J	0.01 U J	0.01 U J	U J	0.01 U J
TW-712(P)	TW-712(P)	8/21/2002						
TW-714(P)	TW-714(P)	8/21/2002	1.55 J	2.5 U J	2.5 U J	2.5 U J	2.5 U J	2.5 U J
TW-714(P)	TW-714(P)	8/21/2002						

**TABLE 6**  
**RBDM SVOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-716(P)	TW-716(P)	8/20/2002	0.05 U J	0.05 U J	0.01 U J	0.01 U J	0.01 U J	0.01 U J
TW-716(P)	TW-716(P)	8/20/2002						
TW-717(P)	TW-717(P)	8/20/2002	0.2 U J	0.2 U J	0.2 U J	0.01 U J	0.01 U J	0.01 U J
TW-717(P)	TW-717(P)	8/20/2002						
TW-718(P)	TW-718(P)	8/21/2002	0.05 U J	0.05 U J	0.01 U J	0.01 U J	0.01 U J	0.01 U J
TW-718(P)	TW-718(P)	8/21/2002						
TW-719(P)	BT-719(P)	8/23/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-719(P)	BT-719(P)	8/23/2002						
TW-719(P)	TW-719(P)	8/23/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-719(P)	TW-719(P)	8/23/2002						
TW-720(P)	TW-720(P)	8/23/2002	5 U	0.0894	0.05 U	0.05 U	0.05 U	0.05 U
TW-720(P)	TW-720(P)	8/23/2002						
TW-900(S)	SB-900(TW)	8/26/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-901(S)	SB-901(TW)	8/26/2002	1 U	1 U	1 U	1 U	1 U	1 U
TW-901(S)	SB-901(TW)	8/26/2002						
TW-902(S)	SB-902(TW)	8/26/2002	1.03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-903(S)	SB-903(TW)	8/26/2002	1.53	0.103 J	0.2 U	0.2 U	0.2 U	0.2 U
TW-903(S)	SB-903(TW)	8/26/2002						
TW-904(S)	SB-904(TW)	8/26/2002	0.87	0.0657 J	0.1 U	0.1 U	0.1 U	0.1 U
TW-904(S)	SB-904(TW)	8/26/2002						
TW-905(S)	SB-905(TW)	8/26/2002						
TW-906(S)	SB-906(TW)	8/27/2002	0.153	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-906(S)	SB-906(TW)	8/27/2002						
TW-908(S)	SB-908(TW)	8/27/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-908(S)	SB-908(TW)	8/27/2002						
TW-909(S)	SB-909(TW)	8/27/2002	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-910(S)	SB-910(TW)	8/26/2002	0.591	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U
TW-911(S)	SB-911(TW)	8/27/2002	0.363 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
TW-911(S)	SB-911(TW)	8/27/2002						

**TABLE 6**  
**RBDM SVOCs IN GROUND WATER**

**Remedial Investigation / Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**

Locator ID	Sample ID	Sample Date	Chrysene ug/L	Dibenzo(a,h) anthracene ug/L	Fluoranthene ug/L	Fluorene ug/L	Indeno(1,2,3-cd) pyrene ug/L	Naphthalene ug/L	Pyrene ug/L
MW-1(F)	MW-1-082302	8/23/2002	0.01 U	0.01 U	0.05 U	0.12	0.01 U	2 U	0.05 U
MW-1(F)	MW-1-082302	8/23/2002						0.1 U	
TW-100(C)	SB100(C)W	8/22/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.5 U	0.05 U
TW-100(C)	SB100(C)W	8/22/2002						0.05 U	
TW-103(C)	SB103(C)W	8/22/2002						0.5 U	
TW-104(C)	SB104(C)W	8/22/2002						0.5 U	
TW-200(C)	SB200(C)W	8/22/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.5 U	0.05 U
TW-200(C)	SB200(C)W	8/22/2002						0.05 U	
TW-201(C)	SB201(C)W	8/22/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.5 U	0.05 U
TW-201(C)	SB201(C)W	8/22/2002						0.05 U	
TW-202(C)	SB202(C)W	8/22/2002	0.01 U	0.01 U	0.05 U	0.255	0.01 U	0.5 U	0.05 U
TW-202(C)	SB202(C)W	8/22/2002						0.2 U	
TW-203(C)	SB203(C)W	8/22/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.5 U	0.05 U
TW-203(C)	SB203(C)W	8/22/2002						0.3 U	
TW-204(C)	SB204(C)W	8/22/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.5 U	0.05 U
TW-204(C)	SB204(C)W	8/22/2002						0.05 U	
TW-204(C)	SB204(C)W2	8/22/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.5 U	0.05 U
TW-204(C)	SB204(C)W2	8/22/2002						0.05 U	
TW-304(D)	SB-304-D-9.0	8/19/2002	0.01 U	0.01 U	0.05 U	5 U	0.01 U	6.27	0.05 U
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002	0.01 U	0.01 U	0.05 U	5 U	0.01 U	5.37	0.05 U
TW-305(D)	SB-305-D-9.0	8/19/2002	0.5 U	0.5 U	2.5 U	17.2	0.5 U	447	2.5 U
TW-305(D)	SB-305-D-9.0	8/19/2002						220	
TW-306(D)	SB-306-D-9.0	8/19/2002	0.05 U	0.01 U	0.05 U	1.59	0.01 U	3.49	0.25 U
TW-307(D)	SB-307-D-9.0	8/19/2002	0.01 U	0.01 U	5 U	5 U	0.01 U	68.5	0.08 U
TW-309(D)	SB-309-D-9.0	8/19/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.47 U	0.05 U
TW-309(D)	SB-309-D-9.0	8/19/2002						0.066	
TW-311(D)	SB-311-D-10.0	8/19/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.901	0.05 U
TW-312(D)	SB-312-D-10.0	8/19/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	2 U	0.05 U
TW-312(D)	SB-312-D-10.0	8/19/2002						0.05 U	
TW-313(D)	TW-313-D-22.0	8/20/2002	0.05 U	0.01 U	0.05 U	0.05 U	0.01 U	58.7	0.05 U
TW-314(D)	TW-314-D-22.0	8/20/2002	0.05 U	0.01 U	0.05 U	0.05 U	0.01 U	13.3	0.05 U
TW-318(D)	TW-318-D-22.0	8/20/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.15 U	0.05 U
TW-318(D)	TW-318-D-22.0	8/20/2002						0.25	
TW-319(D)	SB-319-D-14.0	8/19/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.05 U	0.05 U
TW-400(F)	TW-400(F)	8/22/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.05 U	0.05 U
TW-600(N)	TW-600(N)	9/13/2002	0.25 U	0.25 U	0.05 U	0.0613	0.25 U	232	0.25 U
TW-600(N)	TW-600(N)	9/13/2002						175	
TW-601(N)	TW-601(N)	9/13/2002	2.5 U	0.01 U	0.05 U	0.0613	0.01 U	94.6	2.5 U
TW-601(N)	TW-601(N)	9/13/2002						73.2	
TW-602(N)	BT-602(N)	9/13/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	2 U	0.05 U
TW-602(N)	BT-602(N)	9/13/2002						0.392	

**TABLE 6**  
**RBDM SVOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Chrysene ug/L	Dibenzo(a,h) anthracene ug/L	Fluoranthene ug/L	Fluorene ug/L	Indeno(1,2,3-cd) pyrene ug/L	Naphthalene ug/L	Pyrene ug/L
TW-602(N)	TW-602(N)	9/13/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	2 U	0.05 U
TW-602(N)	TW-602(N)	9/13/2002					1.51		
TW-603(N)	TW-603(N)	9/13/2002	0.01 U	0.01 U	0.05 U	0.0566	0.01 U	2 U	0.05 U
TW-603(N)	TW-603(N)	9/13/2002					9.92		
TW-608(N)	TW-608 (N)	9/13/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	2 U	0.05 U
TW-608(N)	TW-608 (N)	9/13/2002					0.05 U		
TW-612(N)	TW-612(N)	9/12/2002	0.05 U	0.05 U	0.05 U	1.3	0.05 U	100 U	0.05 U
TW-612(N)	TW-612(N)	9/12/2002					22.9		
TW-616(N)	TW-616(N)	9/12/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	2 U	0.05 U
TW-616(N)	TW-616(N)	9/12/2002					0.339		
TW-619(N)	TW-619(N)	9/12/2002	0.01 U	0.01 U	0.05 U	0.0906	0.01 U	34	0.05 U
TW-619(N)	TW-619(N)	9/12/2002					28		
TW-623(N)	TW-623(N)	9/12/2002	0.01 U	0.01 U	0.05 U	0.353	0.01 U	21.6	0.05 U
TW-623(N)	TW-623(N)	9/12/2002					12.3		
TW-624(N)	TW-624(N)	9/12/2002	5 U	5 U	5 U	5 U	5 U	55.9	5 U
TW-624(N)	TW-624(N)	9/12/2002					5 U		
TW-625(N)	BT-625(N)	9/12/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.05 U	0.05 U
TW-625(N)	TW-625(N)	9/12/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.05 U	0.05 U
TW-700(P)	TW-700(P)	8/21/2002	1 U J	1 U J	1 U J	1 U J	1 U J	459	1 U J
TW-700(P)	TW-700(P)	8/21/2002					41	J	
TW-701(P)	TW-701(P)	8/20/2002					236		
TW-702(P)	TW-702(P)	8/21/2002	0.01 U J	0.01 U J	0.05 U J	0.05 U J	0.01 U J	0.5 U	0.05 U J
TW-702(P)	TW-702(P)	8/21/2002					0.05 U J		
TW-703(P)	TW-703(P)	8/21/2002					4.24		
TW-704(P)	TW-704(P)	8/21/2002					3.23		
TW-705(P)	TW-705(P)	8/20/2002	0.0114 U J	0.0114 U J	0.0571 U J	0.0571 U J	0.0114 U J	0.0571 U J	0.0571 U J
TW-706(P)	TW-706(P)	8/21/2002					94.3		
TW-707(P)	TW-707(P)	8/21/2002					0.5 U		
TW-708(P)	BT-708(P)	8/20/2002	2 U J	0.01 U J	2 U J	2 U J	0.01 U J	6.42	JB
TW-708(P)	BT-708(P)	8/20/2002					10.1		
TW-708(P)	TW-708(P)	8/20/2002	2.5 U J	2.5 U J	2.5 U J	2.5 U J	2.5 U J	20 U	2.5 U J
TW-708(P)	TW-708(P)	8/20/2002					6.44	J	
TW-709(P)	TW-709(P)	8/21/2002					0.5 U		
TW-710(P)	TW-710(P)	8/21/2002	0.01 U J	0.01 U J	0.05 U J	0.05 U J	0.01 U J	0.5 U	0.05 U J
TW-710(P)	TW-710(P)	8/21/2002					0.05 U J		
TW-711(P)	BT-711(P)	8/21/2002					0.5 U		
TW-711(P)	TW-711(P)	8/21/2002					0.5 U		
TW-712(P)	TW-712(P)	8/21/2002	0.0161 J	0.01 U J	0.05 U J	0.05 U J	0.01 U J	0.5 U	0.05 U J
TW-712(P)	TW-712(P)	8/21/2002					0.05 U J		
TW-714(P)	TW-714(P)	8/21/2002	2.5 U J	2.5 U J	2.5 U J	2.3 J	2.5 U J	965	2.5 U J
TW-714(P)	TW-714(P)	8/21/2002					258	J	

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**RBDM SVOCs IN GROUND WATER**

Remedial Investigation / Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Chrysene ug/L	Dibenzo(a,h) anthracene ug/L	Fluoranthene ug/L	Fluorene ug/L	Indeno(1,2,3-cd) pyrene ug/L	Naphthalene ug/L	Pyrene ug/L
TW-716(P)	TW-716(P)	8/20/2002	0.01 U J	0.01 U J	0.05 U J	0.05 U J	0.01 U J	0.5 U	0.05 U J
TW-716(P)	TW-716(P)	8/20/2002						0.05 U J	
TW-717(P)	TW-717(P)	8/20/2002	0.2 U J	0.01 U J	0.2 U J	0.133 J	0.01 U J	0.5 U	0.2 U J
TW-717(P)	TW-717(P)	8/20/2002						0.2 U J	
TW-718(P)	TW-718(P)	8/21/2002	0.01 U J	0.01 U J	0.05 U J	0.05 U J	0.01 U J	2 U	0.05 U J
TW-718(P)	TW-718(P)	8/21/2002						0.05 U J	
TW-719(P)	BT-719(P)	8/23/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	2 U	0.05 U
TW-719(P)	BT-719(P)	8/23/2002						0.5 U	
TW-719(P)	TW-719(P)	8/23/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.25 J	0.05 U
TW-719(P)	TW-719(P)	8/23/2002						0.5 U	
TW-720(P)	TW-720(P)	8/23/2002	0.05 U	0.05 U	0.05 U	5 U	0.05 U	744	0.05 U
TW-720(P)	TW-720(P)	8/23/2002						423	
TW-900(S)	SB-900(TW)	8/26/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	1 U	0.05 U
TW-901(S)	SB-901(TW)	8/26/2002	1 U	1 U	1 U	0.57 J	1 U	12.5	1 U
TW-901(S)	SB-901(TW)	8/26/2002						19.9	
TW-902(S)	SB-902(TW)	8/26/2002	0.5 U	0.5 U	0.5 U	2.03	0.5 U	11.2	0.5 U
TW-903(S)	SB-903(TW)	8/26/2002	0.2 U	0.2 U	0.2 U	2.68	0.2 U	2 U	0.2 U
TW-903(S)	SB-903(TW)	8/26/2002						3.1	
TW-904(S)	SB-904(TW)	8/26/2002	0.1 U	0.1 U	0.1 U	1.18	0.1 U	2 U	0.1 U
TW-904(S)	SB-904(TW)	8/26/2002						31.6	
TW-905(S)	SB-905(TW)	8/26/2002						18.4 J	
TW-906(S)	SB-906(TW)	8/27/2002	0.01 U	0.01 U	0.05 U	0.232	0.01 U	2.29	0.05 U
TW-906(S)	SB-906(TW)	8/27/2002						0.745	
TW-908(S)	SB-908(TW)	8/27/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	2 U	0.05 U
TW-908(S)	SB-908(TW)	8/27/2002						0.1 U	
TW-909(S)	SB-909(TW)	8/27/2002	0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	1.1 U	0.05 U
TW-910(S)	SB-910(TW)	8/26/2002	0.01 U	0.01 U	0.05 U	1.08	0.01 U	0.61	0.05 U
TW-911(S)	SB-911(TW)	8/27/2002	0.1 U	0.1 U	0.1 U	0.377 J	0.1 U	2 U	0.1 U
TW-911(S)	SB-911(TW)	8/27/2002						0.5 U	

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethane
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-1(F)	MW-1-082302	8/23/2002						
MW-1(F)	MW-1-082302	8/23/2002						
TW-100(C)	SB100(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-103(C)	SB103(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-104(C)	SB104(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-200(C)	SB200(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-201(C)	SB201(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-202(C)	SB202(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-203(C)	SB203(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-204(C)	SB204(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-204(C)	SB204(C)W2	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-304(D)	SB-304-D-9.0	8/19/2002						
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002						
TW-305(D)	SB-305-D-9.0	8/19/2002						
TW-306(D)	SB-306-D-9.0	8/19/2002						
TW-307(D)	SB-307-D-9.0	8/19/2002						
TW-309(D)	SB-309-D-9.0	8/19/2002						
TW-311(D)	SB-311-D-10.0	8/19/2002						
TW-312(D)	SB-312-D-10.0	8/19/2002						
TW-313(D)	TW-313-D-22.0	8/20/2002						
TW-314(D)	TW-314-D-22.0	8/20/2002						
TW-318(D)	TW-318-D-22.0	8/20/2002						
TW-319(D)	SB-319-D-14.0	8/19/2002						
TW-400(F)	TW-400(F)	8/22/2002						
TW-401(F)	TW-401(F)	8/23/2002						
TW-402(F)	TW-402(F)	8/23/2002						
TW-405(F)	TW-405(F)	8/22/2002						
TW-406(F)	TW-406(F)	8/22/2002						
TW-407(F)	TW-407(F)	8/22/2002						
TW-408(F)	TW-408(F)	8/22/2002						
TW-409(F)	TW-409(F)	8/22/2002						
TW-600(N)	TW-600(N)	9/13/2002						
TW-601(N)	TW-601(N)	9/13/2002						
TW-602(N)	BT-602(N)	9/13/2002						
TW-602(N)	TW-602(N)	9/13/2002						
TW-603(N)	TW-603(N)	9/13/2002						
TW-608(N)	TW-608(N)	9/13/2002						
TW-612(N)	TW-612(N)	9/12/2002						
TW-612(N)	TW-612(N)	9/12/2002						
TW-616(N)	TW-616(N)	9/12/2002						
TW-616(N)	TW-616(N)	9/12/2002						
TW-619(N)	TW-619(N)	9/12/2002						
TW-619(N)	TW-619(N)	9/12/2002						
TW-623(N)	TW-623(N)	9/12/2002						
TW-623(N)	TW-623(N)	9/12/2002						
TW-624(N)	TW-624(N)	9/12/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethane
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-624(N)	TW-624(N)	9/12/2002						
TW-625(N)	BT-625(N)	9/12/2002						
TW-625(N)	TW-625(N)	9/12/2002						
TW-700(P)	TW-700(P)	8/21/2002	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
TW-701(P)	TW-701(P)	8/20/2002	5 U	5 U	5 U	5 U	5 U	5 U
TW-702(P)	TW-702(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-703(P)	TW-703(P)	8/21/2002	1 U	1 U	1 U	1 U	1 U	1 U
TW-704(P)	TW-704(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-706(P)	TW-706(P)	8/21/2002	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
TW-707(P)	TW-707(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-708(P)	BT-708(P)	8/20/2002						
TW-708(P)	TW-708(P)	8/20/2002						
TW-709(P)	TW-709(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-710(P)	TW-710(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-711(P)	BT-711(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-711(P)	TW-711(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-712(P)	TW-712(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-714(P)	TW-714(P)	8/21/2002						
TW-716(P)	TW-716(P)	8/20/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-717(P)	TW-717(P)	8/20/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-718(P)	TW-718(P)	8/21/2002						
TW-719(P)	BT-719(P)	8/23/2002						
TW-719(P)	TW-719(P)	8/23/2002						
TW-720(P)	TW-720(P)	8/23/2002						
TW-800(Q)	TW-800(Q)-10.5	8/27/2002						
TW-801(Q)	TW801(Q)-10	8/26/2002						
TW-803(Q)	TW-803(Q)-9	8/26/2002						
TW-805(Q)	TW-805(Q)-10	8/26/2002						
TW-806(Q)	TW-806 (Q)-11	8/28/2002						
TW-810(Q)	TW-810 (Q)-8	8/28/2002						
TW-814(Q)	TW814(Q)9	8/27/2002						
TW-816(Q)	TW-816(Q)-12	8/27/2002						
TW-818(Q)	TW-818 (Q)-11	8/28/2002						
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002						
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002						
TW-820(Q)	TW-820 (Q)-10	8/29/2002						
TW-822(Q)	TW-822 (Q)-9	8/29/2002						
TW-824(Q)	TW-824(Q)-9	8/28/2002						
TW-825(Q)	TW-825(Q)-8.5	8/27/2002						
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002						
TW-826(Q)	TW-826(Q)-9	8/27/2002						
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002						
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002						
TW-900(S)	SB-900(TW)	8/26/2002						
TW-901(S)	SB-901(TW)	8/26/2002						
TW-901(S)	SB-901(TW)	8/26/2002						



**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>1,1,1,2-Tetrachloroethane</b>	<b>1,1,1-Trichloroethane</b>	<b>1,1,2,2-Tetrachloroethane</b>	<b>1,1,2-Trichloroethane</b>	<b>1,1-Dichloroethane</b>	<b>1,1-Dichloroethene</b>
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-902(S)	SB-902(TW)	8/26/2002						
TW-903(S)	SB-903(TW)	8/26/2002						
TW-903(S)	SB-903(TW)	8/26/2002						
TW-904(S)	SB-904(TW)	8/26/2002						
TW-904(S)	SB-904(TW)	8/26/2002						
TW-905(S)	SB-905(TW)	8/26/2002						
TW-905(S)	SB-905(TW)	8/26/2002						
TW-906(S)	SB-906(TW)	8/27/2002						
TW-906(S)	SB-906(TW)	8/27/2002						
TW-908(S)	SB-908(TW)	8/27/2002						
TW-908(S)	SB-908(TW)	8/27/2002						
TW-909(S)	SB-909(TW)	8/27/2002						
TW-910(S)	SB-910(TW)	8/26/2002						
TW-911(S)	SB-911(TW)	8/27/2002						
TW-911(S)	SB-911(TW)	8/27/2002						

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	1,1-Dichloropropene ug/L	1,2,3-Trichlorobenzene ug/L	1,2,3-Trichloropropane ug/L	1,2,4-Trichlorobenzene ug/L	1,2,4-Trimethylbenzene ug/L	1,2-Dibromo-3-chloropropane ug/L	1,2-Dibromoethane ug/L	1,2-Dichlorobenzene ug/L	1,2-Dichloroethane ug/L
MW-1(F)	MW-1-082302	8/23/2002					1 U		0.5 U		0.5 U
MW-1(F)	MW-1-082302	8/23/2002									
TW-100(C)	SB100(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-103(C)	SB103(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-104(C)	SB104(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-200(C)	SB200(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-201(C)	SB201(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-202(C)	SB202(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-203(C)	SB203(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-204(C)	SB204(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-204(C)	SB204(C)W2	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-304(D)	SB-304-D-9.0	8/19/2002									
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002									
TW-305(D)	SB-305-D-9.0	8/19/2002					3040		10 U		10 U
TW-306(D)	SB-306-D-9.0	8/19/2002									
TW-307(D)	SB-307-D-9.0	8/19/2002									
TW-309(D)	SB-309-D-9.0	8/19/2002					0.34	J	0.5 U		0.5 U
TW-311(D)	SB-311-D-10.0	8/19/2002									
TW-312(D)	SB-312-D-10.0	8/19/2002					1 U		0.5 U		0.5 U
TW-313(D)	TW-313-D-22.0	8/20/2002									
TW-314(D)	TW-314-D-22.0	8/20/2002									
TW-318(D)	TW-318-D-22.0	8/20/2002					0.66	J	0.5 U		0.5 U
TW-319(D)	SB-319-D-14.0	8/19/2002									
TW-400(F)	TW-400(F)	8/22/2002									
TW-401(F)	TW-401(F)	8/23/2002									
TW-402(F)	TW-402(F)	8/23/2002									
TW-405(F)	TW-405(F)	8/22/2002									
TW-406(F)	TW-406(F)	8/22/2002									
TW-407(F)	TW-407(F)	8/22/2002									
TW-408(F)	TW-408(F)	8/22/2002									
TW-409(F)	TW-409(F)	8/22/2002									
TW-600(N)	TW-600(N)	9/13/2002					7.35		2.5 U		2.5 U
TW-601(N)	TW-601(N)	9/13/2002					192		1 U		1 U
TW-602(N)	BT-602(N)	9/13/2002					1 U		0.5 U		0.5 U
TW-602(N)	TW-602(N)	9/13/2002					1 U		0.5 U		0.5 U
TW-603(N)	TW-603(N)	9/13/2002					1.72		0.5 U		0.5 U
TW-608(N)	TW-608(N)	9/13/2002					1 U		0.5 U		0.5 U
TW-612(N)	TW-612(N)	9/12/2002					50 U		25 U		25 U
TW-612(N)	TW-612(N)	9/12/2002									
TW-616(N)	TW-616(N)	9/12/2002					1 U		0.5 U		0.5 U
TW-616(N)	TW-616(N)	9/12/2002									
TW-619(N)	TW-619(N)	9/12/2002					9.5		2.5 U		2.5 U
TW-619(N)	TW-619(N)	9/12/2002									
TW-623(N)	TW-623(N)	9/12/2002					22.2		0.5 U		0.5 U
TW-623(N)	TW-623(N)	9/12/2002									
TW-624(N)	TW-624(N)	9/12/2002	0.5 U	0.5 U	0.5 U	0.5 U	31.5	1 U	0.4 U	0.5 U	0.4 U

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	1,1-Dichloropropene ug/L	1,2,3-Trichlorobenzene ug/L	1,2,3-Trichloropropane ug/L	1,2,4-Trichlorobenzene ug/L	1,2,4-Trimethylbenzene ug/L	1,2-Dibromo-3-chloropropane ug/L	1,2-Dibromoethane ug/L	1,2-Dichlorobenzene ug/L	1,2-Dichloroethane ug/L
TW-624(N)	TW-624(N)	9/12/2002				5 U				5 U	
TW-625(N)	BT-625(N)	9/12/2002									
TW-625(N)	TW-625(N)	9/12/2002									
TW-700(P)	TW-700(P)	8/21/2002	2.5 U	2.5 U	2.5 U	2.5 U	803	5 U	2 U	2.5 U	2 U
TW-701(P)	TW-701(P)	8/20/2002	5 U	5 U	5 U	5 U	204	10 U	4 U	5 U	4 U
TW-702(P)	TW-702(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-703(P)	TW-703(P)	8/21/2002	1 U	1 U	1 U	1 U	53.8	2 U	0.8 U	1 U	0.8 U
TW-704(P)	TW-704(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	1.22	1 U	0.4 U	0.5 U	0.4 U
TW-706(P)	TW-706(P)	8/21/2002	2.5 U	2.5 U	2.5 U	2.5 U	113	5 U	2 U	2.5 U	2 U
TW-707(P)	TW-707(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-708(P)	BT-708(P)	8/20/2002					10 U		5 U		5 U
TW-708(P)	TW-708(P)	8/20/2002					10 U		5 U		5 U
TW-709(P)	TW-709(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-710(P)	TW-710(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-711(P)	BT-711(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-711(P)	TW-711(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-712(P)	TW-712(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-714(P)	TW-714(P)	8/21/2002					914		10 U		10 U
TW-716(P)	TW-716(P)	8/20/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-717(P)	TW-717(P)	8/20/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.4 U	0.5 U	0.4 U
TW-718(P)	TW-718(P)	8/21/2002					1 U		0.5 U		0.5 U
TW-719(P)	BT-719(P)	8/23/2002					1 U		0.5 U		0.5 U
TW-719(P)	TW-719(P)	8/23/2002					1 U		0.5 U		0.5 U
TW-720(P)	TW-720(P)	8/23/2002					1810		10 U		10 U
TW-800(Q)	TW-800(Q)-10.5	8/27/2002									
TW-801(Q)	TW801(Q)-10	8/26/2002									
TW-803(Q)	TW-803(Q)-9	8/26/2002									
TW-805(Q)	TW-805(Q)-10	8/26/2002									
TW-806(Q)	TW-806 (Q)-11	8/28/2002									
TW-810(Q)	TW-810 (Q)-8	8/28/2002									
TW-814(Q)	TW814(Q)9	8/27/2002									
TW-816(Q)	TW-816(Q)-12	8/27/2002									
TW-818(Q)	TW-818 (Q)-11	8/28/2002									
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002									
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002									
TW-820(Q)	TW-820 (Q)-10	8/29/2002									
TW-822(Q)	TW-822 (Q)-9	8/29/2002									
TW-824(Q)	TW-824(Q)-9	8/28/2002									
TW-825(Q)	TW-825(Q)-8.5	8/27/2002									
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002									
TW-826(Q)	TW-826(Q)-9	8/27/2002									
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002									
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002									
TW-900(S)	SB-900(TW)	8/26/2002									
TW-901(S)	SB-901(TW)	8/26/2002					468		2.5 U		2.5 U
TW-901(S)	SB-901(TW)	8/26/2002									

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	1,1-Dichloropropene ug/L	1,2,3-Trichlorobenzene ug/L	1,2,3-Trichloropropane ug/L	1,2,4-Trichlorobenzene ug/L	1,2,4-Trimethylbenzene ug/L	1,2-Dibromo-3-chloropropane ug/L	1,2-Dibromoethane ug/L	1,2-Dichlorobenzene ug/L	1,2-Dichloroethane ug/L
TW-902(S)	SB-902(TW)	8/26/2002									
TW-903(S)	SB-903(TW)	8/26/2002					79.8		0.5 U		0.5 U
TW-903(S)	SB-903(TW)	8/26/2002					1.6		0.5 U		0.5 U
TW-904(S)	SB-904(TW)	8/26/2002									
TW-904(S)	SB-904(TW)	8/26/2002									
TW-905(S)	SB-905(TW)	8/26/2002					35.6	J	0.5 U		0.5 U
TW-905(S)	SB-905(TW)	8/26/2002									
TW-906(S)	SB-906(TW)	8/27/2002					15.6		0.5 U		0.5 U
TW-906(S)	SB-906(TW)	8/27/2002									
TW-908(S)	SB-908(TW)	8/27/2002					0.3	J	0.5 U		0.5 U
TW-908(S)	SB-908(TW)	8/27/2002									
TW-909(S)	SB-909(TW)	8/27/2002									
TW-910(S)	SB-910(TW)	8/26/2002									
TW-911(S)	SB-911(TW)	8/27/2002					0.27	J	0.5 U		0.5 U
TW-911(S)	SB-911(TW)	8/27/2002									

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	1,2-Dichloropropene ug/L	1,3,5-Trimethylbenzene ug/L	1,3-Dichlorobenzene ug/L	1,3-Dichloropropene ug/L	1,4-Dichlorobenzene ug/L	2,2-Dichloropropene ug/L	2-Butanone ug/L	2-Chloroethyl vinyl ether ug/L
MW-1(F)	MW-1-082302	8/23/2002		0.5 U						
MW-1(F)	MW-1-082302	8/23/2002								
TW-100(C)	SB100(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-103(C)	SB103(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-104(C)	SB104(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-200(C)	SB200(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-201(C)	SB201(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-202(C)	SB202(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-203(C)	SB203(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-204(C)	SB204(C)W	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-204(C)	SB204(C)W2	8/22/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-304(D)	SB-304-D-9.0	8/19/2002								
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002								
TW-305(D)	SB-305-D-9.0	8/19/2002		958						
TW-306(D)	SB-306-D-9.0	8/19/2002								
TW-307(D)	SB-307-D-9.0	8/19/2002								
TW-309(D)	SB-309-D-9.0	8/19/2002		0.58						
TW-311(D)	SB-311-D-10.0	8/19/2002								
TW-312(D)	SB-312-D-10.0	8/19/2002		0.5 U						
TW-313(D)	TW-313-D-22.0	8/20/2002								
TW-314(D)	TW-314-D-22.0	8/20/2002								
TW-318(D)	TW-318-D-22.0	8/20/2002		0.5 U						
TW-319(D)	SB-319-D-14.0	8/19/2002								
TW-400(F)	TW-400(F)	8/22/2002								
TW-401(F)	TW-401(F)	8/23/2002								
TW-402(F)	TW-402(F)	8/23/2002								
TW-405(F)	TW-405(F)	8/22/2002								
TW-406(F)	TW-406(F)	8/22/2002								
TW-407(F)	TW-407(F)	8/22/2002								
TW-408(F)	TW-408(F)	8/22/2002								
TW-409(F)	TW-409(F)	8/22/2002								
TW-600(N)	TW-600(N)	9/13/2002		2.5 U						
TW-601(N)	TW-601(N)	9/13/2002		1 U						
TW-602(N)	BT-602(N)	9/13/2002		0.5 U						
TW-602(N)	TW-602(N)	9/13/2002		0.5 U						
TW-603(N)	TW-603(N)	9/13/2002		0.5 U						
TW-608(N)	TW-608(N)	9/13/2002		0.5 U						
TW-612(N)	TW-612(N)	9/12/2002		25 U						
TW-612(N)	TW-612(N)	9/12/2002								
TW-616(N)	TW-616(N)	9/12/2002		0.5 U						
TW-616(N)	TW-616(N)	9/12/2002								
TW-619(N)	TW-619(N)	9/12/2002		2.5 U						
TW-619(N)	TW-619(N)	9/12/2002								
TW-623(N)	TW-623(N)	9/12/2002		20.8						
TW-623(N)	TW-623(N)	9/12/2002								
TW-624(N)	TW-624(N)	9/12/2002	0.5 U	50.5	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	1,2-Dichloropropene ug/L	1,3,5-Trimethylbenzene ug/L	1,3-Dichlorobenzene ug/L	1,3-Dichloropropene ug/L	1,4-Dichlorobenzene ug/L	2,2-Dichloropropene ug/L	2-Butanone ug/L	2-Chloroethyl vinyl ether ug/L
TW-624(N)	TW-624(N)	9/12/2002			5 U		5 U			
TW-625(N)	BT-625(N)	9/12/2002								
TW-625(N)	TW-625(N)	9/12/2002								
TW-700(P)	TW-700(P)	8/21/2002	2.5 U	272	2.5 U	2.5 U	2.5 U	2.5 U	50 U	50 U
TW-701(P)	TW-701(P)	8/20/2002	5 U	5 U	5 U	5 U	5 U	5 U	100 U	100 U
TW-702(P)	TW-702(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-703(P)	TW-703(P)	8/21/2002	1 U	33.5	1 U	1 U	1 U	1 U	20 U	20 U
TW-704(P)	TW-704(P)	8/21/2002	0.5 U	6.07	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-706(P)	TW-706(P)	8/21/2002	2.5 U	40.8	2.5 U	2.5 U	2.5 U	2.5 U	50 U	50 U
TW-707(P)	TW-707(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-708(P)	BT-708(P)	8/20/2002		5 U						
TW-708(P)	TW-708(P)	8/20/2002		5 U						
TW-709(P)	TW-709(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-710(P)	TW-710(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-711(P)	BT-711(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-711(P)	TW-711(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-712(P)	TW-712(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-714(P)	TW-714(P)	8/21/2002		115						
TW-716(P)	TW-716(P)	8/20/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-717(P)	TW-717(P)	8/20/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U
TW-718(P)	TW-718(P)	8/21/2002		0.5 U						
TW-719(P)	BT-719(P)	8/23/2002		0.5 U						
TW-719(P)	TW-719(P)	8/23/2002		0.5 U						
TW-720(P)	TW-720(P)	8/23/2002		119						
TW-800(Q)	TW-800(Q)-10.5	8/27/2002								
TW-801(Q)	TW801(Q)-10	8/26/2002								
TW-803(Q)	TW-803(Q)-9	8/26/2002								
TW-805(Q)	TW-805(Q)-10	8/26/2002								
TW-806(Q)	TW-806(Q)-11	8/28/2002								
TW-810(Q)	TW-810(Q)-8	8/28/2002								
TW-814(Q)	TW814(Q)9	8/27/2002								
TW-816(Q)	TW-816(Q)-12	8/27/2002								
TW-818(Q)	TW-818(Q)-11	8/28/2002								
TW-819(Q)	TW-819(Q)-9.5	8/28/2002								
TW-819(Q)	TW-819(Q)-9.5C	8/28/2002								
TW-820(Q)	TW-820(Q)-10	8/29/2002								
TW-822(Q)	TW-822(Q)-9	8/29/2002								
TW-824(Q)	TW-824(Q)-9	8/28/2002								
TW-825(Q)	TW-825(Q)-8.5	8/27/2002								
TW-826(Q)	TW-826(Q)-8.5	8/29/2002								
TW-826(Q)	TW-826(Q)-9	8/27/2002								
TW-828(Q)	TW-828(Q)-8.5	8/29/2002								
TW-833(Q)	TW-833(Q)-10.5	8/28/2002								
TW-900(S)	SB-900(TW)	8/26/2002								
TW-901(S)	SB-901(TW)	8/26/2002		147						
TW-901(S)	SB-901(TW)	8/26/2002								

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>1,2-Dichlorop ropane</b>	<b>1,3,5- Trimethylb enzene</b>	<b>1,3- Dichlorob enzene</b>	<b>1,3- Dichlorop ropane</b>	<b>1,4- Dichlorob enzene</b>	<b>2,2- Dichlorop ropane</b>	<b>2-Butanone</b>	<b>2- Chloroethyl vinyl ether</b>
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-902(S)	SB-902(TW)	8/26/2002								
TW-903(S)	SB-903(TW)	8/26/2002		17.4						
TW-903(S)	SB-903(TW)	8/26/2002		0.35	J					
TW-904(S)	SB-904(TW)	8/26/2002								
TW-904(S)	SB-904(TW)	8/26/2002								
TW-905(S)	SB-905(TW)	8/26/2002		7.17	J					
TW-905(S)	SB-905(TW)	8/26/2002								
TW-906(S)	SB-906(TW)	8/27/2002		3.89						
TW-906(S)	SB-906(TW)	8/27/2002								
TW-908(S)	SB-908(TW)	8/27/2002		0.5	U					
TW-908(S)	SB-908(TW)	8/27/2002								
TW-909(S)	SB-909(TW)	8/27/2002								
TW-910(S)	SB-910(TW)	8/26/2002								
TW-911(S)	SB-911(TW)	8/27/2002		0.5	U					
TW-911(S)	SB-911(TW)	8/27/2002								

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	2-Chlorotoluene ug/L	2-Hexanone ug/L	4-Bromophenyl phenyl ether ug/L	4-Chlorophenyl phenyl ether ug/L	4-Chlorotoluene ug/L	4-Isopropylt oluene ug/L	4-Methyl-2- pentanone ug/L	Acetone ug/L
MW-1(F)	MW-1-082302	8/23/2002								
MW-1(F)	MW-1-082302	8/23/2002								
TW-100(C)	SB100(C)W	8/22/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-103(C)	SB103(C)W	8/22/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-104(C)	SB104(C)W	8/22/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-200(C)	SB200(C)W	8/22/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-201(C)	SB201(C)W	8/22/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-202(C)	SB202(C)W	8/22/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-203(C)	SB203(C)W	8/22/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-204(C)	SB204(C)W	8/22/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-204(C)	SB204(C)W2	8/22/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-304(D)	SB-304-D-9.0	8/19/2002								
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002								
TW-305(D)	SB-305-D-9.0	8/19/2002								
TW-306(D)	SB-306-D-9.0	8/19/2002								
TW-307(D)	SB-307-D-9.0	8/19/2002								
TW-309(D)	SB-309-D-9.0	8/19/2002								
TW-311(D)	SB-311-D-10.0	8/19/2002								
TW-312(D)	SB-312-D-10.0	8/19/2002								
TW-313(D)	TW-313-D-22.0	8/20/2002								
TW-314(D)	TW-314-D-22.0	8/20/2002								
TW-318(D)	TW-318-D-22.0	8/20/2002								
TW-319(D)	SB-319-D-14.0	8/19/2002								
TW-400(F)	TW-400(F)	8/22/2002								
TW-401(F)	TW-401(F)	8/23/2002								
TW-402(F)	TW-402(F)	8/23/2002								
TW-405(F)	TW-405(F)	8/22/2002								
TW-406(F)	TW-406(F)	8/22/2002								
TW-407(F)	TW-407(F)	8/22/2002								
TW-408(F)	TW-408(F)	8/22/2002								
TW-409(F)	TW-409(F)	8/22/2002								
TW-600(N)	TW-600(N)	9/13/2002								
TW-601(N)	TW-601(N)	9/13/2002								
TW-602(N)	BT-602(N)	9/13/2002								
TW-602(N)	TW-602(N)	9/13/2002								
TW-603(N)	TW-603(N)	9/13/2002								
TW-608(N)	TW-608(N)	9/13/2002								
TW-612(N)	TW-612(N)	9/12/2002								
TW-612(N)	TW-612(N)	9/12/2002								
TW-616(N)	TW-616(N)	9/12/2002								
TW-616(N)	TW-616(N)	9/12/2002								
TW-619(N)	TW-619(N)	9/12/2002								
TW-619(N)	TW-619(N)	9/12/2002								
TW-623(N)	TW-623(N)	9/12/2002								
TW-623(N)	TW-623(N)	9/12/2002								
TW-624(N)	TW-624(N)	9/12/2002	0.5 U	10 U	5 U	5 U	0.5 U	8.94	5 U	10 U



**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	2-Chlorotoluene ug/L	2-Hexanone ug/L	4-Bromophenyl phenyl ether ug/L	4-Chlorophenyl phenyl ether ug/L	4-Chlorotoluene ug/L	4-Isopropylt oluene ug/L	4-Methyl-2- pentanone ug/L	Acetone ug/L
TW-624(N)	TW-624(N)	9/12/2002								
TW-625(N)	BT-625(N)	9/12/2002								
TW-625(N)	TW-625(N)	9/12/2002								
TW-700(P)	TW-700(P)	8/21/2002	2.5 U	50 U			2.5 U	15.1	25 U	50 U
TW-701(P)	TW-701(P)	8/20/2002	5 U	100 U			5 U	5 U	50 U	100 U
TW-702(P)	TW-702(P)	8/21/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-703(P)	TW-703(P)	8/21/2002	1 U	20 U			1 U	14.7	10 U	20 U
TW-704(P)	TW-704(P)	8/21/2002	0.5 U	10 U			0.5 U	2.86	5 U	10 U
TW-706(P)	TW-706(P)	8/21/2002	2.5 U	50 U			2.5 U	2.5 U	25 U	50 U
TW-707(P)	TW-707(P)	8/21/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-708(P)	BT-708(P)	8/20/2002								
TW-708(P)	TW-708(P)	8/20/2002								
TW-709(P)	TW-709(P)	8/21/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-710(P)	TW-710(P)	8/21/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-711(P)	BT-711(P)	8/21/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-711(P)	TW-711(P)	8/21/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-712(P)	TW-712(P)	8/21/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-714(P)	TW-714(P)	8/21/2002								
TW-716(P)	TW-716(P)	8/20/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-717(P)	TW-717(P)	8/20/2002	0.5 U	10 U			0.5 U	0.5 U	5 U	10 U
TW-718(P)	TW-718(P)	8/21/2002								
TW-719(P)	BT-719(P)	8/23/2002								
TW-719(P)	TW-719(P)	8/23/2002								
TW-720(P)	TW-720(P)	8/23/2002								
TW-800(Q)	TW-800(Q)-10.5	8/27/2002								
TW-801(Q)	TW801(Q)-10	8/26/2002								
TW-803(Q)	TW-803(Q)-9	8/26/2002								
TW-805(Q)	TW-805(Q)-10	8/26/2002								
TW-806(Q)	TW-806 (Q)-11	8/28/2002								
TW-810(Q)	TW-810 (Q)-8	8/28/2002								
TW-814(Q)	TW814(Q)9	8/27/2002								
TW-816(Q)	TW-816(Q)-12	8/27/2002								
TW-818(Q)	TW-818 (Q)-11	8/28/2002								
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002								
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002								
TW-820(Q)	TW-820 (Q)-10	8/29/2002								
TW-822(Q)	TW-822 (Q)-9	8/29/2002								
TW-824(Q)	TW-824(Q)-9	8/28/2002								
TW-825(Q)	TW-825(Q)-8.5	8/27/2002								
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002								
TW-826(Q)	TW-826(Q)-9	8/27/2002								
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002								
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002								
TW-900(S)	SB-900(TW)	8/26/2002								
TW-901(S)	SB-901(TW)	8/26/2002								
TW-901(S)	SB-901(TW)	8/26/2002								

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>2- Chlorotoluene</b>	<b>2- Hexanone</b>	<b>4-Bromophenyl phenyl ether</b>	<b>4- Chlorophenyl phenyl ether</b>	<b>4-Chlorotoluene</b>	<b>4- Isopropylt oluene</b>	<b>4-Methyl-2- pentanone</b>	<b>Acetone</b>
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-902(S)	SB-902(TW)	8/26/2002								
TW-903(S)	SB-903(TW)	8/26/2002								
TW-903(S)	SB-903(TW)	8/26/2002								
TW-904(S)	SB-904(TW)	8/26/2002								
TW-904(S)	SB-904(TW)	8/26/2002								
TW-905(S)	SB-905(TW)	8/26/2002								
TW-905(S)	SB-905(TW)	8/26/2002								
TW-906(S)	SB-906(TW)	8/27/2002								
TW-906(S)	SB-906(TW)	8/27/2002								
TW-908(S)	SB-908(TW)	8/27/2002								
TW-908(S)	SB-908(TW)	8/27/2002								
TW-909(S)	SB-909(TW)	8/27/2002								
TW-910(S)	SB-910(TW)	8/26/2002								
TW-911(S)	SB-911(TW)	8/27/2002								
TW-911(S)	SB-911(TW)	8/27/2002								

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	Benzene	Benzyl butyl phthalate	bis-(2-chloroethoxy)methane	bis-(2-Chloroethyl)ether	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromo-methane
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-1(F)	MW-1-082302	8/23/2002	0.5 U								
MW-1(F)	MW-1-082302	8/23/2002	0.5 U								
TW-100(C)	SB100(C)W	8/22/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-103(C)	SB103(C)W	8/22/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-104(C)	SB104(C)W	8/22/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-200(C)	SB200(C)W	8/22/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-201(C)	SB201(C)W	8/22/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-202(C)	SB202(C)W	8/22/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-203(C)	SB203(C)W	8/22/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-204(C)	SB204(C)W	8/22/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-204(C)	SB204(C)W2	8/22/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-304(D)	SB-304-D-9.0	8/19/2002	174								
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002	151								
TW-305(D)	SB-305-D-9.0	8/19/2002	489								
TW-306(D)	SB-306-D-9.0	8/19/2002	372								
TW-307(D)	SB-307-D-9.0	8/19/2002	934								
TW-309(D)	SB-309-D-9.0	8/19/2002	19.2								
TW-311(D)	SB-311-D-10.0	8/19/2002	24.2								
TW-312(D)	SB-312-D-10.0	8/19/2002	0.5 U								
TW-313(D)	TW-313-D-22.0	8/20/2002	255								
TW-314(D)	TW-314-D-22.0	8/20/2002	68.3								
TW-318(D)	TW-318-D-22.0	8/20/2002	0.71								
TW-319(D)	SB-319-D-14.0	8/19/2002	0.5 U								
TW-400(F)	TW-400(F)	8/22/2002	0.5 U								
TW-401(F)	TW-401(F)	8/23/2002	0.5 U								
TW-402(F)	TW-402(F)	8/23/2002	0.5 U								
TW-405(F)	TW-405(F)	8/22/2002	4.23								
TW-406(F)	TW-406(F)	8/22/2002	14.2								
TW-407(F)	TW-407(F)	8/22/2002	11.6								
TW-408(F)	TW-408(F)	8/22/2002	0.853								
TW-409(F)	TW-409(F)	8/22/2002	0.5 U								
TW-600(N)	TW-600(N)	9/13/2002	2.5 U								
TW-601(N)	TW-601(N)	9/13/2002	1 U								
TW-602(N)	BT-602(N)	9/13/2002	0.5 U								
TW-602(N)	TW-602(N)	9/13/2002	0.5 U								
TW-603(N)	TW-603(N)	9/13/2002	0.5 U								
TW-608(N)	TW-608 (N)	9/13/2002	0.5 U								
TW-612(N)	TW-612(N)	9/12/2002	2610								
TW-612(N)	TW-612(N)	9/12/2002	3060								
TW-616(N)	TW-616(N)	9/12/2002	0.5 U								
TW-616(N)	TW-616(N)	9/12/2002	0.5 U								
TW-619(N)	TW-619(N)	9/12/2002	3.4								
TW-619(N)	TW-619(N)	9/12/2002	8.18								
TW-623(N)	TW-623(N)	9/12/2002	0.5 U								
TW-623(N)	TW-623(N)	9/12/2002	6.04								
TW-624(N)	TW-624(N)	9/12/2002	0.4 U	5 U	10 U	5 U	0.5 U	0.5 U	0.5 U	1 U	5 U

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	Benzene	Benzyl butyl phthalate	bis-(2-chloroethoxy)methane	bis-(2-Chloroethyl)ether	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromo-methane
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-624(N)	TW-624(N)	9/12/2002									
TW-625(N)	BT-625(N)	9/12/2002	0.5 U								
TW-625(N)	TW-625(N)	9/12/2002	0.5 U								
TW-700(P)	TW-700(P)	8/21/2002	2 U				2.5 U	2.5 U	2.5 U	5 U	25 U
TW-701(P)	TW-701(P)	8/20/2002	40.3				5 U	5 U	5 U	10 U	50 U
TW-702(P)	TW-702(P)	8/21/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-703(P)	TW-703(P)	8/21/2002	3.3				1 U	1 U	1 U	2 U	10 U
TW-704(P)	TW-704(P)	8/21/2002	0.16 J				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-706(P)	TW-706(P)	8/21/2002	106				2.5 U	2.5 U	2.5 U	5 U	25 U
TW-707(P)	TW-707(P)	8/21/2002	1.41				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-708(P)	BT-708(P)	8/20/2002	1230								
TW-708(P)	TW-708(P)	8/20/2002	976								
TW-709(P)	TW-709(P)	8/21/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-710(P)	TW-710(P)	8/21/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-711(P)	BT-711(P)	8/21/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-711(P)	TW-711(P)	8/21/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-712(P)	TW-712(P)	8/21/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-714(P)	TW-714(P)	8/21/2002	83.8								
TW-716(P)	TW-716(P)	8/20/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-717(P)	TW-717(P)	8/20/2002	0.4 U				0.5 U	0.5 U	0.5 U	1 U	5 U
TW-718(P)	TW-718(P)	8/21/2002	0.5 U								
TW-719(P)	BT-719(P)	8/23/2002	0.5 U								
TW-719(P)	TW-719(P)	8/23/2002	0.5 U								
TW-720(P)	TW-720(P)	8/23/2002	28								
TW-800(Q)	TW-800(Q)-10.5	8/27/2002	0.5 U								
TW-801(Q)	TW801(Q)-10	8/26/2002	0.5 U								
TW-803(Q)	TW-803(Q)-9	8/26/2002	0.5 U								
TW-805(Q)	TW-805(Q)-10	8/26/2002	1.98								
TW-806(Q)	TW-806(Q)-11	8/28/2002	20.3								
TW-810(Q)	TW-810(Q)-8	8/28/2002	0.5 U								
TW-814(Q)	TW814(Q)9	8/27/2002	0.5 U								
TW-816(Q)	TW-816(Q)-12	8/27/2002	0.5 U								
TW-818(Q)	TW-818(Q)-11	8/28/2002	0.5 U								
TW-819(Q)	TW-819(Q)-9.5	8/28/2002	8								
TW-819(Q)	TW-819(Q)-9.5C	8/28/2002	13.7								
TW-820(Q)	TW-820(Q)-10	8/29/2002	11								
TW-822(Q)	TW-822(Q)-9	8/29/2002	31.3 J								
TW-824(Q)	TW-824(Q)-9	8/28/2002	2.4								
TW-825(Q)	TW-825(Q)-8.5	8/27/2002	0.5 U								
TW-826(Q)	TW-826(Q)-8.5	8/29/2002	0.506								
TW-826(Q)	TW-826(Q)-9	8/27/2002	0.5 U								
TW-828(Q)	TW-828(Q)-8.5	8/29/2002	0.5 U								
TW-833(Q)	TW-833(Q)-10.5	8/28/2002	0.5 U								
TW-900(S)	SB-900(TW)	8/26/2002	2.72								
TW-901(S)	SB-901(TW)	8/26/2002	5.92								
TW-901(S)	SB-901(TW)	8/26/2002	2.5 U								

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Benzene</b>	<b>Benzyl butyl phthalate</b>	<b>bis-(2-chloroethoxy)methane</b>	<b>bis-(2-Chloroethyl) ether</b>	<b>Bromobenzene</b>	<b>Bromochloromethane</b>	<b>Bromodichloromethane</b>	<b>Bromoform</b>	<b>Bromo-methane</b>
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-902(S)	SB-902(TW)	8/26/2002	0.5 U								
TW-903(S)	SB-903(TW)	8/26/2002	0.5 U								
TW-903(S)	SB-903(TW)	8/26/2002	0.5 U								
TW-904(S)	SB-904(TW)	8/26/2002	0.5 U								
TW-904(S)	SB-904(TW)	8/26/2002	0.5 U								
TW-905(S)	SB-905(TW)	8/26/2002	0.5 U								
TW-905(S)	SB-905(TW)	8/26/2002	2.5 U								
TW-906(S)	SB-906(TW)	8/27/2002	0.5 U								
TW-906(S)	SB-906(TW)	8/27/2002	0.5 U								
TW-908(S)	SB-908(TW)	8/27/2002	0.5 U								
TW-908(S)	SB-908(TW)	8/27/2002	0.5 U								
TW-909(S)	SB-909(TW)	8/27/2002	0.5 U								
TW-910(S)	SB-910(TW)	8/26/2002	0.5 U								
TW-911(S)	SB-911(TW)	8/27/2002	0.718								
TW-911(S)	SB-911(TW)	8/27/2002	0.34	J							

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-1(F)	MW-1-082302	8/23/2002							
MW-1(F)	MW-1-082302	8/23/2002							
TW-100(C)	SB100(C)W	8/22/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-103(C)	SB103(C)W	8/22/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-104(C)	SB104(C)W	8/22/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-200(C)	SB200(C)W	8/22/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-201(C)	SB201(C)W	8/22/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-202(C)	SB202(C)W	8/22/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-203(C)	SB203(C)W	8/22/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-204(C)	SB204(C)W	8/22/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-204(C)	SB204(C)W2	8/22/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-304(D)	SB-304-D-9.0	8/19/2002							
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002							
TW-305(D)	SB-305-D-9.0	8/19/2002							
TW-306(D)	SB-306-D-9.0	8/19/2002							
TW-307(D)	SB-307-D-9.0	8/19/2002							
TW-309(D)	SB-309-D-9.0	8/19/2002							
TW-311(D)	SB-311-D-10.0	8/19/2002							
TW-312(D)	SB-312-D-10.0	8/19/2002							
TW-313(D)	TW-313-D-22.0	8/20/2002							
TW-314(D)	TW-314-D-22.0	8/20/2002							
TW-318(D)	TW-318-D-22.0	8/20/2002							
TW-319(D)	SB-319-D-14.0	8/19/2002							
TW-400(F)	TW-400(F)	8/22/2002							
TW-401(F)	TW-401(F)	8/23/2002							
TW-402(F)	TW-402(F)	8/23/2002							
TW-405(F)	TW-405(F)	8/22/2002							
TW-406(F)	TW-406(F)	8/22/2002							
TW-407(F)	TW-407(F)	8/22/2002							
TW-408(F)	TW-408(F)	8/22/2002							
TW-409(F)	TW-409(F)	8/22/2002							
TW-600(N)	TW-600(N)	9/13/2002							
TW-601(N)	TW-601(N)	9/13/2002							
TW-602(N)	BT-602(N)	9/13/2002							
TW-602(N)	TW-602(N)	9/13/2002							
TW-603(N)	TW-603(N)	9/13/2002							
TW-608(N)	TW-608(N)	9/13/2002							
TW-612(N)	TW-612(N)	9/12/2002							
TW-612(N)	TW-612(N)	9/12/2002							
TW-616(N)	TW-616(N)	9/12/2002							
TW-616(N)	TW-616(N)	9/12/2002							
TW-619(N)	TW-619(N)	9/12/2002							
TW-619(N)	TW-619(N)	9/12/2002							
TW-623(N)	TW-623(N)	9/12/2002							
TW-623(N)	TW-623(N)	9/12/2002							
TW-624(N)	TW-624(N)	9/12/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-624(N)	TW-624(N)	9/12/2002							
TW-625(N)	BT-625(N)	9/12/2002							
TW-625(N)	TW-625(N)	9/12/2002							
TW-700(P)	TW-700(P)	8/21/2002	50 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U
TW-701(P)	TW-701(P)	8/20/2002	100 U	5 U	5 U	5 U	5 U	50 U	5 U
TW-702(P)	TW-702(P)	8/21/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-703(P)	TW-703(P)	8/21/2002	20 U	1 U	1 U	1 U	1 U	10 U	1 U
TW-704(P)	TW-704(P)	8/21/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-706(P)	TW-706(P)	8/21/2002	50 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U
TW-707(P)	TW-707(P)	8/21/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-708(P)	BT-708(P)	8/20/2002							
TW-708(P)	TW-708(P)	8/20/2002							
TW-709(P)	TW-709(P)	8/21/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-710(P)	TW-710(P)	8/21/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-711(P)	BT-711(P)	8/21/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-711(P)	TW-711(P)	8/21/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-712(P)	TW-712(P)	8/21/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-714(P)	TW-714(P)	8/21/2002							
TW-716(P)	TW-716(P)	8/20/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-717(P)	TW-717(P)	8/20/2002	10 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
TW-718(P)	TW-718(P)	8/21/2002							
TW-719(P)	BT-719(P)	8/23/2002							
TW-719(P)	TW-719(P)	8/23/2002							
TW-720(P)	TW-720(P)	8/23/2002							
TW-800(Q)	TW-800(Q)-10.5	8/27/2002							
TW-801(Q)	TW801(Q)-10	8/26/2002							
TW-803(Q)	TW-803(Q)-9	8/26/2002							
TW-805(Q)	TW-805(Q)-10	8/26/2002							
TW-806(Q)	TW-806 (Q)-11	8/28/2002							
TW-810(Q)	TW-810 (Q)-8	8/28/2002							
TW-814(Q)	TW814(Q)9	8/27/2002							
TW-816(Q)	TW-816(Q)-12	8/27/2002							
TW-818(Q)	TW-818 (Q)-11	8/28/2002							
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002							
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002							
TW-820(Q)	TW-820 (Q)-10	8/29/2002							
TW-822(Q)	TW-822 (Q)-9	8/29/2002							
TW-824(Q)	TW-824(Q)-9	8/28/2002							
TW-825(Q)	TW-825(Q)-8.5	8/27/2002							
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002							
TW-826(Q)	TW-826(Q)-9	8/27/2002							
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002							
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002							
TW-900(S)	SB-900(TW)	8/26/2002							
TW-901(S)	SB-901(TW)	8/26/2002							
TW-901(S)	SB-901(TW)	8/26/2002							

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Carbon disulfide</b>	<b>Carbon tetrachloride</b>	<b>Chlorobenzene</b>	<b>Chloroethane</b>	<b>Chloroform</b>	<b>Chloromethane</b>	<b>cis-1,2-Dichloroethene</b>
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-902(S)	SB-902(TW)	8/26/2002							
TW-903(S)	SB-903(TW)	8/26/2002							
TW-903(S)	SB-903(TW)	8/26/2002							
TW-904(S)	SB-904(TW)	8/26/2002							
TW-904(S)	SB-904(TW)	8/26/2002							
TW-905(S)	SB-905(TW)	8/26/2002							
TW-905(S)	SB-905(TW)	8/26/2002							
TW-906(S)	SB-906(TW)	8/27/2002							
TW-906(S)	SB-906(TW)	8/27/2002							
TW-908(S)	SB-908(TW)	8/27/2002							
TW-908(S)	SB-908(TW)	8/27/2002							
TW-909(S)	SB-909(TW)	8/27/2002							
TW-910(S)	SB-910(TW)	8/26/2002							
TW-911(S)	SB-911(TW)	8/27/2002							
TW-911(S)	SB-911(TW)	8/27/2002							



**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	cis-1,3-Dichloro propene ug/L	Dibromo-chloromethane ug/L	Dibromo methane ug/L	Dichlorodi-fluoromethane ug/L	Ethylbenzene ug/L	Hexachlorob utadiene ug/L	Isopropylb enzene ug/L	Methylene chloride ug/L	Methyl-t-butyl ether ug/L
MW-1(F)	MW-1-082302	8/23/2002					0.5 U		2 U		2 U
MW-1(F)	MW-1-082302	8/23/2002					0.5 U				
TW-100(C)	SB100(C)W	8/22/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-103(C)	SB103(C)W	8/22/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-104(C)	SB104(C)W	8/22/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-200(C)	SB200(C)W	8/22/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-201(C)	SB201(C)W	8/22/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-202(C)	SB202(C)W	8/22/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-203(C)	SB203(C)W	8/22/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.4 J	5 U	0.4 U
TW-204(C)	SB204(C)W	8/22/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-204(C)	SB204(C)W2	8/22/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-304(D)	SB-304-D-9.0	8/19/2002					39.1				
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002					30.8				
TW-305(D)	SB-305-D-9.0	8/19/2002					1760		128		40 U
TW-306(D)	SB-306-D-9.0	8/19/2002					222				
TW-307(D)	SB-307-D-9.0	8/19/2002					47.1				
TW-309(D)	SB-309-D-9.0	8/19/2002					0.93		3.75		2 U
TW-311(D)	SB-311-D-10.0	8/19/2002					4.13				
TW-312(D)	SB-312-D-10.0	8/19/2002					0.5 U		0.17 J		2 U
TW-313(D)	TW-313-D-22.0	8/20/2002					1280				
TW-314(D)	TW-314-D-22.0	8/20/2002					90.9				
TW-318(D)	TW-318-D-22.0	8/20/2002					0.95		2 U		2 U
TW-319(D)	SB-319-D-14.0	8/19/2002					0.337 U				
TW-400(F)	TW-400(F)	8/22/2002					0.5 U				
TW-401(F)	TW-401(F)	8/23/2002					0.5 U				
TW-402(F)	TW-402(F)	8/23/2002					0.5 U				
TW-405(F)	TW-405(F)	8/22/2002					22.2				
TW-406(F)	TW-406(F)	8/22/2002					249				
TW-407(F)	TW-407(F)	8/22/2002					9.05				
TW-408(F)	TW-408(F)	8/22/2002					3.98				
TW-409(F)	TW-409(F)	8/22/2002					0.5 U				
TW-600(N)	TW-600(N)	9/13/2002					799		34		10 U
TW-601(N)	TW-601(N)	9/13/2002					119		29.1		4 U
TW-602(N)	BT-602(N)	9/13/2002					0.5 U		2 U		2 U
TW-602(N)	TW-602(N)	9/13/2002					0.5 U		2 U		2 U
TW-603(N)	TW-603(N)	9/13/2002					1.13		2 U		2 U
TW-608(N)	TW-608 (N)	9/13/2002					0.5 U		2 U		2 U
TW-612(N)	TW-612(N)	9/12/2002					312		100 U		100 U
TW-612(N)	TW-612(N)	9/12/2002					533				
TW-616(N)	TW-616(N)	9/12/2002					0.5 U		2 U		2 U
TW-616(N)	TW-616(N)	9/12/2002					0.5 U				
TW-619(N)	TW-619(N)	9/12/2002					80.6		12		10 U
TW-619(N)	TW-619(N)	9/12/2002					99.5				
TW-623(N)	TW-623(N)	9/12/2002					16.1		9.57		2 U
TW-623(N)	TW-623(N)	9/12/2002					25.4				
TW-624(N)	TW-624(N)	9/12/2002	0.5 U	5 U	0.5 U	5 U	34.8	5 U	24.3	5 U	0.4 U

**TABLE 7**  
**VOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	cis-1,3-Dichloro propene ug/L	Dibromo-chloromethane ug/L	Dibromo methane ug/L	Dichlorodi-fluoromethane ug/L	Ethylbenzene ug/L	Hexachlorob utadiene ug/L	Isopropylb enzene ug/L	Methylene chloride ug/L	Methyl-t-butyl ether ug/L
TW-624(N)	TW-624(N)	9/12/2002						10 U			
TW-625(N)	BT-625(N)	9/12/2002					0.5 U				
TW-625(N)	TW-625(N)	9/12/2002					0.5 U				
TW-700(P)	TW-700(P)	8/21/2002	2.5 U	25 U	2.5 U	25 U	358	25 U	70.8	25 U	2 U
TW-701(P)	TW-701(P)	8/20/2002	5 U	50 U	5 U	50 U	933	50 U	41.2	50 U	4 U
TW-702(P)	TW-702(P)	8/21/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-703(P)	TW-703(P)	8/21/2002	1 U	10 U	1 U	10 U	172	10 U	42.3	5.08	0.8 U
TW-704(P)	TW-704(P)	8/21/2002	0.5 U	5 U	0.5 U	5 U	1.46	5 U	17.8	5 U	0.4 U
TW-706(P)	TW-706(P)	8/21/2002	2.5 U	25 U	2.5 U	25 U	195	25 U	14.2	25 U	2 U
TW-707(P)	TW-707(P)	8/21/2002	0.5 U	5 U	0.5 U	5 U	2.87	5 U	0.5 U	5 U	0.4 U
TW-708(P)	BT-708(P)	8/20/2002					154		32.5		20 U
TW-708(P)	TW-708(P)	8/20/2002					80.9		27.8		20 U
TW-709(P)	TW-709(P)	8/21/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-710(P)	TW-710(P)	8/21/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-711(P)	BT-711(P)	8/21/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-711(P)	TW-711(P)	8/21/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-712(P)	TW-712(P)	8/21/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-714(P)	TW-714(P)	8/21/2002					2110		73.2		40 U
TW-716(P)	TW-716(P)	8/20/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-717(P)	TW-717(P)	8/20/2002	0.5 U	5 U	0.5 U	5 U	0.4 U	5 U	0.5 U	5 U	0.4 U
TW-718(P)	TW-718(P)	8/21/2002					0.5 U		2 U		2 U
TW-719(P)	BT-719(P)	8/23/2002					0.5 U		0.4 J		2 U
TW-719(P)	TW-719(P)	8/23/2002					0.5 U		2 U		2 U
TW-720(P)	TW-720(P)	8/23/2002					1530		56.2		40 U
TW-800(Q)	TW-800(Q)-10.5	8/27/2002					0.5 U				
TW-801(Q)	TW801(Q)-10	8/26/2002					0.5 U				
TW-803(Q)	TW-803(Q)-9	8/26/2002					0.5 U				
TW-805(Q)	TW-805(Q)-10	8/26/2002					2.26				
TW-806(Q)	TW-806 (Q)-11	8/28/2002					0.5 U				
TW-810(Q)	TW-810 (Q)-8	8/28/2002					0.5 U				
TW-814(Q)	TW814(Q)9	8/27/2002					0.5 U				
TW-816(Q)	TW-816(Q)-12	8/27/2002					0.5 U				
TW-818(Q)	TW-818 (Q)-11	8/28/2002					0.5 U				
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002					7.78				
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002					11				
TW-820(Q)	TW-820 (Q)-10	8/29/2002					30.2				
TW-822(Q)	TW-822 (Q)-9	8/29/2002					111 J				
TW-824(Q)	TW-824(Q)-9	8/28/2002					0.5 U				
TW-825(Q)	TW-825(Q)-8.5	8/27/2002					0.5 U				
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002					0.5 U				
TW-826(Q)	TW-826(Q)-9	8/27/2002					0.5 U				
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002					0.5 U				
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002					0.5 U				
TW-900(S)	SB-900(TW)	8/26/2002					0.977				
TW-901(S)	SB-901(TW)	8/26/2002					7.82		16.3		10 U
TW-901(S)	SB-901(TW)	8/26/2002					7				

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	cis-1,3-Dichloro propene ug/L	Dibromo-chloromethane ug/L	Dibromo methane ug/L	Dichlorodi-fluoromethane ug/L	Ethylbenzene ug/L	Hexachlorob utadiene ug/L	Isopropylb enzene ug/L	Methylene chloride ug/L	Methyl-t-butyl ether ug/L
TW-902(S)	SB-902(TW)	8/26/2002					1.51				
TW-903(S)	SB-903(TW)	8/26/2002					12.8		4.76		2 U
TW-903(S)	SB-903(TW)	8/26/2002					14				
TW-904(S)	SB-904(TW)	8/26/2002					0.5 U		0.17 J		2 U
TW-904(S)	SB-904(TW)	8/26/2002					0.26 J				
TW-905(S)	SB-905(TW)	8/26/2002					18.9 J		1.83 J		2 U
TW-905(S)	SB-905(TW)	8/26/2002					46.4				
TW-906(S)	SB-906(TW)	8/27/2002					0.15 J		1.16 J		2 U
TW-906(S)	SB-906(TW)	8/27/2002					0.5 U				
TW-908(S)	SB-908(TW)	8/27/2002					0.5 U		2 U		0.14 J
TW-908(S)	SB-908(TW)	8/27/2002					0.5 U				
TW-909(S)	SB-909(TW)	8/27/2002					0.5 U				
TW-910(S)	SB-910(TW)	8/26/2002					0.803				
TW-911(S)	SB-911(TW)	8/27/2002					13		1.1 J		2 U
TW-911(S)	SB-911(TW)	8/27/2002					5.41				

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	n- Butylbenzene ug/L	n-Nitrosodi- n- propylamine ug/L	n- Propylbenzene ug/L	o-Xylene ug/L	sec- Butylbenzene ug/L	Styrene ug/L	tert- Butylbenzene ug/L
MW-1(F)	MW-1-082302	8/23/2002			0.5 U				
MW-1(F)	MW-1-082302	8/23/2002							
TW-100(C)	SB100(C)W	8/22/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-103(C)	SB103(C)W	8/22/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-104(C)	SB104(C)W	8/22/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-200(C)	SB200(C)W	8/22/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-201(C)	SB201(C)W	8/22/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-202(C)	SB202(C)W	8/22/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-203(C)	SB203(C)W	8/22/2002	0.53		0.88	0.4 U	0.61	1 U	0.5 U
TW-204(C)	SB204(C)W	8/22/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-204(C)	SB204(C)W2	8/22/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-304(D)	SB-304-D-9.0	8/19/2002							
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002							
TW-305(D)	SB-305-D-9.0	8/19/2002			416				
TW-306(D)	SB-306-D-9.0	8/19/2002							
TW-307(D)	SB-307-D-9.0	8/19/2002							
TW-309(D)	SB-309-D-9.0	8/19/2002			5.72				
TW-311(D)	SB-311-D-10.0	8/19/2002							
TW-312(D)	SB-312-D-10.0	8/19/2002			0.32	J			
TW-313(D)	TW-313-D-22.0	8/20/2002							
TW-314(D)	TW-314-D-22.0	8/20/2002							
TW-318(D)	TW-318-D-22.0	8/20/2002			0.14	J			
TW-319(D)	SB-319-D-14.0	8/19/2002							
TW-400(F)	TW-400(F)	8/22/2002							
TW-401(F)	TW-401(F)	8/23/2002							
TW-402(F)	TW-402(F)	8/23/2002							
TW-405(F)	TW-405(F)	8/22/2002							
TW-406(F)	TW-406(F)	8/22/2002							
TW-407(F)	TW-407(F)	8/22/2002							
TW-408(F)	TW-408(F)	8/22/2002							
TW-409(F)	TW-409(F)	8/22/2002							
TW-600(N)	TW-600(N)	9/13/2002			89.2				
TW-601(N)	TW-601(N)	9/13/2002			49.3				
TW-602(N)	BT-602(N)	9/13/2002			0.5 U				
TW-602(N)	TW-602(N)	9/13/2002			0.5 U				
TW-603(N)	TW-603(N)	9/13/2002			1.19				
TW-608(N)	TW-608(N)	9/13/2002			0.5 U				
TW-612(N)	TW-612(N)	9/12/2002			98				
TW-612(N)	TW-612(N)	9/12/2002							
TW-616(N)	TW-616(N)	9/12/2002			0.5 U				
TW-616(N)	TW-616(N)	9/12/2002							
TW-619(N)	TW-619(N)	9/12/2002			17.6				
TW-619(N)	TW-619(N)	9/12/2002							
TW-623(N)	TW-623(N)	9/12/2002			23.2				
TW-623(N)	TW-623(N)	9/12/2002							
TW-624(N)	TW-624(N)	9/12/2002	10.5	10 U	60.7	11.2	6.25	1 U	0.65

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	n- Butylbenzene ug/L	n-Nitrosodi- n- propylamine ug/L	n- Propylbenzene ug/L	o-Xylene ug/L	sec- Butylbenzene ug/L	Styrene ug/L	tert- Butylbenzene ug/L
TW-624(N)	TW-624(N)	9/12/2002							
TW-625(N)	BT-625(N)	9/12/2002							
TW-625(N)	TW-625(N)	9/12/2002							
TW-700(P)	TW-700(P)	8/21/2002	18.2		131	172	2.5 U	5 U	2.5 U
TW-701(P)	TW-701(P)	8/20/2002	2.8 J		81.9	27.8	5 U	10 U	5 U
TW-702(P)	TW-702(P)	8/21/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-703(P)	TW-703(P)	8/21/2002	8.38		58	29.9	5.74	2 U	1 U
TW-704(P)	TW-704(P)	8/21/2002	1.64		23.8	3.69	2.37	1 U	0.5 U
TW-706(P)	TW-706(P)	8/21/2002	0.95 J		26.6	91.6	2.5 U	5 U	2.5 U
TW-707(P)	TW-707(P)	8/21/2002	0.5 U		0.5 U	0.27 J	0.5 U	1 U	0.5 U
TW-708(P)	BT-708(P)	8/20/2002			88.5				
TW-708(P)	TW-708(P)	8/20/2002			73.2				
TW-709(P)	TW-709(P)	8/21/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-710(P)	TW-710(P)	8/21/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-711(P)	BT-711(P)	8/21/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-711(P)	TW-711(P)	8/21/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-712(P)	TW-712(P)	8/21/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-714(P)	TW-714(P)	8/21/2002			277				
TW-716(P)	TW-716(P)	8/20/2002	0.5 U		0.5 U	0.4 U	0.5 U	1 U	0.5 U
TW-717(P)	TW-717(P)	8/20/2002	0.5 U		0.14 J	0.49	0.5 U	1 U	0.5 U
TW-718(P)	TW-718(P)	8/21/2002			0.5 U				
TW-719(P)	BT-719(P)	8/23/2002			0.41 J				
TW-719(P)	TW-719(P)	8/23/2002			0.35 J				
TW-720(P)	TW-720(P)	8/23/2002			188				
TW-800(Q)	TW-800(Q)-10.5	8/27/2002							
TW-801(Q)	TW801(Q)-10	8/26/2002							
TW-803(Q)	TW-803(Q)-9	8/26/2002							
TW-805(Q)	TW-805(Q)-10	8/26/2002							
TW-806(Q)	TW-806 (Q)-11	8/28/2002							
TW-810(Q)	TW-810 (Q)-8	8/28/2002							
TW-814(Q)	TW814(Q)9	8/27/2002							
TW-816(Q)	TW-816(Q)-12	8/27/2002							
TW-818(Q)	TW-818 (Q)-11	8/28/2002							
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002							
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002							
TW-820(Q)	TW-820 (Q)-10	8/29/2002							
TW-822(Q)	TW-822 (Q)-9	8/29/2002							
TW-824(Q)	TW-824(Q)-9	8/28/2002							
TW-825(Q)	TW-825(Q)-8.5	8/27/2002							
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002							
TW-826(Q)	TW-826(Q)-9	8/27/2002							
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002							
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002							
TW-900(S)	SB-900(TW)	8/26/2002							
TW-901(S)	SB-901(TW)	8/26/2002			32.4				
TW-901(S)	SB-901(TW)	8/26/2002							

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>n- Butylbenzene</b>	<b>n-Nitrosodi- n- propylamine</b>	<b>n- Propylbenzene</b>	<b>o-Xylene</b>	<b>sec- Butylbenzene</b>	<b>Styrene</b>	<b>tert- Butylbenzene</b>
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-902(S)	SB-902(TW)	8/26/2002							
TW-903(S)	SB-903(TW)	8/26/2002			7.85				
TW-903(S)	SB-903(TW)	8/26/2002							
TW-904(S)	SB-904(TW)	8/26/2002			0.27	J			
TW-904(S)	SB-904(TW)	8/26/2002							
TW-905(S)	SB-905(TW)	8/26/2002			1.86	J			
TW-905(S)	SB-905(TW)	8/26/2002							
TW-906(S)	SB-906(TW)	8/27/2002			2.04				
TW-906(S)	SB-906(TW)	8/27/2002							
TW-908(S)	SB-908(TW)	8/27/2002			0.5	U			
TW-908(S)	SB-908(TW)	8/27/2002							
TW-909(S)	SB-909(TW)	8/27/2002							
TW-910(S)	SB-910(TW)	8/26/2002							
TW-911(S)	SB-911(TW)	8/27/2002			0.8				
TW-911(S)	SB-911(TW)	8/27/2002							

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VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-1(F)	MW-1-082302	8/23/2002		0.5 U						
MW-1(F)	MW-1-082302	8/23/2002		0.5 U						
TW-100(C)	SB100(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-103(C)	SB103(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-104(C)	SB104(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-200(C)	SB200(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-201(C)	SB201(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-202(C)	SB202(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-203(C)	SB203(C)W	8/22/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-204(C)	SB204(C)W	8/22/2002	0.41 J	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-204(C)	SB204(C)W2	8/22/2002	0.41 J	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-304(D)	SB-304-D-9.0	8/19/2002		10.9						
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002		10.2						
TW-305(D)	SB-305-D-9.0	8/19/2002		186						
TW-306(D)	SB-306-D-9.0	8/19/2002		83.3						
TW-307(D)	SB-307-D-9.0	8/19/2002		76						
TW-309(D)	SB-309-D-9.0	8/19/2002		2.09						
TW-311(D)	SB-311-D-10.0	8/19/2002		1.6						
TW-312(D)	SB-312-D-10.0	8/19/2002		0.5 U						
TW-313(D)	TW-313-D-22.0	8/20/2002		40.6						
TW-314(D)	TW-314-D-22.0	8/20/2002		9.8						
TW-318(D)	TW-318-D-22.0	8/20/2002		0.5 U						
TW-319(D)	SB-319-D-14.0	8/19/2002		0.5 U						
TW-400(F)	TW-400(F)	8/22/2002		0.5 U						
TW-401(F)	TW-401(F)	8/23/2002		0.5 U						
TW-402(F)	TW-402(F)	8/23/2002		0.5 U						
TW-405(F)	TW-405(F)	8/22/2002		0.86						
TW-406(F)	TW-406(F)	8/22/2002		7.59						
TW-407(F)	TW-407(F)	8/22/2002		1.63						
TW-408(F)	TW-408(F)	8/22/2002		0.5 U						
TW-409(F)	TW-409(F)	8/22/2002		0.5 U						
TW-600(N)	TW-600(N)	9/13/2002		28						
TW-601(N)	TW-601(N)	9/13/2002		1.1						
TW-602(N)	BT-602(N)	9/13/2002		0.5 U						
TW-602(N)	TW-602(N)	9/13/2002		0.5 U						
TW-603(N)	TW-603(N)	9/13/2002		0.5 U						
TW-608(N)	TW-608(N)	9/13/2002		0.5 U						
TW-612(N)	TW-612(N)	9/12/2002		102						
TW-612(N)	TW-612(N)	9/12/2002		145						
TW-616(N)	TW-616(N)	9/12/2002		0.5 U						
TW-616(N)	TW-616(N)	9/12/2002		0.5 U						
TW-619(N)	TW-619(N)	9/12/2002		7.85						
TW-619(N)	TW-619(N)	9/12/2002		11.7						
TW-623(N)	TW-623(N)	9/12/2002		0.68						
TW-623(N)	TW-623(N)	9/12/2002		3.3						
TW-624(N)	TW-624(N)	9/12/2002	0.5 U	1.65	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
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Locator ID	Sample ID	Sample Date	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-624(N)	TW-624(N)	9/12/2002								
TW-625(N)	BT-625(N)	9/12/2002		0.5 U						
TW-625(N)	TW-625(N)	9/12/2002		0.5 U						
TW-700(P)	TW-700(P)	8/21/2002	2.5 U	5.35	2.5 U	2.5 U	2.5 U	2.5 U	50 U	2.5 U
TW-701(P)	TW-701(P)	8/20/2002	5 U	85.7	5 U	5 U	5 U	5 U	100 U	5 U
TW-702(P)	TW-702(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-703(P)	TW-703(P)	8/21/2002	1 U	30.9	1 U	1 U	1 U	1 U	20 U	1 U
TW-704(P)	TW-704(P)	8/21/2002	0.5 U	1.07	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-706(P)	TW-706(P)	8/21/2002	2.5 U	19	2.5 U	2.5 U	2.5 U	2.5 U	50 U	2.5 U
TW-707(P)	TW-707(P)	8/21/2002	0.5 U	0.41	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-708(P)	BT-708(P)	8/20/2002		43.6						
TW-708(P)	TW-708(P)	8/20/2002		31.9						
TW-709(P)	TW-709(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-710(P)	TW-710(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-711(P)	BT-711(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-711(P)	TW-711(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-712(P)	TW-712(P)	8/21/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-714(P)	TW-714(P)	8/21/2002		33.6						
TW-716(P)	TW-716(P)	8/20/2002	0.5 U	0.4 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-717(P)	TW-717(P)	8/20/2002	0.5 U	0.38 J	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U
TW-718(P)	TW-718(P)	8/21/2002		0.5 U						
TW-719(P)	BT-719(P)	8/23/2002		0.5 U						
TW-719(P)	TW-719(P)	8/23/2002		0.5 U						
TW-720(P)	TW-720(P)	8/23/2002		192						
TW-800(Q)	TW-800(Q)-10.5	8/27/2002		0.5 U						
TW-801(Q)	TW801(Q)-10	8/26/2002		0.5 U						
TW-803(Q)	TW-803(Q)-9	8/26/2002		0.5 U						
TW-805(Q)	TW-805(Q)-10	8/26/2002		0.5 U						
TW-806(Q)	TW-806 (Q)-11	8/28/2002		1.13						
TW-810(Q)	TW-810 (Q)-8	8/28/2002		0.5 U						
TW-814(Q)	TW814(Q)9	8/27/2002		0.5 U						
TW-816(Q)	TW-816(Q)-12	8/27/2002		0.5 U						
TW-818(Q)	TW-818 (Q)-11	8/28/2002		0.5 U						
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002		0.581						
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002		3.17						
TW-820(Q)	TW-820 (Q)-10	8/29/2002		1.05						
TW-822(Q)	TW-822 (Q)-9	8/29/2002		2.89 J						
TW-824(Q)	TW-824(Q)-9	8/28/2002		0.5 U						
TW-825(Q)	TW-825(Q)-8.5	8/27/2002		0.5 U						
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002		0.5 U						
TW-826(Q)	TW-826(Q)-9	8/27/2002		0.5 U						
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002		0.5 U						
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002		0.5 U						
TW-900(S)	SB-900(TW)	8/26/2002		0.701						
TW-901(S)	SB-901(TW)	8/26/2002		1.03						
TW-901(S)	SB-901(TW)	8/26/2002		2.5 U						



**TABLE 7  
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**Remedial Investigation/Feasibility Study  
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<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Tetrachloroethene</b>	<b>Toluene</b>	<b>trans-1,2-Dichloroethene</b>	<b>trans-1,3-Dichloropropene</b>	<b>Trichloroethene</b>	<b>Trichlorofluoromethane</b>	<b>Vinyl acetate</b>	<b>Vinyl chloride</b>
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-902(S)	SB-902(TW)	8/26/2002		0.907						
TW-903(S)	SB-903(TW)	8/26/2002		4.32						
TW-903(S)	SB-903(TW)	8/26/2002		4.51						
TW-904(S)	SB-904(TW)	8/26/2002		0.5 U						
TW-904(S)	SB-904(TW)	8/26/2002		0.5 U						
TW-905(S)	SB-905(TW)	8/26/2002		0.81 J						
TW-905(S)	SB-905(TW)	8/26/2002		2.5 U						
TW-906(S)	SB-906(TW)	8/27/2002		0.25 J						
TW-906(S)	SB-906(TW)	8/27/2002		0.5 U						
TW-908(S)	SB-908(TW)	8/27/2002		0.5 U						
TW-908(S)	SB-908(TW)	8/27/2002		0.5 U						
TW-909(S)	SB-909(TW)	8/27/2002		0.5 U						
TW-910(S)	SB-910(TW)	8/26/2002		0.5 U						
TW-911(S)	SB-911(TW)	8/27/2002		1.1						
TW-911(S)	SB-911(TW)	8/27/2002		0.43 J						

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	m,p-Xylene ug/L	Xylenes ug/L
MW-1(F)	MW-1-082302	8/23/2002		1 U
MW-1(F)	MW-1-082302	8/23/2002		1 U
TW-100(C)	SB100(C)W	8/22/2002	0.8 U	
TW-103(C)	SB103(C)W	8/22/2002	0.8 U	
TW-104(C)	SB104(C)W	8/22/2002	0.8 U	
TW-200(C)	SB200(C)W	8/22/2002	0.8 U	
TW-201(C)	SB201(C)W	8/22/2002	0.8 U	
TW-202(C)	SB202(C)W	8/22/2002	0.8 U	
TW-203(C)	SB203(C)W	8/22/2002	0.8 U	
TW-204(C)	SB204(C)W	8/22/2002	0.8 U	
TW-204(C)	SB204(C)W2	8/22/2002	0.8 U	
TW-304(D)	SB-304-D-9.0	8/19/2002		73.1
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002		56.1
TW-305(D)	SB-305-D-9.0	8/19/2002		3870
TW-306(D)	SB-306-D-9.0	8/19/2002		106
TW-307(D)	SB-307-D-9.0	8/19/2002		135
TW-309(D)	SB-309-D-9.0	8/19/2002		5.13
TW-311(D)	SB-311-D-10.0	8/19/2002		3.17 U
TW-312(D)	SB-312-D-10.0	8/19/2002		1 U
TW-313(D)	TW-313-D-22.0	8/20/2002		316
TW-314(D)	TW-314-D-22.0	8/20/2002		81.3
TW-318(D)	TW-318-D-22.0	8/20/2002		2.03
TW-319(D)	SB-319-D-14.0	8/19/2002		0.724 U
TW-400(F)	TW-400(F)	8/22/2002		1 U
TW-401(F)	TW-401(F)	8/23/2002		1 U
TW-402(F)	TW-402(F)	8/23/2002		1 U
TW-405(F)	TW-405(F)	8/22/2002		62.7
TW-406(F)	TW-406(F)	8/22/2002		474
TW-407(F)	TW-407(F)	8/22/2002		17.3
TW-408(F)	TW-408(F)	8/22/2002		1.47
TW-409(F)	TW-409(F)	8/22/2002		1 U
TW-600(N)	TW-600(N)	9/13/2002		840
TW-601(N)	TW-601(N)	9/13/2002		107
TW-602(N)	BT-602(N)	9/13/2002		1.19
TW-602(N)	TW-602(N)	9/13/2002		1.39
TW-603(N)	TW-603(N)	9/13/2002		3.65
TW-608(N)	TW-608 (N)	9/13/2002		1 U
TW-612(N)	TW-612(N)	9/12/2002		250
TW-612(N)	TW-612(N)	9/12/2002		353
TW-616(N)	TW-616(N)	9/12/2002		1 U
TW-616(N)	TW-616(N)	9/12/2002		1 U
TW-619(N)	TW-619(N)	9/12/2002		61.8
TW-619(N)	TW-619(N)	9/12/2002		81.3
TW-623(N)	TW-623(N)	9/12/2002		27.9
TW-623(N)	TW-623(N)	9/12/2002		40.1
TW-624(N)	TW-624(N)	9/12/2002	47.1	

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
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Locator ID	Sample ID	Sample Date	m,p-Xylene ug/L	Xylenes ug/L
TW-624(N)	TW-624(N)	9/12/2002		
TW-625(N)	BT-625(N)	9/12/2002		1 U
TW-625(N)	TW-625(N)	9/12/2002		1 U
TW-700(P)	TW-700(P)	8/21/2002	898	
TW-701(P)	TW-701(P)	8/20/2002	1350	
TW-702(P)	TW-702(P)	8/21/2002	0.8 U	
TW-703(P)	TW-703(P)	8/21/2002	229	
TW-704(P)	TW-704(P)	8/21/2002	5.98	
TW-706(P)	TW-706(P)	8/21/2002	540	
TW-707(P)	TW-707(P)	8/21/2002	1.14	
TW-708(P)	BT-708(P)	8/20/2002		69.9
TW-708(P)	TW-708(P)	8/20/2002		57.4
TW-709(P)	TW-709(P)	8/21/2002	0.8 U	
TW-710(P)	TW-710(P)	8/21/2002	0.8 U	
TW-711(P)	BT-711(P)	8/21/2002	0.8 U	
TW-711(P)	TW-711(P)	8/21/2002	0.8 U	
TW-712(P)	TW-712(P)	8/21/2002	0.8 U	
TW-714(P)	TW-714(P)	8/21/2002		1450
TW-716(P)	TW-716(P)	8/20/2002	0.8 U	
TW-717(P)	TW-717(P)	8/20/2002	0.8 U	
TW-718(P)	TW-718(P)	8/21/2002		1 U
TW-719(P)	BT-719(P)	8/23/2002		1 U
TW-719(P)	TW-719(P)	8/23/2002		1 U
TW-720(P)	TW-720(P)	8/23/2002		2650
TW-800(Q)	TW-800(Q)-10.5	8/27/2002		1 U
TW-801(Q)	TW801(Q)-10	8/26/2002		1 U
TW-803(Q)	TW-803(Q)-9	8/26/2002		1 U
TW-805(Q)	TW-805(Q)-10	8/26/2002		6.87
TW-806(Q)	TW-806 (Q)-11	8/28/2002		1 U
TW-810(Q)	TW-810 (Q)-8	8/28/2002		1 U
TW-814(Q)	TW814(Q)9	8/27/2002		1 U
TW-816(Q)	TW-816(Q)-12	8/27/2002		1 U
TW-818(Q)	TW-818 (Q)-11	8/28/2002		1 U
TW-819(Q)	TW-819 (Q)-9.5	8/28/2002		7.93
TW-819(Q)	TW-819 (Q)-9.5C	8/28/2002		6.49
TW-820(Q)	TW-820 (Q)-10	8/29/2002		11.6
TW-822(Q)	TW-822 (Q)-9	8/29/2002		336 J
TW-824(Q)	TW-824(Q)-9	8/28/2002		1 U
TW-825(Q)	TW-825(Q)-8.5	8/27/2002		1 U
TW-826(Q)	TW-826 (Q)-8.5	8/29/2002		1 U
TW-826(Q)	TW-826(Q)-9	8/27/2002		1 U
TW-828(Q)	TW-828 (Q)-8.5	8/29/2002		1 U
TW-833(Q)	TW-833 (Q)-10.5	8/28/2002		1 U
TW-900(S)	SB-900(TW)	8/26/2002		1 U
TW-901(S)	SB-901(TW)	8/26/2002		64.1
TW-901(S)	SB-901(TW)	8/26/2002		55.6

**TABLE 7  
VOCs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
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<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>m,p-Xylene</b>	<b>Xylenes</b>
			ug/L	ug/L
TW-902(S)	SB-902(TW)	8/26/2002		137
TW-903(S)	SB-903(TW)	8/26/2002		146
TW-903(S)	SB-903(TW)	8/26/2002		146
TW-904(S)	SB-904(TW)	8/26/2002		1 U
TW-904(S)	SB-904(TW)	8/26/2002		0.63 J
TW-905(S)	SB-905(TW)	8/26/2002		193 J
TW-905(S)	SB-905(TW)	8/26/2002		406
TW-906(S)	SB-906(TW)	8/27/2002		8.89
TW-906(S)	SB-906(TW)	8/27/2002		12.8
TW-908(S)	SB-908(TW)	8/27/2002		1 U
TW-908(S)	SB-908(TW)	8/27/2002		1 U
TW-909(S)	SB-909(TW)	8/27/2002		1 U
TW-910(S)	SB-910(TW)	8/26/2002		1.43
TW-911(S)	SB-911(TW)	8/27/2002		5.65
TW-911(S)	SB-911(TW)	8/27/2002		2.22

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
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Locator ID	Sample ID	Sample Date	2,4,5- Trichlorophenol ug/L	2,4,6- Trichlorophenol ug/L	2,4- Dichlorophenol ug/L	2,4- Dimethylphenol ug/L	2,4- Dinitrophenol ug/L	2,4- Dinitrotoluene ug/L	2,6- Dichlorophenol ug/L
MW-1(F)	MW-1-082302	8/23/2002							
MW-1(F)	MW-1-082302	8/23/2002							
TW-100(C)	SB100(C)W	8/22/2002							
TW-100(C)	SB100(C)W	8/22/2002							
TW-103(C)	SB103(C)W	8/22/2002							
TW-104(C)	SB104(C)W	8/22/2002							
TW-200(C)	SB200(C)W	8/22/2002							
TW-200(C)	SB200(C)W	8/22/2002							
TW-201(C)	SB201(C)W	8/22/2002							
TW-201(C)	SB201(C)W	8/22/2002							
TW-202(C)	SB202(C)W	8/22/2002							
TW-202(C)	SB202(C)W	8/22/2002							
TW-203(C)	SB203(C)W	8/22/2002							
TW-203(C)	SB203(C)W	8/22/2002							
TW-204(C)	SB204(C)W	8/22/2002							
TW-204(C)	SB204(C)W	8/22/2002							
TW-204(C)	SB204(C)W2	8/22/2002							
TW-204(C)	SB204(C)W2	8/22/2002							
TW-304(D)	SB-304-D-9.0	8/19/2002							
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002							
TW-305(D)	SB-305-D-9.0	8/19/2002							
TW-305(D)	SB-305-D-9.0	8/19/2002							
TW-306(D)	SB-306-D-9.0	8/19/2002							
TW-307(D)	SB-307-D-9.0	8/19/2002							
TW-309(D)	SB-309-D-9.0	8/19/2002							
TW-309(D)	SB-309-D-9.0	8/19/2002							
TW-311(D)	SB-311-D-10.0	8/19/2002							
TW-312(D)	SB-312-D-10.0	8/19/2002							
TW-312(D)	SB-312-D-10.0	8/19/2002							
TW-313(D)	TW-313-D-22.0	8/20/2002							
TW-314(D)	TW-314-D-22.0	8/20/2002							
TW-318(D)	TW-318-D-22.0	8/20/2002							
TW-318(D)	TW-318-D-22.0	8/20/2002							
TW-319(D)	SB-319-D-14.0	8/19/2002							
TW-400(F)	TW-400(F)	8/22/2002							
TW-600(N)	TW-600(N)	9/13/2002							
TW-600(N)	TW-600(N)	9/13/2002							
TW-601(N)	TW-601(N)	9/13/2002							
TW-601(N)	TW-601(N)	9/13/2002							
TW-602(N)	BT-602(N)	9/13/2002							
TW-602(N)	BT-602(N)	9/13/2002							
TW-602(N)	TW-602(N)	9/13/2002							
TW-602(N)	TW-602(N)	9/13/2002							
TW-603(N)	TW-603(N)	9/13/2002							
TW-603(N)	TW-603(N)	9/13/2002							
TW-608(N)	TW-608 (N)	9/13/2002							
TW-608(N)	TW-608 (N)	9/13/2002							
TW-612(N)	TW-612(N)	9/12/2002							
TW-612(N)	TW-612(N)	9/12/2002							
TW-616(N)	TW-616(N)	9/12/2002							
TW-616(N)	TW-616(N)	9/12/2002							
TW-619(N)	TW-619(N)	9/12/2002							
TW-619(N)	TW-619(N)	9/12/2002							
TW-623(N)	TW-623(N)	9/12/2002							

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	2,4,5- Trichlorophenol ug/L	2,4,6- Trichlorophenol ug/L	2,4- Dichlorophenol ug/L	2,4- Dimethylphenol ug/L	2,4- Dinitrophenol ug/L	2,4- Dinitrotoluene ug/L	2,6- Dichlorophenol ug/L
TW-623(N)	TW-623(N)	9/12/2002							
TW-624(N)	TW-624(N)	9/12/2002	5 U	5 U	5 U	10 U	25 U	5 U	
TW-624(N)	TW-624(N)	9/12/2002							
TW-625(N)	BT-625(N)	9/12/2002							
TW-625(N)	TW-625(N)	9/12/2002							
TW-700(P)	TW-700(P)	8/21/2002							
TW-700(P)	TW-700(P)	8/21/2002							
TW-701(P)	TW-701(P)	8/20/2002							
TW-702(P)	TW-702(P)	8/21/2002							
TW-702(P)	TW-702(P)	8/21/2002							
TW-703(P)	TW-703(P)	8/21/2002							
TW-704(P)	TW-704(P)	8/21/2002	25 U	25 U	25 U	25 U	62.5 U		25 U
TW-705(P)	TW-705(P)	8/20/2002	25 U	25 U	25 U	25 U	62.5 U		25 U
TW-706(P)	TW-706(P)	8/21/2002							
TW-707(P)	TW-707(P)	8/21/2002							
TW-708(P)	BT-708(P)	8/20/2002							
TW-708(P)	BT-708(P)	8/20/2002							
TW-708(P)	TW-708(P)	8/20/2002							
TW-708(P)	TW-708(P)	8/20/2002							
TW-709(P)	TW-709(P)	8/21/2002							
TW-710(P)	TW-710(P)	8/21/2002							
TW-710(P)	TW-710(P)	8/21/2002							
TW-711(P)	BT-711(P)	8/21/2002							
TW-711(P)	TW-711(P)	8/21/2002							
TW-712(P)	TW-712(P)	8/21/2002							
TW-712(P)	TW-712(P)	8/21/2002							
TW-714(P)	TW-714(P)	8/21/2002							
TW-714(P)	TW-714(P)	8/21/2002							
TW-716(P)	TW-716(P)	8/20/2002							
TW-716(P)	TW-716(P)	8/20/2002							
TW-717(P)	TW-717(P)	8/20/2002							
TW-717(P)	TW-717(P)	8/20/2002							
TW-718(P)	TW-718(P)	8/21/2002							
TW-718(P)	TW-718(P)	8/21/2002							
TW-719(P)	BT-719(P)	8/23/2002							
TW-719(P)	BT-719(P)	8/23/2002							
TW-719(P)	TW-719(P)	8/23/2002							
TW-719(P)	TW-719(P)	8/23/2002							
TW-720(P)	TW-720(P)	8/23/2002							
TW-720(P)	TW-720(P)	8/23/2002							
TW-900(S)	SB-900(TW)	8/26/2002							
TW-901(S)	SB-901(TW)	8/26/2002							
TW-901(S)	SB-901(TW)	8/26/2002							
TW-902(S)	SB-902(TW)	8/26/2002							
TW-903(S)	SB-903(TW)	8/26/2002							
TW-903(S)	SB-903(TW)	8/26/2002							
TW-904(S)	SB-904(TW)	8/26/2002							
TW-904(S)	SB-904(TW)	8/26/2002							
TW-905(S)	SB-905(TW)	8/26/2002							
TW-906(S)	SB-906(TW)	8/27/2002							
TW-906(S)	SB-906(TW)	8/27/2002							
TW-908(S)	SB-908(TW)	8/27/2002							
TW-908(S)	SB-908(TW)	8/27/2002							
TW-909(S)	SB-909(TW)	8/27/2002							

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>2,4,5- Trichlorophenol ug/L</b>	<b>2,4,6- Trichlorophenol ug/L</b>	<b>2,4- Dichlorophenol ug/L</b>	<b>2,4- Dimethylphenol ug/L</b>	<b>2,4- Dinitrophenol ug/L</b>	<b>2,4- Dinitrotoluene ug/L</b>	<b>2,6- Dichlorophenol ug/L</b>
TW-910(S)	SB-910(TW)	8/26/2002							
TW-911(S)	SB-911(TW)	8/27/2002							
TW-911(S)	SB-911(TW)	8/27/2002							

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	2,6-Dinitrotoluene ug/L	2-Chloronaphthalene ug/L	2-Chlorophenol ug/L	2-Methylnaphthalene ug/L	2-Methylphenol (o-Cresol) ug/L	2-Nitroaniline ug/L	2-Nitrophenol ug/L	3,3-Dichloro- benzidine ug/L
MW-1(F)	MW-1-082302	8/23/2002								
MW-1(F)	MW-1-082302	8/23/2002								
TW-100(C)	SB100(C)W	8/22/2002								
TW-100(C)	SB100(C)W	8/22/2002								
TW-103(C)	SB103(C)W	8/22/2002								
TW-104(C)	SB104(C)W	8/22/2002								
TW-200(C)	SB200(C)W	8/22/2002								
TW-200(C)	SB200(C)W	8/22/2002								
TW-201(C)	SB201(C)W	8/22/2002								
TW-201(C)	SB201(C)W	8/22/2002								
TW-202(C)	SB202(C)W	8/22/2002								
TW-202(C)	SB202(C)W	8/22/2002								
TW-203(C)	SB203(C)W	8/22/2002								
TW-203(C)	SB203(C)W	8/22/2002								
TW-204(C)	SB204(C)W	8/22/2002								
TW-204(C)	SB204(C)W	8/22/2002								
TW-204(C)	SB204(C)W2	8/22/2002								
TW-204(C)	SB204(C)W2	8/22/2002								
TW-304(D)	SB-304-D-9.0	8/19/2002								
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002								
TW-305(D)	SB-305-D-9.0	8/19/2002								
TW-305(D)	SB-305-D-9.0	8/19/2002								
TW-306(D)	SB-306-D-9.0	8/19/2002								
TW-307(D)	SB-307-D-9.0	8/19/2002								
TW-309(D)	SB-309-D-9.0	8/19/2002								
TW-309(D)	SB-309-D-9.0	8/19/2002								
TW-311(D)	SB-311-D-10.0	8/19/2002								
TW-312(D)	SB-312-D-10.0	8/19/2002								
TW-312(D)	SB-312-D-10.0	8/19/2002								
TW-313(D)	TW-313-D-22.0	8/20/2002								
TW-314(D)	TW-314-D-22.0	8/20/2002								
TW-318(D)	TW-318-D-22.0	8/20/2002								
TW-318(D)	TW-318-D-22.0	8/20/2002								
TW-319(D)	SB-319-D-14.0	8/19/2002								
TW-400(F)	TW-400(F)	8/22/2002								
TW-600(N)	TW-600(N)	9/13/2002								
TW-600(N)	TW-600(N)	9/13/2002								
TW-601(N)	TW-601(N)	9/13/2002								
TW-601(N)	TW-601(N)	9/13/2002								
TW-602(N)	BT-602(N)	9/13/2002								
TW-602(N)	BT-602(N)	9/13/2002								
TW-602(N)	TW-602(N)	9/13/2002								
TW-602(N)	TW-602(N)	9/13/2002								
TW-603(N)	TW-603(N)	9/13/2002								
TW-603(N)	TW-603(N)	9/13/2002								
TW-608(N)	TW-608(N)	9/13/2002								
TW-608(N)	TW-608(N)	9/13/2002								
TW-612(N)	TW-612(N)	9/12/2002								
TW-612(N)	TW-612(N)	9/12/2002								
TW-616(N)	TW-616(N)	9/12/2002								
TW-616(N)	TW-616(N)	9/12/2002								
TW-619(N)	TW-619(N)	9/12/2002								
TW-619(N)	TW-619(N)	9/12/2002								
TW-623(N)	TW-623(N)	9/12/2002								



**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	2,6-Dinitrotoluene ug/L	2-Chloronaphthalene ug/L	2-Chlorophenol ug/L	2-Methylnaphthalene ug/L	2-Methylphenol (o-Cresol) ug/L	2-Nitroaniline ug/L	2-Nitrophenol ug/L	3,3-Dichloro- benzidine ug/L
TW-623(N)	TW-623(N)	9/12/2002								
TW-624(N)	TW-624(N)	9/12/2002	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U
TW-624(N)	TW-624(N)	9/12/2002								
TW-625(N)	BT-625(N)	9/12/2002								
TW-625(N)	TW-625(N)	9/12/2002								
TW-700(P)	TW-700(P)	8/21/2002								
TW-700(P)	TW-700(P)	8/21/2002								
TW-701(P)	TW-701(P)	8/20/2002								
TW-702(P)	TW-702(P)	8/21/2002								
TW-702(P)	TW-702(P)	8/21/2002								
TW-703(P)	TW-703(P)	8/21/2002								
TW-704(P)	TW-704(P)	8/21/2002			25 U				25 U	
TW-705(P)	TW-705(P)	8/20/2002			25 U				25 U	
TW-706(P)	TW-706(P)	8/21/2002								
TW-707(P)	TW-707(P)	8/21/2002								
TW-708(P)	BT-708(P)	8/20/2002								
TW-708(P)	BT-708(P)	8/20/2002								
TW-708(P)	TW-708(P)	8/20/2002								
TW-708(P)	TW-708(P)	8/20/2002								
TW-709(P)	TW-709(P)	8/21/2002								
TW-710(P)	TW-710(P)	8/21/2002								
TW-710(P)	TW-710(P)	8/21/2002								
TW-711(P)	BT-711(P)	8/21/2002								
TW-711(P)	TW-711(P)	8/21/2002								
TW-712(P)	TW-712(P)	8/21/2002								
TW-712(P)	TW-712(P)	8/21/2002								
TW-714(P)	TW-714(P)	8/21/2002								
TW-714(P)	TW-714(P)	8/21/2002								
TW-716(P)	TW-716(P)	8/20/2002								
TW-716(P)	TW-716(P)	8/20/2002								
TW-717(P)	TW-717(P)	8/20/2002								
TW-717(P)	TW-717(P)	8/20/2002								
TW-718(P)	TW-718(P)	8/21/2002								
TW-718(P)	TW-718(P)	8/21/2002								
TW-719(P)	BT-719(P)	8/23/2002								
TW-719(P)	BT-719(P)	8/23/2002								
TW-719(P)	TW-719(P)	8/23/2002								
TW-719(P)	TW-719(P)	8/23/2002								
TW-720(P)	TW-720(P)	8/23/2002								
TW-720(P)	TW-720(P)	8/23/2002								
TW-900(S)	SB-900(TW)	8/26/2002								
TW-901(S)	SB-901(TW)	8/26/2002								
TW-901(S)	SB-901(TW)	8/26/2002								
TW-902(S)	SB-902(TW)	8/26/2002								
TW-903(S)	SB-903(TW)	8/26/2002								
TW-903(S)	SB-903(TW)	8/26/2002								
TW-904(S)	SB-904(TW)	8/26/2002								
TW-904(S)	SB-904(TW)	8/26/2002								
TW-905(S)	SB-905(TW)	8/26/2002								
TW-906(S)	SB-906(TW)	8/27/2002								
TW-906(S)	SB-906(TW)	8/27/2002								
TW-908(S)	SB-908(TW)	8/27/2002								
TW-908(S)	SB-908(TW)	8/27/2002								
TW-909(S)	SB-909(TW)	8/27/2002								

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	2,6-Dinitrotoluene ug/L	2-Chloronaphthalene ug/L	2-Chlorophenol ug/L	2-Methylnaphthalene ug/L	2-Methylphenol (o-Cresol) ug/L	2-Nitroaniline ug/L	2-Nitrophenol ug/L	3,3-Dichlorobenzidine ug/L
TW-910(S)	SB-910(TW)	8/26/2002								
TW-911(S)	SB-911(TW)	8/27/2002								
TW-911(S)	SB-911(TW)	8/27/2002								

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	3-Nitroaniline ug/L	4-Chloro-3- methylphenol ug/L	4-Chloroaniline ug/L	4-Nitroaniline ug/L	4-Nitrophenol ug/L	Acenaphthene ug/L	Acenaphthylene ug/L	Anthracene ug/L
MW-1(F)	MW-1-082302	8/23/2002						0.0811	0.05 U	0.05 U
MW-1(F)	MW-1-082302	8/23/2002								
TW-100(C)	SB100(C)W	8/22/2002						0.05 U	0.05 U	0.05 U
TW-100(C)	SB100(C)W	8/22/2002								
TW-103(C)	SB103(C)W	8/22/2002								
TW-104(C)	SB104(C)W	8/22/2002								
TW-200(C)	SB200(C)W	8/22/2002						0.05 U	0.05 U	0.05 U
TW-200(C)	SB200(C)W	8/22/2002								
TW-201(C)	SB201(C)W	8/22/2002						0.05 U	0.05 U	0.05 U
TW-201(C)	SB201(C)W	8/22/2002								
TW-202(C)	SB202(C)W	8/22/2002						0.157	0.05 U	0.05 U
TW-202(C)	SB202(C)W	8/22/2002								
TW-203(C)	SB203(C)W	8/22/2002						1.09	0.05 U	0.05 U
TW-203(C)	SB203(C)W	8/22/2002								
TW-204(C)	SB204(C)W	8/22/2002						0.05 U	0.05 U	0.05 U
TW-204(C)	SB204(C)W	8/22/2002								
TW-204(C)	SB204(C)W2	8/22/2002						0.05 U	0.05 U	0.05 U
TW-204(C)	SB204(C)W2	8/22/2002								
TW-304(D)	SB-304-D-9.0	8/19/2002						5 U	5 U	0.05 U
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002						5 U	5 U	0.05 U
TW-305(D)	SB-305-D-9.0	8/19/2002						7.37	2.5 U	50 U
TW-305(D)	SB-305-D-9.0	8/19/2002								
TW-306(D)	SB-306-D-9.0	8/19/2002						0.622	0.05 U	0.14
TW-307(D)	SB-307-D-9.0	8/19/2002						5 U	5 U	5 U
TW-309(D)	SB-309-D-9.0	8/19/2002						0.05 U	0.05 U	0.05 U
TW-309(D)	SB-309-D-9.0	8/19/2002								
TW-311(D)	SB-311-D-10.0	8/19/2002						0.0567	0.05 U	0.05 U
TW-312(D)	SB-312-D-10.0	8/19/2002						0.05 U	0.05 U	0.05 U
TW-312(D)	SB-312-D-10.0	8/19/2002								
TW-313(D)	TW-313-D-22.0	8/20/2002						0.05 U	0.05 U	0.05 U
TW-314(D)	TW-314-D-22.0	8/20/2002						0.05 U	0.05 U	0.05 U
TW-318(D)	TW-318-D-22.0	8/20/2002						0.05 U	0.05 U	0.05 U
TW-318(D)	TW-318-D-22.0	8/20/2002								
TW-319(D)	SB-319-D-14.0	8/19/2002						0.05 U	0.05 U	0.05 U
TW-400(F)	TW-400(F)	8/22/2002						0.05 U	0.05 U	0.05 U
TW-600(N)	TW-600(N)	9/13/2002						0.195	0.05 U	0.05 U
TW-600(N)	TW-600(N)	9/13/2002								
TW-601(N)	TW-601(N)	9/13/2002						0.191	0.05 U	0.05 U
TW-601(N)	TW-601(N)	9/13/2002								
TW-602(N)	BT-602(N)	9/13/2002						0.05 U	0.05 U	0.05 U
TW-602(N)	BT-602(N)	9/13/2002								
TW-602(N)	TW-602(N)	9/13/2002						0.05 U	0.05 U	0.05 U
TW-602(N)	TW-602(N)	9/13/2002								
TW-603(N)	TW-603(N)	9/13/2002						0.05 U	0.05 U	0.05 U
TW-603(N)	TW-603(N)	9/13/2002								
TW-608(N)	TW-608 (N)	9/13/2002						0.05 U	0.05 U	0.05 U
TW-608(N)	TW-608 (N)	9/13/2002								
TW-612(N)	TW-612(N)	9/12/2002						1.15	0.05 U	0.05 U
TW-612(N)	TW-612(N)	9/12/2002								
TW-616(N)	TW-616(N)	9/12/2002						0.05 U	0.05 U	0.05 U
TW-616(N)	TW-616(N)	9/12/2002								
TW-619(N)	TW-619(N)	9/12/2002						0.142	0.05 U	0.05 U
TW-619(N)	TW-619(N)	9/12/2002								
TW-623(N)	TW-623(N)	9/12/2002						0.37	0.05 U	0.05 U

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	3-Nitroaniline ug/L	4-Chloro-3- methylphenol ug/L	4-Chloroaniline ug/L	4-Nitroaniline ug/L	4-Nitrophenol ug/L	Acenaphthene ug/L	Acenaphthylene ug/L	Anthracene ug/L
TW-623(N)	TW-623(N)	9/12/2002								
TW-624(N)	TW-624(N)	9/12/2002	10 U	5 U	20 U	10 U	25 U	5 U	5 U	5 U
TW-624(N)	TW-624(N)	9/12/2002								
TW-625(N)	BT-625(N)	9/12/2002						0.05 U	0.05 U	0.05 U
TW-625(N)	TW-625(N)	9/12/2002						0.05 U	0.05 U	0.05 U
TW-700(P)	TW-700(P)	8/21/2002						1 U J	1 U J	1 U J
TW-700(P)	TW-700(P)	8/21/2002								
TW-701(P)	TW-701(P)	8/20/2002								
TW-702(P)	TW-702(P)	8/21/2002						0.05 U J	0.05 U J	0.05 U J
TW-702(P)	TW-702(P)	8/21/2002								
TW-703(P)	TW-703(P)	8/21/2002								
TW-704(P)	TW-704(P)	8/21/2002		25 U			25 U			
TW-705(P)	TW-705(P)	8/20/2002		25 U			25 U	0.0571 U J	0.0571 U J	0.0571 U J
TW-706(P)	TW-706(P)	8/21/2002								
TW-707(P)	TW-707(P)	8/21/2002								
TW-708(P)	BT-708(P)	8/20/2002						2 U J	2 U J	2 U J
TW-708(P)	BT-708(P)	8/20/2002								
TW-708(P)	TW-708(P)	8/20/2002						2.5 U J	2.5 U J	2.5 U J
TW-708(P)	TW-708(P)	8/20/2002								
TW-709(P)	TW-709(P)	8/21/2002								
TW-710(P)	TW-710(P)	8/21/2002						0.05 U J	0.05 U J	0.05 U J
TW-710(P)	TW-710(P)	8/21/2002								
TW-711(P)	BT-711(P)	8/21/2002								
TW-711(P)	TW-711(P)	8/21/2002								
TW-712(P)	TW-712(P)	8/21/2002						0.05 U J	0.05 U J	0.05 U J
TW-712(P)	TW-712(P)	8/21/2002								
TW-714(P)	TW-714(P)	8/21/2002						1.55 J	2.5 U J	2.5 U J
TW-714(P)	TW-714(P)	8/21/2002								
TW-716(P)	TW-716(P)	8/20/2002						0.05 U J	0.05 U J	0.05 U J
TW-716(P)	TW-716(P)	8/20/2002								
TW-717(P)	TW-717(P)	8/20/2002						0.2 U J	0.2 U J	0.2 U J
TW-717(P)	TW-717(P)	8/20/2002								
TW-718(P)	TW-718(P)	8/21/2002						0.05 U J	0.05 U J	0.05 U J
TW-718(P)	TW-718(P)	8/21/2002								
TW-719(P)	BT-719(P)	8/23/2002						0.05 U	0.05 U	0.05 U
TW-719(P)	BT-719(P)	8/23/2002								
TW-719(P)	TW-719(P)	8/23/2002						0.05 U	0.05 U	0.05 U
TW-719(P)	TW-719(P)	8/23/2002								
TW-720(P)	TW-720(P)	8/23/2002						5 U	5 U	0.0894
TW-720(P)	TW-720(P)	8/23/2002								
TW-900(S)	SB-900(TW)	8/26/2002						0.05 U	0.05 U	0.05 U
TW-901(S)	SB-901(TW)	8/26/2002						1 U	1 U	1 U
TW-901(S)	SB-901(TW)	8/26/2002								
TW-902(S)	SB-902(TW)	8/26/2002						1.03	0.5 U	0.5 U
TW-903(S)	SB-903(TW)	8/26/2002						1.53	0.2 U	0.103 J
TW-903(S)	SB-903(TW)	8/26/2002								
TW-904(S)	SB-904(TW)	8/26/2002						0.87	0.1 U	0.0657 J
TW-904(S)	SB-904(TW)	8/26/2002								
TW-905(S)	SB-905(TW)	8/26/2002								
TW-906(S)	SB-906(TW)	8/27/2002						0.153	0.05 U	0.05 U
TW-906(S)	SB-906(TW)	8/27/2002								
TW-908(S)	SB-908(TW)	8/27/2002						0.05 U	0.05 U	0.05 U
TW-908(S)	SB-908(TW)	8/27/2002								
TW-909(S)	SB-909(TW)	8/27/2002						0.05 U	0.05 U	0.05 U

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	3-Nitroaniline ug/L	4-Chloro-3- methylphenol ug/L	4-Chloroaniline ug/L	4-Nitroaniline ug/L	4-Nitrophenol ug/L	Acenaphthene ug/L	Acenaphthylene ug/L	Anthracene ug/L
TW-910(S)	SB-910(TW)	8/26/2002						0.591	0.1 U	0.05 U
TW-911(S)	SB-911(TW)	8/27/2002						0.363 J	0.5 U	0.1 U
TW-911(S)	SB-911(TW)	8/27/2002								

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Benzo(a) anthracene ug/L	Benzo(a)pyrene ug/L	Benzo(b) fluoranthene ug/L	Benzo(g,h,i) perylene ug/L	Benzo(k) fluoranthene ug/L	Benzoic acid ug/L	Benzyl alcohol ug/L	bis(2- Chloroisopropyl) ether ug/L
MW-1(F)	MW-1-082302	8/23/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
MW-1(F)	MW-1-082302	8/23/2002								
TW-100(C)	SB100(C)W	8/22/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-100(C)	SB100(C)W	8/22/2002								
TW-103(C)	SB103(C)W	8/22/2002								
TW-104(C)	SB104(C)W	8/22/2002								
TW-200(C)	SB200(C)W	8/22/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-200(C)	SB200(C)W	8/22/2002								
TW-201(C)	SB201(C)W	8/22/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-201(C)	SB201(C)W	8/22/2002								
TW-202(C)	SB202(C)W	8/22/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-202(C)	SB202(C)W	8/22/2002								
TW-203(C)	SB203(C)W	8/22/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-203(C)	SB203(C)W	8/22/2002								
TW-204(C)	SB204(C)W	8/22/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-204(C)	SB204(C)W	8/22/2002								
TW-204(C)	SB204(C)W2	8/22/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-204(C)	SB204(C)W2	8/22/2002								
TW-304(D)	SB-304-D-9.0	8/19/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-305(D)	SB-305-D-9.0	8/19/2002	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U			
TW-305(D)	SB-305-D-9.0	8/19/2002								
TW-306(D)	SB-306-D-9.0	8/19/2002	0.05 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-307(D)	SB-307-D-9.0	8/19/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-309(D)	SB-309-D-9.0	8/19/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-309(D)	SB-309-D-9.0	8/19/2002								
TW-311(D)	SB-311-D-10.0	8/19/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-312(D)	SB-312-D-10.0	8/19/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-312(D)	SB-312-D-10.0	8/19/2002								
TW-313(D)	TW-313-D-22.0	8/20/2002	0.05 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-314(D)	TW-314-D-22.0	8/20/2002	0.05 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-318(D)	TW-318-D-22.0	8/20/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-318(D)	TW-318-D-22.0	8/20/2002								
TW-319(D)	SB-319-D-14.0	8/19/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-400(F)	TW-400(F)	8/22/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-600(N)	TW-600(N)	9/13/2002	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U			
TW-600(N)	TW-600(N)	9/13/2002								
TW-601(N)	TW-601(N)	9/13/2002	2.5 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-601(N)	TW-601(N)	9/13/2002								
TW-602(N)	BT-602(N)	9/13/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-602(N)	BT-602(N)	9/13/2002								
TW-602(N)	TW-602(N)	9/13/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-602(N)	TW-602(N)	9/13/2002								
TW-603(N)	TW-603(N)	9/13/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-603(N)	TW-603(N)	9/13/2002								
TW-608(N)	TW-608 (N)	9/13/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-608(N)	TW-608 (N)	9/13/2002								
TW-612(N)	TW-612(N)	9/12/2002	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U			
TW-612(N)	TW-612(N)	9/12/2002								
TW-616(N)	TW-616(N)	9/12/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-616(N)	TW-616(N)	9/12/2002								
TW-619(N)	TW-619(N)	9/12/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-619(N)	TW-619(N)	9/12/2002								
TW-623(N)	TW-623(N)	9/12/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
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Astoria, Oregon

Locator ID	Sample ID	Sample Date	Benzo(a) anthracene ug/L	Benzo(a)pyrene ug/L	Benzo(b) fluoranthene ug/L	Benzo(g,h,i) perylene ug/L	Benzo(k) fluoranthene ug/L	Benzoic acid ug/L	Benzyl alcohol ug/L	bis(2- Chloroisopropyl) ether ug/L
TW-623(N)	TW-623(N)	9/12/2002								
TW-624(N)	TW-624(N)	9/12/2002	5 U	5 U	5 U	5 U	5 U	50 U	10 U	10 U
TW-624(N)	TW-624(N)	9/12/2002								
TW-625(N)	BT-625(N)	9/12/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-625(N)	TW-625(N)	9/12/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-700(P)	TW-700(P)	8/21/2002	1 U J	1 U J	1 U J	1 U J	1 U J			
TW-700(P)	TW-700(P)	8/21/2002								
TW-701(P)	TW-701(P)	8/20/2002								
TW-702(P)	TW-702(P)	8/21/2002	0.01 U J	0.01 U J	0.01 U J	0.05 U J	0.01 U J			
TW-702(P)	TW-702(P)	8/21/2002								
TW-703(P)	TW-703(P)	8/21/2002								
TW-704(P)	TW-704(P)	8/21/2002								
TW-705(P)	TW-705(P)	8/20/2002	0.0114 U J	0.0114 U J	0.0114 U J	0.0571 U J	0.0114 U J			
TW-706(P)	TW-706(P)	8/21/2002								
TW-707(P)	TW-707(P)	8/21/2002								
TW-708(P)	BT-708(P)	8/20/2002	2 U J	0.01 U J	0.01 U J	0.05 U J	0.01 U J			
TW-708(P)	BT-708(P)	8/20/2002								
TW-708(P)	TW-708(P)	8/20/2002	2.5 U J	2.5 U J	2.5 U J	2.5 U J	2.5 U J			
TW-708(P)	TW-708(P)	8/20/2002								
TW-709(P)	TW-709(P)	8/21/2002								
TW-710(P)	TW-710(P)	8/21/2002	0.01 U J	0.01 U J	0.01 U J	0.05 U J	0.01 U J			
TW-710(P)	TW-710(P)	8/21/2002								
TW-711(P)	BT-711(P)	8/21/2002								
TW-711(P)	TW-711(P)	8/21/2002								
TW-712(P)	TW-712(P)	8/21/2002	0.01 U J	0.01 U J	U J	0.05 U J	0.01 U J			
TW-712(P)	TW-712(P)	8/21/2002								
TW-714(P)	TW-714(P)	8/21/2002	2.5 U J	2.5 U J	2.5 U J	2.5 U J	2.5 U J			
TW-714(P)	TW-714(P)	8/21/2002								
TW-716(P)	TW-716(P)	8/20/2002	0.01 U J	0.01 U J	0.01 U J	0.05 U J	0.01 U J			
TW-716(P)	TW-716(P)	8/20/2002								
TW-717(P)	TW-717(P)	8/20/2002	0.2 U J	0.01 U J	0.01 U J	0.05 U J	0.01 U J			
TW-717(P)	TW-717(P)	8/20/2002								
TW-718(P)	TW-718(P)	8/21/2002	0.01 U J	0.01 U J	0.01 U J	0.05 U J	0.01 U J			
TW-718(P)	TW-718(P)	8/21/2002								
TW-719(P)	BT-719(P)	8/23/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-719(P)	BT-719(P)	8/23/2002								
TW-719(P)	TW-719(P)	8/23/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-719(P)	TW-719(P)	8/23/2002								
TW-720(P)	TW-720(P)	8/23/2002	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U			
TW-720(P)	TW-720(P)	8/23/2002								
TW-900(S)	SB-900(TW)	8/26/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-901(S)	SB-901(TW)	8/26/2002	1 U	1 U	1 U	1 U	1 U			
TW-901(S)	SB-901(TW)	8/26/2002								
TW-902(S)	SB-902(TW)	8/26/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
TW-903(S)	SB-903(TW)	8/26/2002	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			
TW-903(S)	SB-903(TW)	8/26/2002								
TW-904(S)	SB-904(TW)	8/26/2002	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U			
TW-904(S)	SB-904(TW)	8/26/2002								
TW-905(S)	SB-905(TW)	8/26/2002								
TW-906(S)	SB-906(TW)	8/27/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-906(S)	SB-906(TW)	8/27/2002								
TW-908(S)	SB-908(TW)	8/27/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-908(S)	SB-908(TW)	8/27/2002								
TW-909(S)	SB-909(TW)	8/27/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			

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SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Benzo(a) anthracene ug/L	Benzo(a)pyrene ug/L	Benzo(b) fluoranthene ug/L	Benzo(g,h,i) perylene ug/L	Benzo(k) fluoranthene ug/L	Benzoic acid ug/L	Benzyl alcohol ug/L	bis(2- Chloroisopropyl) ether ug/L
TW-910(S)	SB-910(TW)	8/26/2002	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U			
TW-911(S)	SB-911(TW)	8/27/2002	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U			
TW-911(S)	SB-911(TW)	8/27/2002								



**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	bis-(2-ethylhexyl)phthalate ug/L	Chrysene ug/L	Dibenzo(a,h)anthracene ug/L	Dibenzofuran ug/L	Diethyl phthalate ug/L	Dimethyl phthalate ug/L	Di-n-butyl phthalate ug/L	Di-n-octyl phthalate ug/L
MW-1(F)	MW-1-082302	8/23/2002		0.01 U	0.01 U					
MW-1(F)	MW-1-082302	8/23/2002								
TW-100(C)	SB100(C)W	8/22/2002		0.01 U	0.01 U					
TW-100(C)	SB100(C)W	8/22/2002								
TW-103(C)	SB103(C)W	8/22/2002								
TW-104(C)	SB104(C)W	8/22/2002								
TW-200(C)	SB200(C)W	8/22/2002		0.01 U	0.01 U					
TW-200(C)	SB200(C)W	8/22/2002								
TW-201(C)	SB201(C)W	8/22/2002		0.01 U	0.01 U					
TW-201(C)	SB201(C)W	8/22/2002								
TW-202(C)	SB202(C)W	8/22/2002		0.01 U	0.01 U					
TW-202(C)	SB202(C)W	8/22/2002								
TW-203(C)	SB203(C)W	8/22/2002		0.01 U	0.01 U					
TW-203(C)	SB203(C)W	8/22/2002								
TW-204(C)	SB204(C)W	8/22/2002		0.01 U	0.01 U					
TW-204(C)	SB204(C)W	8/22/2002								
TW-204(C)	SB204(C)W2	8/22/2002		0.01 U	0.01 U					
TW-204(C)	SB204(C)W2	8/22/2002								
TW-304(D)	SB-304-D-9.0	8/19/2002		0.01 U	0.01 U					
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002		0.01 U	0.01 U					
TW-305(D)	SB-305-D-9.0	8/19/2002		0.5 U	0.5 U					
TW-305(D)	SB-305-D-9.0	8/19/2002								
TW-306(D)	SB-306-D-9.0	8/19/2002		0.05 U	0.01 U					
TW-307(D)	SB-307-D-9.0	8/19/2002		0.01 U	0.01 U					
TW-309(D)	SB-309-D-9.0	8/19/2002		0.01 U	0.01 U					
TW-309(D)	SB-309-D-9.0	8/19/2002								
TW-311(D)	SB-311-D-10.0	8/19/2002		0.01 U	0.01 U					
TW-312(D)	SB-312-D-10.0	8/19/2002		0.01 U	0.01 U					
TW-312(D)	SB-312-D-10.0	8/19/2002								
TW-313(D)	TW-313-D-22.0	8/20/2002		0.05 U	0.01 U					
TW-314(D)	TW-314-D-22.0	8/20/2002		0.05 U	0.01 U					
TW-318(D)	TW-318-D-22.0	8/20/2002		0.01 U	0.01 U					
TW-318(D)	TW-318-D-22.0	8/20/2002								
TW-319(D)	SB-319-D-14.0	8/19/2002		0.01 U	0.01 U					
TW-400(F)	TW-400(F)	8/22/2002		0.01 U	0.01 U					
TW-600(N)	TW-600(N)	9/13/2002		0.25 U	0.25 U					
TW-600(N)	TW-600(N)	9/13/2002								
TW-601(N)	TW-601(N)	9/13/2002		2.5 U	0.01 U					
TW-601(N)	TW-601(N)	9/13/2002								
TW-602(N)	BT-602(N)	9/13/2002		0.01 U	0.01 U					
TW-602(N)	BT-602(N)	9/13/2002								
TW-602(N)	TW-602(N)	9/13/2002		0.01 U	0.01 U					
TW-602(N)	TW-602(N)	9/13/2002								
TW-603(N)	TW-603(N)	9/13/2002		0.01 U	0.01 U					
TW-603(N)	TW-603(N)	9/13/2002								
TW-608(N)	TW-608(N)	9/13/2002		0.01 U	0.01 U					
TW-608(N)	TW-608(N)	9/13/2002								
TW-612(N)	TW-612(N)	9/12/2002		0.05 U	0.05 U					
TW-612(N)	TW-612(N)	9/12/2002								
TW-616(N)	TW-616(N)	9/12/2002		0.01 U	0.01 U					
TW-616(N)	TW-616(N)	9/12/2002								
TW-619(N)	TW-619(N)	9/12/2002		0.01 U	0.01 U					
TW-619(N)	TW-619(N)	9/12/2002								
TW-623(N)	TW-623(N)	9/12/2002		0.01 U	0.01 U					

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Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	bis-(2-ethylhexyl)phthalate ug/L	Chrysene ug/L	Dibenzo(a,h)anthracene ug/L	Dibenzofuran ug/L	Diethyl phthalate ug/L	Dimethyl phthalate ug/L	Di-n-butyl phthalate ug/L	Di-n-octyl phthalate ug/L
TW-623(N)	TW-623(N)	9/12/2002								
TW-624(N)	TW-624(N)	9/12/2002	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TW-624(N)	TW-624(N)	9/12/2002								
TW-625(N)	BT-625(N)	9/12/2002		0.01 U	0.01 U					
TW-625(N)	TW-625(N)	9/12/2002		0.01 U	0.01 U					
TW-700(P)	TW-700(P)	8/21/2002		1 U J		1 U J				
TW-700(P)	TW-700(P)	8/21/2002								
TW-701(P)	TW-701(P)	8/20/2002								
TW-702(P)	TW-702(P)	8/21/2002		0.01 U J	0.01 U J					
TW-702(P)	TW-702(P)	8/21/2002								
TW-703(P)	TW-703(P)	8/21/2002								
TW-704(P)	TW-704(P)	8/21/2002								
TW-705(P)	TW-705(P)	8/20/2002		0.0114 U J	0.0114 U J					
TW-706(P)	TW-706(P)	8/21/2002								
TW-707(P)	TW-707(P)	8/21/2002								
TW-708(P)	BT-708(P)	8/20/2002		2 U J	0.01 U J					
TW-708(P)	BT-708(P)	8/20/2002								
TW-708(P)	TW-708(P)	8/20/2002		2.5 U J	2.5 U J					
TW-708(P)	TW-708(P)	8/20/2002								
TW-709(P)	TW-709(P)	8/21/2002								
TW-710(P)	TW-710(P)	8/21/2002		0.01 U J	0.01 U J					
TW-710(P)	TW-710(P)	8/21/2002								
TW-711(P)	BT-711(P)	8/21/2002								
TW-711(P)	TW-711(P)	8/21/2002								
TW-712(P)	TW-712(P)	8/21/2002		0.0161 J	0.01 U J					
TW-712(P)	TW-712(P)	8/21/2002								
TW-714(P)	TW-714(P)	8/21/2002		2.5 U J	2.5 U J					
TW-714(P)	TW-714(P)	8/21/2002								
TW-716(P)	TW-716(P)	8/20/2002		0.01 U J	0.01 U J					
TW-716(P)	TW-716(P)	8/20/2002								
TW-717(P)	TW-717(P)	8/20/2002		0.2 U J	0.01 U J					
TW-717(P)	TW-717(P)	8/20/2002								
TW-718(P)	TW-718(P)	8/21/2002		0.01 U J	0.01 U J					
TW-718(P)	TW-718(P)	8/21/2002								
TW-719(P)	BT-719(P)	8/23/2002		0.01 U	0.01 U					
TW-719(P)	BT-719(P)	8/23/2002								
TW-719(P)	TW-719(P)	8/23/2002		0.01 U	0.01 U					
TW-719(P)	TW-719(P)	8/23/2002								
TW-720(P)	TW-720(P)	8/23/2002		0.05 U	0.05 U					
TW-720(P)	TW-720(P)	8/23/2002								
TW-900(S)	SB-900(TW)	8/26/2002		0.01 U	0.01 U					
TW-901(S)	SB-901(TW)	8/26/2002		1 U	1 U					
TW-901(S)	SB-901(TW)	8/26/2002								
TW-902(S)	SB-902(TW)	8/26/2002		0.5 U	0.5 U					
TW-903(S)	SB-903(TW)	8/26/2002		0.2 U	0.2 U					
TW-903(S)	SB-903(TW)	8/26/2002								
TW-904(S)	SB-904(TW)	8/26/2002		0.1 U	0.1 U					
TW-904(S)	SB-904(TW)	8/26/2002								
TW-905(S)	SB-905(TW)	8/26/2002								
TW-906(S)	SB-906(TW)	8/27/2002		0.01 U	0.01 U					
TW-906(S)	SB-906(TW)	8/27/2002								
TW-908(S)	SB-908(TW)	8/27/2002		0.01 U	0.01 U					
TW-908(S)	SB-908(TW)	8/27/2002								
TW-909(S)	SB-909(TW)	8/27/2002		0.01 U	0.01 U					

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	bis-(2-ethylhexyl)phthalate ug/L	Chrysene ug/L	Dibenzo(a,h)anthracene ug/L	Dibenzofuran ug/L	Diethyl phthalate ug/L	Dimethyl phthalate ug/L	Di-n-butyl phthalate ug/L	Di-n-octyl phthalate ug/L
TW-910(S)	SB-910(TW)	8/26/2002		0.01 U	0.01 U					
TW-911(S)	SB-911(TW)	8/27/2002		0.1 U	0.1 U					
TW-911(S)	SB-911(TW)	8/27/2002								

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Fluoranthene ug/L	Fluorene ug/L	Hexachlorobenzene ug/L	Hexachloro- cyclopentadiene ug/L	Hexachloroethane ug/L	Indeno(1,2,3-cd) pyrene ug/L	Isophorone ug/L	Naphthalene ug/L
MW-1(F)	MW-1-082302	8/23/2002	0.05 U	0.12				0.01 U		2 U
MW-1(F)	MW-1-082302	8/23/2002								0.1 U
TW-100(C)	SB100(C)W	8/22/2002	0.05 U	0.05 U				0.01 U		0.5 U
TW-100(C)	SB100(C)W	8/22/2002								0.05 U
TW-103(C)	SB103(C)W	8/22/2002								0.5 U
TW-104(C)	SB104(C)W	8/22/2002								0.5 U
TW-200(C)	SB200(C)W	8/22/2002	0.05 U	0.05 U				0.01 U		0.5 U
TW-200(C)	SB200(C)W	8/22/2002								0.05 U
TW-201(C)	SB201(C)W	8/22/2002	0.05 U	0.05 U				0.01 U		0.5 U
TW-201(C)	SB201(C)W	8/22/2002								0.05 U
TW-202(C)	SB202(C)W	8/22/2002	0.05 U	0.255				0.01 U		0.5 U
TW-202(C)	SB202(C)W	8/22/2002								0.2 U
TW-203(C)	SB203(C)W	8/22/2002	0.05 U	0.05 U				0.01 U		0.5 U
TW-203(C)	SB203(C)W	8/22/2002								0.3 U
TW-204(C)	SB204(C)W	8/22/2002	0.05 U	0.05 U				0.01 U		0.5 U
TW-204(C)	SB204(C)W	8/22/2002								0.05 U
TW-204(C)	SB204(C)W2	8/22/2002	0.05 U	0.05 U				0.01 U		0.5 U
TW-204(C)	SB204(C)W2	8/22/2002								0.05 U
TW-304(D)	SB-304-D-9.0	8/19/2002	0.05 U	5 U				0.01 U		6.27
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002	0.05 U	5 U				0.01 U		5.37
TW-305(D)	SB-305-D-9.0	8/19/2002	2.5 U	17.2				0.5 U		447
TW-305(D)	SB-305-D-9.0	8/19/2002								220
TW-306(D)	SB-306-D-9.0	8/19/2002	0.05 U	1.59				0.01 U		3.49
TW-307(D)	SB-307-D-9.0	8/19/2002	5 U	5 U				0.01 U		68.5
TW-309(D)	SB-309-D-9.0	8/19/2002	0.05 U	0.05 U				0.01 U		0.47 U
TW-309(D)	SB-309-D-9.0	8/19/2002								0.066
TW-311(D)	SB-311-D-10.0	8/19/2002	0.05 U	0.05 U				0.01 U		0.901
TW-312(D)	SB-312-D-10.0	8/19/2002	0.05 U	0.05 U				0.01 U		2 U
TW-312(D)	SB-312-D-10.0	8/19/2002								0.05 U
TW-313(D)	TW-313-D-22.0	8/20/2002	0.05 U	0.05 U				0.01 U		58.7
TW-314(D)	TW-314-D-22.0	8/20/2002	0.05 U	0.05 U				0.01 U		13.3
TW-318(D)	TW-318-D-22.0	8/20/2002	0.05 U	0.05 U				0.01 U		0.15 U
TW-318(D)	TW-318-D-22.0	8/20/2002								0.25
TW-319(D)	SB-319-D-14.0	8/19/2002	0.05 U	0.05 U				0.01 U		0.05 U
TW-400(F)	TW-400(F)	8/22/2002	0.05 U	0.05 U				0.01 U		0.05 U
TW-600(N)	TW-600(N)	9/13/2002	0.05 U	0.0613				0.25 U		232
TW-600(N)	TW-600(N)	9/13/2002								175
TW-601(N)	TW-601(N)	9/13/2002	0.05 U	0.0613				0.01 U		94.6
TW-601(N)	TW-601(N)	9/13/2002								73.2
TW-602(N)	BT-602(N)	9/13/2002	0.05 U	0.05 U				0.01 U		2 U
TW-602(N)	BT-602(N)	9/13/2002								0.392
TW-602(N)	TW-602(N)	9/13/2002	0.05 U	0.05 U				0.01 U		2 U
TW-602(N)	TW-602(N)	9/13/2002								1.51
TW-603(N)	TW-603(N)	9/13/2002	0.05 U	0.0566				0.01 U		2 U
TW-603(N)	TW-603(N)	9/13/2002								9.92
TW-608(N)	TW-608(N)	9/13/2002	0.05 U	0.05 U				0.01 U		2 U
TW-608(N)	TW-608(N)	9/13/2002								0.05 U
TW-612(N)	TW-612(N)	9/12/2002	0.05 U	1.3				0.05 U		100 U
TW-612(N)	TW-612(N)	9/12/2002								22.9
TW-616(N)	TW-616(N)	9/12/2002	0.05 U	0.05 U				0.01 U		2 U
TW-616(N)	TW-616(N)	9/12/2002								0.339
TW-619(N)	TW-619(N)	9/12/2002	0.05 U	0.0906				0.01 U		34
TW-619(N)	TW-619(N)	9/12/2002								28
TW-623(N)	TW-623(N)	9/12/2002	0.05 U	0.353				0.01 U		21.6

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Fluoranthene ug/L	Fluorene ug/L	Hexachlorobenzene ug/L	Hexachloro- cyclopentadiene ug/L	Hexachloroethane ug/L	Indeno(1,2,3-cd) pyrene ug/L	Isophorone ug/L	Naphthalene ug/L
TW-623(N)	TW-623(N)	9/12/2002								12.3
TW-624(N)	TW-624(N)	9/12/2002	5 U	5 U	5 U	10 U	10 U	5 U	5 U	55.9
TW-624(N)	TW-624(N)	9/12/2002								5 U
TW-625(N)	BT-625(N)	9/12/2002	0.05 U	0.05 U				0.01 U		0.05 U
TW-625(N)	TW-625(N)	9/12/2002	0.05 U	0.05 U				0.01 U		0.05 U
TW-700(P)	TW-700(P)	8/21/2002	1 U J	1 U J				1 U J		459
TW-700(P)	TW-700(P)	8/21/2002								41 J
TW-701(P)	TW-701(P)	8/20/2002								236
TW-702(P)	TW-702(P)	8/21/2002	0.05 U J	0.05 U J				0.01 U J		0.5 U
TW-702(P)	TW-702(P)	8/21/2002								0.05 U J
TW-703(P)	TW-703(P)	8/21/2002								4.24
TW-704(P)	TW-704(P)	8/21/2002								3.23
TW-705(P)	TW-705(P)	8/20/2002	0.0571 U J	0.0571 U J				0.0114 U J		0.0571 U J
TW-706(P)	TW-706(P)	8/21/2002								94.3
TW-707(P)	TW-707(P)	8/21/2002								0.5 U
TW-708(P)	BT-708(P)	8/20/2002	2 U J	2 U J				0.01 U J		6.42 JB
TW-708(P)	BT-708(P)	8/20/2002								10.1
TW-708(P)	TW-708(P)	8/20/2002	2.5 U J	2.5 U J				2.5 U J		20 U
TW-708(P)	TW-708(P)	8/20/2002								6.44 J
TW-709(P)	TW-709(P)	8/21/2002								0.5 U
TW-710(P)	TW-710(P)	8/21/2002	0.05 U J	0.05 U J				0.01 U J		0.5 U
TW-710(P)	TW-710(P)	8/21/2002								0.05 U J
TW-711(P)	BT-711(P)	8/21/2002								0.5 U
TW-711(P)	TW-711(P)	8/21/2002								0.5 U
TW-712(P)	TW-712(P)	8/21/2002	0.05 U J	0.05 U J				0.01 U J		0.5 U
TW-712(P)	TW-712(P)	8/21/2002								0.05 U J
TW-714(P)	TW-714(P)	8/21/2002	2.5 U J	2.3 J				2.5 U J		965
TW-714(P)	TW-714(P)	8/21/2002								258 J
TW-716(P)	TW-716(P)	8/20/2002	0.05 U J	0.05 U J				0.01 U J		0.5 U
TW-716(P)	TW-716(P)	8/20/2002								0.05 U J
TW-717(P)	TW-717(P)	8/20/2002	0.2 U J	0.133 J				0.01 U J		0.5 U
TW-717(P)	TW-717(P)	8/20/2002								0.2 U J
TW-718(P)	TW-718(P)	8/21/2002	0.05 U J	0.05 U J				0.01 U J		2 U
TW-718(P)	TW-718(P)	8/21/2002								0.05 U J
TW-719(P)	BT-719(P)	8/23/2002	0.05 U	0.05 U				0.01 U		2 U
TW-719(P)	BT-719(P)	8/23/2002								0.5 U
TW-719(P)	TW-719(P)	8/23/2002	0.05 U	0.05 U				0.01 U		0.25 J
TW-719(P)	TW-719(P)	8/23/2002								0.5 U
TW-720(P)	TW-720(P)	8/23/2002	0.05 U	5 U				0.05 U		744
TW-720(P)	TW-720(P)	8/23/2002								423
TW-900(S)	SB-900(TW)	8/26/2002	0.05 U	0.05 U				0.01 U		1 U
TW-901(S)	SB-901(TW)	8/26/2002	1 U	0.57 J				1 U		12.5
TW-901(S)	SB-901(TW)	8/26/2002								19.9
TW-902(S)	SB-902(TW)	8/26/2002	0.5 U	2.03				0.5 U		11.2
TW-903(S)	SB-903(TW)	8/26/2002	0.2 U	2.68				0.2 U		2 U
TW-903(S)	SB-903(TW)	8/26/2002								3.1
TW-904(S)	SB-904(TW)	8/26/2002	0.1 U	1.18				0.1 U		2 U
TW-904(S)	SB-904(TW)	8/26/2002								31.6
TW-905(S)	SB-905(TW)	8/26/2002								18.4 J
TW-906(S)	SB-906(TW)	8/27/2002	0.05 U	0.232				0.01 U		2.29
TW-906(S)	SB-906(TW)	8/27/2002								0.745
TW-908(S)	SB-908(TW)	8/27/2002	0.05 U	0.05 U				0.01 U		2 U
TW-908(S)	SB-908(TW)	8/27/2002								0.1 U
TW-909(S)	SB-909(TW)	8/27/2002	0.05 U	0.05 U				0.01 U		1.1 U

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Fluoranthene ug/L	Fluorene ug/L	Hexachlorobenzene ug/L	Hexachloro- cyclopentadiene ug/L	Hexachloroethane ug/L	Indeno(1,2,3-cd) pyrene ug/L	Isophorone ug/L	Naphthalene ug/L
TW-910(S)	SB-910(TW)	8/26/2002	0.05 U	1.08				0.01 U		0.61
TW-911(S)	SB-911(TW)	8/27/2002	0.1 U	0.377 J				0.1 U		2 U
TW-911(S)	SB-911(TW)	8/27/2002								0.5 U

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Nitrobenzene ug/L	n-Nitrosodi- phenylamine ug/L	Pentachlorophenol ug/L	Phenanthrene ug/L	Phenol ug/L	Pyrene ug/L
MW-1(F)	MW-1-082302	8/23/2002				0.05 U		0.05 U
MW-1(F)	MW-1-082302	8/23/2002						
TW-100(C)	SB100(C)W	8/22/2002				0.05 U		0.05 U
TW-100(C)	SB100(C)W	8/22/2002						
TW-103(C)	SB103(C)W	8/22/2002						
TW-104(C)	SB104(C)W	8/22/2002						
TW-200(C)	SB200(C)W	8/22/2002				0.05 U		0.05 U
TW-200(C)	SB200(C)W	8/22/2002						
TW-201(C)	SB201(C)W	8/22/2002				0.05 U		0.05 U
TW-201(C)	SB201(C)W	8/22/2002						
TW-202(C)	SB202(C)W	8/22/2002				0.05 U		0.05 U
TW-202(C)	SB202(C)W	8/22/2002						
TW-203(C)	SB203(C)W	8/22/2002				0.05 U		0.05 U
TW-203(C)	SB203(C)W	8/22/2002						
TW-204(C)	SB204(C)W	8/22/2002				0.05 U		0.05 U
TW-204(C)	SB204(C)W	8/22/2002						
TW-204(C)	SB204(C)W2	8/22/2002				0.05 U		0.05 U
TW-204(C)	SB204(C)W2	8/22/2002						
TW-304(D)	SB-304-D-9.0	8/19/2002				0.06 U		0.05 U
TW-304(D)	SB-304-D-9.0 DUP	8/19/2002				0.05 U		0.05 U
TW-305(D)	SB-305-D-9.0	8/19/2002				39.9		2.5 U
TW-305(D)	SB-305-D-9.0	8/19/2002						
TW-306(D)	SB-306-D-9.0	8/19/2002				2.09		0.25 U
TW-307(D)	SB-307-D-9.0	8/19/2002				5 U		0.08 U
TW-309(D)	SB-309-D-9.0	8/19/2002				0.05 U		0.05 U
TW-309(D)	SB-309-D-9.0	8/19/2002						
TW-311(D)	SB-311-D-10.0	8/19/2002				0.05 U		0.05 U
TW-312(D)	SB-312-D-10.0	8/19/2002				0.05 U		0.05 U
TW-312(D)	SB-312-D-10.0	8/19/2002						
TW-313(D)	TW-313-D-22.0	8/20/2002				0.05 U		0.05 U
TW-314(D)	TW-314-D-22.0	8/20/2002				0.05 U		0.05 U
TW-318(D)	TW-318-D-22.0	8/20/2002				0.05 U		0.05 U
TW-318(D)	TW-318-D-22.0	8/20/2002						
TW-319(D)	SB-319-D-14.0	8/19/2002				0.05 U		0.05 U
TW-400(F)	TW-400(F)	8/22/2002				0.05 U		0.05 U
TW-600(N)	TW-600(N)	9/13/2002				0.05 U		0.25 U
TW-600(N)	TW-600(N)	9/13/2002						
TW-601(N)	TW-601(N)	9/13/2002				0.05 U		2.5 U
TW-601(N)	TW-601(N)	9/13/2002						
TW-602(N)	BT-602(N)	9/13/2002				0.05 U		0.05 U
TW-602(N)	BT-602(N)	9/13/2002						
TW-602(N)	TW-602(N)	9/13/2002				0.05 U		0.05 U
TW-602(N)	TW-602(N)	9/13/2002						
TW-603(N)	TW-603(N)	9/13/2002				0.0679		0.05 U
TW-603(N)	TW-603(N)	9/13/2002						
TW-608(N)	TW-608 (N)	9/13/2002				0.05 U		0.05 U
TW-608(N)	TW-608 (N)	9/13/2002						
TW-612(N)	TW-612(N)	9/12/2002				0.171		0.05 U
TW-612(N)	TW-612(N)	9/12/2002						
TW-616(N)	TW-616(N)	9/12/2002				0.05 U		0.05 U
TW-616(N)	TW-616(N)	9/12/2002						
TW-619(N)	TW-619(N)	9/12/2002				0.12		0.05 U
TW-619(N)	TW-619(N)	9/12/2002						
TW-623(N)	TW-623(N)	9/12/2002				0.874		0.05 U

**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Nitrobenzene ug/L	n-Nitrosodi- phenylamine ug/L	Pentachlorophenol ug/L	Phenanthrene ug/L	Phenol ug/L	Pyrene ug/L
TW-623(N)	TW-623(N)	9/12/2002						
TW-624(N)	TW-624(N)	9/12/2002	5 U	5 U	10 U	5 U	5 U	5 U
TW-624(N)	TW-624(N)	9/12/2002						
TW-625(N)	BT-625(N)	9/12/2002				0.05 U		0.05 U
TW-625(N)	TW-625(N)	9/12/2002				0.05 U		0.05 U
TW-700(P)	TW-700(P)	8/21/2002				1 U J		1 U J
TW-700(P)	TW-700(P)	8/21/2002						
TW-701(P)	TW-701(P)	8/20/2002						
TW-702(P)	TW-702(P)	8/21/2002				0.05 U J		0.05 U J
TW-702(P)	TW-702(P)	8/21/2002						
TW-703(P)	TW-703(P)	8/21/2002						
TW-704(P)	TW-704(P)	8/21/2002			25 U		25 U	
TW-705(P)	TW-705(P)	8/20/2002			25 U		25 U	
TW-706(P)	TW-706(P)	8/21/2002				0.0571 U J		0.0571 U J
TW-707(P)	TW-707(P)	8/21/2002						
TW-708(P)	BT-708(P)	8/20/2002				2 U J		2 U J
TW-708(P)	BT-708(P)	8/20/2002						
TW-708(P)	TW-708(P)	8/20/2002				2.5 U J		2.5 U J
TW-708(P)	TW-708(P)	8/20/2002						
TW-709(P)	TW-709(P)	8/21/2002						
TW-710(P)	TW-710(P)	8/21/2002				0.05 U J		0.05 U J
TW-710(P)	TW-710(P)	8/21/2002						
TW-711(P)	BT-711(P)	8/21/2002						
TW-711(P)	TW-711(P)	8/21/2002						
TW-712(P)	TW-712(P)	8/21/2002				0.05 U J		0.05 U J
TW-712(P)	TW-712(P)	8/21/2002						
TW-714(P)	TW-714(P)	8/21/2002				2.5 U J		2.5 U J
TW-714(P)	TW-714(P)	8/21/2002						
TW-716(P)	TW-716(P)	8/20/2002				0.05 U J		0.05 U J
TW-716(P)	TW-716(P)	8/20/2002						
TW-717(P)	TW-717(P)	8/20/2002				0.2 U J		0.2 U J
TW-717(P)	TW-717(P)	8/20/2002						
TW-718(P)	TW-718(P)	8/21/2002				0.05 U J		0.05 U J
TW-718(P)	TW-718(P)	8/21/2002						
TW-719(P)	BT-719(P)	8/23/2002				0.05 U		0.05 U
TW-719(P)	BT-719(P)	8/23/2002						
TW-719(P)	TW-719(P)	8/23/2002				0.05 U		0.05 U
TW-719(P)	TW-719(P)	8/23/2002						
TW-720(P)	TW-720(P)	8/23/2002				2.21		0.05 U
TW-720(P)	TW-720(P)	8/23/2002						
TW-900(S)	SB-900(TW)	8/26/2002				0.05 U		0.05 U
TW-901(S)	SB-901(TW)	8/26/2002				1 U		1 U
TW-901(S)	SB-901(TW)	8/26/2002						
TW-902(S)	SB-902(TW)	8/26/2002				1.35		0.5 U
TW-903(S)	SB-903(TW)	8/26/2002				2.01		0.2 U
TW-903(S)	SB-903(TW)	8/26/2002						
TW-904(S)	SB-904(TW)	8/26/2002				0.989		0.1 U
TW-904(S)	SB-904(TW)	8/26/2002						
TW-905(S)	SB-905(TW)	8/26/2002						
TW-906(S)	SB-906(TW)	8/27/2002				0.05 U		0.05 U
TW-906(S)	SB-906(TW)	8/27/2002						
TW-908(S)	SB-908(TW)	8/27/2002				0.05 U		0.05 U
TW-908(S)	SB-908(TW)	8/27/2002						
TW-909(S)	SB-909(TW)	8/27/2002				0.05 U		0.05 U



**TABLE 8  
SVOCs IN GROUND WATER**

Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Nitrobenzene</b> ug/L	<b>n-Nitrosodi- phenylamine</b> ug/L	<b>Pentachlorophenol</b> ug/L	<b>Phenanthrene</b> ug/L	<b>Phenol</b> ug/L	<b>Pyrene</b> ug/L
TW-910(S)	SB-910(TW)	8/26/2002				0.06 U		0.05 U
TW-911(S)	SB-911(TW)	8/27/2002				0.2 U		0.1 U
TW-911(S)	SB-911(TW)	8/27/2002						

**TABLE 9  
METALS IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Arsenic, Total ug/L</b>	<b>Barium ug/L</b>	<b>Cadmium ug/L</b>	<b>Chromium ug/L</b>	<b>Lead ug/L</b>
TW-100(C)	SB100(C)W	8/22/2002	5.57	229	1 U	24.1	22.3
TW-200(C)	SB200(C)W	8/22/2002	1.94	39.3	1 U	5.99	3.35
TW-201(C)	SB201(C)W	8/22/2002	2.76	54.5	1 U	8.37	4.81
TW-202(C)	SB202(C)W	8/22/2002	2.99	66.9	1 U	9.05	6.56
TW-203(C)	SB203(C)W	8/22/2002	1.53	45	1 U	4.22	2.84
TW-204(C)	SB204(C)W	8/22/2002	2.22	17.8	1 U	2.48	2.29
TW-204(C)	SB204(C)W2	8/22/2002	2.25	17	1 U	2.26	2.29
TW-305(D)	SB-305-D-9.0	8/19/2002					1.52
TW-311(D)	SB-311-D-10.0	8/19/2002					0.19 J
TW-312(D)	SB-312-D-10.0	8/19/2002					0.27 J
TW-313(D)	TW-313-D-22.0	8/20/2002					0.23 J
TW-318(D)	TW-318-D-22.0	8/20/2002					1 U
TW-600(N)	TW-600(N)	9/13/2002					1 U
TW-601(N)	TW-601(N)	9/13/2002					1 U
TW-602(N)	BT-602(N)	9/13/2002					1 U
TW-602(N)	TW-602(N)	9/13/2002					1 U
TW-603(N)	TW-603(N)	9/13/2002					1 U
TW-608(N)	TW-608 (N)	9/13/2002					1 U
TW-612(N)	TW-612(N)	9/12/2002					1 U
TW-616(N)	TW-616(N)	9/12/2002					1.01
TW-619(N)	TW-619(N)	9/12/2002					1 U
TW-623(N)	TW-623(N)	9/12/2002					1 U
TW-624(N)	TW-624(N)	9/12/2002			1 U	1 U	1 U
TW-700(P)	TW-700(P)	8/21/2002	6.64	10.2	1 U	1 U	1 U
TW-701(P)	TW-701(P)	8/20/2002	12.2	12.4	1 U	1 U	1 U
TW-702(P)	TW-702(P)	8/21/2002	1 U	5.68	1 U	1 U	1 U
TW-703(P)	TW-703(P)	8/21/2002	64.6	20.2	1 U	U B	1 U
TW-704(P)	TW-704(P)	8/21/2002	1 U	11.6	1 U	U B	1 U

**TABLE 9  
METALS IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Arsenic, Total ug/L</b>	<b>Barium ug/L</b>	<b>Cadmium ug/L</b>	<b>Chromium ug/L</b>	<b>Lead ug/L</b>
TW-705(P)	TW-705(P)	8/20/2002	5.29	11.9	1 U	1 U	1 U
TW-706(P)	TW-706(P)	8/21/2002	6.72	10.2	1 U	1 U	1 U
TW-708(P)	BT-708(P)	8/20/2002	6.7	25.2	1 U	1 U	1 U
TW-708(P)	TW-708(P)	8/20/2002	6.08	26	1 U	1.06	1 U
TW-710(P)	TW-710(P)	8/21/2002	1.56	8.93	1 U	U B	1 U
TW-712(P)	TW-712(P)	8/21/2002	2.37	18.3	1 U	U B	1 U
TW-714(P)	TW-714(P)	8/21/2002					1 U
TW-716(P)	TW-716(P)	8/20/2002					1 U
TW-717(P)	TW-717(P)	8/20/2002					1 U
TW-719(P)	BT-719(P)	8/23/2002					1 U
TW-719(P)	TW-719(P)	8/23/2002					1 U
TW-720(P)	TW-720(P)	8/23/2002					1.59 JB
TW-900(S)	SB-900(TW)	8/26/2002			1 U	1 U	1 U
TW-900(S)	SB-900(TW)	8/26/2002			1 U	6.09	2.42
TW-901(S)	SB-901(TW)	8/26/2002			1 U	1	1.18
TW-901(S)	SB-901(TW)	8/26/2002			1 U	3.08	5.19
TW-902(S)	SB-902(TW)	8/26/2002			1 U	1 U	1 U
TW-902(S)	SB-902(TW)	8/26/2002			1 U	14.1	16.6
TW-903(S)	SB-903(TW)	8/26/2002			1 U	1.19	1 U
TW-903(S)	SB-903(TW)	8/26/2002			1 U	1 U	1 U
TW-904(S)	SB-904(TW)	8/26/2002			1 U	1.15	1 U
TW-904(S)	SB-904(TW)	8/26/2002			1 U	13.3	3.76
TW-905(S)	SB-905(TW)	8/26/2002			1 U	5.48	4.62
TW-905(S)	SB-905(TW)	8/26/2002			1 U	156	50.8
TW-906(S)	SB-906(TW)	8/27/2002			1 U	1 U	1 U
TW-906(S)	SB-906(TW)	8/27/2002			1 U	5.5	2.09
TW-908(S)	SB-908(TW)	8/27/2002			1 U	1 U	1 U
TW-908(S)	SB-908(TW)	8/27/2002			1 U	22	4.92

**TABLE 9  
METALS IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Arsenic, Total</b>	<b>Barium</b>	<b>Cadmium</b>	<b>Chromium</b>	<b>Lead</b>
			ug/L	ug/L	ug/L	ug/L	ug/L
TW-909(S)	SB-909(TW)	8/27/2002			1 U	1 U	1 U
TW-909(S)	SB-909(TW)	8/27/2002			1 U	1.84	1 U
TW-910(S)	SB-910(TW)	8/26/2002			1 U	1.06	1 U
TW-910(S)	SB-910(TW)	8/26/2002			1 U	2.65	1.57
TW-911(S)	SB-911(TW)	8/27/2002			1 U	1 U	1 U
TW-911(S)	SB-911(TW)	8/27/2002			1 U	2.8	1.05

**TABLE 9  
METALS IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Mercury</b>	<b>Selenium</b>	<b>Silver</b>
			ug/L	ug/L	ug/L
TW-100(C)	SB100(C)W	8/22/2002	0.2 U	2.17	1 U
TW-200(C)	SB200(C)W	8/22/2002	0.2 U	1 U	1 U
TW-201(C)	SB201(C)W	8/22/2002	0.2 U	1 U	1 U
TW-202(C)	SB202(C)W	8/22/2002	0.2 U	1 U	1 U
TW-203(C)	SB203(C)W	8/22/2002	0.2 U	1 U	1 U
TW-204(C)	SB204(C)W	8/22/2002	0.2 U	1 U	1 U
TW-204(C)	SB204(C)W2	8/22/2002	0.2 U	1 U	1 U
TW-305(D)	SB-305-D-9.0	8/19/2002			
TW-311(D)	SB-311-D-10.0	8/19/2002			
TW-312(D)	SB-312-D-10.0	8/19/2002			
TW-313(D)	TW-313-D-22.0	8/20/2002			
TW-318(D)	TW-318-D-22.0	8/20/2002			
TW-600(N)	TW-600(N)	9/13/2002			
TW-601(N)	TW-601(N)	9/13/2002			
TW-602(N)	BT-602(N)	9/13/2002			
TW-602(N)	TW-602(N)	9/13/2002			
TW-603(N)	TW-603(N)	9/13/2002			
TW-608(N)	TW-608 (N)	9/13/2002			
TW-612(N)	TW-612(N)	9/12/2002			
TW-616(N)	TW-616(N)	9/12/2002			
TW-619(N)	TW-619(N)	9/12/2002			
TW-623(N)	TW-623(N)	9/12/2002			
TW-624(N)	TW-624(N)	9/12/2002			
TW-700(P)	TW-700(P)	8/21/2002	0.2 U	1 U	1 U
TW-701(P)	TW-701(P)	8/20/2002	0.2 U	1 U	1 U
TW-702(P)	TW-702(P)	8/21/2002	0.2 U	1 U	1 U
TW-703(P)	TW-703(P)	8/21/2002	0.2 U	1 U	1 U
TW-704(P)	TW-704(P)	8/21/2002	0.2 U	1 U	1 U

**TABLE 9  
METALS IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Mercury</b>	<b>Selenium</b>	<b>Silver</b>
			ug/L	ug/L	ug/L
TW-705(P)	TW-705(P)	8/20/2002	0.2 U	U B	1 U
TW-706(P)	TW-706(P)	8/21/2002	0.2 U	1 U	1 U
TW-708(P)	BT-708(P)	8/20/2002	0.2 U	U B	U B
TW-708(P)	TW-708(P)	8/20/2002	0.2 U	U B	1 U
TW-710(P)	TW-710(P)	8/21/2002	0.2 U	1.41	1 U
TW-712(P)	TW-712(P)	8/21/2002	0.2 U	1 U	1 U
TW-714(P)	TW-714(P)	8/21/2002			
TW-716(P)	TW-716(P)	8/20/2002			
TW-717(P)	TW-717(P)	8/20/2002			
TW-719(P)	BT-719(P)	8/23/2002			
TW-719(P)	TW-719(P)	8/23/2002			
TW-720(P)	TW-720(P)	8/23/2002			
TW-900(S)	SB-900(TW)	8/26/2002			
TW-900(S)	SB-900(TW)	8/26/2002			
TW-901(S)	SB-901(TW)	8/26/2002			
TW-901(S)	SB-901(TW)	8/26/2002			
TW-902(S)	SB-902(TW)	8/26/2002			
TW-902(S)	SB-902(TW)	8/26/2002			
TW-903(S)	SB-903(TW)	8/26/2002			
TW-903(S)	SB-903(TW)	8/26/2002			
TW-904(S)	SB-904(TW)	8/26/2002			
TW-904(S)	SB-904(TW)	8/26/2002			
TW-905(S)	SB-905(TW)	8/26/2002			
TW-905(S)	SB-905(TW)	8/26/2002			
TW-906(S)	SB-906(TW)	8/27/2002			
TW-906(S)	SB-906(TW)	8/27/2002			
TW-908(S)	SB-908(TW)	8/27/2002			
TW-908(S)	SB-908(TW)	8/27/2002			

**TABLE 9**  
**METALS IN GROUND WATER**

**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Mercury</b>	<b>Selenium</b>	<b>Silver</b>
			ug/L	ug/L	ug/L
TW-909(S)	SB-909(TW)	8/27/2002			
TW-909(S)	SB-909(TW)	8/27/2002			
TW-910(S)	SB-910(TW)	8/26/2002			
TW-910(S)	SB-910(TW)	8/26/2002			
TW-911(S)	SB-911(TW)	8/27/2002			
TW-911(S)	SB-911(TW)	8/27/2002			

**TABLE 10**  
**FORMALDEHYDE IN GROUND WATER**

**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**

<b>Locator ID</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Formaldehyde</b>
			ug/L
TW-704(P)	TW-704(P)	8/21/2002	220 U
TW-705(P)	TW-705(P)	8/20/2002	77 U



**TABLE 11  
PCBs IN GROUND WATER**

**Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Locator ID	Sample ID	Sample Date	PCB-1258 Aroclor 1258	PCB-1016 (Aroclor 1016)	PCB-1221 (Aroclor 1221)	PCB-1232 (Aroclor 1232)	PCB-1242 (Aroclor 1242)	PCB-1254 (Aroclor 1254)	PCB-1260 (Aroclor 1260)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
TW-100(C)	SB100(C)W	8/22/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-200(C)	SB200(C)W	8/22/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-201(C)	SB201(C)W	8/22/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-202(C)	SB202(C)W	8/22/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-203(C)	SB203(C)W	8/22/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-204(C)	SB204(C)W	8/22/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-204(C)	SB204(C)W2	8/22/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-708(P)	BT-708(P)	8/20/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-708(P)	TW-708(P)	8/20/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-713(P)	TW-713(P)	8/21/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-900(S)	SB-900(TW)	8/26/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-901(S)	SB-901(TW)	8/26/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-902(S)	SB-902(TW)	8/26/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-903(S)	SB-903(TW)	8/26/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-904(S)	SB-904(TW)	8/26/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-905(S)	SB-905(TW)	8/26/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-906(S)	SB-906(TW)	8/27/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-908(S)	SB-908(TW)	8/27/2002	0.5 U J	0.5 U J	1 U J	0.5 U J	0.5 U J	0.5 U J	0.5 U J
TW-909(S)	SB-909(TW)	8/27/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-910(S)	SB-910(TW)	8/26/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-911(S)	SB-911(TW)	8/27/2002	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U

**TABLE 12  
GROUND-WATER ELEVATION MEASUREMENTS**

**Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Well #	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)
MW-1(M)	8/28/2002	1151	-1.99	14.62	9.61	10.08	0.47	4.94
MW-1(M)	9/12/2002	1029	-2.84	14.62	9.34	9.88	0.54	5.20
MW-1(M)	9/13/2002	1536	1.12	14.62	9.13	9.34	0.21	5.46
MW-1(M)	10/11/2002	1141	-1.52	14.62	9.49	9.92	0.43	5.07
MW-1(M)	11/15/2002	1118	3.51	14.62	7.11	7.19	0.08	7.50
MW-1(M)	12/13/2002	841	4.39	14.62	6.54	6.57	0.03	8.08
MW-1(M)	1/14/2003	1117	3.45	14.62	6.79	6.81	0.02	7.83
MW-1(M)	2/12/2003	1126	2.12	14.62	7.55	7.56	0.01	7.07
MW-1(M)	3/13/2003	1018	3.86	14.62	6.37	6.45	0.08	8.24
MW-1(M)	4/14/2003	1147	4.17	14.62	np	6.57	0	8.05
MW-1(M)	5/14/2003	1054	2.59	14.62	8.67	8.7	0.03	5.95
MW-1(M)	6/17/2003	1431		14.62	9.19	9.25	0.06	5.42
MW-2(M)	8/28/2002	1122	-3.21	15.1	np	8.65	0	6.45
MW-2(M)	9/12/2002	1015	-2.84	15.1	np	8.69	0	6.41
MW-2(M)	9/13/2002	1520	1.12	15.1	np	9.7	0	5.40
MW-2(M)	10/11/2002	1036	-2.45	15.1	np	8.95	0	6.15
MW-2(M)	11/15/2002	930	2.73	15.1	np	8.55	0	6.55
MW-2(M)	12/13/2002	814	4.26	15.1	np	8.08	0	7.02
MW-2(M)	1/14/2003	1039	3.45	15.1	np	6.58	0	8.52
MW-2(M)	2/12/2003	1042	2.12	15.1	np	6.47	0	8.63
MW-2(M)	3/13/2003	940	3.86	15.1	np	5.91	0	9.19
MW-2(M)	4/14/2003	1103	4.35	15.1	np	6.02	0	9.08
MW-2(M)	5/14/2003	1008	1.15	15.1	np	6.91	0	8.19
MW-2(M)	6/17/2003	1354		15.1	np	7.51	0	7.59
MW-3(M)	8/28/2002	1345	1.05	15.53	9.45	10.17	0.72	5.97
MW-3(M)	9/12/2002	1025	-2.84	15.53	9.42	10.12	0.7	6.01
MW-3(M)	9/13/2002	1547	2.52	15.53	9.51	9.88	0.37	5.96
MW-3(M)	10/11/2002	1155	-1.52	15.53	9.61	10.67	1.06	5.76
MW-3(M)	11/15/2002	1134	3.51	15.53	9.07	9.7	0.63	6.37
MW-3(M)	12/13/2002	906	4.39	15.53	8.68	9.02	0.34	6.80
MW-3(M)	1/14/2003	1130	2.16	15.53	7.54	8.15	0.61	7.90
MW-3(M)	2/12/2003	1142	0.66	15.53	7.61	8.18	0.57	7.83

**TABLE 12  
GROUND-WATER ELEVATION MEASUREMENTS**

**Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Well #	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)
MW-3(M)	3/13/2003	1037	2.91	15.53	7.01	7.91	0.9	8.39
MW-3(M)	4/14/2003	1207	4.17	15.53	7.06	8.29	1.23	8.29
MW-3(M)	5/14/2003	1101	2.59	15.53	7.78	8.94	1.16	7.58
MW-3(M)	6/17/2003	1500		15.53	8.42	9.15	0.73	7.00
MW-4(M)	8/28/2002	1302	-0.5	15.57	9.16	9.45	0.29	6.37
MW-4(M)	9/12/2002	1042	-3.1	15.57	9.21	9.58	0.37	6.30
MW-4(M)	9/13/2002	1544	1.12	15.57	9.26	9.39	0.13	6.29
MW-4(M)	10/11/2002	1122	-2.45	15.57	9.46	9.77	0.31	6.06
MW-4(M)	11/15/2002	1108	3.51	15.57	9.08	9.12	0.04	6.48
MW-4(M)	12/13/2002	850	4.39	15.57	np	8.66	0	6.91
MW-4(M)	1/14/2003	1106	3.45	15.57	np	7.18	0	8.39
MW-4(M)	2/12/2003	1112	2.12	15.57	6.95	7.92	0.97	8.47
MW-4(M)	3/13/2003	1007	3.86	15.57	6.46	7.49	1.03	8.96
MW-4(M)	4/14/2003	1137	4.17	15.57	6.28	8.89	2.61	8.90
MW-4(M)	5/14/2003	1126	2.59	15.57	7.18	9.48	2.3	8.05
MW-4(M)	6/17/2003	1452		15.57	7.98	8.78	0.8	7.47
MW-5(M)	8/28/2002						0	
MW-6(M)	8/28/2002	1140	-1.99	13.87	np	7.71	0	6.16
MW-6(M)	9/12/2002	926	-1.83	13.87	np	8.25	0	5.62
MW-6(M)	9/13/2002	1515	1.12	13.87	np	7.71	0	6.16
MW-6(M)	10/11/2002	1012	-2.51	13.87	np	7.92	0	5.95
MW-6(M)	11/15/2002	921	2.73	13.87	np	7.41	0	6.46
MW-6(M)	12/13/2002	802	4.26	13.87	np	8.85	0	5.02
MW-6(M)	1/14/2003	1028	3.99	13.87	np	7.01	0	6.86
MW-6(M)	2/12/2003	1031	2.12	13.87	np	6.61	0	7.26
MW-6(M)	3/13/2003	930	4.37	13.87	np	6.93	0	6.94
MW-6(M)	4/14/2003	1053	4.35	13.87	np	6.95	0	6.92
MW-6(M)	5/14/2003	956	1.15	13.87	np	7.14	0	6.73
MW-6(M)	6/17/2003	1402		13.87	np	7.12	0	6.75
MW-7(M)	8/28/2002	1102	-3.21	14.95	np	8.31	0	6.64
MW-7(M)	9/12/2002	900	-1.83	14.95	np	8.36	0	6.59

**TABLE 12  
GROUND-WATER ELEVATION MEASUREMENTS**

**Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Well #	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)
MW-7(M)	9/13/2002	1455	1.12	14.95	np	8.43	0	6.52
MW-7(M)	10/11/2002	957	-2.51	14.95	np	8.58	0	6.37
MW-7(M)	11/15/2002	914	2.73	14.95	np	8.57	0	6.38
MW-7(M)	12/13/2002	754	4.26	14.95	np	7.7	0	7.25
MW-7(M)	1/14/2003	1017	3.99	14.95	np	6.01	0	8.94
MW-7(M)	2/12/2003	1021	3.06	14.95	np	5.96	0	8.99
MW-7(M)	3/13/2003	920	4.37	14.95	np	5.3	0	9.65
MW-7(M)	4/14/2003	1044	4.35	14.95	np	5.5	0	9.45
MW-7(M)	5/14/2003	947	1.15	14.95	np	6.42	0	8.53
MW-7(M)	6/17/2003	1347		14.95	np	7.13	0	7.82
MW-8(M)	8/28/2002	1326	-0.5	15.32	9.69	11.08	1.39	5.42
MW-8(M)	9/12/2002	1036	-3.1	15.32	9.6	10.85	1.25	5.53
MW-8(M)	9/13/2002	1540	1.12	15.32	9.7	10.41	0.71	5.51
MW-8(M)	10/11/2002	1211	-1.52	15.32	9.89	10.91	1.02	5.28
MW-8(M)	11/15/2002	1126	3.51	15.32	8.57	9.26	0.69	6.65
MW-8(M)	12/13/2002	859	4.39	15.32	8.04	8.81	0.77	7.16
MW-8(M)	1/14/2003	1123	3.45	15.32	8.2	8.53	0.33	7.07
MW-8(M)	2/12/2003	1133	0.66	15.32	8.27	8.75	0.48	6.98
MW-8(M)	3/13/2003	1029	3.86	15.32	np	8.22	0	7.10
MW-8(M)	4/14/2003	1158	4.17	15.32	np	7.72	0	7.60
MW-8(M)	5/14/2003	1042	2.59	15.32	8.71	9.45	0.74	6.50
MW-8(M)	6/17/2003	1440		15.32	8.91	9.77	0.86	6.28
MW-9(M)	8/28/2002	1357	1.05	15.52	9.35	13.21	3.86	5.59
MW-9(M)	9/12/2002	1049	-3.1	15.52	9.3	12.08	2.78	5.80
MW-9(M)	9/13/2002	1552	1.12	15.52	9.61	10.21	0.6	5.82
MW-9(M)	10/11/2002	1226	-1.52	15.52	9.75	10.92	1.17	5.59
MW-9(M)	11/15/2002	1141	2.61	15.52	9.16	10.28	1.12	6.19
MW-9(M)	12/13/2002	915	4.39	15.52	8.78	9.79	1.01	6.59
MW-9(M)	1/14/2003	1137	2.16	15.52	7.76	8.55	0.79	7.64
MW-9(M)	2/12/2003	1150	0.66	15.52	7.85	8.85	1	7.52
MW-9(M)	3/13/2003	1045	2.91	15.52	7.35	8.21	0.86	8.04
MW-9(M)	4/14/2003	1217	4.17	15.52	7.33	8.9	1.57	7.95
MW-9(M)	5/15/2003	1116	2.59	15.52	8.11	10.3	2.19	7.08

**TABLE 12  
GROUND-WATER ELEVATION MEASUREMENTS**

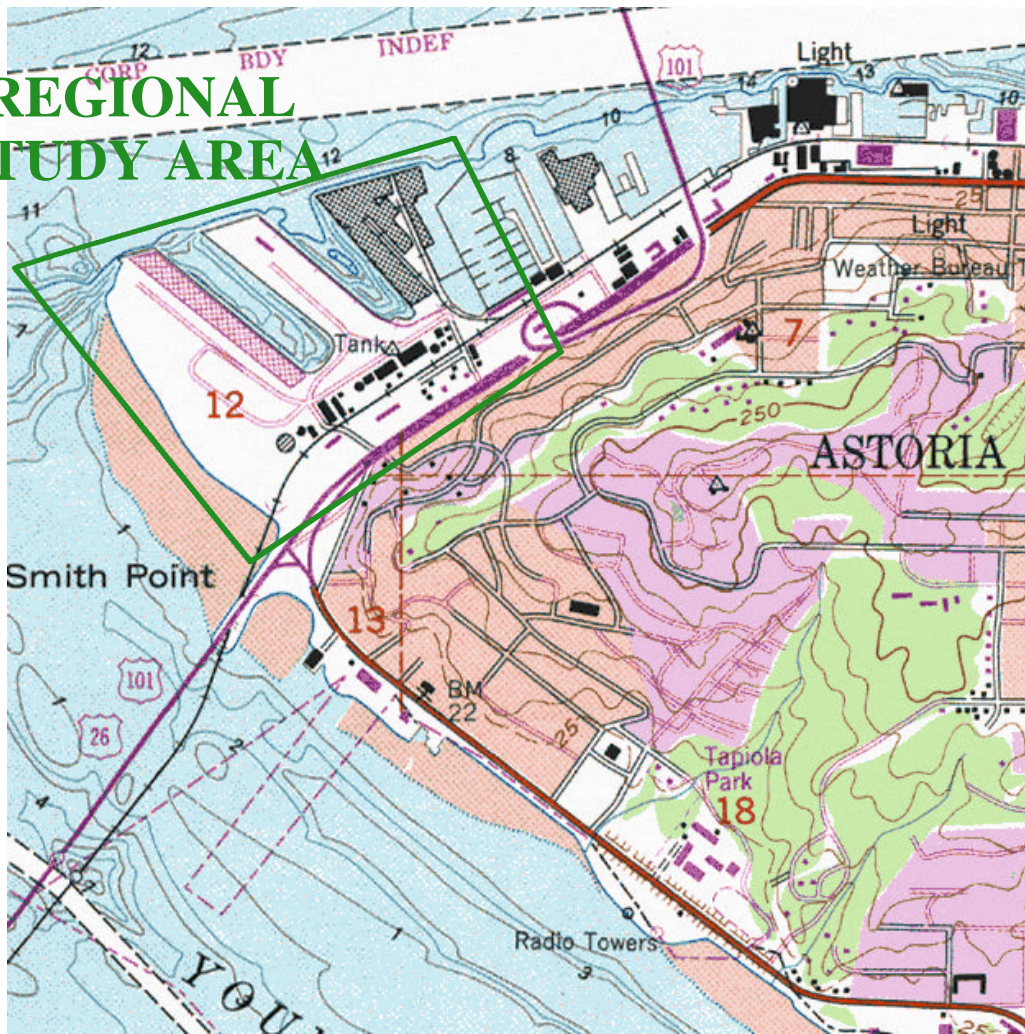
**Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

Well #	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)
MW-9(M)	6/17/2003	1508		15.52	8.44	10.65	2.21	6.75
MW-10(M)	8/28/2002	1430	1.05	16.43	np	11.23	0	5.20
MW-10(M)	9/12/2002	1005	-2.84	16.43	np	11.1	0	5.33
MW-10(M)	9/13/2002	1526	1.12	16.43	np	11.13	0	5.30
MW-10(M)	10/11/2002	1055	-2.45	16.43	np	11.22	0	5.21
MW-10(M)	11/15/2002	942	3.5	16.43	np	10.63	0	5.80
MW-10(M)	12/13/2002	821	4.26	16.43	np	10.21	0	6.22
MW-10(M)	1/14/2003	1048	3.45	16.43	np	9.62	0	6.81
MW-10(M)	2/12/2003	1051	2.12	16.43	np	9.91	0	6.52
MW-10(M)	3/13/2003	948	3.86	16.43	np	9.4	0	7.03
MW-10(M)	4/14/2003	1118	4.35	16.43	np	9.1	0	7.33
MW-10(M)	5/15/2003	1019	1.15	16.43	np	10.38	0	6.05
MW-10(M)	6/17/2003	1413		16.43	np	10.41	0	6.02
MW-11(M)	8/28/2002	1420	1.05	16.45	np	10.87	0	5.58
MW-11(M)	9/12/2002	1000	-2.84	16.45	np	10.8	0	5.65
MW-11(M)	9/13/2002	1531	1.12	16.45	np	10.83	0	5.62
MW-11(M)	10/11/2002	1108	-2.45	16.45	np	11.01	0	5.44
MW-11(M)	11/15/2002	949	3.5	16.45	np	10.37	0	6.08
MW-11(M)	12/13/2002	829	4.26	16.45	np	9.94	0	6.51
MW-11(M)	1/14/2003	1057	3.45	16.45	np	9.08	0	7.37
MW-11(M)	2/12/2003	1058	2.12	16.45	np	9.25	0	7.20
MW-11(M)	3/13/2003	958	3.86	16.45	np	8.71	0	7.74
MW-11(M)	4/14/2003	1127	4.35	16.45	np	8.86	0	7.59
MW-11(M)	5/15/2003	1028	1.15	16.45	np	9.79	0	6.66
MW-11(M)	6/17/2003	1422		16.45	np	10.02	0	6.43

***FIGURES***

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# REGIONAL STUDY AREA



(from USGS, Astoria {1984}, OR 7.5' Quadrangles)

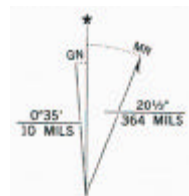
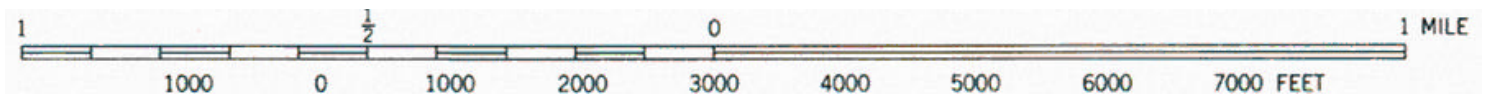


FIGURE 1

## SITE LOCATION

### Remedial Investigation/Feasibility Study Astoria Area-Wide Petroleum Site Astoria, Oregon

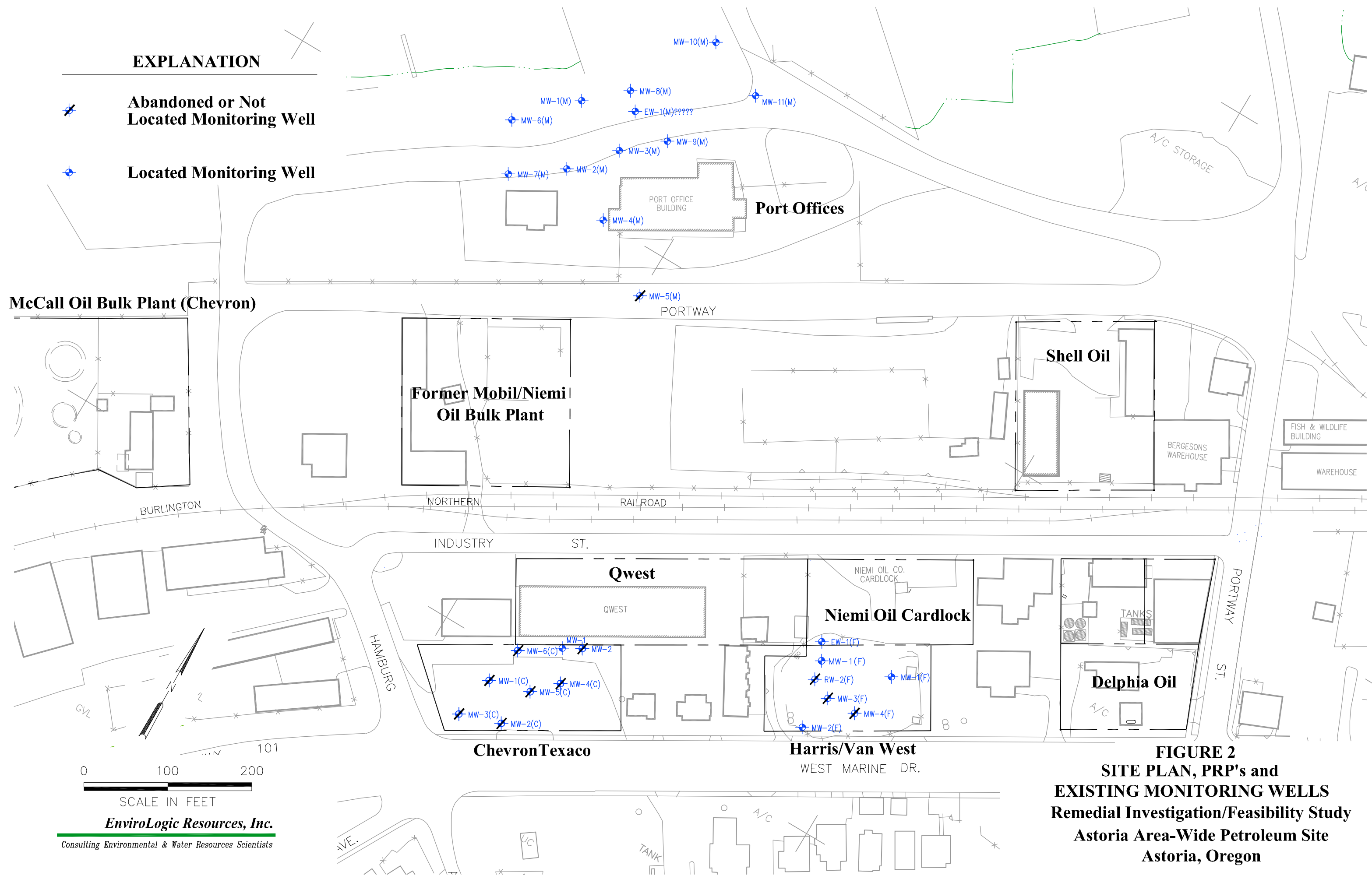
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**EXPLANATION**

 **Abandoned or Not Located Monitoring Well**

 **Located Monitoring Well**



**FIGURE 2**  
**SITE PLAN, PRP's and**  
**EXISTING MONITORING WELLS**  
**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**

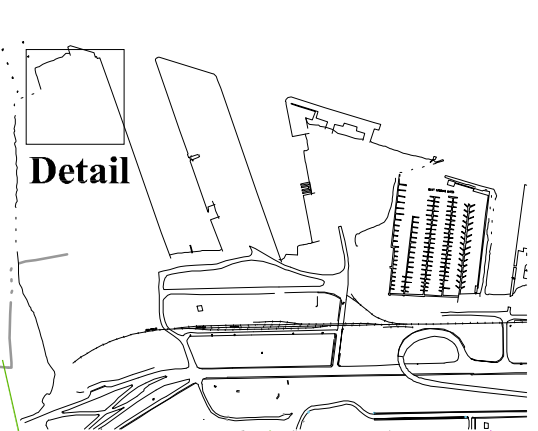


**EXPLANATION**

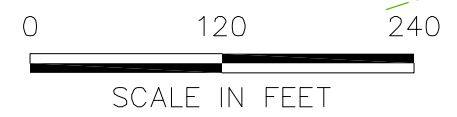
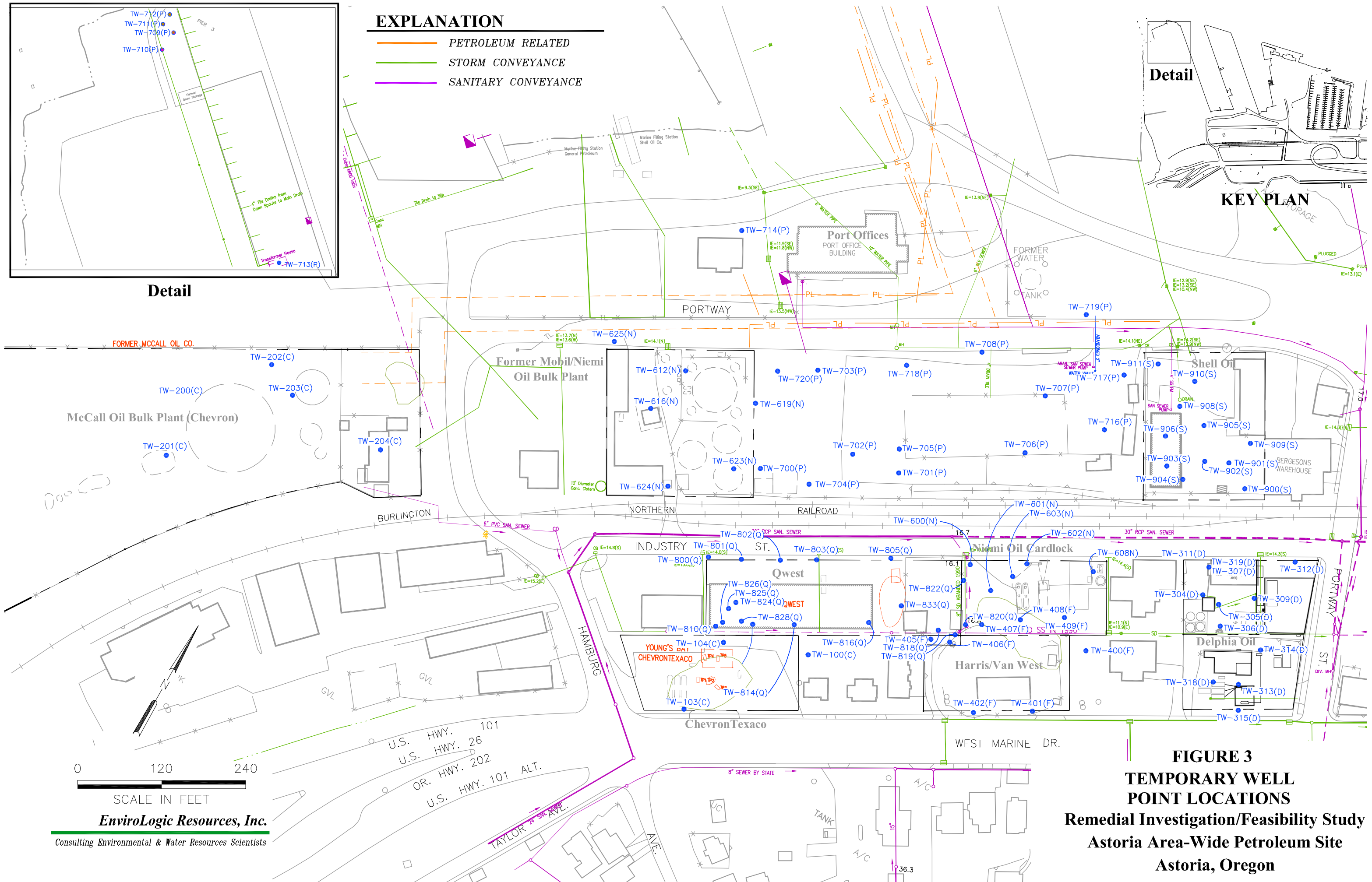
- PETROLEUM RELATED
- STORM CONVEYANCE
- SANITARY CONVEYANCE



**Detail**

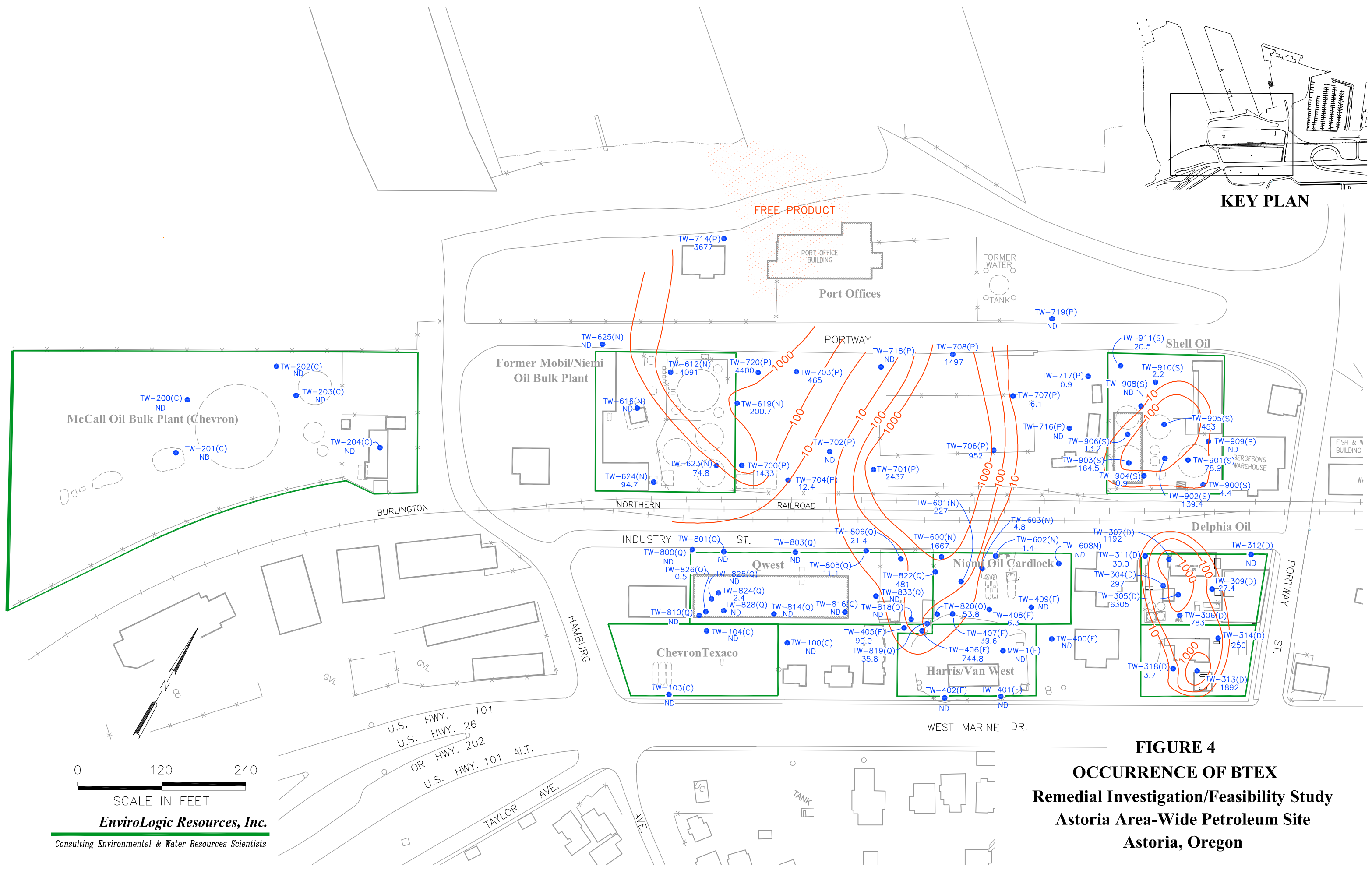


**KEY PLAN**



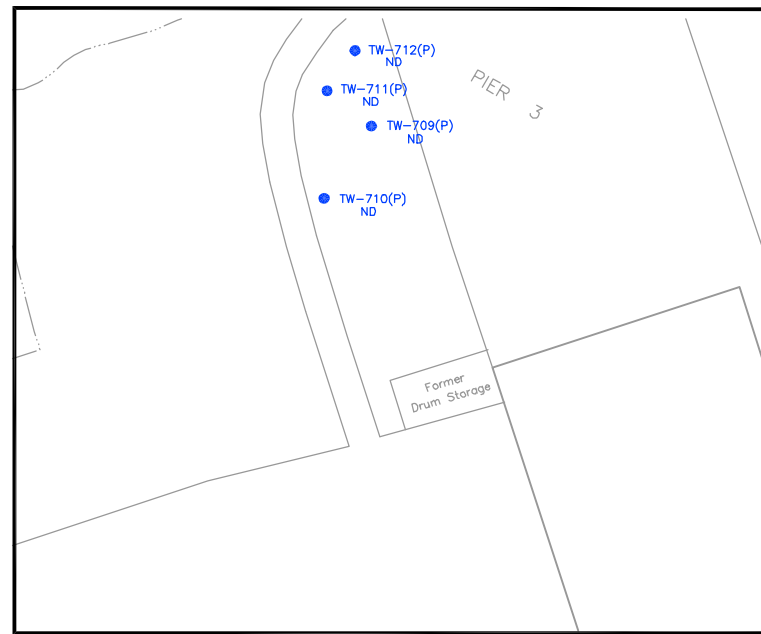
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**FIGURE 3**  
**TEMPORARY WELL**  
**POINT LOCATIONS**  
 Remedial Investigation/Feasibility Study  
 Astoria Area-Wide Petroleum Site  
 Astoria, Oregon

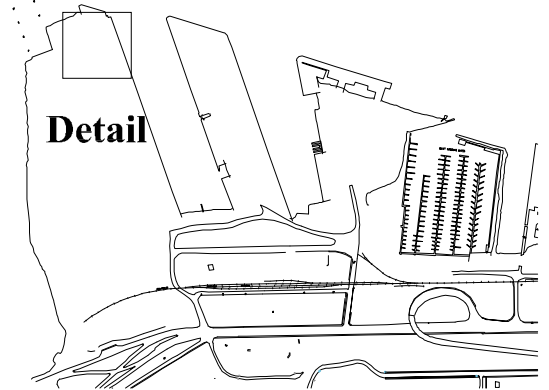


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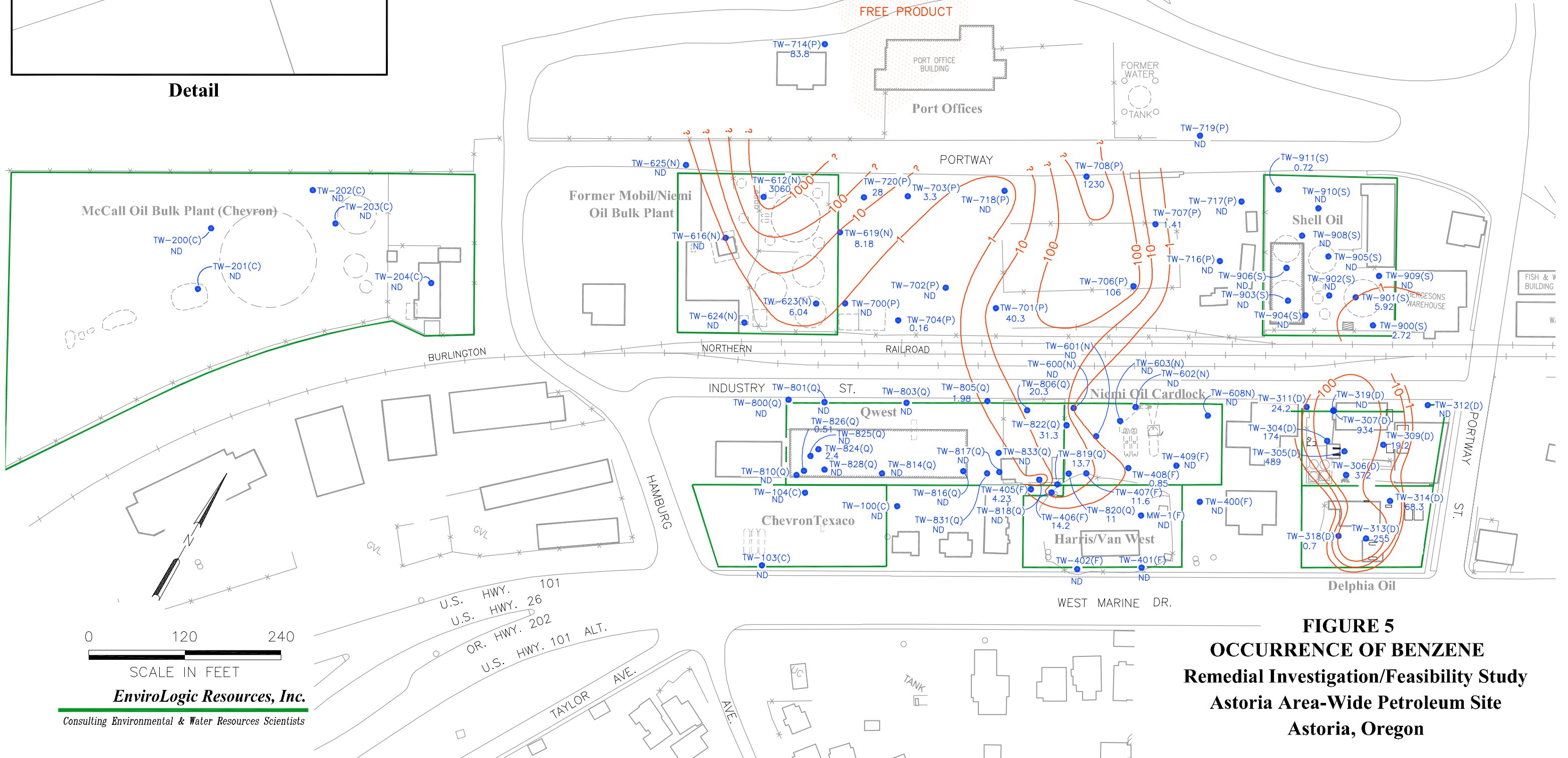
**FIGURE 4  
OCCURRENCE OF BTEX  
Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**



**Detail**



**KEY PLAN**

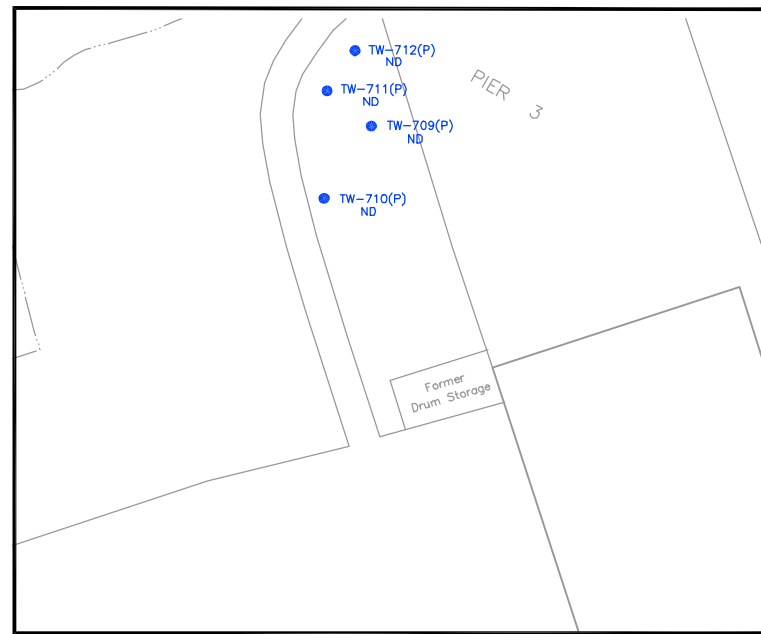


**FIGURE 5**  
**OCCURRENCE OF BENZENE**  
 Remedial Investigation/Feasibility Study  
 Astoria Area-Wide Petroleum Site  
 Astoria, Oregon

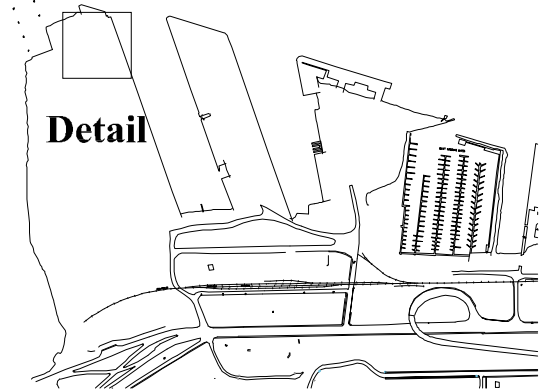


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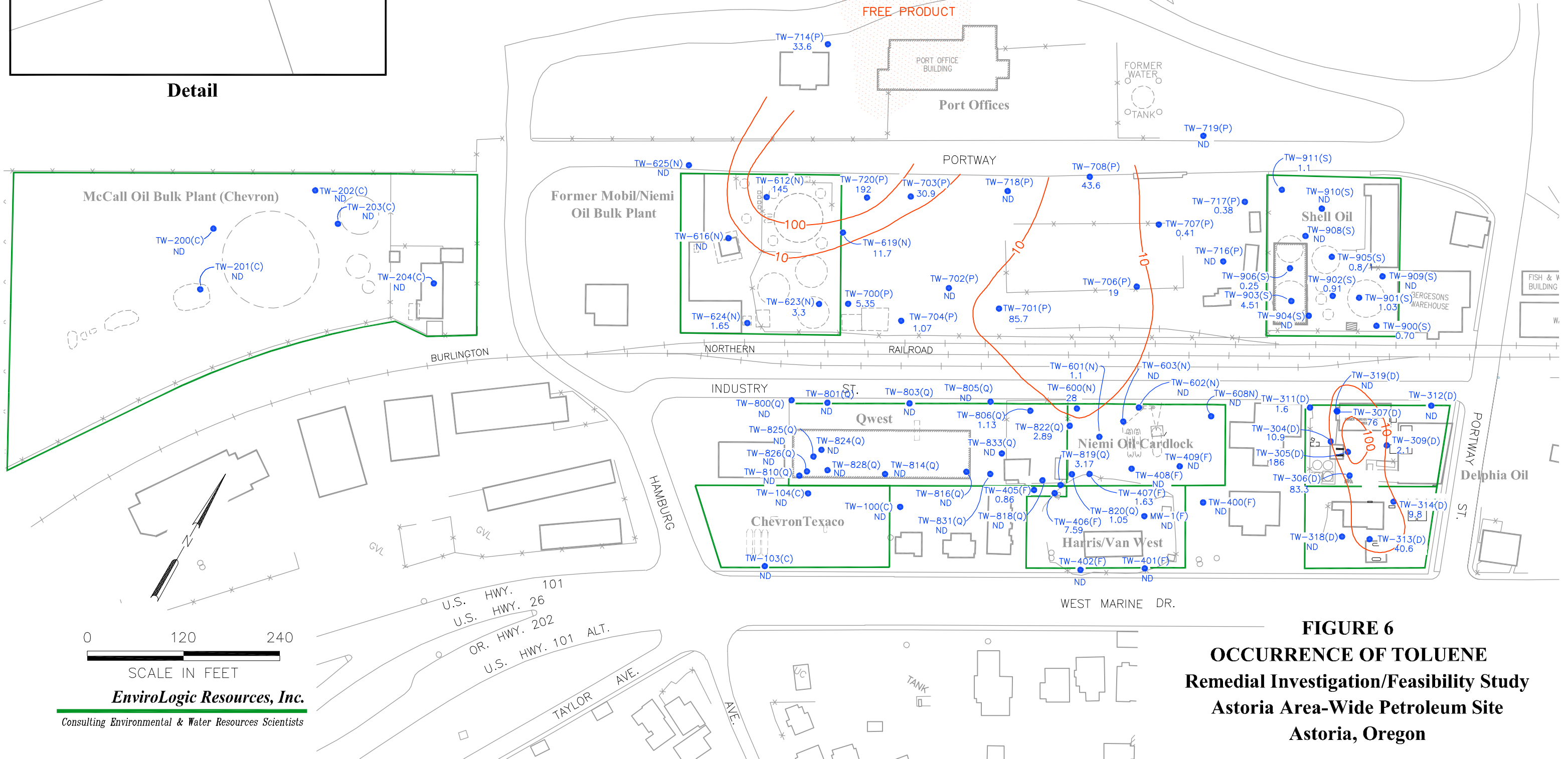
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**Detail**

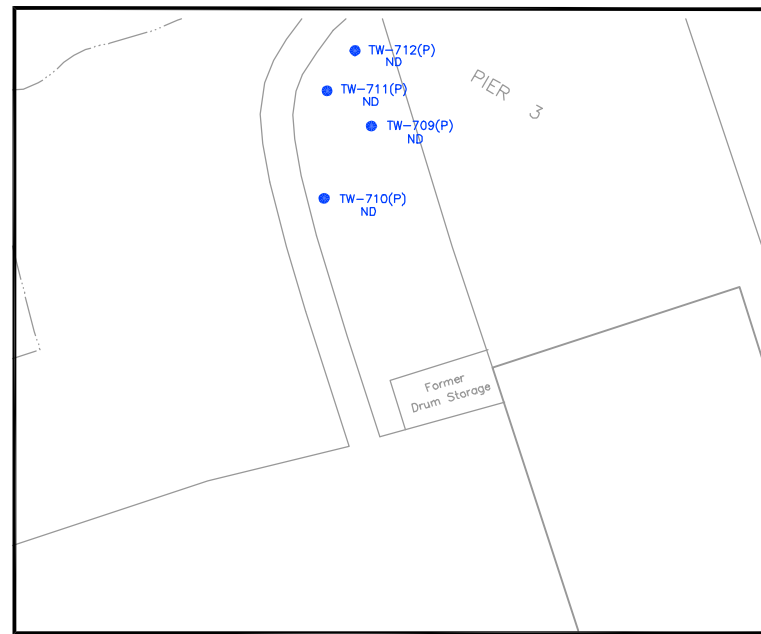


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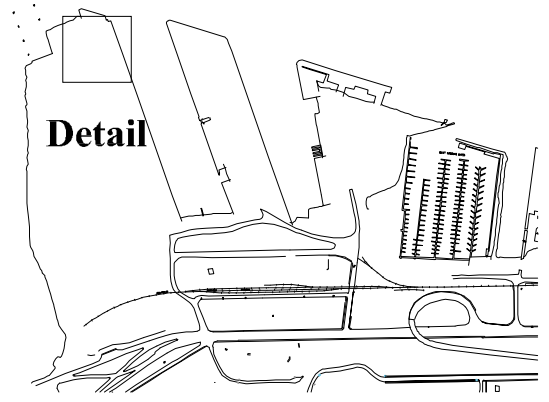


**FIGURE 6**  
**OCCURRENCE OF TOLUENE**  
**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**

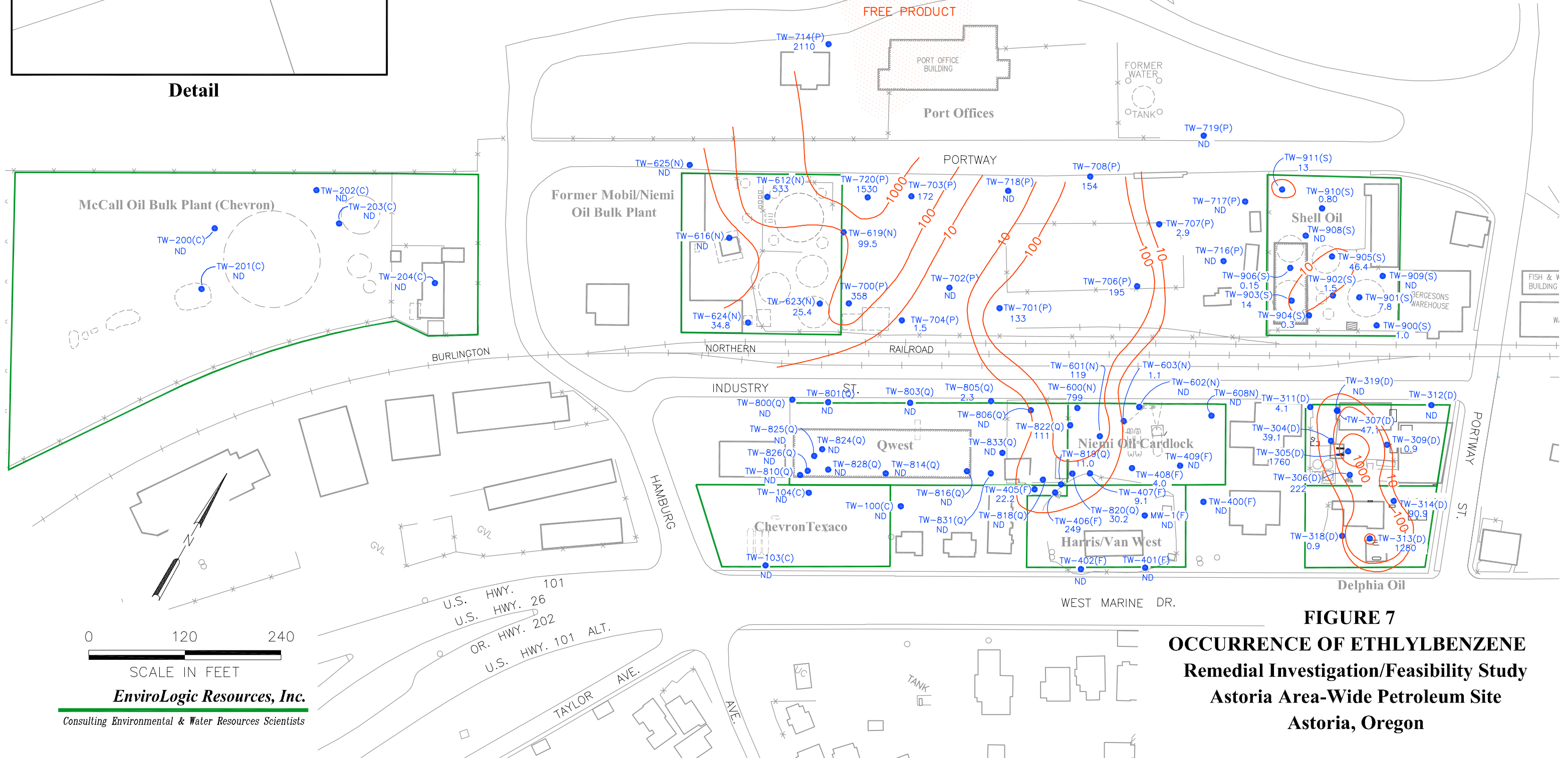
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**Detail**

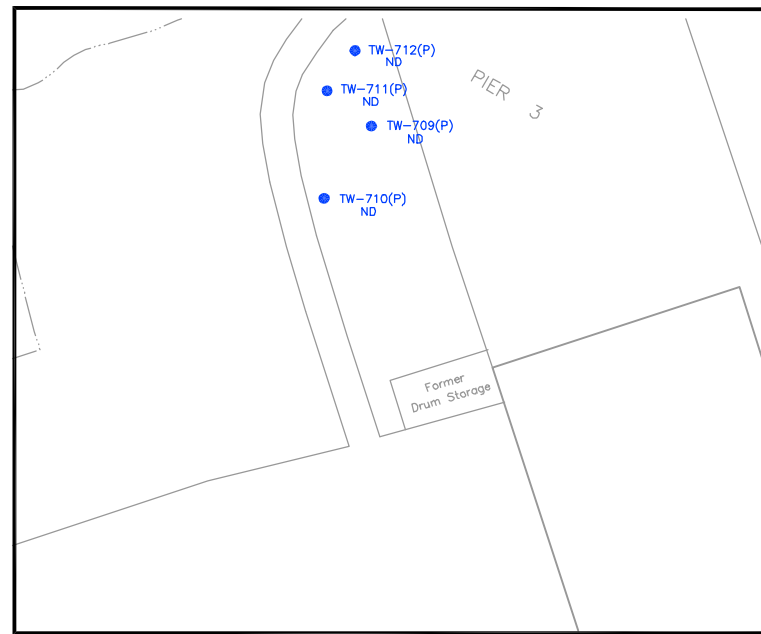


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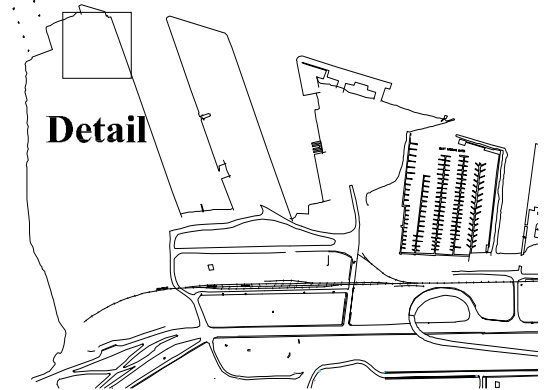


**FIGURE 7**

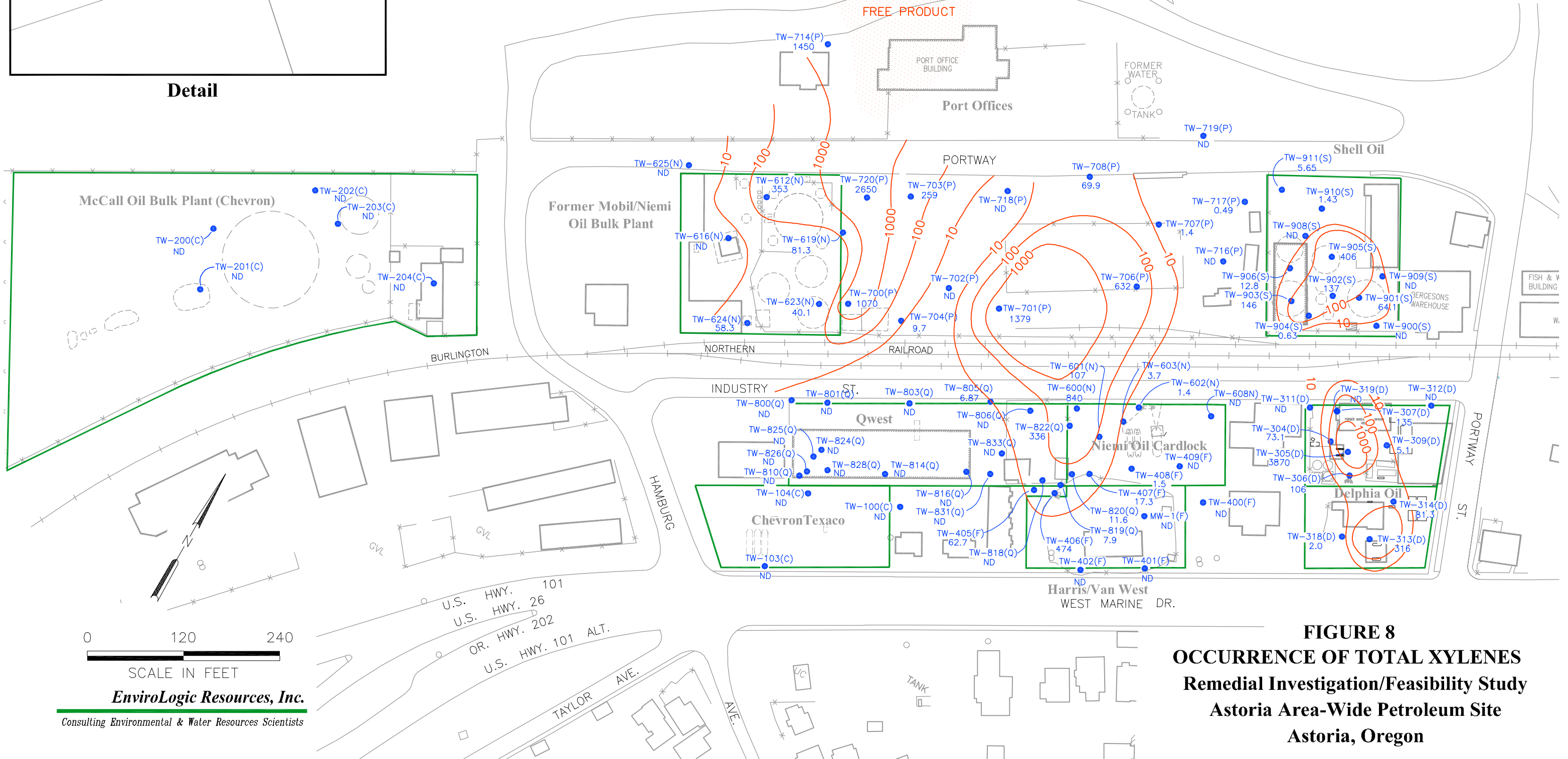
**OCCURRENCE OF ETHYL BENZENE  
Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**



**Detail**



**KEY PLAN**

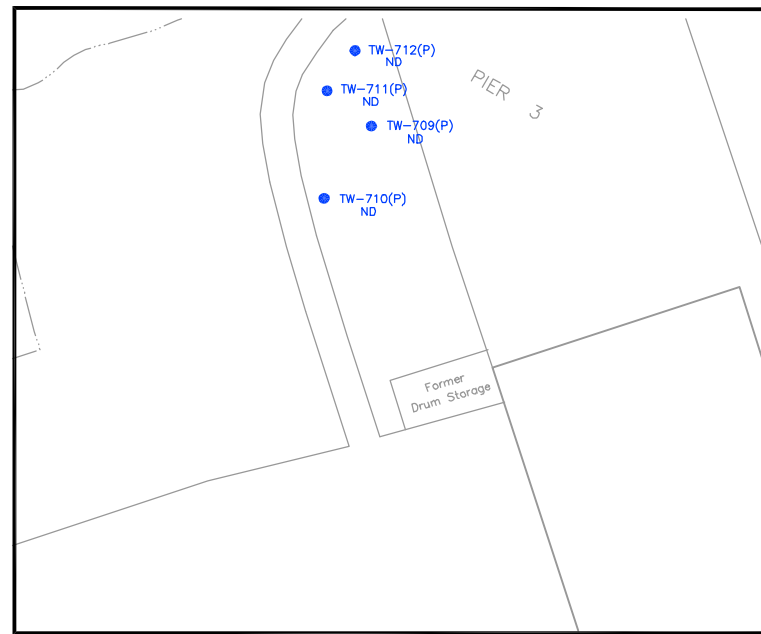


**FIGURE 8  
OCCURRENCE OF TOTAL XYLENES  
Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**

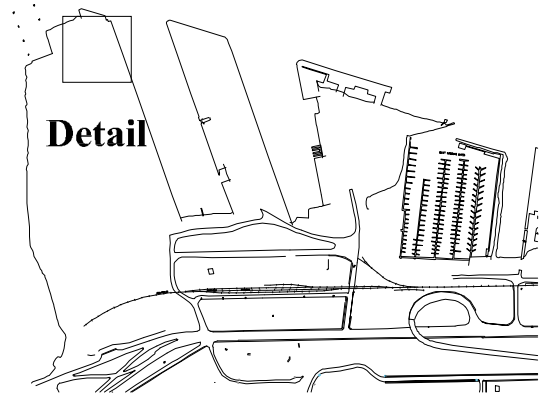


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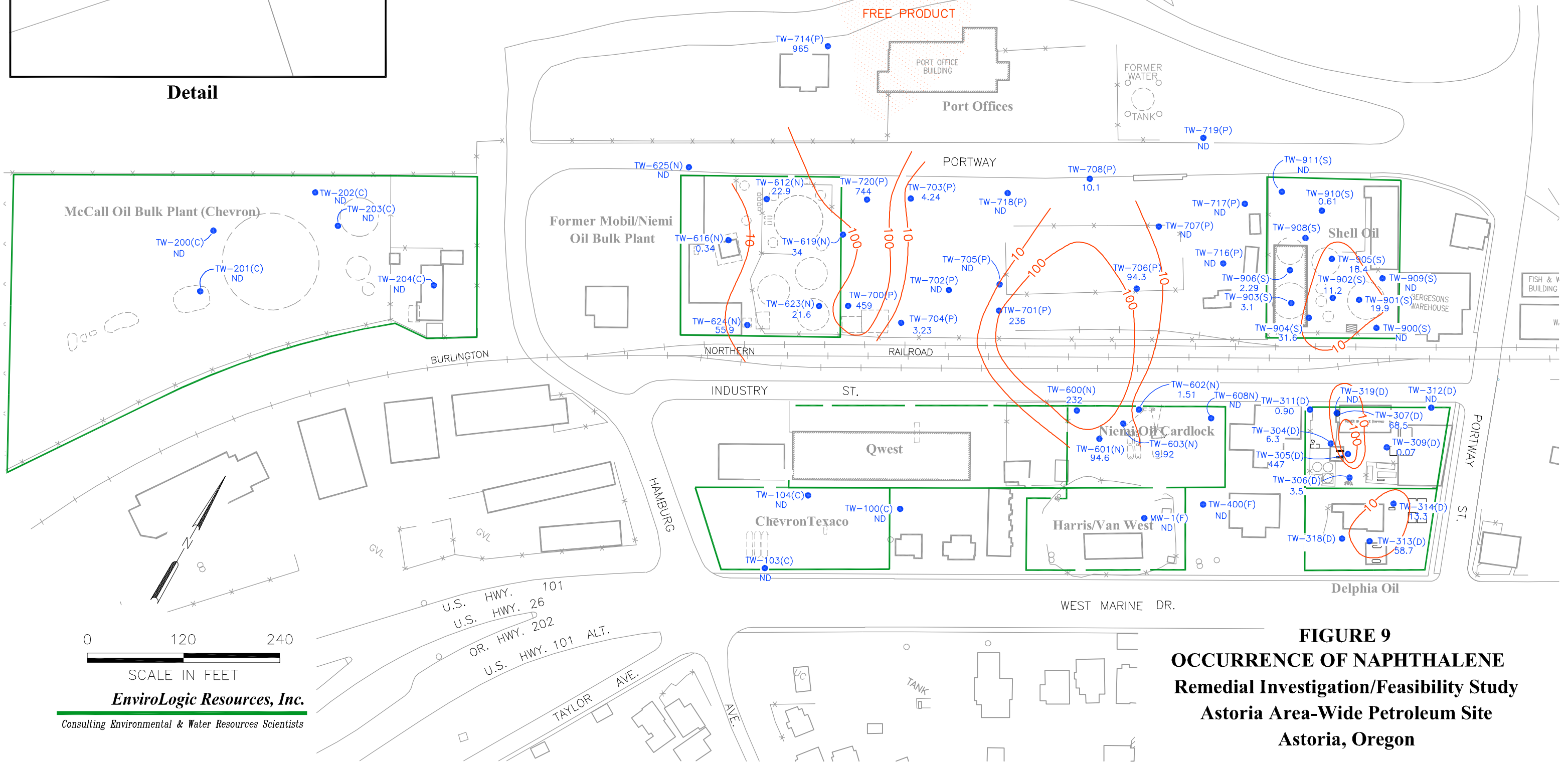
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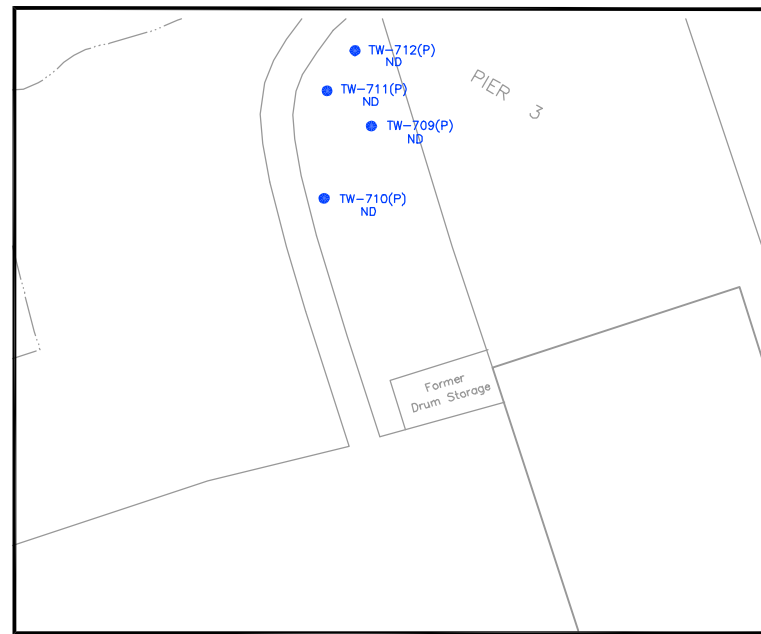
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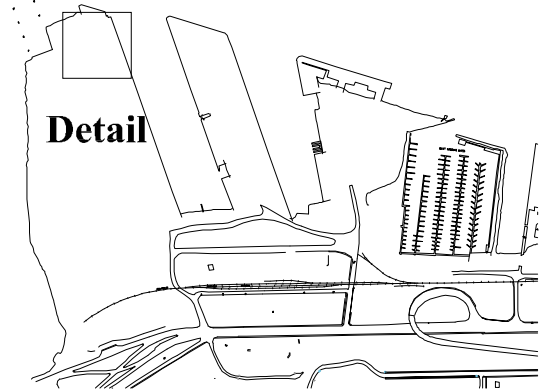
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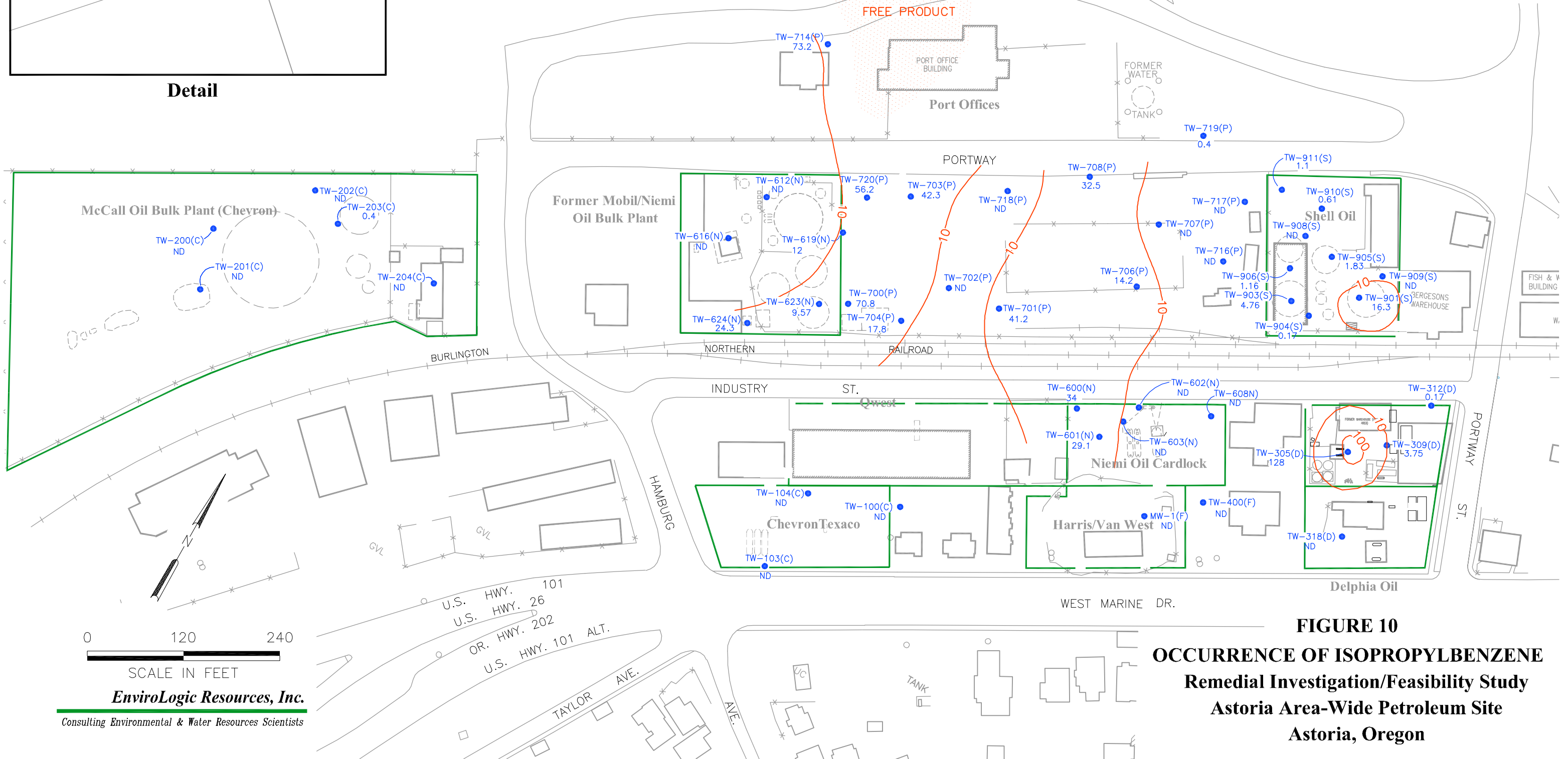
**FIGURE 9  
OCCURRENCE OF NAPHTHALENE  
Remedial Investigation/Feasibility Study  
Astoria Area-Wide Petroleum Site  
Astoria, Oregon**



**Detail**



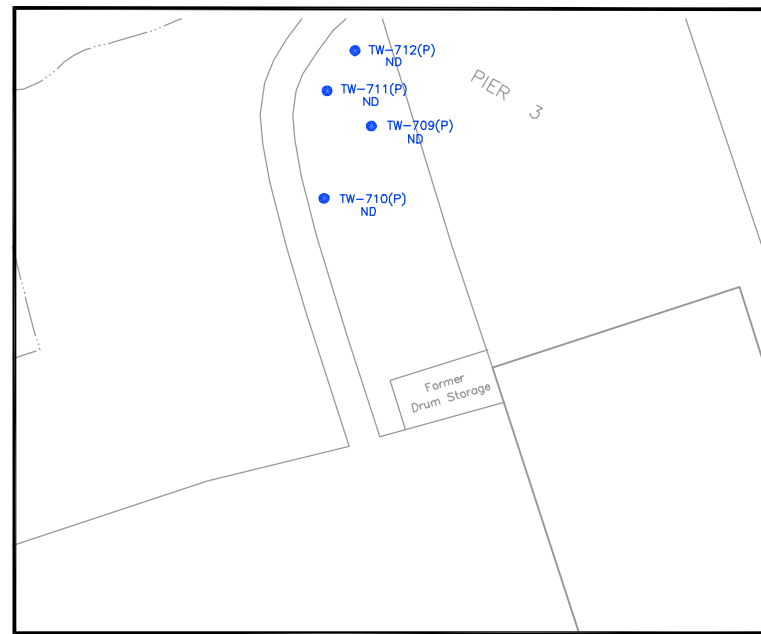
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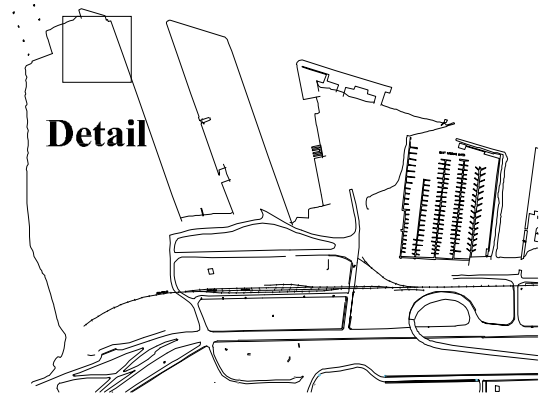
**FIGURE 10**  
**OCCURRENCE OF ISOPROPYLBENZENE**  
**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**

0 120 240  
 SCALE IN FEET  
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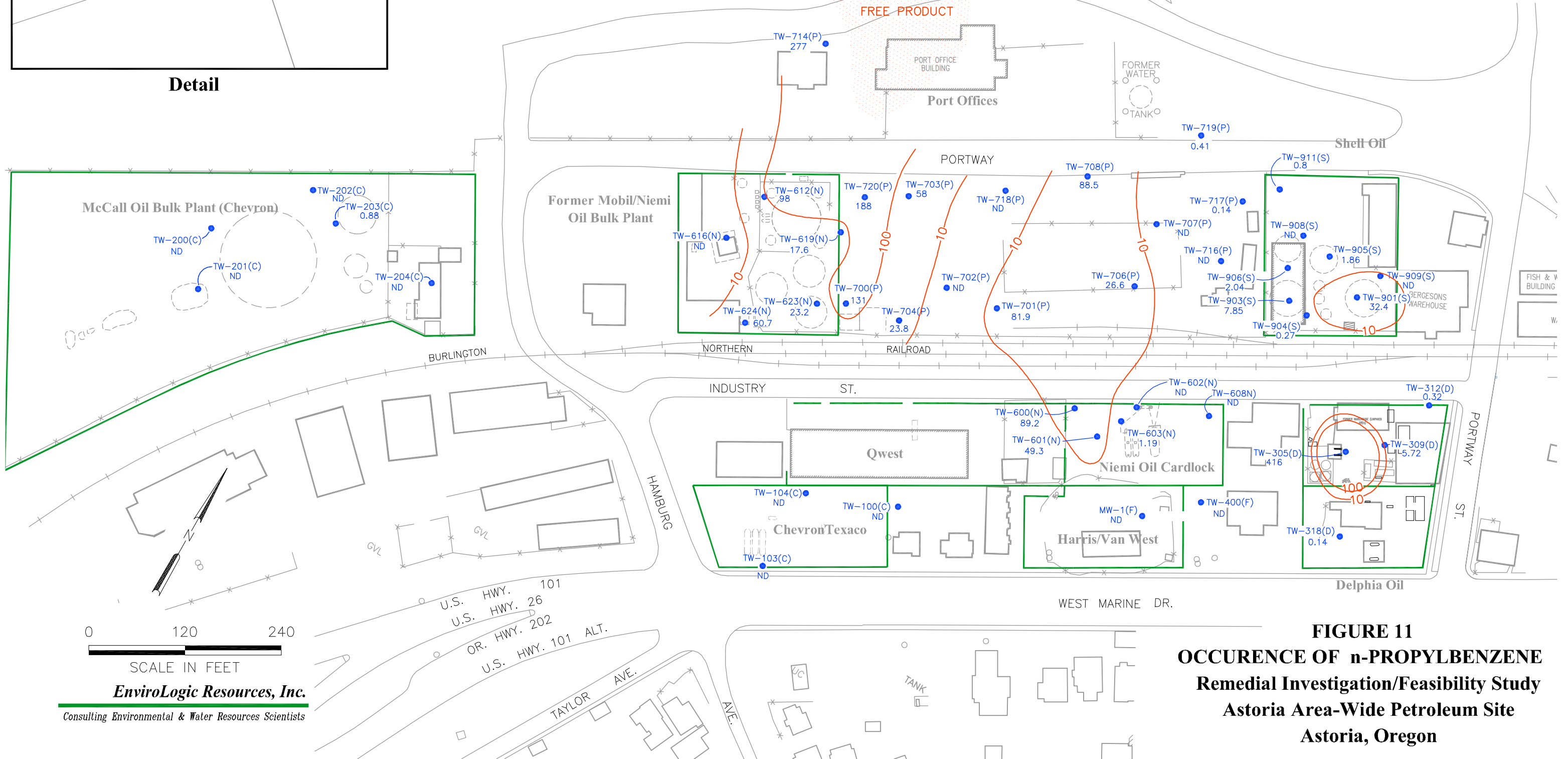




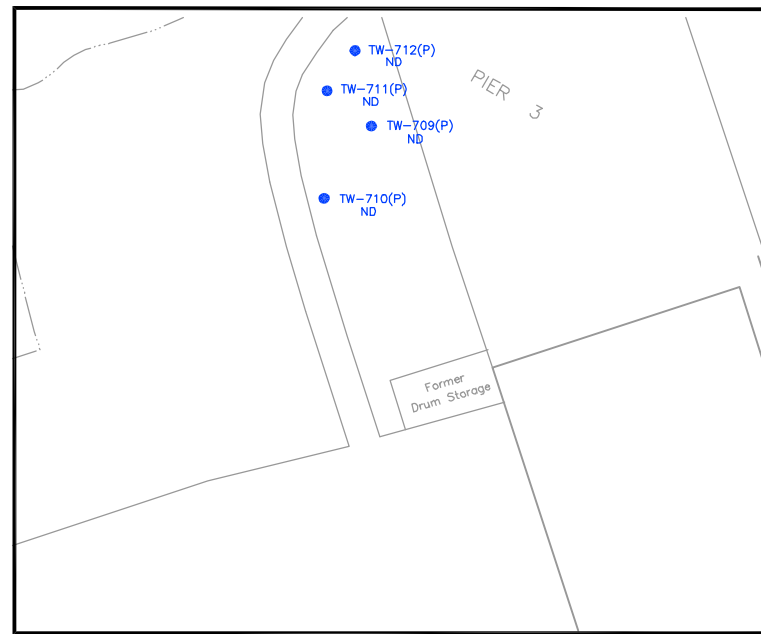
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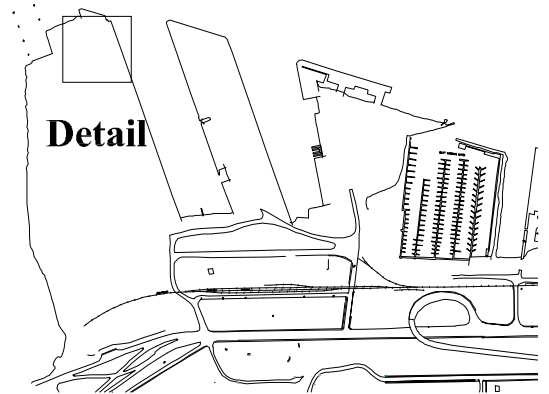
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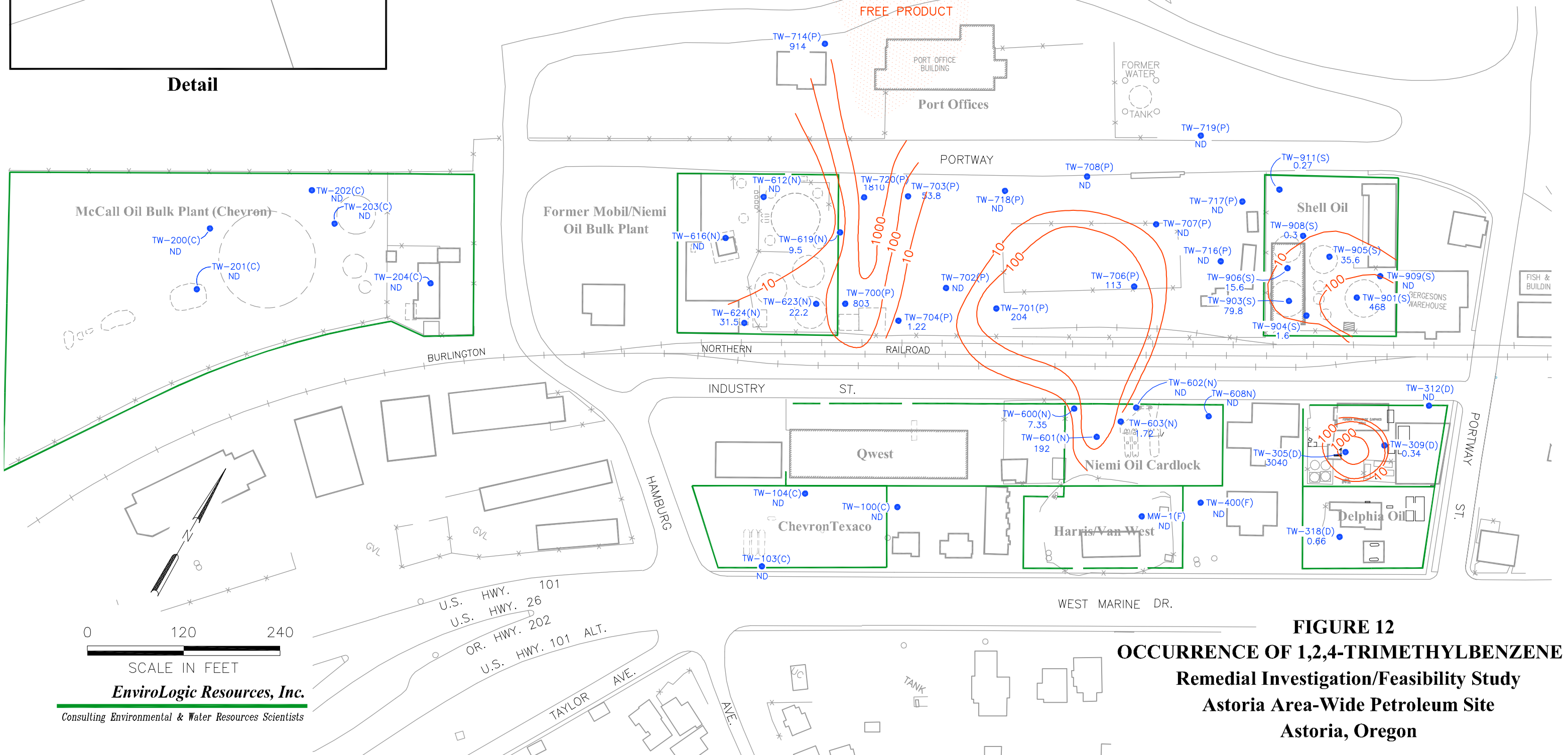
**FIGURE 11**  
**OCCURENCE OF n-PROPYLBENZENE**  
**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**



**Detail**



**KEY PLAN**






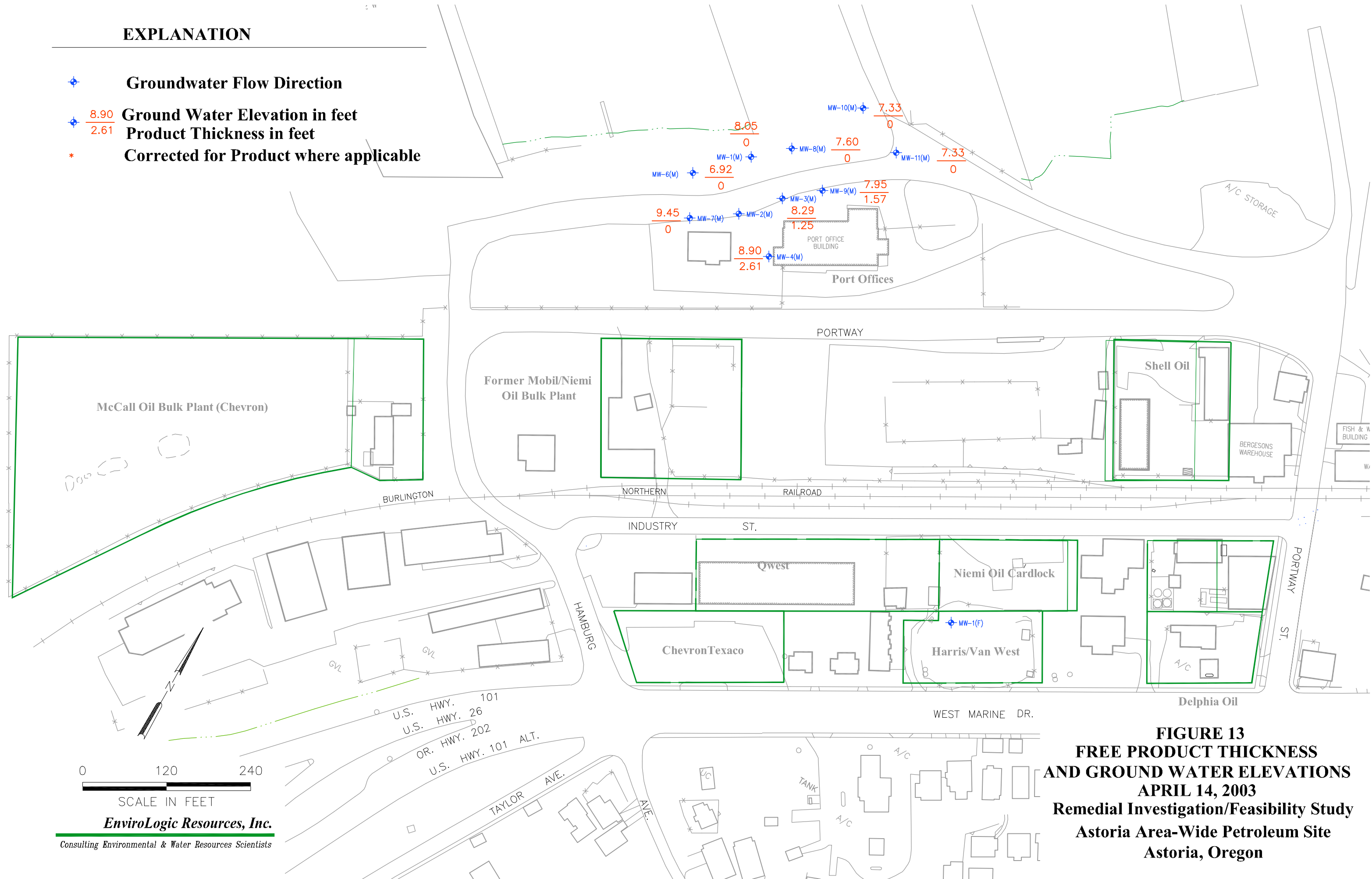
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**FIGURE 12**  
**OCCURRENCE OF 1,2,4-TRIMETHYLBENZENE**  
**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**




**EXPLANATION**

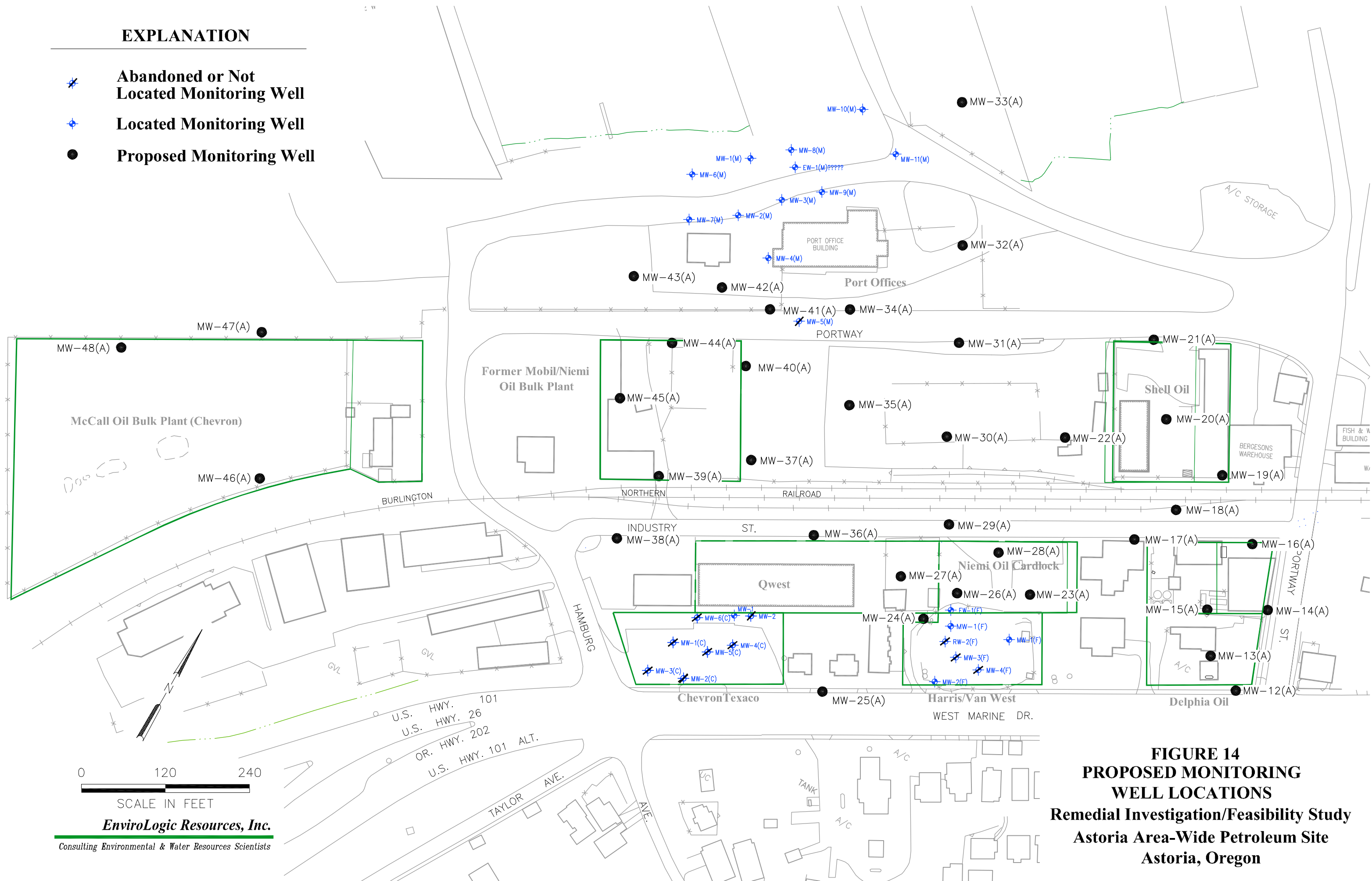
-  **Groundwater Flow Direction**
-   $\frac{8.90}{2.61}$  **Ground Water Elevation in feet**  
**Product Thickness in feet**
-  **Corrected for Product where applicable**



**FIGURE 13**  
**FREE PRODUCT THICKNESS**  
**AND GROUND WATER ELEVATIONS**  
**APRIL 14, 2003**  
**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**

**EXPLANATION**

-  **Abandoned or Not Located Monitoring Well**
-  **Located Monitoring Well**
-  **Proposed Monitoring Well**



**FIGURE 14**  
**PROPOSED MONITORING**  
**WELL LOCATIONS**  
**Remedial Investigation/Feasibility Study**  
**Astoria Area-Wide Petroleum Site**  
**Astoria, Oregon**