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

VIA Email/First Class

**Subject: RI/FS Work Plan Addendum
Human Health Risk Assessment Work Plan
Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon
DEQ ECSI File #2277**

Dear Ms. Coates:

Enclosed are four copies of the above-referenced document. This report is being submitted to you on behalf of the Astoria Area-Wide Cooperating Parties. This report 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.

Thomas J. Calabrese, RG, CWRE
Principal/Hydrogeologist
Project Manager

cc: Distribution list attached

Ms. Anna Coates
October 10, 2005
Page 2

**ASTORIA AREA-WIDE PETROLEUM SITE
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**HUMAN HEALTH RISK ASSESSMENT WORK PLAN
ASTORIA AREA-WIDE PETROLEUM SITE
ASTORIA, OREGON
DEQ ECSI FILE NO. 2277**

Prepared for
EnviroLogic Resources, Inc.
October 6, 2005

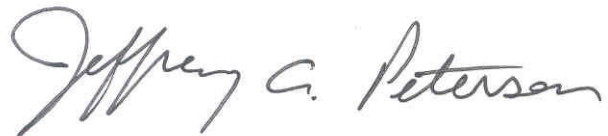
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Project No. 0116.01.01

**Human Health Risk Assessment Work Plan
Astoria Area-Wide Petroleum Site
Astoria, Oregon
DEQ ECSI File No. 2277**

The material and data in this report were prepared under the supervision and direction of the undersigned.

Maul Foster & Alongi, Inc.



Jeffrey A. Peterson, PhD
Principal Environmental Scientist



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ACRONYMS AND ABBREVIATIONS

API	American Petroleum Institute
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
BCE	British Columbia Ministry of Environment
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
cm	centimeter
COI	chemical of interest
COPC	chemical of potential concern
CSM	conceptual site model
CTE	central tendency exposure
DEQ	Oregon Department of Environmental Quality
DRO	diesel-range organics
Ecology	Washington State Department of Ecology
EnviroLogic	EnviroLogic Resources, Inc.
g/cm ³	grams per cubic centimeter
GRO	gasoline-range organics
Harris/Van West	Flying Dutchman and Harris Enterprises
HHRA	human health risk assessment
LNAPL	light nonaqueous-phase liquid
McCall	McCall Oil and Chemical Company
MFA	Maul Foster & Alongi, Inc.
mg/kg	milligrams per kilogram
MRL	method reporting limit
the Order	DEQ Unilateral Order No. ECSR-NWR-01-11
OWRD	Oregon Water Resources Department
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
the Port	Port of Astoria
PRG	preliminary remediation goal
PRP	potentially responsible party
RBC	risk-based concentration
RBDM	Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites
RI	remedial investigation

ACRONYMS AND ABBREVIATIONS (Continued)

RME	reasonable maximum exposure
the Site	Astoria Area-Wide Petroleum Site
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA) has been retained by EnviroLogic Resources, Inc. (EnviroLogic) to evaluate risks that potential exposure to petroleum-related chemicals may pose to human health at the Astoria Area-Wide Petroleum Site in Astoria, Oregon. This work plan describes the methods that will be used to conduct the baseline human health risk assessment (HHRA). These proposed methods are consistent with both Oregon Department of Environmental Quality (DEQ) guidance for developing HHRAs (DEQ, 2000; 2003), and U.S. Environmental Protection Agency (USEPA) risk assessment guidance (USEPA, 1989).

The DEQ issued a unilateral order (DEQ Unilateral Order No. ECSR-NWR-01-11) (Order) requiring a remedial investigation (RI)/feasibility study and potential cleanup of properties in an area near the Port of Astoria (the Port) in Astoria, Oregon. The baseline HHRA will be completed as part of the RI. The Order was issued to several of the current and former facility operators, property owners, and leaseholders that have engaged in industrial and commercial activities. ChevronTexaco Products Company, Delphia Oil Company, McCall Oil and Chemical Company (McCall), Ed Niemi Oil Company, Flying Dutchman and Harris Enterprises (Harris/Van West), the Port, Qwest Communications International, and Shell Oil Company, collectively potentially responsible parties (PRPs), are identified in the Order and have agreed to comply with its requirements. However, Qwest Communications is not participating in the HHRA part of the project. The area of interest is termed the Astoria Area-Wide Petroleum Site (Site).

This work plan describes the methods that will be used to evaluate potential human health risks. Potential risks that petroleum-related chemicals may pose to ecological receptors near the Site will be presented in a separate report.

1.1 Assessment Approach

Available data indicate that contaminant impacts to soil and groundwater at the Site are primarily the result of historical petroleum releases. To streamline the baseline HHRA, the assessment will follow methods outlined in the DEQ (2003) *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (RBDM) to the extent practical.

The RBDM was designed to allow efficient evaluations of human health risks associated with potential exposures to petroleum-related chemicals. To evaluate potential risk, the RBDM emphasizes comparisons of site-related chemical concentrations with relevant risk-based concentrations (RBCs). An RBC is an estimate of the concentration of a chemical in soil, groundwater, or air that would not pose unacceptable risks to humans with a reasonable maximum exposure (RME) to the impacted medium. The DEQ has developed generic RBCs for the most common pathways by which humans may contact petroleum-related chemicals at a site. Some elements of the RBDM may differ slightly from the conventional HHRA methods recommended by the DEQ at large sites with contamination that may not be related to petroleum releases (DEQ, 2000). For example, the DEQ's conventional HHRA process recommends calculation of both RME risks and central tendency exposure (CTE) risks (DEQ, 2000). A conventional DEQ (2000) HHRA also involves calculation of exposure point concentrations, explicit chemical-specific risk estimates, and cumulative risk estimates based on potential exposures to multiple chemicals in an exposure unit.

For a variety of reasons, the Site does not fit the model for which the DEQ conventional risk evaluation framework is most appropriate (DEQ, 2000). The Site is comprised of multiple properties, has been impacted by multiple petroleum releases, includes multiple PRPs, and cannot effectively be treated as a single exposure unit. For example, in order to estimate explicit chemical-specific risks for a particular exposure scenario, it is necessary to estimate the concentration of a chemical in the area over which a receptor is likely to contact the chemical. Most potential human receptors at the Site are likely to constrain activities that may lead to soil or groundwater exposures to a single property and are unlikely to have ready access to the entire Site. Exposure point concentration estimates based on data collected over the entire Site would not accurately characterize true exposures. Property-specific exposure concentrations and risk estimates may be more appropriate, but would be overly burdensome to calculate, and would not substantially improve risk management decisions.

Some elements of the proposed HHRA, such as selection of chemicals of potential concern (COPCs), follow conventional DEQ (2000) guidance. However, determinations of whether chemical exposures can lead to unacceptable risks that require risk management actions will be made by comparing concentrations in soil and groundwater to relevant RBCs. Conventional chemical-specific risk estimates will be calculated only as needed to better inform risk management decisions at a particular location. An evaluation of potential CTE risks is not recommended. None of these deviations from conventional HHRA methods are likely to affect the nature of risk management decisions.

1.2 Report Organization

This work plan is organized into the following sections:

- Section 1 (Introduction) presents the purpose and objectives of the work plan.
- Section 2 (Background) presents background information regarding the Site such as site setting, geology and hydrogeology, chemicals of interest (COIs), and beneficial uses of land and water.
- Section 3 (Data Evaluation and Chemicals of Potential Concern) describes the data evaluation process and methods that will be used to identify COPCs.
- Section 4 (Conceptual Site Model) describes the preliminary conceptual site model (CSM).
- Section 5 (Risk Characterization) describes methods that will be used to evaluate risks that chemicals may pose to human health.
- Section 6 (Uncertainty Analysis) describes the approach that will be used to evaluate uncertainties in risk assessment.

2 BACKGROUND

This section briefly describes background information regarding the Site, such as the setting, site history, geology and hydrogeology of the area, and current and reasonably likely future beneficial uses of land and water. More detailed descriptions of relevant background information are presented in several reports that have been developed as part of the RI (EnviroLogic, 2002; 2003a; 2003b; 2003c; 2003d; 2004a; 2004b; 2004c; 2004d; and 2004e).

2.1 Site Setting

The Site comprises properties located at and near the Port in Astoria, Oregon (Figure 2-1). The Site 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 Site includes the former McCall bulk plant property and is bounded by the Burlington Northern Railroad tracks and Hamburg Street to the southwest, Marine Drive to the south, Portway to the east, and the Columbia River to the north.

West Marine Drive (US Highways 26, 30, and 101) is located on a topographic bench approximately 15 feet above the level of the Port facilities. The Columbia River flows to the west on the north side of the Site. Young's Bay lies to the south.

2.2 Site History

The area around the Port has been used for petroleum storage and distribution since approximately the 1920s. Aboveground storage tanks (ASTs), underground storage tanks (USTs), and pipelines are present on several of the facilities on the Site. Historically, the Site 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. Pipelines from at least two of the bulk fuel storage facilities extend onto piers at the Port. Remedial actions have been conducted at several facilities on the Site.

2.3 Local Geology and Hydrogeology

Much of the Site has been filled with dredged materials and other fill. Boring logs recorded during environmental investigations indicate that the fill material over much of the Site is comprised primarily of sand (EnviroLogic, 2002; 2003a; 2004d). The deposition of the fill materials was not conducted in a single event and may have involved different source materials from different source locations. As a result, the lithology and stratigraphy of the subsurface environment are heterogeneous at some locations.

The depth to groundwater is variable across the Site, ranging from approximately 6 feet in depth near the Columbia River to 19 feet in depth near West Marine Drive (Table 2-1). Groundwater monitoring locations at the Site are shown on Figure 2-2. Variation in the groundwater elevation generally reflects the topography, as the properties along West Marine Drive are approximately 15 feet higher in elevation than those along Industry Street and near the Columbia River. A retaining wall is present along the north sides of several of the sites along West Marine Drive. The shallow groundwater system under the Site is influenced primarily by tidal effects of Young's Bay and the Columbia River, as well as recharge from the higher topographic areas of the Astoria peninsula. Groundwater generally flows in a northwest direction except where diverted by stormwater management features and other utility lines (EnviroLogic, 2004e).

2.4 Chemicals of Interest

Contamination on the Site is primarily the result of unintentional releases of various petroleum products from storage or handling facilities. As a result, the primary COIs are petroleum-related compounds. However, the sampling program conducted as part of the RI evaluated a wide range of potential contaminants in soil and groundwater. Soil and groundwater samples were analyzed for total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and various metals.

Petroleum products comprise a mixture of numerous hydrocarbons, many of which have poorly understood properties and toxicities. Environmental sampling efforts performed as part of the RI focused on the key petroleum-related chemicals identified in the DEQ's 1999 RBDM guidance (DEQ, 1999). The key constituents of a petroleum mixture differ, depending on the type of petroleum product that was released. For example, key individual chemical constituents of gasoline include benzene, toluene, ethylbenzene, and xylenes (BTEX), and PAHs are key constituents of diesel and heavy oil. Individual petroleum constituents that are considered COIs include the following:

- VOCs found in petroleum-based fuels, such as BTEX and trimethylbenzenes

- VOCs that have been used historically as amendments in fuels, such as 1,2-dibromoethane, 1,2-dichloroethane, and methyl-tert-butylether
- Certain PAHs that are found in fuels and lubricants
- Metals that may be found in waste oils

The DEQ's 2003 RBDM issued after most of the site data had been collected revised the recommended approach for evaluating risks associated with exposure to petroleum compounds. In addition to an evaluation of key individual constituents of petroleum, the 2003 RBDM recommends an evaluation of whole petroleum mixtures such as gasoline and diesel. Using estimates of the composition of fresh product, the 2003 RBDM guidance provides default soil and groundwater RBCs for gasoline and diesel. Also, the guidance presents options for a responsible party to make site-specific adjustments to RBCs, based on characterization of the actual composition of the petroleum mixture present (e.g., fresh product is typically more toxic than weathered product). Although the RI sampling program was not specifically designed to characterize the composition of petroleum products that have been released at the Site, sufficient data regarding TPH in soil and groundwater have been collected to perform a risk evaluation consistent with the 2003 RBDM guidance.

Several soil and groundwater samples were analyzed for a variety of metals that are not typically associated with petroleum products. Many of the metals may not be elevated above natural background concentrations. However, all metals evaluated as part of the RI are considered COIs for the purposes of the risk evaluation.

2.5 Beneficial Uses of Land and Water

With the exception of one parcel, the Site is currently used for commercial and industrial purposes (EnviroLogic, 2003b). Most properties on the Site have been used for commercial or industrial purposes since the 1920s (EnviroLogic, 2002). All land on the Site is zoned for commercial and industrial uses (EnviroLogic, 2003b), and parts of the Site are undergoing development to support commercial and industrial operations. Based on local land use plans that emphasize commercial and industrial development at the Site, it is reasonably likely that future uses will be similar to current land uses. As a result, various workers are the human populations with the greatest potential to contact impacted environmental media at the Site.

A four-unit apartment complex is located on West Marine Drive just west of the Harris/Van West property (Figure 2-2). This property is the only location on the Site that currently supports residents. Although waterfront residential developments (condominiums and single-family residences) have occurred in Astoria east of the Site, the Port's charter prohibits such developments on Port property (EnviroLogic, 2003b).

Given current zoning, land use plans, and development trends, it is unlikely that single- or multi-family residences will be developed at the Site in the foreseeable future.

An inventory of borings and wells was developed using the GRID database provided by the Oregon Water Resources Department (OWRD). Based on information obtained from this database search and from Port personnel, no water supply wells appear to exist on or near the Site. Several monitoring wells reportedly have been drilled at the Site. The OWRD database was also searched for possible water rights related to properties on site. There are no places of use or points of diversion or appropriation located on or near the Site (EnviroLogic, 2002).

The City of Astoria supplies municipal water to facilities in and near the Site. Groundwater is not used for domestic, municipal, agricultural, or industrial purposes (EnviroLogic, 2002). Given the availability, reliability, and relatively low cost of the public water supply, it is likely that municipal water will remain the primary water source for the Site in the foreseeable future. As a result, human receptors such as occupational workers are unlikely to ingest or directly contact site-related chemicals in groundwater.

3 DATA EVALUATION AND CHEMICALS OF POTENTIAL CONCERN

The quality of data used in risk assessment can affect the uncertainty in resulting risk estimates. Before data are used in a quantitative risk assessment, data quality is evaluated for appropriateness and usability. The data evaluation process and selection of COPCs are described below.

3.1 Data Evaluation

Several environmental investigations were conducted within the boundaries of the Site before the RI was initiated (EnviroLogic, 2002). For a variety of reasons, it is recommended that the baseline HHRA be conducted primarily with data collected as part of the RI. Data collected during the RI are the most recent and better represent current conditions. Some of the available data from past environmental investigations were collected in the mid-1980s. Given the general improvements in analytical methods over the past several years, it is likely that the more recent analytical results are more accurate and reliable than past results. In most cases, MFA could not confirm whether historical data had undergone appropriate data quality reviews. Given that comprehensive sampling of soil and groundwater was performed as part of the RI, no attempt was made to try to reconstruct data quality assurance reviews of data collected as part of historical investigations. Also, historical data may sometimes characterize chemical concentrations in soil and groundwater that subsequently underwent a remedial action. Data collected as part of the RI best characterize existing site conditions and are sufficient for evaluating potential human health risks.

EnviroLogic completed data quality assurance reviews of analytical results of soil and groundwater samples collected as part of the RI (EnviroLogic, 2003a; 2003c; 2004a; 2004b; 2004c; 2004d; 2004e). Also, MFA reviewed laboratory data validation reports prepared by each PRP for data collected as part of the RI. Data quality was evaluated using methods recommended by the USEPA (1989). For example, as part of data validation, some analytical results were assigned a standard letter code by the laboratory or validator to qualify the quality of a result (e.g., “J” to indicate that the value is an estimate). The following data were rejected during the validation process: gasoline-range organics (GRO) and BTEX results were rejected for soil sample SB-813(Q)-0 and are therefore not used in the risk assessment.

EnviroLogic has developed a database (Access©) that includes analytical results from samples collected during historical investigations, and results of samples collected as part of the RI. In June 2005, MFA transferred these data from the comprehensive database into spreadsheets. Data were queried to extract relevant information in a format usable for risk evaluation. The database included soil data collected from 1986 through 1997 and from 2002 through 2004. It also included groundwater data collected from 1986 through 1999 and from 2002 through 2004. The older data (1986 through 1999) frequently did not include method reporting limits (MRLs) for nondetections, and the origin and quality of these data could not be verified. Only the more recent data collected in 2002 through 2004 as part of the RI will be used in the HHRA.

Soil and groundwater data determined to be of sufficient quality for use in the risk assessment are presented in Appendix A. This appendix includes results collected as part of the RI for analytes that were detected in at least one sample. Nondetections of a particular analyte are flagged with a “U” qualifier. The concentration value for a nondetection is set at half the MRL. Several statistics such as the frequency of detection, maximum concentration, mean concentration, and median concentration were calculated for each detected analyte. No attempt was made to average the results of primary and duplicate samples to characterize chemical concentrations for sample locations where multiple analyses were performed.

It should be noted that the data presented in Appendix A are a subset of the analytical data collected as part of the RI. Results for chemicals or entire classes of chemicals that were not detected in any soil or groundwater sample are not presented. For example, many VOCs and PCBs were not detected in soil or groundwater and are not included in Appendix A. Full sets of analytical results, including data for chemicals that have not been detected at the Site, have been presented in previous reports (EnviroLogic, 2003c; 2004a; 2004e).

Environmental samples were analyzed for GRO by NWTPH-Gx; for diesel and heavy oil by NWTPH-Dx; for metals by USEPA Method series 200 or 6000/7000; for hexavalent chromium by USEPA Method 7195; for VOCs by USEPA Method 8260B; for BTEX by USEPA Method 8021B; for phenols by USEPA Method 8041; for formaldehyde by USEPA Method 8315A; and for PAHs by USEPA Method 8270M-SIM (selective ion monitoring).

Analytical results were available for three xylene isomers: m-, p-, and o-xylenes. Concentrations of m-, p-, and o-xylenes were summed for comparison with screening levels.

3.2 COPC Selection

To focus quantitative risk assessment on COIs with the potential to cause health risks to humans who may contact soil and groundwater, the list of chemicals detected at the Site was evaluated and reduced. Preliminary COPCs were selected using criteria recommended by the DEQ (2000), the USEPA (1989), and best scientific judgment. Chemicals were selected primarily on the basis of measured concentrations in soil or groundwater, inherent toxicity, and frequency of detection.

3.2.1 Soil

In general, COPCs were selected for soil by comparing the maximum concentration detected in soil with relevant USEPA Region 9 industrial soil preliminary remediation goals (PRGs). No PRGs are available for TPH mixtures such as GRO and diesel-range organics (DRO). Therefore, the maximum concentrations of GRO and DRO were compared with DEQ direct-contact soil RBCs for occupational workers (DEQ, 2003). The DEQ has not developed generic RBCs for heavy oil such as lube oil, and the DEQ level 2 soil matrix value of 500 milligrams per kilogram (mg/kg) was used as the screening concentration for lube oil.

Industrial soil PRGs are calculated using conservative assumptions regarding intake rates, exposure durations, and other exposure factors for occupational workers (USEPA, 2004a). For example, the PRGs have been developed assuming workers have chronic exposure to impacted soil over most of their careers (i.e., 250 days per year for 25 years). The target risk levels used by the USEPA when developing these PRGs are identical to the DEQ acceptable risk levels associated with exposure to single chemicals (USEPA, 2004a). The PRG for a carcinogen is the concentration associated with a one in a million excess cancer risk over a lifetime. For a noncarcinogen, the PRG is the concentration associated with a hazard quotient of one.

The selection process for COPCs in soil is outlined in Table 3-1. A chemical was not considered to be a COPC if it was detected in less than 5 percent of the soil samples that were tested for the chemical (DEQ, 2000). Chemicals that are infrequently detected in soil may be artifacts of sampling, analytical, or other types of errors.

Risk scores were calculated for each chemical that had been detected in at least one soil sample (Table 3-1). Chemical-specific risk scores were estimated as follows (DEQ, 2000):

$$R_i = \frac{MDC_i}{TSV_i} \quad (\text{Equation 1})$$

Where:

R_i = Risk score for chemical i (unitless)

MDC_i = Maximum detected concentration of chemical i

TSV_i = Toxicity screening value for chemical i

A chemical was considered a COPC if the chemical-specific risk score was greater than one (DEQ, 2000). If the risk score is less than one, it is inferred that exposure to the chemical is unlikely to result in an unacceptable risk.

In some cases, an individual chemical was not detected at a concentration greater than the risk-based screening level, but the chemical could contribute to risk if multiple chemicals were present. To account for cumulative risks associated with potential exposure to multiple chemicals, the following method was used to determine COPCs, based on relative risk scores (DEQ, 2000):

$$\text{If } \sum R_i > 1 \text{ and } \frac{R_i}{\sum R_i} > \frac{1}{N_i}, \text{ then chemical "i" is considered a COPC} \quad (\text{Equation 2})$$

Where:

$\sum R_i$ = Sum of all chemical-specific risk scores.

N_i = Total number of chemicals included in the risk-based screen.

It should be noted that the DEQ COPC selection process can result in a large number of COPCs that contribute little to overall risk estimates at sites where many analytes are evaluated. Under the DEQ COPC selection process, the threshold risk score ($1/N_i$) for determining a COPC decreases as the total number of chemicals included in the risk-based screen increases. Fifty different chemicals were detected in at least one soil sample at the Site, several of which may not be related to past site operations. As a result, chemicals with maximum concentrations 50 times lower than relevant screening levels were included as COPCs because they had risk scores above 0.02 ($1/50$). Risk assessors at USEPA Region 3 reviewed this type of COPC selection process and concluded that it often leads to unnecessary work by requiring detailed evaluations of relatively unimportant risk drivers (USEPA, 1993). The USEPA Region 3 uses a chemical-specific target risk level of 0.1 for noncarcinogens and 10^{-6} for carcinogens. If the USEPA Region 3 approach had been used at this Site, the list of COPCs for soil would have been smaller, with little effect on overall risk estimates.

The maximum concentration was used to screen COPCs, and this approach is conservative (health-protective) because it likely overestimates potential chemical

exposures. Based on risk scores calculated using the maximum detected concentrations of chemicals in soil, the following are considered preliminary COPCs (Table 3-1):

VOCs

- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Benzene
- Ethylbenzene
- Naphthalene
- n-Butylbenzene
- n-Propylbenzene
- sec-Butylbenzene
- Xylenes

SVOCs

- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Chrysene
- Dibenzo(a,h)anthracene
- Indeno(1,2,3-cd)pyrene

TPH

- GRO
- DRO
- Lube oil

Metals

- Arsenic
- Chromium
- Lead

Screening levels were not available for several chemicals. As shown in Table 3-1, chemicals for which no screening value was available were considered COPCs. However, these chemicals will not be carried through the quantitative risk assessment. In general, insufficient toxicity data are available for chemicals with no screening levels to make scientifically defensible risk estimates. Instead, potential risk associated with exposure to these chemicals will be discussed in the uncertainty evaluation section of the HHRA.

Chemicals that were considered COPCs because screening levels were not available are as follows:

- 4-Isopropyltoluene
- 2-Methylnaphthalene
- Benzo(g,h,i)perylene
- Phenanthrene

One chemical not selected as a COPC, methylene chloride, had one MRL above the screening level concentration (Appendix A).

The results of COPC selection for soil indicate that, with the possible exception of the metals, all COPCs are related to petroleum. These COPC selection results support use of the RBDM (DEQ, 2003) to evaluate potential contaminant risks at the Site because contamination that is not related to historical petroleum releases appears to be insignificant. Concentrations of some of the metal COPCs in soil (e.g., arsenic) may not be elevated above natural background levels.

3.2.2 Groundwater

In general, COPCs were selected for groundwater by comparing the maximum concentration with the relevant USEPA Region 9 PRG for tap water (Table 3-2). Because no tap water PRGs were available for GRO, DRO, and lead, DEQ generic groundwater RBCs for residents were used as screening values for these substances. If the maximum concentration was above the screening value, the chemical was considered a COPC.

No attempt was made to identify groundwater COPCs by considering the potential effects of exposure to multiple chemicals in drinking water. Groundwater at the Site is not used as a drinking source and is unlikely to be used as a water supply source in the foreseeable future. Relevant exposure scenarios include industrial workers who may inhale vapors that migrate from groundwater to indoor or outdoor air, and excavation workers who may contact chemicals in water of excavations that extend below the water table. Tap water PRGs are often orders of magnitude lower than RBCs for the volatilization to indoor and outdoor air pathways and the direct-contact pathway for excavation workers (DEQ, 2003). Therefore, selection of groundwater COPCs based on multiple chemical risk scores where the threshold for selection is a fraction of the tap water PRG would have led to the unnecessary inclusion of several COPCs that could have only a very small effect on groundwater risk estimates.

Based on chemical-specific risk scores calculated using the maximum detected concentrations of chemicals in groundwater, the following are considered preliminary COPCs (Table 3-2):

VOCs

- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Benzene
- Ethylbenzene
- Naphthalene
- n-Propylbenzene
- Tetrachloroethene
- Toluene
- Xylenes

TPH

- GRO
- DRO

Metals

- Arsenic
- Iron
- Lead
- Manganese

Screening levels were not available for several chemicals (Table 3-2). Calcium, potassium, and sodium are nutrients and are not considered hazardous substances. As a result, these chemicals were not considered COPCs and will not be further evaluated. The chemicals that will be evaluated in the uncertainty section of the HHRA because they were selected as COPCs due to a lack of relevant screening levels are as follows (Table 3-2):

- 4-Isopropyltoluene
- Phenanthrene
- Lube oil
- Total chromium
- Magnesium

Nine chemicals not selected as COPCs had at least one MRL above their respective screening levels (Appendix A). MRLs for the PAHs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene exceeded screening levels in three to 36 (depending on the analyte) of 225 groundwater samples. For VOCs, methylene chloride MRLs exceeded the screening level in three of 24 samples, and methyl-tert-butyl-ether MRLs exceeded the screening level in

21 of 220 samples. Cadmium MRLs exceeded the screening level in nine of 104 samples. With all nine of these chemicals, the large majority of MRLs were below screening levels. These nine chemicals do not appear to be important contaminants in groundwater because they were rarely detected even when MRLs were below conservative screening levels.

Again, with a few exceptions, the groundwater COPCs are petroleum-related compounds. Some of the metal COPCs may not be elevated above natural background levels.

4 CONCEPTUAL SITE MODEL

The CSM describes potential chemical sources, release mechanisms, environmental transport processes, exposure routes, and receptors. The primary purpose of the CSM is to describe pathways by which human receptors may be exposed to COIs. According to the USEPA (1989), a complete exposure pathway consists of four necessary elements: (1) a source and mechanism of chemical release to the environment, (2) an environmental transport medium for a released chemical, (3) a point of potential contact with the impacted medium (referred to as the exposure point), and (4) an exposure route (e.g., soil ingestion) at the exposure point.

The human health CSM, based on information that has been collected to date, is shown in Figure 4-1. Elements of potentially complete exposure scenarios are further discussed in Table 4-1. The areas on the Site where each exposure scenario is relevant are shown in Figure 4-2. Processes that structure the fate and transport of petroleum in the environment and potential exposure scenarios are discussed below.

4.1 Primary Sources

Petroleum impacts to soil and groundwater at the Site have resulted from unintentional releases at a number of petroleum-storage and -handling facilities. Likely sources include USTs, ASTs, pipes, and dispensers. Releases may have occurred from leaks in tanks or pipes, and during petroleum transfers (e.g., when products were being dispensed).

4.2 Fate and Transport

The primary mechanisms that affect fate and transport of released petroleum products include leaching from soil to groundwater, volatilization from soil or groundwater to air, advection and dispersion in groundwater, sorption to the soil matrix, and natural degradation processes. The relative importance of these processes in structuring the dynamics of contaminant fate and transport varies, depending on the chemical and physical properties of a released contaminant. The properties of soil and the dynamics of groundwater flow also shape contaminant fate and transport.

It appears that gasoline and diesel are the primary petroleum products that have been released at the Site. Whole gasoline and diesel are considered light nonaqueous-phase

liquids (LNAPLs). LNAPL, or free-phase petroleum, has a density lower than that of water. As a result, LNAPL releases of a sufficient volume to result in significant gravity-driven downward migration through soil are typically constrained to the top of the groundwater zone. Because LNAPL and water are immiscible, there is little tendency for LNAPL to migrate deep into the groundwater zone. Once the released LNAPL encounters the capillary fringe above the water table (e.g., pore spaces completely or partially saturated with water), the weight of LNAPL will cause it to gradually displace pore water until equilibrium conditions are reached. The relatively high water content of the capillary fringe will result in low permeability to LNAPL, and at this point the downward gradient caused by gravitational forces will diminish. If there is a sufficient volume of released product, the driving hydraulic head will result in lateral migration of LNAPL until steady-state conditions are met (American Petroleum Institute [API], 2002).

Often, the lateral gradient for a product plume is radial because of free product mounding and the resistance presented by water-filled soil to freely transmit LNAPL. Once equilibrium conditions have developed and lateral migration of LNAPL has diminished, LNAPL plumes typically are stable. Unless new product is added to the system or other significant changes occur, there will be no further significant lateral movement of product.

Much of the Site is covered with permeable surfaces such as gravel, and it is likely that precipitation that falls in these areas can percolate through the vadose zone and interact with LNAPL or petroleum that is sorbed to soil. Chemicals with relatively high solubility may leach from soil to pore water, and dissolved chemicals may be transported downward to local groundwater. Also, when the water table rises and interacts with product or petroleum that is sorbed to soil, some constituents will partition into water.

Once in groundwater, dissolved contaminants may be transported by diffusion and advection in groundwater horizontally away from the original source. Horizontal migration with groundwater (advection) is expected to be significantly more extensive than vertical migration. It is most likely that the only significant mechanism that would allow for downward vertical migration of petroleum constituents is diffusion, and this process results in orders of magnitude reductions in waterborne concentrations over relatively short distances (i.e., several feet) from the source (API, 2002). In general, the potential for a chemical to migrate in groundwater increases as a function of chemical solubility. Many petroleum constituents have relatively low solubility and a low likelihood of extensive migration in groundwater.

Dispersion, retardation, and biodegradation act to reduce dissolved concentrations of petroleum constituents in groundwater downgradient of the source area. A growing body of evidence suggests that in most systems, biodecay is a significant loss mechanism for many petroleum constituents such as benzene (API, 2002).

Some volatile contaminants that are either adsorbed to soil or dissolved in groundwater may volatilize to soil pore spaces. Chemical vapors in pore spaces may eventually migrate through the soil matrix and enter outdoor air. Once in outdoor air, mixing with ambient air is expected to reduce airborne chemical concentrations rapidly and substantially. If buildings are located over impacted groundwater, it is possible that vapors may eventually enter indoor air by penetrating cracks in a building floor or foundation.

An intermittent seep with LNAPL has been observed in Slip 2 near the shoreline of the Columbia River. Petroleum constituents in the LNAPL at the seep may migrate to both sediment and surface water. Also, dissolved constituents in groundwater near the seep area may discharge to sediment and surface water of the Columbia River. Concentrations of petroleum constituents in surface water are expected to be low due to mixing with ambient water.

4.3 Exposure Scenarios

With the exception of an apartment complex, properties at the Site are used for commercial and industrial purposes. It is likely that properties at the Site will continue to be used for commercial and industrial purposes for the foreseeable future. Various workers will have the greatest potential to contact contaminated soil or groundwater. These workers may include on-site occupational workers, occasional excavation workers, and construction workers. Relevant default DEQ (2003) potential exposure scenarios are presented in Table 4-1 and briefly discussed below for both soil and groundwater.

4.3.1 Soil

Petroleum hydrocarbons have been observed in surface soil (<3 feet below ground surface [bgs]) at several locations. In many cases, impacted surface soil is covered with asphalt, gravel, buildings, or other features that prevent workers (occupational, construction, and excavation) from directly contacting contamination. However, it is assumed that exposure barriers that may currently prevent workers from contacting chemicals in surface soil may be removed in the future. Direct-contact exposure routes for workers include incidental soil ingestion, inhalation of vapors or particulates, and dermal contact.

It is assumed that the reasonable maximum depth of future excavations that may be developed at the Site is 15 feet bgs (DEQ, 2003). In addition to contacting surface soil, excavation and construction workers may contact subsurface soil located above 15 feet bgs.

The vadose zone is the relatively unsaturated layer of soil that lies above the water table. In the northern section of the Site, near the Columbia River, the water table is located

approximately 6 feet bgs (Table 2-1). The thickness of the vadose zone increases to the south. Near West Marine Drive, the water table is approximately 19 feet bgs. It is assumed that there are two pathways by which on-site occupational workers could have indirect exposure to petroleum hydrocarbons in subsurface vadose zone soil. First, it is assumed that volatile petroleum hydrocarbons in the vadose zone could migrate through the soil matrix and enter outdoor air where they could then be inhaled by outdoor workers. Also, vapors from hydrocarbons in the vadose zone could migrate to the foundation of a building, penetrate the building through cracks in the foundation, and enter indoor air where they could then be inhaled by indoor workers.

Petroleum hydrocarbons have been observed in subsurface, saturated soil at several locations. In general, there is little potential for people to contact petroleum hydrocarbons trapped in soil below the water table. Indirect exposure to petroleum constituents in saturated soil is unlikely because soil that is saturated with water has little air-filled pore space, and this prevents volatile chemicals from partitioning into air and migrating to the soil surface. Although it may be possible for excavations to expose contaminated soil below the water table, it is unlikely that workers would occupy such an excavation without substantial dewatering. As mentioned previously, it is conservatively assumed that construction or excavation workers could directly contact soil within 15 feet of the ground surface, even in areas where the water table is typically above this depth.

It should be noted that the DEQ (2003) default exposure assumptions for construction workers assume exposure durations of one year. Many of the properties on the Site are too small to support construction projects that would entail a year of surface or subsurface work where workers could have direct-contact exposures to soil. Although the excavation worker exposure scenario is relevant for most of the Site, the construction worker exposure scenario is most applicable for large and undeveloped parcels of land that could potentially support large-scale construction projects. To be conservative, the construction worker exposure scenario will initially be used to evaluate all properties on the Site.

No single-family residences are present at the Site and, given land use plans for the area, it is unlikely that single-family residences will be developed in the foreseeable future. As discussed previously, one property supports an apartment complex. Occupants of this apartment complex are assumed to have potential exposures similar to urban residents, not single-family residents (DEQ, 2003). As a result, it is assumed that urban residents could have direct contact with surface soil (0 to 3 feet bgs) on the property. Also, it is assumed that urban residents could have indirect exposure to volatile chemicals in vadose zone soil that migrate to outdoor air. Finally, it is assumed that volatile chemicals in vadose zone soil located within 50 feet of the apartment complex could migrate to indoor air and be inhaled by urban residents.

Although chemicals in soil may leach to groundwater, soil leaching models will not be used to evaluate soil conditions in the risk assessment. Soil RBCs for the leaching

pathway are estimated using models that simulate partitioning of chemicals from soil to groundwater, and they are designed to protect groundwater that is used for drinking purposes (DEQ, 2003). Groundwater at the Site is not used for drinking purposes. Also, empirical data regarding groundwater quality are available to evaluate risks associated with exposure to impacted groundwater. As a result, model estimates of chemical concentrations in groundwater that may result from leaching are not necessary for the risk evaluation because actual groundwater quality data can be used for this purpose.

4.3.2 Groundwater

As mentioned previously, the City of Astoria supplies municipal water to facilities in and near the Site. Groundwater at the Site is not used for drinking purposes, and given the availability, reliability, and relatively low cost of the public water supply, it is unlikely that water supply wells will be developed in the foreseeable future. As a result, human receptors such as occupational workers are unlikely to ingest or directly contact site-related chemicals in groundwater.

It is assumed that occupational workers could be exposed to volatile hydrocarbons that migrate from groundwater to indoor or outdoor air. It is also assumed that excavation workers could have direct contact with chemicals in groundwater if an excavation were developed below the water table in the northern part of the Site. It should be noted that the Occupational Safety and Health Administration rules require that excavations be dewatered before worker entry. As a result, it is unlikely that workers will have substantial direct contact with chemicals in groundwater.

4.3.3 Sediment and Surface Water

Petroleum constituents have likely impacted sediment and surface water near an intermittent seep with LNAPL located in Slip 2 near the shoreline of the Columbia River. Potential risks associated with exposure to petroleum near the seep will be evaluated as part of the ecological risk assessment. For a variety of reasons, it is unlikely that potential human receptors would have significant exposure to petroleum constituents in sediment or surface water near the seep.

The human receptors that appear to have the greatest potential to contact sediment and surface water of the Columbia River are recreationists such as fishers or boaters. The seep area in Slip 2 is located in a part of the Site that is actively used for industrial purposes and that is likely to remain an industrial-use area for the foreseeable future. Recreational uses of the Columbia River near the seep are not compatible with site operations. Given the industrial nature of the Site, recreational fishing, clamming, or crabbing in Slip 2 would be unsafe. As a result, it is unlikely that people will have significant direct contact with impacted sediment.

Dissolved chemicals may migrate from groundwater or sediment near the seep to surface water. Given the small-scale and localized nature of the seep, the relatively small volume of LNAPL that discharges, and the substantial flow of ambient water over the seep area, chemical concentrations in surface water are expected to be low. Due to mixing with ambient water, it is likely that elevated chemical concentrations in surface water would only be found immediately adjacent to impacted sediment. It is unlikely that people would have significant exposure to elevated concentrations of petroleum constituents in surface water.

Several PAHs with relatively high molecular weights are likely present in impacted sediment. It is possible that some of these PAHs can accumulate in the tissues of some aquatic organisms. Vertebrates, including fish, can metabolize PAHs, and these hydrocarbons have little propensity to accumulate in tissues of vertebrates. As a result, it is unlikely that people who catch and consume fish near the Site would have significant exposure to site-related chemicals. However, some invertebrates may accumulate some PAHs in tissues.

For several reasons, it is unlikely that recreational fishers would have significant exposure to site-related chemicals in tissues of invertebrates. First, available evidence suggests that impacted sediment is restricted to a relatively small area (approximately 150 feet by 50 feet) of intertidal habitat. Additional study is being conducted to better characterize the spatial extent of sediment impacts. Given the small size of the impacted area and its periodic submergence, the population of invertebrate prey species with sufficient long-term exposure to accumulate site-related chemicals in tissues is expected to be small. As mentioned previously, it is unlikely that recreational fishers would harvest invertebrates in or immediately adjacent to the impacted area. Also, it is unlikely that recreational fishers would harvest and consume a sufficient number of local invertebrates that have migrated from the impacted area to have significant dietary exposure to site-related chemicals.

In summary, direct-contact exposures with impacted sediment and surface water are considered potentially complete, but insignificant, exposure pathways. Similarly, indirect exposure to site-related PAHs that may accumulate in tissues of invertebrates that are harvested and consumed by fishers is also considered an insignificant exposure pathway. These pathways will not be evaluated using quantitative risk assessment methods. Instead, potential risks associated with these pathways will be discussed in the uncertainty section of the HHRA.

5 RISK CHARACTERIZATION

Risk characterization elements of the HHRA will be performed consistent with the DEQ risk evaluation framework for petroleum-contaminated sites outlined in the RBDM (DEQ, 2003). This evaluation framework is relevant because available evidence indicates that COPCs in soil and groundwater likely resulted from releases of various petroleum products.

Initial risk estimates will be made by comparing concentrations of COPCs in soil and groundwater with relevant RBCs. As discussed below, site-specific soil and groundwater RBCs will be developed for pathways that involve indirect exposures to volatile chemicals that may migrate from soil or groundwater to indoor or outdoor air. Generic RBCs will be used to evaluate all direct-contact exposure scenarios.

If COPC concentrations in soil or groundwater are above relevant RBCs, either further evaluation will be conducted or it will be concluded that the area with concentrations above RBCs may pose an unacceptable health risk and requires some form of risk management. In cases where further evaluation is performed, other relevant data will be analyzed to determine if exposure to COPCs may lead to unacceptable risks. For example, an exposure unit on the Site may be defined (e.g., a single property) and an estimate of the exposure point concentration (i.e., 90% upper confidence limit about the mean) within the exposure unit may be compared to a relevant RBC.

5.1 Generic Risk-Based Concentrations

Generic DEQ RBCs will be used to evaluate all direct-contact exposure scenarios. With the exception of butylbenzenes, lube oil, arsenic, and chromium, the DEQ has established generic soil RBCs for all of the soil COPCs (DEQ, 2003). Similarly, generic groundwater RBCs are available for all of the groundwater COPCs, with the exception of some metals (arsenic, iron, and manganese). The methods that will be used to evaluate the COPCs with no generic DEQ RBCs are discussed below.

Butylbenzenes and chromium were selected as soil COPCs, based on very conservative estimates of their incremental contribution to cumulative risks, and the maximum detected concentrations of these chemicals did not exceed their relevant industrial soil PRGs. As a result, the lack of DEQ RBCs for these chemicals is unlikely to result in significant underestimates of potential risk. Potential risk associated with exposure to

butylbenzenes and chromium will be evaluated as part of the uncertainty analysis in the baseline HHRA.

As mentioned previously, at the time the RI sampling program was developed, the DEQ recommended evaluating risks associated with exposure to petroleum mixtures by focusing on key constituents that were relatively well studied and known to be particularly toxic components of petroleum (American Society for Testing and Materials [ASTM], 1995; DEQ, 1999). Current DEQ (2003) guidance recommends evaluations of individual constituents and of whole petroleum mixtures such as gasoline and diesel. Although the DEQ has developed generic RBCs for gasoline and diesel, RBCs have not been developed for heavy oil. Data regarding product composition that are now recommended by DEQ (2003) for evaluating heavy oil impacts were not collected during the RI. Because data are not available to use the heavy-oil risk evaluation approach recommended in the latest DEQ guidance, the potential risks associated with exposure to heavy oil will be evaluated by comparing the key constituents of heavy oil with relevant RBCs.

The constituents of heavy oil that appear to have the greatest potential to pose risks to people are various PAHs. Several of the PAHs that are common constituents of heavy oil are likely carcinogens. The DEQ has developed generic RBCs for many of the carcinogenic PAHs in heavy oil (DEQ, 2003). In most areas with heavy-oil impacts, samples were collected and analyzed for PAHs. Therefore, comparing PAH concentrations to generic DEQ RBCs will provide an evaluation of potential risks associated with releases of heavy oil.

5.2 Metals in Groundwater

RBCs will not be developed for the metal COPCs in groundwater. As mentioned previously, there are three scenarios by which human receptors may have significant exposure to COPCs in groundwater: inhalation of volatile chemicals that migrate to outdoor air, inhalation of volatile chemicals that migrate from groundwater to indoor air, and direct contact of water in an excavation. The DEQ RBCs for excavation workers who may contact groundwater consider two potential exposure routes (DEQ, 2003): workers who have dermal contact with water in an excavation, and workers who inhale volatile chemicals that migrate from water to outdoor air of the excavation. The metals identified as COPCs for groundwater are not considered volatile hazardous substances (DEQ, 2000; USEPA, 2004a) and are unlikely to migrate from groundwater to air in the vapor phase. Also, in general, dermal uptake of waterborne metals is considered an insignificant exposure route, and the USEPA does not recommend conducting assessments of the potential risk associated with dermal exposure for the four metal COPCs in groundwater (USEPA, 2004b). Potential worker exposure to metals in groundwater of an excavation will be evaluated as part of the uncertainty analysis in the HHRA.

5.3 Arsenic in Soil

Natural background concentrations of arsenic in soil of western Oregon are often above the industrial soil PRG, and it is likely that arsenic was included as a soil COPC for this reason. Although no soil sampling was performed as part of the RI with the explicit purpose of characterizing natural background concentrations of metals, other soil data from the region can be used to estimate natural background concentrations. For example, the 90th percentile arsenic concentrations for Washington State and Clark County, Washington, are 7 mg/kg and 6 mg/kg, respectively (Washington State Department of Ecology [Ecology], 1994). As shown in Table A-4 of Appendix A, the 90th percentile arsenic concentration in soil at the Site is 5.4 mg/kg, which is similar to other 90th percentile concentration estimates in the region; it is most likely that arsenic in soil at the Site is of natural origin and not the result of a contaminant release.

The 95th percentile arsenic concentration in soil of British Columbia, Canada, ranges from 10 to 20 mg/kg, depending on region (British Columbia Ministry of Environment [BCE], 2005). At the Site, the 95th percentile arsenic concentration is 6.9 mg/kg (Table A-4, Appendix A). Again, this comparison suggests that arsenic in soil at the Site is not elevated above natural background levels of the region.

Of the 78 soil samples analyzed for arsenic, only four had concentrations above the Clark County 90th percentile, two sample results were above the Washington State 90th percentile, and only a single sample result was above a 95th percentile for soil in British Columbia (Table A-4, Appendix A). Given that arsenic concentrations in soil at the Site are consistent with natural background levels and there are no significant known anthropogenic sources of arsenic, arsenic will be eliminated as a COPC. Potential risks associated with exposure to arsenic in soil will be evaluated as part of the uncertainty section of the HHRA.

5.4 Site-Specific Risk-Based Concentrations

DEQ (2003) guidance for managing petroleum-contaminated sites outlines a process for developing site-specific RBCs when conditions at a site may differ from the assumed DEQ default conditions. Because some soil conditions at the Site differ from DEQ default estimates, site-specific RBCs will be developed for some indirect exposure pathways (e.g., vapor intrusion into buildings). The DEQ spreadsheet model system for calculating RBCs will be used to estimate site-specific RBCs. Two site-specific adjustments will be made to better reflect Site conditions. A site-specific estimate of water-filled porosity will be used to better estimate RBCs associated with indirect exposure to VOCs in vadose zone soil. Also, the thickness of the capillary fringe will be adjusted to better estimate RBCs associated with indirect exposure to VOCs in groundwater.

5.4.1 Water-Filled Porosity

The vadose zone is the relatively unsaturated soil layer that lies above the water table. The value for water-filled porosity in the vadose zone has an important effect on estimates of vapor intrusion into buildings (DEQ, 2003). The model used by the DEQ to estimate RBCs for indoor air simulates diffusion processes in the soil matrix that cause vapor migration. Diffusion rates through water are orders of magnitude lower than through air, and water-filled porosity of soil is an important determinant of vapor migration. Because soil at the Site has a different moisture content than that assumed by the DEQ, a site-specific adjustment in water-filled porosity will be made.

To estimate generic RBCs, the DEQ uses the estimate of water-filled porosity of vadose zone soil given in ASTM (1995) risk-based corrective action guidance. The ASTM estimate of water-filled porosity is intended as a conservative value that is appropriate for developing screening values around the nation. Average annual precipitation in Astoria, Oregon, is high relative to most other parts of the country, and the moisture content of surface soil is expected to be relatively high.

The moisture contents (on a weight basis) of 457 soil samples collected at the Site are presented in Table B-1, Appendix B. Moisture contents were estimated by the laboratory when the samples were dried prior to analysis. A subset of these data was used to estimate water-filled porosity of vadose zone soil.

Climate, weather, and seasonal changes in the water table can be important determinants of soil moisture content. The climate of the Pacific Northwest includes summer droughts, and the moisture content of soil is expected to be lowest in late summer near the end of the seasonal drought. To be conservative, only soil samples collected during late summer were used to estimate site-specific water-filled porosity. For the purposes of selecting appropriate soil moisture data, the bottom depth of the vadose zone is defined as approximately 6 feet bgs. As shown in Table 2-1, during most of the year the water table is well below 6 feet bgs at most monitoring wells. Water levels have been below 6 feet bgs at all monitoring locations in the summer months.

The percent moisture content was measured in a total of 247 soil samples collected within 6 feet of the ground surface during the months of August and September (Table B-2, Appendix B). The mean and median moisture contents of soil within 6 feet of the ground surface in late summer are 12.5 percent and 8.6 percent, respectively.

The gravimetric water (W) content of a soil sample is the ratio of the mass of water in the sample over the mass of solid particles (Fetter, 1994). By expressing moisture content as the proportion of sample weight comprised of water, W was estimated for each sample as follows:

$$W = \frac{P_w}{P_s} \quad \text{(Equation 3)}$$

where:

- W = gravimetric water content (unitless)
- p_w = proportion of sample weight comprised of water
- p_s = proportion of sample weight comprised of solids (1 – p_w)

The mean and median gravimetric water contents of near surface soil samples collected in late summer are 0.16 and 0.09, respectively (Table B-2, Appendix B). The median water content is less than the mean, suggesting that the distribution of water content estimates is skewed. For the purposes of estimating the long-term average water-filled porosity of vadose zone soil at the Site, the median gravimetric water content will be used (a conservative approach).

Water-filled porosity (θ_w) of soil is the proportion of the void volume that is filled with water. The weight-based gravimetric water content of soil can be used to estimate water-filled porosity as follows (Fetter, 1994):

$$\theta_w = W \times \frac{\rho_b}{\rho_w} \quad \text{(Equation 4)}$$

where:

- θ_w = Water-filled porosity (unitless)
- W = Gravimetric water content (unitless)
- ρ_b = Dry soil bulk density in grams per cubic centimeter (g/cm³)
- ρ_w = Density of water or 1 g/cm³

Based on an evaluation of boring logs, most soil of the vadose zone is comprised of sand, although other soil types are occasionally encountered. The DEQ generic RBCs are calculated assuming the vadose zone is comprised of sand, so no adjustment to soil characteristics such as dry soil bulk density (ρ_b) or total porosity (n) is required. The DEQ default estimates of ρ_b (1.7 g/cm³) and n (0.38) for sandy soils are consistent with estimates used by the USEPA in standard vapor intrusion models (Environmental Quality Management, 2004).

Using the median W (0.09) and the default ρ_b for sand, the resulting site-specific estimate of θ_w is 0.153. This site-specific estimate is slightly higher than the conservative DEQ default θ_w of 0.12.

5.4.2 Thickness of Capillary Fringe

A zone of partially saturated soil, called the capillary fringe, is present immediately above the water table. Water enters this zone through the process of capillary attraction, which is an upward force caused, in part, by surface tension at the air-water interface. Because soil in the capillary fringe has a higher water-filled porosity than that of the overlying vadose zone, the thickness of the capillary fringe can have an important effect on vapor migration (i.e., a thicker capillary fringe results in less vapor migration).

The thickness of the capillary fringe (L_{cap}) is a function of soil type. The USEPA (Environmental Quality Management, 2004) presents the following equation to estimate L_{cap} , given groundwater conditions consistent with those found at the Site:

$$L_{cap} = \frac{0.15}{0.2 \times D} \quad (\text{Equation 5})$$

Where:

D = Mean soil particle diameter (centimeters [cm])

Again, the predominant soil type comprising the capillary fringe at the Site is sand. According to USEPA (Environmental Quality Management, 2004) guidance, the mean soil particle diameter of sand is 0.044 cm. Using this value for D , the site-specific L_{cap} estimated by the above equation is 17 cm. The DEQ default estimate of L_{cap} is 5 cm.

6 UNCERTAINTY ANALYSIS

Uncertainty is inherent in many aspects of the risk assessment process. In addition to the use of many conservative assumptions and approximations, the identification and analysis of environmental conditions are difficult and inexact. These factors, however, must be evaluated to provide an indication of the overall degree of uncertainty associated with the risk estimate. Because a precise determination of the amount of uncertainty is often difficult, a semi-quantitative approach will be used in the HHRA. The approach will involve listing identifiable uncertainties associated with the parameters used to calculate risks, then gauging both the magnitude and direction of potential bias (i.e., over- or underestimation of actual risk) for each type of uncertainty.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

REFERENCES

- API. 2002. Evaluating hydrocarbon removal from source zones and its effect on dissolved plume longevity and magnitude. American Petroleum Institute. Publication No. 4715. September.
- ASTM. 1995. Standard guide for risk-based corrective action applied at petroleum release sites. American Society for Testing and Materials. Designation E 1739-95.
- BCE. 2005. Protocol for contaminated sites 4, determining background soil quality. British Columbia Ministry of Environment. http://wlapwww.gov.bc.ca/epd/epdpa/contam_sites/policy_procedure_protocol/protocols/background_soil.html (August).
- DEQ. 1999. Risk-based decision making for the remediation of petroleum-contaminated sites. Oregon Department of Environmental Quality, Land Quality Division. September 29.
- DEQ. 2000. Guidance for conduct of deterministic human health risk assessments. Final. Oregon Department of Environmental Quality. May.
- DEQ. 2003. Risk-based decision making for the remediation of petroleum-contaminated sites. Oregon Department of Environmental Quality, Land Quality Division. September.
- Ecology. 1994. Natural background soil metals concentrations in Washington State. Publication #94-115. Washington State Department of Ecology, Olympia, Washington. October.
- EnviroLogic. 2002. RI/FS and IRMA development work plan, phase 1, remedial investigation/feasibility study, Astoria area-wide petroleum site, Astoria, Oregon. EnviroLogic Resources, Inc. July 15.
- EnviroLogic. 2003a. Memorandum, quality assurance/quality control review, June 19, 2003 water samples, Astoria area wide site. EnviroLogic Resources, Inc. June.

- EnviroLogic. 2003b. Technical memorandum, beneficial land and water use surveys, remedial investigation/feasibility study, Astoria area-wide petroleum site, Astoria, Oregon. EnviroLogic Resources, Inc. February 21.
- EnviroLogic. 2003c. Technical memorandum, phase 1 source/soil characterization, remedial investigation/feasibility study, Astoria area-wide petroleum site, Astoria, Oregon. EnviroLogic Resources, Inc. January.
- EnviroLogic. 2003d. Work plan addendum, phase 1 ground water assessment, Astoria area-wide petroleum site, Astoria, Oregon. EnviroLogic Resources, Inc. July.
- EnviroLogic. 2004a. Technical memorandum, phase 2 source/soil characterization, remedial investigation/feasibility study, Astoria area-wide petroleum site, Astoria, Oregon. EnviroLogic Resources, Inc. November.
- EnviroLogic. 2004b. Technical memorandum, quarterly ground-water monitoring, first quarter 2004—2nd round, remedial investigation/feasibility study, Astoria area-wide petroleum site, Astoria, Oregon. EnviroLogic Resources, Inc. April.
- EnviroLogic. 2004c. Technical memorandum, quarterly ground-water monitoring, fourth quarter 2003—1st round, remedial investigation/feasibility study, Astoria area-wide petroleum site, Astoria, Oregon. EnviroLogic Resources, Inc. March.
- EnviroLogic. 2004d. Technical memorandum, quarterly ground-water monitoring, second quarter 2004—3rd round, remedial investigation/feasibility study, Astoria area-wide petroleum site, Astoria, Oregon. EnviroLogic Resources, Inc. August.
- EnviroLogic. 2004e. Technical memorandum, quarterly ground-water monitoring, third quarter 2004—4th round, remedial investigation/feasibility study, Astoria area-wide petroleum site, Astoria, Oregon. Prepared by EnviroLogic Resources, Inc. November.
- Environmental Quality Management. 2004. User's guide for evaluating subsurface vapor intrusion into buildings. Prepared for U.S. Environmental Protection Agency. Environmental Quality Management. February 22.
- Fetter, C. W. 1994. Applied hydrogeology. 3d ed. Englewood Cliffs, New Jersey: Prentice Hall.
- USEPA. 1989. Risk assessment guidance for Superfund. Vol. 1, human health evaluation manual (Part A). Interim final. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA/540/1-89/002. December.

- USEPA. 1993. Risk assessment: technical guidance manual, selecting exposure routes and contaminants of concern by risk-based screening. U.S. Environmental Protection Agency, Region 3. EPA/903/R-93-001. January.
- USEPA. 2004a. Region 9 preliminary remediation goals (PRGs) 2004. S. J. Smucker, Ph.D., regional toxicologist, technical support team, U.S. Environmental Protection Agency. October 1.
- USEPA. 2004b. Risk assessment guidance for Superfund. Vol. 1, human health evaluation manual (Part E, supplemental guidance for dermal risk assessment). Final. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation, Washington, DC. EPA/540/R/99/005. July.

TABLES

Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-1(F)	10/13/2003	1142	1.5	31.71	np	23.44	0	8.27	
	10/22/2003	820	0.62	31.71	np	23.87	0	7.84	
	11/12/2003	1130	0.56	31.71	np	23.03	0	8.68	
	12/16/2003	1358	0.34	31.71	np	17.25	0	14.46	
	1/11/2004	1628	4.26	31.71	np	16.33	0	15.38	
	1/15/2004	800	3.86	31.71	np	16.21	0	15.50	
	2/12/2004	945	-2.53	31.71	np	15.61	0	16.10	
	3/18/2004	1355	1.23	31.71	np	17.82	0	13.89	
	4/12/2004	1105	-2.84	31.71	np	18.2	0	13.51	
	4/15/2004	730	1.78	31.71	np	18.36	0	13.35	
	5/19/2004	1307	1.86	31.71	np	19.98	0	11.73	
	6/16/2004	1246	1.78	31.71	np	20.76	0	10.95	
	7/19/2004	1042	-2.94	31.71	np	21.82	0	9.89	
	7/20/2004	1838	-0.48	31.71	np	21.9	0	9.81	
	8/17/2004	1330	2.69	31.71	np	22.92	0	8.79	
9/16/2004	1320	3.67	31.71	np	23.18	0	8.53		
MW-1(M)	8/28/2002	1151	-1.99	14.53	9.61	10.08	0.47	4.86	18.27
	9/12/2002	1029	-2.84	14.53	9.34	9.88	0.54	5.12	19.41
	9/13/2002	1536	1.12	14.53	9.13	9.34	0.21	5.37	
	10/11/2002	1141	-1.52	14.53	9.49	9.92	0.43	4.98	
	11/15/2002	1118	3.51	14.53	7.11	7.19	0.08	7.41	
	12/13/2002	841	4.39	14.53	6.54	6.57	0.03	7.99	
	1/14/2003	1117	3.45	14.53	6.79	6.81	0.02	7.74	
	2/12/2003	1126	2.12	14.53	7.55	7.56	0.01	6.98	
	3/13/2003	1018	3.86	14.53	6.37	6.45	0.08	8.15	
	4/14/2003	1147	4.17	14.53	np	6.57	0	7.96	
	5/14/2003	1054	2.59	14.53	8.67	8.7	0.03	5.86	
	6/17/2003	1431	2.05	14.53	9.19	9.25	0.06	5.33	
	7/14/2003	1215	0.11	14.53	9.56	9.71	0.15	4.95	
	8/13/2003	1350	3	14.53	9.31	9.32	0.01	5.22	
	9/12/2003	1432	3.21	14.53	np	8.10	0	6.43	
10/13/2003	846	-2.52	14.53	9.31	9.33	0.02	5.22		

**Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-1(M) cont.	11/12/2003	1445	3.39	14.53	np	6.96	0	7.57	Product globules in bailer Strong odor
	12/16/2003	943	1.46	14.53	7.58	7.59	0.01	6.95	
	1/11/2004	1350	4.01	14.53	np	6.58	0	7.95	
	2/12/2004	1423	-2.19	14.53	8.64	8.65	0.01		
	3/18/2004	930	3.9	14.53	np	7.60	0	6.93	
	4/12/2004	902	0.43	14.53	7.56	7.57	0.01	6.97	
	6/16/2004	1030	-0.35	14.53	9.39	9.41	0.01	5.13	
	7/19/2004	858	-5.63	14.53	9	9.03	0.01	5.51	
	8/17/2004	1020	-3.83	14.53	9.55	9.58	0.01	4.96	
	9/16/2004	932	-2.05	14.53	8.46	8.47	0.01	6.07	
MW-2(M)	8/28/2002	1122	-3.21	15.00	np	8.65	0	6.35	17.9
	9/12/2002	1015	-2.84	15.00	np	8.69	0	6.31	19.03
	9/13/2002	1520	1.12	15.00	np	9.7	0	5.30	
	10/11/2002	1036	-2.45	15.00	np	8.95	0	6.05	
	11/15/2002	930	2.73	15.00	np	8.55	0	6.45	
	12/13/2002	814	4.26	15.00	np	8.08	0	6.92	
	1/14/2003	1039	3.45	15.00	np	6.58	0	8.42	
	2/12/2003	1042	2.12	15.00	np	6.47	0	8.53	
	3/13/2003	940	3.86	15.00	np	5.91	0	9.09	
	4/14/2003	1103	4.35	15.00	np	6.02	0	8.98	
	5/14/2003	1008	1.15	15.00	np	6.91	0	8.09	
	6/17/2003	1354	0.45	15.00	np	7.51	0	7.49	
	7/14/2003	1132	0.11	15.00	np	8.02	0	6.98	
	8/13/2003	1324	1.76	15.00	np	8.34	0	6.66	
	9/12/2003	1318	2.26	15.00	np	8.58	0	6.42	
	10/13/2003	852	-2.52	15.00	np	8.62	0	6.38	
	10/15/2003	1300	2.26	15.00	np	8.62	0	6.38	
	11/12/2003	1432	3.39	15.00	np	8.29	0	6.71	
	12/16/2003	910	2.67	15.00	np	6.86	0	8.14	
	1/11/2004	1348	4.01	15.00	np	6.27	0	8.73	
	1/12/2004	1200	-0.09	15.00	np	6.39	0	8.61	
	2/12/2004	1418	-2.19	15.00	np	6.14	0	8.86	

**Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-2(M) cont.	3/18/2004	1023	3.9	15.00	np	6.66	0	8.34	
	4/12/2004	944	-1.26	15.00	np	6.98	0	8.02	
	4/14/2004	1730	-2.47	15.00	np	7.07	0	7.93	
	6/16/2004	1023	-1.94	15.00	np	7.77	0	7.23	
	7/19/2004	834	-5.63	15.00	np	8.12	0	6.88	
	7/22/2004	1757	2.45	15.00	np	8.18	0	6.82	
	8/17/2004	1015	-3.83	15.00	np	8.52	0	6.48	
	9/16/2004	928	-3.7	15.00	np	8.27	0	6.73	
MW-3(M)	8/28/2002	1345	1.05	15.42	9.45	10.17	0.72	5.87	17.51
	9/12/2002	1025	-2.84	15.42	9.42	10.12	0.7	5.90	18.44
	9/13/2002	1547	2.52	15.42	9.51	9.88	0.37	5.86	
	10/11/2002	1155	-1.52	15.42	9.61	10.67	1.06	5.66	
	11/15/2002	1134	3.51	15.42	9.07	9.7	0.63	6.26	
	12/13/2002	906	4.39	15.42	8.68	9.02	0.34	6.69	
	1/14/2003	1130	2.16	15.42	7.54	8.15	0.61	7.80	
	2/12/2003	1142	0.66	15.42	7.61	8.18	0.57	7.73	
	3/13/2003	1037	2.91	15.42	7.01	7.91	0.9	8.29	
	4/14/2003	1207	4.17	15.42	7.06	8.29	1.23	8.19	
	5/14/2003	1101	2.59	15.42	7.78	8.94	1.16	7.48	
	6/17/2003	1500	2.05	15.42	8.42	9.15	0.73	6.90	
	7/14/2003	1226	0.11	15.42	8.86	9.57	0.71	6.46	
	8/13/2003	1403	3	15.42	9.06	9.64	0.58	6.28	
	9/12/2003	1449	3.21	15.42	9.26	9.59	0.33	6.11	
	10/13/2003	921	-2.52	15.42	9.35	9.79	0.44	6.01	
	10/23/2003	939	2.62	15.42	9.15	9.6	0.45	6.21	
	11/12/2003	1438	3.39	15.42	8.99	9.16	0.17	6.41	
	12/16/2003	1003	1.46	15.42	7.76	8.21	0.45	7.60	
	1/11/2004	1359	4.01	15.42	7.19	8.09	0.9	8.11	
	2/12/2004	1437	-0.76	15.42	7.32	8.79	1.47	7.90	
	3/18/2004	925	2.49	15.42	7.77	8.51	0.74	7.55	
	4/12/2004	915	0.43	15.42	7.95	8.58	0.63	7.38	
	5/19/2004	1054	-1.19	15.42	8.55	9.35	0.8	6.76	

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

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-3(M) cont.	6/16/2004	1045	-0.35	15.42	8.7	9.52	0.82	6.61	
	7/19/2004	855	-5.63	15.42	8.94	9.53	0.59	6.40	
	8/17/2004	1033	-1.98	15.42	9.3	9.83	0.53	6.05	
	9/16/2004	944	-2.05	15.42	9.1	9.35	0.25	6.29	
MW-4(M)	8/28/2002	1302	-0.5	15.5	9.16	9.45	0.29	6.30	20.59
	9/12/2002	1042	-3.1	15.5	9.21	9.58	0.37	6.24	
	9/13/2002	1544	1.12	15.5	9.26	9.39	0.13	6.22	
	10/11/2002	1122	-2.45	15.5	9.46	9.77	0.31	6.00	21.11
	11/15/2002	1108	3.51	15.5	9.08	9.12	0.04	6.41	
	12/13/2002	850	4.39	15.5	np	8.66	0	6.84	
	1/14/2003	1106	3.45	15.5	np	7.18	0	8.32	
	2/12/2003	1112	2.12	15.5	6.95	7.92	0.97	8.42	
	3/13/2003	1007	3.86	15.5	6.46	7.49	1.03	8.91	
	4/14/2003	1137	4.17	15.5	6.28	8.89	2.61	8.88	
	5/14/2003	1126	2.59	15.5	7.18	9.48	2.3	8.02	
	6/17/2003	1452	2.05	15.5	7.98	8.78	0.8	7.42	
	7/14/2003	1232	1.8	15.5	8.53	8.79	0.26	6.94	
	8/13/2003	1303	1.76	15.5	8.87	9.14	0.27	6.59	
	9/12/2003	1445	3.21	15.5	9.07	9.28	0.21	6.40	
	10/13/2003	914	-2.52	15.5	9.17	9.32	0.15	6.31	
	10/23/2003	918	1.04	15.5	8.95	9.05	0.1	6.54	
	11/12/2003	1501	3.39	15.5	np	8.85	0	6.65	
	12/16/2003	918	2.67	15.5	np	7.45	0	8.05	
	1/11/2004	1344	4.01	15.5	np	6.86	0	8.64	
	2/12/2004	1408	-2.19	15.5	6.45	8.69	2.24	8.76	
	3/18/2004	1010	3.9	15.5	6.97	9.16	2.19	8.25	
	4/12/2004	919	0.43	15.5	7.34	8.81	1.47	7.97	
	5/19/2004	1055	-1.19	15.5	8.06	8.77	0.71	7.35	
	6/16/2004	1013	-1.94	15.5	8.27	8.9	0.63	7.15	
	7/19/2004	839	-5.63	15.5	8.66	8.78	0.12	6.82	
8/17/2004	1008	-3.83	15.5	9.04	9.27	0.23	6.43		
9/16/2004	922	-3.7	15.5	8.87	8.93	0.06	6.62		

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Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-5(M)	8/28/2002						0		
MW-6(M)	8/28/2002	1140	-1.99	13.78	np	7.71	0	6.07	18.47
	9/12/2002	926	-1.83	13.78	np	8.25	0	5.53	19.06
	9/13/2002	1515	1.12	13.78	np	7.71	0	6.07	
	10/11/2002	1012	-2.51	13.78	np	7.92	0	5.86	
	11/15/2002	921	2.73	13.78	np	7.41	0	6.37	
	12/13/2002	802	4.26	13.78	np	8.85	0	4.93	
	1/14/2003	1028	3.99	13.78	np	7.01	0	6.77	
	2/12/2003	1031	2.12	13.78	np	6.61	0	7.17	
	3/13/2003	930	4.37	13.78	np	6.93	0	6.85	
	4/14/2003	1053	4.35	13.78	np	6.95	0	6.83	
	5/14/2003	956	1.15	13.78	np	7.14	0	6.64	
	6/17/2003	1402	0.45	13.78	np	7.12	0	6.66	
	7/14/2003	1050	-1.9	13.78	np	7.47	0	6.31	
	8/13/2003	1316	1.76	13.78	np	7.48	0	6.30	
	9/12/2003	1312	2.26	13.78	np	7.56	0	6.22	
	10/22/2003	1530	-2.21	13.78	np	7.00	0	6.78	
	11/12/2003	1348	3.65	13.78	np	8.27	0	5.51	
	12/16/2003	857	2.67	13.78	np	5.86	0	7.92	
	1/11/2004	1332	4.01	13.78	np	5.41	0	8.37	
	1/12/2004	814	0.52	13.78	np	5.58	0	8.20	
	2/12/2004	1328	-3.4	13.78	np	5.69	0	8.09	
	3/18/2004	941	3.9	13.78	np	6.41	0	7.37	
	4/12/2004	905	0.43	13.78	np	6.49	0	7.29	
	4/13/2004	1045	-0.52	13.78	np	6.45	0	7.33	
	5/19/2004	1135	0.49	13.78	np	6.95	0	6.83	
	6/16/2004	948	-1.94	13.78	np	7.69	0	6.09	
	7/19/2004	827	-5.2	13.78	np	7.45	0	6.33	
7/19/2004	1505	2.72	13.78	np	7.29	0	6.49		
8/17/2004	947	-3.83	13.78	np	7.82	0	5.96		
9/16/2004	857	-3.7	13.78	np	7.56	0	6.22		

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Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-7(M)	8/28/2002	1102	-3.21	14.86	np	8.31	0	6.55	18.64
	9/12/2002	900	-1.83	14.86	np	8.36	0	6.50	
	9/13/2002	1455	1.12	14.86	np	8.43	0	6.43	
	10/11/2002	957	-2.51	14.86	np	8.58	0	6.28	18.93
	11/15/2002	914	2.73	14.86	np	8.57	0	6.29	
	12/13/2002	754	4.26	14.86	np	7.7	0	7.16	
	1/14/2003	1017	3.99	14.86	np	6.01	0	8.85	
	2/12/2003	1021	3.06	14.86	np	5.96	0	8.90	
	3/13/2003	920	4.37	14.86	np	5.3	0	9.56	
	4/14/2003	1044	4.35	14.86	np	5.5	0	9.36	
	5/14/2003	947	1.15	14.86	np	6.42	0	8.44	
	6/17/2003	1347	0.45	14.86	np	7.13	0	7.73	
	7/14/2003	1124	-1.9	14.86	np	7.66	0	7.20	
	8/13/2003	1311	1.76	14.86	np	8.03	0	6.83	
	9/12/2003	1307	2.26	14.86	np	8.27	0	6.59	
	10/13/2003	852	-2.52	14.86	np	8.30	0	6.56	
	10/13/2003	1547	2.54	14.86	np	8.27	0	6.59	
	11/12/2003	1356	3.65	14.86	np	7.96	0	6.90	
	12/16/2003	903	2.67	14.86	np	6.41	0	8.45	
	1/11/2004	1335	4.01	14.86	np	5.77	0	9.09	
	1/12/2004	940	-1.27	14.86	np	5.81	0	9.05	
	2/12/2004	1333	-3.4	14.86	np	5.53	0	9.33	
	3/18/2004	946	3.9	14.86	np	6.23	0	8.63	
	4/12/2004	931	-1.26	14.86	np	6.51	0	8.35	
	4/12/2004	1725	-1.44	14.86	np	6.63	0	8.23	
	5/19/2004	1139	0.49	14.86	np	7.20	0	7.66	
	6/16/2004	957	-1.94	14.86	np	7.42	0	7.44	
	7/19/2004	829	-5.2	14.86	np	7.80	0	7.06	
	7/19/2004	1550	2.5	14.86	np	7.81	0	7.05	
	9/16/2004	903	-3.7	14.86	np	7.91	0	6.95	

**Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-8(M)	8/28/2002	1326	-0.5	15.23	9.69	11.08	1.39	5.37	18.89
	9/12/2002	1036	-3.1	15.23	9.6	10.85	1.25	5.48	
	9/13/2002	1540	1.12	15.23	9.7	10.41	0.71	5.44	
	10/11/2002	1211	-1.52	15.23	9.89	10.91	1.02	5.22	18.74
	11/15/2002	1126	3.51	15.23	8.57	9.26	0.69	6.58	
	12/13/2002	859	4.39	15.23	8.04	8.81	0.77	7.10	
	1/14/2003	1123	3.45	15.23	8.2	8.53	0.33	6.99	
	2/12/2003	1133	0.66	15.23	8.27	8.75	0.48	6.90	
	3/13/2003	1029	3.86	15.23	np	8.22	0	7.01	
	4/14/2003	1158	4.17	15.23	np	7.72	0	7.51	
	5/14/2003	1042	2.59	15.23	8.71	9.45	0.74	6.43	
	6/17/2003	1440	2.05	15.23	8.91	9.77	0.86	6.22	
	7/14/2003	1221	0.11	15.23	9.32	9.79	0.47	5.85	
	8/13/2003	1357	3	15.23	9.36	9.63	0.27	5.84	
	9/12/2003	1437	3.21	15.23	9.19	9.41	0.22	6.01	
	10/13/2003	932	-1.55	15.23	9.57	9.92	0.35	5.62	
	10/23/2003	836	1.04	15.23	9.43	9.86	0.43	5.75	
	11/12/2003	1442	3.39	15.23	8.81	8.86	0.05	6.41	
	12/16/2003	954	1.46	15.23	np	8.71	0	6.52	
	1/11/2004	1355	4.01	15.23	np	7.55	0	7.68	
	2/12/2004	1430	-2.19	15.23	8.37	8.48	0.11	6.85	
	3/18/2004	913	2.49	15.23	8.44	8.53	0.09	6.78	
	4/12/2004	907	0.43	15.23	8.43	8.46	0.03	6.80	
5/19/2004	1112	-1.19	15.23	9.04	9.2	0.16	6.17		
6/16/2004	1037	-0.35	15.23	9.2	9.3	0.1	6.02		
7/19/2004	859	-5.63	15.23	9.34	9.4	0.06	5.88		
8/17/2004	1024	-3.83	15.23	9.64	9.9	0.26	5.56		
9/16/2004	938	-2.05	15.23	9.41	9.43	0.02	5.82		

**Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-9(M)	8/28/2002	1357	1.05	15.42	9.35	13.21	3.86	5.58	19.12
	9/12/2002	1049	-3.1	15.42	9.3	12.08	2.78	5.77	19.47
	9/13/2002	1552	1.12	15.42	9.61	10.21	0.6	5.73	
	10/11/2002	1226	-1.52	15.42	9.75	10.92	1.17	5.52	
	11/15/2002	1141	2.61	15.42	9.16	10.28	1.12	6.12	
	12/13/2002	915	4.39	15.42	8.78	9.79	1.01	6.51	
	1/14/2003	1137	2.16	15.42	7.76	8.55	0.79	7.56	
	2/12/2003	1150	0.66	15.42	7.85	8.85	1	7.44	
	3/13/2003	1045	2.91	15.42	7.35	8.21	0.86	7.96	
	4/14/2003	1217	4.17	15.42	7.33	8.9	1.57	7.89	
	5/15/2003	1116	2.59	15.42	8.11	10.3	2.19	7.03	
	6/17/2003	1508	2.05	15.42	8.44	10.65	2.21	6.70	
	7/14/2003	1241	1.8	15.42	9.00	9.94	0.94	6.30	
	8/13/2003	1409	3	15.42	9.20	9.8	0.6	6.14	
	9/12/2003	1456	3.21	15.42	9.38	9.9	0.52	5.97	
	10/13/2003	939	-1.55	15.42	9.46	10.18	0.72	5.87	
	10/23/2003	956	2.62	15.42	9.24	9.92	0.68	6.09	
	11/12/2003	1456	3.39	15.42	9.15	9.49	0.34	6.23	
	12/16/2003	1009	1.46	15.42	8.02	8.19	0.17	7.38	
	1/11/2004	1407	4.01	15.42	7.52	7.66	0.14	7.88	
2/12/2004	1444	-0.76	15.42	7.76	8.69	0.93	7.54		
3/18/2004	919	2.49	15.42	8.07	8.93	0.86	7.24		
4/12/2004	912	0.43	15.42	8.21	8.83	0.62	7.13		
5/19/2004	1108	-1.19	15.42	8.73	9.83	1.1	6.55		
7/19/2004	905	-5.63	15.42	9.05	10.15	1.1	6.23		
8/17/2004	1029	-3.83	15.42	9.41	10.44	1.03	5.88		
9/16/2004	950	-2.05	15.42	9.22	9.88	0.66	6.12		
MW-10(M)	8/28/2002	1430	1.05	16.32	np	11.23	0	5.09	19.43
	9/12/2002	1005	-2.84	16.32	np	11.1	0	5.22	19.83
	9/13/2002	1526	1.12	16.32	np	11.13	0	5.19	
	10/11/2002	1055	-2.45	16.32	np	11.22	0	5.10	
	11/15/2002	942	3.5	16.32	np	10.63	0	5.69	

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Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-10(M) cont.	12/13/2002	821	4.26	16.32	np	10.21	0	6.11	
	1/14/2003	1048	3.45	16.32	np	9.62	0	6.70	
	2/12/2003	1051	2.12	16.32	np	9.91	0	6.41	
	3/13/2003	948	3.86	16.32	np	9.4	0	6.92	
	4/14/2003	1118	4.35	16.32	np	9.1	0	7.22	
	5/15/2003	1019	1.15	16.32	np	10.38	0	5.94	
	6/17/2003	1413	0.45	16.32	np	10.41	0	5.91	
	7/14/2003	1141	0.11	16.32	np	10.75	0	5.57	
	8/13/2003	1333	3	16.32	np	10.77	0	5.55	
	9/12/2003	1348	3.2	16.32	np	10.95	0	5.37	
	10/13/2003	950	-1.55	16.32	np	10.88	0	5.44	
	10/15/2003	1500	3.78	16.32	np	10.85	0	5.47	
	11/12/2003	1334	3.65	16.32	np	10.67	0	5.65	
	12/16/2003	1027	1.46	16.32	np	9.68	0	6.64	
	1/11/2004	1410	4.01	16.32	np	9.32	0	7.00	
	1/13/2004	1050	-1.76	16.32	np	9.55	0	6.77	
	2/12/2004	1305	-3.4	16.32	np	9.95	0	6.37	
	3/18/2004	856	2.49	16.32	np	10.17	0	6.15	
	4/12/2004	910	0.43	16.32	np	10.12	0	6.20	
	4/13/2004	820	2.99	16.32	np	10.19	0	6.13	
5/19/2004	1124	-1.19	16.32	np	10.56	0	5.76		
6/16/2004	1110	-0.35	16.32	np	10.69	0	5.63		
7/19/2004	909	-5.63	16.32	np	10.68	0	5.64		
7/19/2004	1715	1.56	16.32	np	10.65	0	5.67		
8/17/2004	1048	-1.98	16.32	np	11.01	0	5.31		
9/16/2004	1007	-2.05	16.32	np	10.72	0	5.60		
MW-11(M)	8/28/2002	1420	1.05	16.34	np	10.87	0	5.47	19.81
	9/12/2002	1000	-2.84	16.34	np	10.8	0	5.54	19.83
	9/13/2002	1531	1.12	16.34	np	10.83	0	5.51	
	10/11/2002	1108	-2.45	16.34	np	11.01	0	5.33	
	11/15/2002	949	3.5	16.34	np	10.37	0	5.97	
	12/13/2002	829	4.26	16.34	np	9.94	0	6.40	

**Table 2-1
Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-11(M) cont.	1/14/2003	1057	3.45	16.34	np	9.08	0	7.26	
	2/12/2003	1058	2.12	16.34	np	9.25	0	7.09	
	3/13/2003	958	3.86	16.34	np	8.71	0	7.63	
	4/14/2003	1127	4.35	16.34	np	8.86	0	7.48	
	5/15/2003	1028	1.15	16.34	np	9.79	0	6.55	
	6/17/2003	1422	0.45	16.34	np	10.02	0	6.32	
	7/14/2003	1149	0.11	16.34	np	10.39	0	5.95	
	8/13/2003	1340	3	16.34	np	10.41	0	5.93	
	9/12/2003	1353	3.2	16.34	np	10.6	0	5.74	
	10/13/2003	956	-1.55	16.34	np	10.72	0	5.62	
	10/15/2003	1720	2.7	16.34	np	10.41	0	5.93	
	11/12/2003	1341	3.65	16.34	np	10.29	0	6.05	
	12/16/2003	1019	1.46	16.34	np	9.27	0	7.07	
	1/11/2004	1414	4.01	16.34	np	8.73	0	7.61	
	1/13/2004	1235	-0.61	16.34	np	9.21	0	7.13	
	2/12/2004	1311	-3.4	16.34	np	9.43	0	6.91	
	3/18/2004	903	2.49	16.34	np	9.48	0	6.86	
	4/12/2004	948	-1.26	16.34	np	9.6	0	6.74	
	4/13/2004	945	1.05	16.34	np	9.53	0	6.81	
	5/19/2004	1120	-1.19	16.34	np	10.2	0	6.14	
6/16/2004	1124	-0.35	16.34	np	10.31	0	6.03		
7/19/2004	907	-5.63	16.34	np	10.49	0	5.85		
7/21/2004	1646	2.52	16.34	np	10.37	0	5.97		
8/17/2004	1059	-1.98	16.34	np	10.77	0	5.57		
9/16/2004	1000	-2.05	16.34	np	10.52	0	5.82		
MW-12(A)	10/13/2003	1152	1.5	30.58	np	20.00	0	10.58	25.38
	10/22/2003	955	3.54	30.58	np	19.61	0	10.97	
	11/12/2003	1116	0.56	30.58	np	18.87	0	11.71	
	12/16/2003	1345	0.34	30.58	np	15.44	0	15.14	
	1/11/2004	1616	4.26	30.58	np	14.76	0	15.82	
	1/15/2004	940	0.81	30.58	np	14.70	0	15.88	
	2/12/2004	932	-2.53	30.58	np	14.26	0	16.32	

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Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-12(A) cont.	3/18/2004	1340	1.23	30.58	np	15.27	0	15.31	
	4/12/2004	1208	-4.16	30.58	np	15.85	0	14.73	
	4/16/2004	725	-1.63	30.58	np	16.00	0	14.58	
	5/19/2004	1253	1.86	30.58	np	17.04	0	13.54	
	6/16/2004	1233	1.78	30.58	np	17.61	0	12.97	
	7/19/2004	1122	-2.94	30.58	np	18.15	0	12.43	
	7/22/2004	655	-1.14	30.58	np	18.19	0	12.39	
	8/17/2004	1320	1.62	30.58	np	18.64	0	11.94	
	9/16/2004	1310	3.67	30.58	np	18.74	0	11.84	
MW-13(A)	10/13/2003	1157	1.5	31.36	np	22.68	0	8.68	26.42
	10/22/2003	1130	3.62	31.36	np	22.34	0	9.02	
	11/12/2003	1122	0.56	31.36	np	22.14	0	9.22	
	12/16/2003	1352	0.34	31.36	np	18.41	0	12.95	
	1/11/2004	1620	4.26	31.36	np	17.39	0	13.97	
	1/15/2004	1130	-1.98	31.36	np	17.28	0	14.08	
	2/12/2004	937	-2.53	31.86	np	16.71	0	15.15	
	3/18/2004	1345	1.23	31.86	np	17.83	0	14.03	
	4/12/2004	1210	-4.16	31.86	np	18.45	0	13.41	
	4/16/2004	927	1.51	31.86	np	18.82	0	13.04	
	5/19/2004	1255	1.86	31.86	np	19.85	0	12.01	
	6/16/2004	1238	1.78	31.86	np	20.53	0	11.33	
	7/19/2004	1124	-2.94	31.86	np	21.33	0	10.53	
	7/22/2004	818	-2.86	31.86	np	21.4	0	10.46	
	8/17/2004	1324	1.62	31.86	np	21.96	0	9.90	
9/16/2004	1314	3.67	31.86	np	21.92	0	9.94		
MW-14(A)	10/13/2003	1203	1.5	23.39	np	15.06	0	8.33	18.81
	10/21/2003	1645	-1.5	23.39	np	14.7	0	8.69	
	11/12/2003	1056	0.56	23.39	np	14.55	0	8.84	
	12/16/2003	1336	0.34	23.39	np	12.01	0	11.38	
	1/11/2004	1624	4.26	23.39	np	11.47	0	11.92	
	1/15/2004	1250	-2.74	23.39	np	11.41	0	11.98	
	2/12/2004	1106	-3.59	23.39	np	11.07	0	12.32	

**Table 2-1
Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-14(A) cont.	3/18/2004	1226	4.37	23.39	np	11.57	0	11.82	
	4/12/2004	1205	-4.16	23.39	np	11.88	0	11.51	
	4/16/2004	815	-0.11	23.39	np	11.97	0	11.42	
	5/19/2004	1250	1.86	23.39	np	12.5	0	10.89	
	6/16/2004	1226	1.01	22.39	np	12.73	0	9.66	
	7/19/2004	1122	-2.94	22.39	np	13.28	0	9.11	
	7/23/2004	757	-1.63	22.39	np	13.34	0	9.05	
	8/17/2004	1317	1.62	22.39	np	14.21	0	8.18	
	9/16/2004	1304	3.67	22.39	np	13.83	0	8.56	
MW-15(A)	10/13/2003	1116	-0.1	16.95	np	9.08	0	7.87	14.81
	10/20/2003	1340	0.06	16.95	np	8.87	0	8.08	
	11/12/2003	1026	-0.65	16.95	np	8.58	0	8.37	
	12/16/2003	1239	-0.3	16.95	np	6.35	0	10.60	
	1/11/2004	1529	4.58	16.95	5.77	5.8	0.03	11.18	
	2/12/2004	1058	-3.59	16.95	5.41	5.9	0.49	11.47	
	3/18/2004	1230	4.37	16.95	6.1	8.04	1.94	10.56	
	4/12/2004	1153	-4.16	16.95	6.5	7.26	0.76	10.34	
	5/19/2004	1403	2.56	16.95	7.25	7.95	0.7	9.60	
	6/16/2004	1351	1.8	16.95	7.51	8.28	0.77	9.32	
	7/19/2004	1131	-1.08	16.95	8.04	8.84	0.8	8.79	
	8/17/2004	1305	1.62	16.95	8.46	9.27	0.81	8.37	
	9/16/2004	1255	3.67	16.95	8.4	8.89	0.49	8.48	
MW-16(A)	10/13/2003	1111	-0.1	16.48	np	8.59	0	7.89	15.21
	10/20/2003	1510	-0.31	16.48	np	8.39	0	8.09	
	11/12/2003	1035	0.56	16.48	np	8.18	0	8.30	
	12/16/2003	1224	-0.19	16.48	np	6.51	0	9.97	
	1/11/2004	1523	4.58	16.48	np	6.05	0	10.43	
	1/19/2004	930	5.44	16.48	np	6.04	0	10.44	
	2/12/2004	1110	-3.59	16.48	np	5.81	0	10.67	
	3/18/2004	1221	4.37	16.48	np	6.33	0	10.15	
	4/12/2004	1158	-4.16	16.48	np	6.63	0	9.85	
	4/15/2004	850	2.95	16.48	np	6.68	0	9.80	

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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-16(A) cont.	5/19/2004	1357	2.56	16.48	np	7.2	0	9.28	
	6/16/2004	1400	1.8	16.48	np	7.37	0	9.11	
	7/19/2004	1021	-4.71	16.48	np	7.78	0	8.70	
	7/22/2004	1515	1.37	16.48	np	7.81	0	8.67	
	8/17/2004	1312	1.62	16.48	np	8.13	0	8.35	
	9/16/2004	1300	3.67	16.48	np	8.04	0	8.44	
MW-17(A)	10/13/2003	1125	-0.1	15.69	np	8.37	0	7.32	15.35
	10/17/2003	1240	1.23	15.69	np	8.31	0	7.38	
	11/12/2003	1020	-0.65	15.69	np	7.88	0	7.81	
	12/16/2003	1245	-0.3	15.69	np	5.7	0	9.99	
	1/11/2004	1540	4.26	15.69	np	5	0	10.69	
	1/19/2004	1130	4.2	15.69	np	5	0	10.69	
	2/12/2004	1047	-3.59	15.69	np	4.66	0	11.03	
	3/18/2004	1245	3.1	15.69	np	5.43	0	10.26	
	4/12/2004	1145	-4.16	15.69	np	5.88	0	9.81	
	4/15/2004	1055	3.34	15.69	np	6	0	9.69	
	5/19/2004	1351	2.56	15.69	np	6.66	0	9.03	
	6/16/2004	1338	1.8	15.69	np	6.95	0	8.74	
	7/19/2004	1026	-4.71	15.69	np	7.45	0	8.24	
	7/22/2004	1636	2.92	15.69	np	7.5	0	8.19	
	8/17/2004	1254	1.62	15.69	np	7.86	0	7.83	
9/16/2004	1245	3.67	15.69	np	7.79	0	7.90		
MW-18(A)	10/13/2003	1117	-0.1	16.23	np	8.85	0	7.38	15.36
	10/21/2003	1300	0.89	16.23	np	8.58	0	7.65	
	11/12/2003	1042	0.56	16.23	np	8.39	0	7.84	
	12/16/2003	1234	-0.3	16.23	np	6.38	0	9.85	
	1/19/2004	1040	5.35	16.23	np	5.74	0	10.49	
	2/12/2004	1052	-3.59	16.23	np	5.42	0	10.81	
	3/18/2004	1240	3.1	16.23	np	6.1	0	10.13	
	4/12/2004	1148	-4.16	16.23	np	6.55	0	9.68	
	4/15/2004	1000	3.54	16.23	np	6.62	0	9.61	
	5/19/2004	1355	2.56	16.23	np	7.27	0	8.96	

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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-18(A) cont.	6/16/2004	1346	1.8	16.23	np	7.5	0	8.73	
	7/19/2004	1025	-4.71	16.23	np	7.98	0	8.25	
	7/21/2004	1535	2.65	16.23	np	8	0	8.23	
	8/17/2004	1258	1.62	16.23	np	8.36	0	7.87	
	9/16/2004	1251	3.67	16.23	np	8.29	0	7.94	
MW-19(A)	10/13/2003	1049	-0.1	17.98	np	10.59	0	7.39	15.3
	10/20/2003	1050	2.89	17.98	np	10.43	0	7.55	
	11/12/2003	1145	1.93	17.98	np	10.18	0	7.80	
	1/13/2004	1515	1.91	17.98	np	7.99	0	9.99	
	2/12/2004	1122	-3.59	17.9	np	7.66	0	10.24	
	3/18/2004	1210	4.37	17.9	np	8.26	0	9.64	
	4/12/2004	1133	-4.16	17.9	np	8.6	0	9.30	
	4/15/2004	1545	-3.71	17.9	np	8.67	0	9.23	
	5/19/2004	1243	1.86	17.9	np	9.18	0	8.72	
	7/19/2004	952	-4.71	17.9	np	9.8	0	8.10	
	7/20/2004	1343	1.28	17.9	np	9.85	0	8.05	
	8/17/2004	1152	-0.05	17.9	np	10.15	0	7.75	
	9/16/2004	1042	-0.04	17.9	np	10.07	0	7.83	
MW-20(A)	10/13/2003	1047	-0.1	17.04	np	10.03	0	7.01	15.39
	10/20/2003	1210	1.9	17.04	np	9.88	0	7.16	
	11/12/2003	1150	1.93	17.04	np	9.65	0	7.39	
	12/16/2003	1410	0.34	17.04	np	8.03	0	9.01	
	1/11/2004	1510	4.58	17.04	np	7.41	0	9.63	
	1/13/2004	1630	3.15	17.04	np	7.44	0	9.60	
	2/12/2004	1126	-3.59	17.04	np	7.11	0	9.93	
	3/18/2004	1215	4.37	17.04	np	7.7	0	9.34	
	4/12/2004	1128	-2.84	17.04	np	8.06	0	8.98	
	4/15/2004	1642	-4.14	17.04	np	8.13	0	8.91	
	5/19/2004	1246	1.86	17.04	np	8.63	0	8.41	
	6/16/2004	1415	1.8	17.04	np	8.86	0	8.18	

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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-20(A) cont.	7/19/2004	947	-4.71	17.04	np	9.27	0	7.77	
	7/20/2004	1444	2.36	17.04	np	9.3	0	7.74	
	8/17/2004	1156	-0.05	17.04	np	9.61	0	7.43	
	9/16/2004	1048	-0.04	17.04	np	9.82	0	7.22	
MW-21(A)	10/13/2003	1035	-0.1	15.90	np	9.22	0	6.68	15.35
	10/20/2003	940	3.26	15.90	np	9.11	0	6.79	
	11/12/2003	1156	1.93	15.90	np	8.91	0	6.99	
	12/16/2003	1216	-0.19	15.90	np	7.49	0	8.41	
	1/11/2004	1503	4.58	15.90	np	6.9	0	9.00	
	1/13/2004	1355	0.66	15.90	np	6.89	0	9.01	
	2/12/2004	1135	-3.92	15.90	np	6.66	0	9.24	
	3/18/2004	1202	4.37	15.90	np	7.17	0	8.73	
	4/12/2004	1138	-4.16	15.90	np	7.49	0	8.41	
	4/16/2004	1115	3.53	15.90	np	7.58	0	8.32	
	5/19/2004	1237	1.86	15.90	np	7.99	0	7.91	
	6/16/2004	1219	1.01	15.90	np	8.21	0	7.69	
	7/19/2004	942	-4.71	15.90	np	8.57	0	7.33	
	7/20/2004	1533	2.73	15.90	np	8.6	0	7.30	
	8/17/2004	1201	-0.05	15.90	np	8.9	0	7.00	
9/16/2004	1037	-0.04	15.90	np	8.82	0	7.08		
MW-22(A)	10/13/2003	1037	-0.1	16.13	np	9.24	0	6.89	15.08
	10/16/2003	940	0.09	16.13	np	9.21	0	6.92	
	11/12/2003	1203	1.93	16.13	np	8.8	0	7.33	
	12/16/2003	1048	0.48	16.13	np	6.91	0	9.22	
	1/19/2004	815	3.22	16.13	np	6.15	0	9.98	
	3/18/2004	1157	4.37	16.13	np	6.55	0	9.58	
	4/12/2004	1120	-2.84	16.13	np	6.97	0	9.16	
	4/15/2004	1435	-2.62	16.13	np	7.07	0	9.06	
	5/19/2004	1233	1.86	16.13	np	7.66	0	8.47	
	6/16/2004	1210	1.01	16.13	np	7.93	0	8.20	

Table 2-1
Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-22(A) cont.	7/19/2004	1008	-4.71	16.13	np	8.38	0	7.75	
	7/20/2004	1111	-3.82	16.13	np	8.4	0	7.73	
	8/17/2004	1147	-0.05	16.13	np	8.78	0	7.35	
	9/16/2004	1032	-0.04	16.13	np	8.74	0	7.39	
MW-23(A)	10/13/2003	1137	1.5	16.22	np	8.86	0	7.36	14.93
	10/20/2003	1630	0.49	16.22	np	8.71	0	7.51	
	11/12/2003	1013	-0.65	16.22	np	8.3	0	7.92	
	12/16/2003	1250	-0.3	16.22	np	5.36	0	10.86	
	1/11/2004	1543	4.26	16.22	np	4.57	0	11.65	
	1/15/2004	1745	1.31	16.22	np	4.47	0	11.75	
	2/12/2004	1041	-3.59	16.22	np	4.09	0	12.13	
	3/18/2004	1249	3.1	16.22	np	5.13	0	11.09	
	4/12/2004	1112	-2.84	16.22	np	5.69	0	10.53	
	4/15/2004	1201	2.17	16.22	np	5.8	0	10.42	
	5/19/2004	1349	2.56	16.22	np	6.78	0	9.44	
	6/16/2004	1331	1.8	16.22	np	7.18	0	9.04	
	7/19/2004	1032	-2.94	16.22	np	7.8	0	8.42	
	7/20/2004	1645	2.19	16.22	np	7.83	0	8.39	
	8/17/2004	1239	1.62	16.22	np	8.29	0	7.93	
9/16/2004	1232	3.67	16.22	np	8.2	0	8.02		
MW-24(A)	10/13/2003	1154	1.5	16.56	np	9.15	0	7.41	14.87
	10/21/2003	1430	-1.43	16.56	np	8.52	0	8.04	
	11/12/2003	942	-0.65	16.56	np	8.17	0	8.39	
	12/16/2003	1304	-0.3	16.56	np	4.45	0	12.11	
	1/11/2004	1547	4.26	16.56	np	3.96	0	12.60	
	1/15/2004	1630	0.29	16.56	np	3.85	0	12.71	
	2/12/2004	1022	-2.53	16.56	np	4.05	0	12.51	
	3/18/2004	1301	3.1	16.56	np	4.96	0	11.60	
	4/12/2004	1103	-2.84	16.56	np	5.65	0	10.91	
	4/14/2004	1500	-3.92	16.56	np	5.78	0	10.78	
	5/19/2004	1338	2.56	16.56	np	6.94	0	9.62	
	6/16/2004	1312	1.78	16.56	np	7.08	0	9.48	

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Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-24(A) cont.	7/19/2004	1039	-2.94	16.56	np	7.97	0	8.59	
	7/22/2004	1222	-3.63	16.56	np	8.03	0	8.53	
	8/17/2004	1230	1.62	16.56	np	8.49	0	8.07	
	9/16/2004	1221	2.05	16.56	np	8.02	0	8.54	
MW-26(A)	10/13/2003	1150	1.5	16.27	np	9.14	0	7.13	15.35
	10/17/2003	1600	3.29	16.27	np	9.09	0	7.18	
	11/12/2003	947	-0.65	16.27	np	8.46	0	7.81	
	12/16/2003	1259	-0.3	16.27	np	5.51	0	10.76	
	1/11/2004	1548	4.26	16.27	np	4.69	0	11.58	
	1/15/2004	1600	-0.91	16.27	np	4.65	0	11.62	
	2/12/2004	1026	-2.53	16.27	np	4.43	0	11.84	
	3/18/2004	1305	3.1	16.27	np	5.01	0	11.26	
	4/12/2004	1100	-2.84	16.27	np	5.91	0	10.36	
	4/14/2004	1414	-2.64	16.27	np	6	0	10.27	
	5/19/2004	1330	2.56	16.27	np	6.95	0	9.32	
	6/16/2004	1316	1.78	16.27	np	7.31	0	8.96	
	7/19/2004	1037	-2.94	16.27	np	7.98	0	8.29	
	7/22/2004	1140	-3.63	16.27	np	8.02	0	8.25	
	8/17/2004	1226	-0.05	16.27	np	8.5	0	7.77	
9/16/2004	1217	2.05	16.27	np	8.43	0	7.84		
MW-27(A)	10/13/2003	1213	1.5	16.36	np	9.26	0	7.10	15.24
	10/21/2003	905	2.61	16.36	np	9.02	0	7.34	
	11/12/2003	1000	-0.65	16.36	np	8.54	0	7.82	
	12/16/2003	1329	-0.3	16.36	np	5.74	0	10.62	
	1/11/2004	1556	4.26	16.36	np	4.96	0	11.40	
	1/14/2004	1625	1.19	16.36	np	4.95	0	11.41	
	2/12/2004	1007	-2.53	16.36	np	4.72	0	11.64	
	4/12/2004	1049	-2.84	16.36	np	6.05	0	10.31	
	4/14/2004	1300	-1.18	16.36	np	6.15	0	10.21	
	5/19/2004	1323	1.86	16.36	np	7.05	0	9.31	
	7/19/2004	1048	-2.94	16.36	np	8.05	0	8.31	
	7/22/2004	1100	-4.85	16.36	np	8.11	0	8.25	

**Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-28(A)	10/13/2003	1130	1.5	16.13	np	9.05	0	7.08	15.36
	10/17/2003	1415	1.92	16.13	np	9.01	0	7.12	
	11/12/2003	1007	-0.65	16.13	np	8.51	0	7.62	
	12/16/2003	1254	-0.3	16.13	np	6.12	0	10.01	
	1/11/2004	1550	4.26	16.13	np	5.31	0	10.82	
	1/19/2004	1450	-1.95	16.13	np	5.25	0	10.88	
	2/12/2004	1033	-3.59	16.13	np	4.91	0	11.22	
	3/18/2004	1255	3.1	16.13	np	5.77	0	10.36	
	4/12/2004	1110	-2.84	16.13	np	6.25	0	9.88	
	4/14/2004	1612	-4.32	16.13	np	6.31	0	9.82	
	5/19/2004	1346	2.56	16.13	np	7.12	0	9.01	
	6/16/2004	1326	1.78	16.13	np	7.46	0	8.67	
	7/19/2004	1029	-4.71	16.13	np	8.02	0	8.11	
	7/23/2004	905	-3.1	16.13	np	8.1	0	8.03	
	8/17/2004	1235	1.62	16.13	np	8.48	0	7.65	
9/16/2004	1227	2.05	16.13	np	8.46	0	7.67		
MW-29(A)	10/13/2003	1202	1.5	15.84	np	9.88	0	5.96	15.37
	10/21/2003	1550	-1.89	15.84	np	8.69	0	7.15	
	11/12/2003	934	-0.65	15.84	np	8.33	0	7.51	
	12/16/2003	1309	-0.3	15.84	np	6.02	0	9.82	
	1/11/2004	1552	4.26	15.84	np	5.21	0	10.63	
	1/19/2004	1600	-3.67	15.84	np	5.13	0	10.71	
	2/12/2004	1014	-2.53	15.84	np	4.8	0	11.04	
	3/18/2004	1310	3.1	15.84	np	5.61	0	10.23	
	4/12/2004	1054	-2.84	15.84	np	6.13	0	9.71	
	4/16/2004	1222	3.28	15.84	np	6.25	0	9.59	
	5/19/2004	1330	2.56	15.84	np	6.98	0	8.86	
	6/16/2004	1307	1.78	15.84	np	7.3	0	8.54	
7/19/2004	1035	-2.94	15.84	np	7.87	0	7.97		

Table 2-1
Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-29(A) cont.	7/22/2004	1301	-2.04	15.84	np	7.91	0	7.93	
	8/17/2004	1220	-0.05	15.84	np	8.31	0	7.53	
	9/16/2004	1213	2.05	15.84	np	8.31	0	7.53	
MW-30(A)	10/13/2003	1000	-1.55	16.67	np	9.91	0	6.76	15.11
	10/16/2003	820	1.18	16.67	np	9.9	0	6.77	
	11/12/2003	1221	1.93	16.67	np	9.42	0	7.25	
	12/16/2003	1201	-0.19	16.67	np	7.49	0	9.18	
	1/11/2004	1452	4.58	16.67	np	6.72	0	9.95	
	1/16/2004	1400	-3.33	16.67	np	6.65	0	10.02	
	2/12/2004	1150	-3.92	16.67	np	6.34	0	10.33	
	4/12/2004	1008	-1.26	16.67	np	7.49	0	9.18	
	4/13/2004	1710	-2.75	16.67	np	7.52	0	9.15	
	5/19/2004	1223	0.49	16.67	np	8.22	0	8.45	
	6/16/2004	1156	1.01	16.67	np	8.55	0	8.12	
	7/19/2004	933	-4.71	16.67	np	9.03	0	7.64	
	7/20/2004	921	-5.4	16.67	np	9.04	0	7.63	
	8/17/2004	1139	-0.05	16.67	np	9.45	0	7.22	
9/16/2004	1100	-0.04	16.67	NP	9.45	0	7.22		
MW-31(A)	10/13/2003	950	-1.55	16.23	np	9.81	0	6.42	15.31
	10/16/2003	1350	2.65	16.23	np	9.77	0	6.46	
	11/12/2003	1210	1.93	16.23	np	9.48	0	6.75	
	12/16/2003	1207	-0.19	16.23	np	7.97	0	8.26	
	1/11/2004	1456	4.58	16.23	np	7.33	0	8.90	
	1/12/2004	1615	4	16.23	np	7.36	0	8.87	
	2/12/2004	1141	-3.92	16.23	np	7.12	0	9.11	
	3/18/2004	1152	4.37	16.23	np	7.64	0	8.59	
	4/12/2004	958	-1.26	16.23	np	7.98	0	8.25	
	4/13/2004	1425	-4.26	16.23	np	8	0	8.23	
	5/19/2004	1218	0.49	16.23	np	8.56	0	7.67	
	6/16/2004	1204	1.01	16.23	np	8.8	0	7.43	

**Table 2-1
Groundwater Measurements
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Astoria, Oregon**

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-31(A) cont.	7/19/2004	938	-4.71	16.23	np	9.14	0	7.09	
	7/20/2004	1015	-5.25	16.23	np	9.15	0	7.08	
	8/17/2004	1144	-0.05	16.23	np	9.51	0	6.72	
	9/16/2004	1053	-0.04	16.23	np	9.42	0	6.81	
MW-32(A)	10/13/2003	944	-1.55	16.51	np	10.43	0	6.08	15.36
	10/14/2003	1350	3.21	16.51	np	10.41	0	6.10	
	11/12/2003	1316	3.06	16.51	np	10.07	0	6.44	
	12/16/2003	1039	0.48	16.51	np	8.84	0	7.67	
	1/11/2004	1419	4.01	16.51	np	8.21	0	8.30	
	1/12/2004	1525	3.66	16.51	np	8.3	0	8.21	
	2/12/2004	1241	-3.4	16.51	np	8.5	0	8.01	
	3/18/2004	1056	4.6	16.51	np	8.63	0	7.88	
	4/12/2004	955	-1.26	16.51	np	8.98	0	7.53	
	4/13/2004	1340	-4.26	16.51	np	9.12	0	7.39	
	5/19/2004	1212	0.49	16.51	np	9.56	0	6.95	
	6/16/2004	1130	1.01	16.51	np	9.76	0	6.75	
	7/19/2004	923	-5.63	16.51	np	9.98	0	6.53	
	7/19/2004	1400	2	16.51	np	10	0	6.51	
	8/17/2004	1103	-1.98	16.51	np	10.31	0	6.20	
9/16/2004	1022	-2.05	16.51	np	10.15	0	6.36		
MW-33(A)	10/13/2003	937	-1.55	16.14	np	10.87	0	5.27	17.31
	10/14/2003	838	-2.15	16.14	np	10.7	0	5.44	
	11/12/2003	1328	3.06	16.14	np	10.33	0	5.81	
	12/16/2003	1034	0.48	16.14	np	9.47	0	6.67	
	1/11/2004	1416	4.01	16.14	np	8.92	0	7.22	
	1/12/2004	1425	2.64	16.14	np	9.23	0	6.91	
	4/12/2004	950	-1.26	16.14	np	9.88	0	6.26	
	4/13/2004	715	2.92	16.14	np	9.92	0	6.22	
	5/19/2004	1129	-1.19	16.14	np	10.58	0	5.56	
	6/16/2004	1117	-0.35	16.14	np	10.68	0	5.46	

**Table 2-1
Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-33(A) cont.	7/19/2004	919	-5.63	16.14	np	10.7	0	5.44	
	7/19/2004	1310	0.67	16.14	np	10.76	0	5.38	
	8/17/2004	1053	-1.98	16.14	np	11.02	0	5.12	
	9/16/2004	1017	-2.05	16.14	np	10.75	0	5.39	
MW-34(A)	10/13/2003	1003	-1.55	15.83	np	9.59	0	6.24	15.35
	10/15/2003	930	-0.99	15.83	np	9.57	0	6.26	
	11/12/2003	1308	3.06	15.83	np	9.3	0	6.53	
	12/16/2003	1054	0.48	15.83	np	7.91	0	7.92	
	1/11/2004	1429	4.01	15.83	np	7.28	0	8.55	
	1/13/2004	830	-0.07	15.83	np	7.31	0	8.52	
	2/12/2004	1236	-3.4	15.83	np	7.21	0	8.62	
	3/18/2004	1104	4.6	15.83	np	7.64	0	8.19	
	4/12/2004	1000	-1.26	15.83	np	7.96	0	7.87	
	4/14/2004	720	2.14	15.83	np	8.04	0	7.79	
	5/19/2004	1216	0.49	15.83	np	8.54	0	7.29	
	6/16/2004	1135	1.01	15.83	np	8.76	0	7.07	
	7/19/2004	926	-5.63	15.83	np	9.06	0	6.77	
	7/20/2004	710	-2.99	15.83	np	9.02	0	6.81	
8/17/2004	1106	-1.98	15.83	np	9.42	0	6.41		
9/16/2004	1112	-0.04	15.83	np	9.66	0	6.17		
MW-35(A)	10/13/2003	1007	-1.55	16.50	np	9.9	0	6.60	15.32
	10/16/2003	1115	0.27	16.50	np	9.86	0	6.64	
	11/12/2003	1228	1.93	16.50	np	9.47	0	7.03	
	12/16/2003	1154	-0.19	16.50	np	7.7	0	8.80	
	1/11/2004	1449	4.58	16.50	np	6.95	0	9.55	
	1/16/2004	1230	-2.45	16.50	np	6.87	0	9.63	
	2/12/2004	1236	-3.4	16.50	np	6.53	0	9.97	
	3/18/2004	1143	4.37	16.50	np	7.22	0	9.28	
	4/12/2004	1011	-1.26	16.50	np	7.63	0	8.87	
	4/13/2004	1550	-4	16.50	np	7.65	0	8.85	
	5/19/2004	1227	0.49	16.50	np	8.33	0	8.17	
	6/16/2004	1148	1.01	16.50	np	8.63	0	7.87	

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Groundwater Measurements
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Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-35(A) cont.	7/19/2004	936	-4.71	16.50	np	9.08	0	7.42	
	7/20/2004	832	-5.4	16.50	np	9.08	0	7.42	
	8/17/2004	1134	-0.05	16.50	np	9.51	0	6.99	
	9/16/2004	1104	-0.04	16.50	np	9.44	0	7.06	
MW-36(A)	10/13/2003	1124	-0.1	16.14	np	8.96	0	7.18	15.36
	10/21/2003	1130	2.25	16.14	np	8.78	0	7.36	
	11/12/2003	926	-1.42	16.14	np	8.41	0	7.73	
	12/16/2003	1322	-0.3	16.14	np	5.74	0	10.40	
	1/11/2004	1605	4.26	16.14	np	5.67	0	10.47	
	1/14/2004	1500	0.02	16.14	np	4.63	0	11.51	
	2/12/2004	1002	-2.53	16.14	np	4.19	0	11.95	
	3/18/2004	1328	3.1	16.14	np	4.83	0	11.31	
	4/12/2004	1043	-2.84	16.14	np	5.48	0	10.66	
	4/14/2004	1230	-1.18	16.14	np	5.55	0	10.59	
	5/19/2004	1320	1.86	16.14	np	6.48	0	9.66	
	6/16/2004	1259	1.78	16.14	np	6.87	0	9.27	
	7/19/2004	1046	-2.94	16.14	np	7.54	0	8.60	
	7/22/2004	1011	-5.09	16.14	np	7.6	0	8.54	
	8/17/2004	1215	-0.05	16.14	np	8.33	0	7.81	
9/16/2004	1205	2.05	16.14	np	8.34	0	7.80		
MW-37(A)	10/13/2003	1011	-1.55	18.22	np	11.31	0	6.91	15.41
	10/17/2003	810	1.8	18.22	np	11.23	0	6.99	
	11/12/2003	1242	3.06	18.22	np	10.83	0	7.39	
	12/16/2003	1146	-0.19	18.22	8.39	8.4	0.01	9.83	
	1/11/2004	1447	4.58	18.22	7.32	7.33	0.01	10.90	
	2/12/2004	1159	-3.92	18.22	np	6.7	0	11.52	
	3/18/2004	1132	4.37	18.22	Trace	7.57	Trace	10.65	
	4/12/2004	1015	-1.26	18.22	8.05	8.08	0.03	10.17	

Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-37(A) cont.	5/19/2004	1429	2.56	18.22	9.02	9.07	0.05	9.19	
	6/16/2004	1142	1.01	18.22	Trace	9.42	Trace	8.80	
	7/19/2004	1108	-2.94	18.22	10.12	10.13	0.01	8.09	
	8/17/2004	1130	-0.05	18.22	8.04	8.05	0.01	10.17	
	9/16/2004	1116	-0.04	18.22	10.77	10.81	0.04	7.41	
MW-38(A)	10/13/2003	1130	1.5	17.20	np	8.95	0	8.25	15.38
	10/21/2003	1040	3.15	17.20	np	8.53	0	8.67	
	11/12/2003	919	-1.42	17.20	np	8.33	0	8.87	
	12/16/2003	1314	-0.3	17.20	np	5.21	0	11.99	
	1/11/2004	1609	4.26	17.20	np	4.26	0	12.94	
	1/14/2004	810	2.72	17.20	np	4.4	0	12.80	
	2/12/2004	954	-2.53	17.20	np	3.72	0	13.48	
	3/18/2004	1322	3.1	17.20	np	4.74	0	12.46	
	4/12/2004	1037	-2.84	17.20	np	5.45	0	11.75	
	4/14/2004	1045	2.07	17.20	np	5.48	0	11.72	
	5/19/2004	1315	1.86	17.20	np	6.48	0	10.72	
	6/16/2004	1254	1.78	17.20	np	6.83	0	10.37	
	7/19/2004	1052	-2.94	17.20	np	7.67	0	9.53	
	7/22/2004	910	-4.31	17.20	np	7.72	0	9.48	
	8/17/2004	1209	-0.05	17.20	np	8.31	0	8.89	
9/16/2004	1200	2.05	17.20	np	8.1	0	9.10		
MW-39(A)	10/13/2003	1025	-1.55	17.29	np	9.3	0	7.99	15.41
	10/16/2003	1540	3.64	17.29	np	9.22	0	8.07	
	12/16/2003	1104	0.48	17.29	np	5.79	0	11.50	
	1/11/2004	1435	4.01	17.29	np	4.71	0	12.58	
	1/16/2004	925	3.77	17.29	np	4.65	0	12.64	
	2/12/2004	1225	-3.92	17.29	np	4.21	0	13.08	
	3/18/2004	1114	4.6	17.29	np	5.12	0	12.17	
	4/12/2004	1032	-2.84	17.29	np	5.8	0	11.49	
	4/14/2004	920	3.58	17.29	np	5.89	0	11.40	
	5/19/2004	1531	1.47	17.29	np	6.85	0	10.44	
	6/16/2004	1433	1.13	17.29	np	7.24	0	10.05	

Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-39(A) cont.	7/19/2004	1100	-2.94	17.29	np	8	0	9.29	
	7/21/2004	1333	0.54	17.29	np	8.05	0	9.24	
	8/17/2004	1116	-1.98	17.29	np	8.6	0	8.69	
	9/16/2004	1135	2.05	17.29	np	8.51	0	8.78	
MW-40(A)	10/13/2003	1025	-1.55	16.17	np	9.56	0	6.61	15.42
	10/17/2003	935	0.7	16.17	np	9.51	0	6.66	
	11/12/2003	1235	3.06	16.17	9.18	9.27	0.09	6.98	
	12/16/2003	1138	-0.19	16.17	np	7.45	0	8.72	
	1/11/2004	1444	4.58	16.17	np	6.68	0	9.49	
	1/20/2004	800	1.34	16.17	np	6.64	0	9.53	
	2/12/2004	1211	-3.92	16.17	np	6.24	0	9.93	
	3/18/2004	1125	4.6	16.17	np	6.96	0	9.21	
	4/12/2004	1018	-1.26	16.17	np	7.41	0	8.76	
	4/16/2004	1420	0.37	16.17	np	7.48	0	8.69	
	5/19/2004	1506	2.39	16.17	8.02	8.06	0.04	8.14	
	6/16/2004	1447	1.13	16.17	8.39	8.41	0.02	7.78	
	7/19/2004	1106	-2.94	16.17	8.88	8.95	0.07	7.28	
	8/17/2004	1126	-1.98	16.17	9.3	9.37	0.07	6.86	
9/16/2004	1124	-0.04	16.17	np	9.14	0	7.03		
MW-41(A)	10/13/2003	907	-2.52	15.67	np	9.23	0	6.44	15.35
	10/14/2003	1540	2.91	15.67	np	9.25	0	6.42	
	11/12/2003	1417	3.65	15.67	np	8.91	0	6.76	
	12/16/2003	937	1.46	15.67	np	7.39	0	8.28	
	1/11/2004	1342	4.01	15.67	np	6.72	0	8.95	
	1/16/2004	1125	0.54	15.67	np	7.12	0	8.55	
	2/12/2004	1400	-2.19	15.67	6.41	6.71	0.3	9.22	
	3/18/2004	1004	3.9	15.67	6.95	7.92	0.97	8.59	
	4/12/2004	922	0.43	15.67	7.29	7.91	0.62	8.30	
	5/19/2004	1005	-2.92	15.67	8	8.25	0.25	7.64	
	7/19/2004	841	-4.71	15.67	8.64	8.66	0.02	7.03	
	8/17/2004	958	-3.83	15.67	Trace	9.04	Trace	6.63	
	9/16/2004	917	-3.7	15.67	np	8.87	0	6.80	

**Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-42(A)	10/13/2003	859	-2.52	15.91	np	9.39	0	6.52	15.37
	10/15/2003	1100	-0.18	15.91	np	9.38	0	6.53	
	11/12/2003	1408	3.65	15.91	np	9.06	0	6.85	
	12/16/2003	925	2.67	15.91	np	7.52	0	8.39	
	1/11/2004	1340	4.01	15.91	6.83	6.9	0.07	9.07	
	2/12/2004	1352	-2.19	15.91	6.41	7.47	1.06	9.36	
	3/18/2004	957	3.9	15.91	6.91	8.6	1.69	8.78	
	4/12/2004	926	0.43	15.91	7.29	8.89	1.6	8.41	
	5/19/2004	1029	-2.92	15.91	8	9.5	1.5	7.72	
	6/16/2004	1007	-1.94	15.91	8.35	8.87	0.52	7.49	
	7/19/2004	844	-5.63	15.91	8.78	9.15	0.37	7.08	
8/17/2004	953	-3.83	15.91	9.2	9.57	0.37	6.66		
9/16/2004	911	-3.7	15.91	8.89	8.91	0.02	7.02		
MW-43(A)	10/13/2003	857	-2.52	15.94	np	9.07	0	6.87	15.35
	10/13/2003	1645	0.78	15.94	np	9.01	0	6.93	
	11/12/2003	1403	3.65	15.94	np	8.74	0	7.20	
	12/16/2003	930	1.46	15.94	np	6.97	0	8.97	
	1/11/2004	1337	4.01	15.94	np	6.24	0	9.70	
	1/12/2004	1053	-1.03	15.94	np	6.33	0	9.61	
	2/12/2004	1347	-2.19	15.94	np	6	0	9.94	
	3/18/2004	953	3.9	15.94	np	6.62	0	9.32	
	4/12/2004	928	0.43	15.94	np	7.05	0	8.89	
	4/13/2004	1230	-3.33	15.94	np	7.1	0	8.84	
	5/19/2004	1050	-1.19	15.94	np	7.81	0	8.13	
	6/16/2004	1002	-1.94	15.94	np	8.02	0	7.92	
	7/19/2004	850	-5.63	15.94	np	8.52	0	7.42	
	7/21/2004	1133	-2.95	15.94	np	8.56	0	7.38	
8/17/2004	950	-3.83	15.94	np	8.97	0	6.97		
9/16/2004	908	-3.7	15.94	np	8.62	0	7.32		
MW-44(A)	10/13/2003	1010	-1.55	15.31	np	8.22	0	7.09	15.41
	10/17/2003	1135	0.72	15.31	np	8.17	0	7.14	
	11/12/2003	1302	3.06	15.31	np	7.95	0	7.36	

Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-44(A) cont.	12/16/2003	1132	-0.19	15.31	5.88	6.02	0.14	9.41	
	1/11/2004	1442	4.58	15.31	5.1	5.24	0.14	10.19	
	2/12/2004	1217	-3.92	15.31	4.15	4.34	0.19	11.13	
	3/18/2004	1119	4.6	15.31	4.82	4.99	0.17	10.46	
	4/12/2004	1020	-1.26	15.31	8.29	9.04	0.75		
	5/19/2004	1509	2.39	15.31	6.14	6.91	0.77	9.07	
	6/16/2004	1439	1.13	15.31	6.37	6.75	0.38	8.89	
	7/19/2004	1104	-2.94	15.31	7.12	7.57	0.45	8.13	
	8/17/2004	1121	-1.98	15.31	7.77	8.09	0.32	7.50	
9/16/2004	1129	-0.04	15.31	6.68	6.8	0.12	8.61		
MW-45(A)	10/13/2003	1018	-1.55	17.32	np	9.92	0	7.40	17.16
	10/16/2003	1730	2.55	17.32	np	9.81	0	7.51	
	11/12/2003	1256	3.06	17.32	np	9.13	0	8.19	
	12/16/2003	1114	0.48	17.32	np	6.41	0	10.91	
	1/11/2004	1440	4.58	17.32	np	5.39	0	11.93	
	1/16/2004	1110	0.54	17.32	np	5.27	0	12.05	
	2/12/2004	1229	-3.92	17.32	np	4.44	0	12.88	
	3/18/2004	1109	4.6	17.32	np	5.69	0	11.63	
	4/12/2004	1029	-1.26	17.32	np	6.35	0	10.97	
	4/14/2004	820	3.11	17.32	np	6.42	0	10.90	
	5/19/2004	1532	1.47	17.32	np	7.41	0	9.91	
	6/16/2004	1425	1.8	17.32	np	7.71	0	9.61	
	7/19/2004	1057	-2.94	17.32	np	8.4	0	8.92	
	7/21/2004	1444	1.91	17.32	np	8.45	0	8.87	
	8/17/2004	1113	-1.98	17.32	np	8.97	0	8.35	
9/16/2004	1139	2.05	17.32	np	8.8	0	8.52		
MW-46(A)	10/13/2003	919	-2.52	16.00	np	7.46	0	8.54	15.34
	10/14/2003	1015	-1.65	16.00	np	7.38	0	8.62	
	11/12/2003	857	-1.42	16.00	np	6.64	0	9.36	
	12/16/2003	837	2.67	16.00	np	3.2	0	12.80	
	1/11/2003	1318	2.89	16.00	np	2.47	0	13.53	
	1/14/2004	1020	-0.22	16.00	np	2.9	0	13.10	

**Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-46(A) cont.	2/12/2004	901	-1.02	16.00	np	2.26	0	13.74	
	3/18/2004	1040	4.6	16.00	np	3.52	0	12.48	
	4/12/2004	850	0.43	16.00	np	4.2	0	11.80	
	4/12/2004	1555	-2.94	16.00	np	4.21	0	11.79	
	5/19/2004	1145	0.49	16.00	np	5.35	0	10.65	
	6/16/2004	912	-3.55	16.00	np	5.58	0	10.42	
	7/19/2004	818	-5.2	16.00	np	6.41	0	9.59	
	7/21/2004	1005	-5.45	16.00	np	6.45	0	9.55	
	8/17/2004	942	-3.83	16.00	np	7	0	9.00	
9/16/2004	843	-3.7	16.00	np	6.55	0	9.45		
MW-47(A)	10/13/2003	907	-2.52	16.39	np	8.42	0	7.97	15.37
	10/13/2003	1745	-1.15	16.39	np	8.39	0	8.00	
	11/12/2003	911	-1.42	16.39	np	7.65	0	8.74	
	12/16/2003	851	2.67	16.39	np	4.81	0	11.58	
	1/11/2004	1328	2.89	16.39	np	4.03	0	12.36	
	1/14/2004	1230	-2.08	16.39	np	4.35	0	12.04	
	2/12/2004	923	-1.02	16.39	np	3.82	0	12.57	
	3/18/2004	1050	4.6	16.39	np	5.43	0	10.96	
	4/12/2004	846	0.43	16.39	np	5.42	0	10.97	
	4/12/2004	1440	-4.26	16.39	np	5.42	0	10.97	
	5/19/2004	1152	0.49	16.29	np	6.41	0	9.88	
	6/16/2004	929	-3.55	16.29	np	6.68	0	9.61	
	7/19/2004	822	-5.2	16.29	np	7.36	0	8.93	
	7/21/2004	755	-3.75	16.29	np	7.38	0	8.91	
	8/17/2004	932	-3.83	16.29	np	7.88	0	8.41	
9/16/2004	852	-3.7	16.29	np	7.72	0	8.57		
MW-48(A)	10/13/2003	915	-2.52	16.21	np	8.51	0	7.70	15.88
	10/14/2003	1215	0.87	16.21	np	8.48	0	7.73	
	11/12/2003	905	-1.42	16.21	np	7.9	0	8.31	
	12/16/2003	844	2.67	16.21	np	5.65	0	10.56	
	1/11/2004	1325	2.89	16.21	np	4.97	0	11.24	
	1/14/2004	1130	-1.44	16.21	np	5.25	0	10.96	

Table 2-1
Groundwater Measurements
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Date	Time	Observed Tide Levels (Tongue Pt)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)
MW-48(A) cont.	2/12/2004	910	-1.02	16.21	np	4.8	0	11.41	
	3/18/2004	1046	4.6	16.21	np	5.66	0	10.55	
	4/12/2004	853	0.43	16.21	np	6.12	0	10.09	
	4/12/2004	1345	-5.05	16.21	np	6.14	0	10.07	
	5/19/2004	1159	0.49	16.21	np	6.89	0	9.32	
	6/16/2004	922	-3.55	16.21	np	7.13	0	9.08	
	7/19/2004	815	-5.2	16.21	np	7.63	0	8.58	
	7/21/2004	901	-4.95	16.21	np	7.66	0	8.55	
	8/17/2004	936	-3.83	16.21	np	8.1	0	8.11	
9/16/2004	848	-3.7	16.21	np	7.98	0	8.23		
R-1(M)	10/22/2003	1340	0.58	13.77	np	4.55	0	9.22	
	11/12/2003	1449	3.39	13.77	np	5.06	0	8.71	
	12/16/2003	948	1.46	13.77	np	3.51	0	10.26	
	1/11/2004	1352	4.01	13.77	np	2.87	0	10.90	
Pier2(A)	12/16/2003	1628	1.91	17.37	np	10.51	0	6.86	4.95
	1/11/2004	1425	4.01	17.37	np	8.33	0	9.04	5.03
	2/12/2004	1453	-0.76	17.37	np	13.37	0	4.00	4.76
	3/18/2004	850	2.49	17.37	np	10.5	0	6.87	4.38
	4/12/2004	937	-1.26	17.37	np	12.07	0	5.30	6.56
	5/19/2004	1130	0.49	17.37	np	14.37	0	3.00	2.51
	6/16/2004	1104	-0.35	17.37	np	14.2	0	3.17	3.52
	7/19/2004	914	-5.63	17.37	np	18.43	0	-1.06	4.57
	8/17/2004	1041	-1.98	17.37	np	16.75	0	0.62	2.60
9/16/2004	1011	-2.05	17.37	np	15.71	0	1.66	3.71	

NOTE:
Elevation datum from November 2003 survey.

**Table 3-1
Identification of Chemicals of Potential Concern for Soil
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

Chemicals of Interest	Sample Size	Detection Frequency (%)	Background Concentration ¹ (mg/kg)	Maximum Detected Concentration (mg/kg)	Screening Value ² (mg/kg)	Chemical Risk Score ³	Comment
Volatile Organic Compounds							
1,2,4-Trimethylbenzene	232	46.1	NA	6.89E+02	1.70E+02	4.1E+00 **	COPC
1,2-Dichloroethane	234	0.9	NA	3.15E-04	6.00E-01	5.3E-04	IFD, BSL
1,3,5-Trimethylbenzene	234	41.9	NA	1.89E+02	7.00E+01	2.7E+00 **	COPC
1,4-Dichlorobenzene	99	1.0	NA	2.22E-04	7.90E+00	2.8E-05	IFD, BSL
2-Butanone	99	4.0	NA	1.45E-01	1.10E+05	1.3E-06	IFD, BSL
4-Isopropyltoluene	99	7.1	NA	4.34E+00	NV	NA	COPC(NTD)
Acetone	97	23.7	NA	5.43E-01	5.40E+04	1.0E-05	BSL
Benzene	424	13.2	NA	1.72E+01	1.40E+00	1.2E+01 **	COPC
Bromomethane	95	3.2	NA	4.28E-04	1.30E+01	3.3E-05	IFD, BSL
Carbon Disulfide	99	7.1	NA	3.89E-03	7.20E+02	5.4E-06	BSL
Chloromethane	99	2.0	NA	1.67E-02	1.60E+02	1.0E-04	IFD, BSL
Ethylbenzene	423	27.2	NA	1.51E+02	4.00E+02	3.8E-01 **	COPC(MC)
Formaldehyde	5	20.0	NA	2.80E+00	1.00E+05	2.8E-05	BSL
Isopropylbenzene	234	27.8	NA	2.26E+01	2.00E+03	1.1E-02	BSL
Methyl iodide	97	1.0	NA	4.99E-03	NV	NA	IFD
Methylene Chloride	98	8.2	NA	1.77E-02	2.10E+01	8.4E-04	BSL
Naphthalene	250	45.2	NA	1.32E+02	1.90E+02	6.9E-01 **	COPC(MC)
n-Butylbenzene	99	15.2	NA	1.50E+01	2.40E+02	6.3E-02 **	COPC(MC)
n-Propylbenzene	234	33.8	NA	9.13E+01	2.40E+02	3.8E-01 **	COPC(MC)
sec-Butylbenzene	99	6.1	NA	4.88E+00	2.20E+02	2.2E-02 **	COPC(MC)
tert-Butylbenzene	99	1.0	NA	9.61E-03	3.90E+02	2.5E-05	IFD, BSL
Tetrachloroethene	99	14.1	NA	6.28E-03	1.30E+00	4.8E-03	BSL
Xylenes	424	28.8	NA	4.78E+02	4.20E+02	1.1E+00 **	COPC
Semivolatile Organic Compounds							
2-Methylnaphthalene	2	100.0	NA	8.05E+01	NV	NA	COPC(NTD)
Acenaphthene	185	20.0	NA	7.40E+00	2.90E+04	2.6E-04	BSL
Acenaphthylene	185	3.8	NA	1.65E+00	NV	NA	IFD
Anthracene	185	18.9	NA	3.72E+00	1.00E+05	3.7E-05	BSL
Benzo(a)anthracene	185	11.9	NA	4.43E+00	2.10E+00	2.1E+00 **	COPC

Table 3-1
Identification of Chemicals of Potential Concern for Soil
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Chemicals of Interest	Sample Size	Detection Frequency (%)	Background Concentration ¹ (mg/kg)	Maximum Detected Concentration (mg/kg)	Screening Value ² (mg/kg)	Chemical Risk Score ³	Comment
Semivolatile Organic Compounds, cont.							
Benzo(a)pyrene	185	14.1	NA	5.84E+00	2.10E-01	2.8E+01 **	COPC
Benzo(b)fluoranthene	185	11.9	NA	3.48E+00	2.10E+00	1.7E+00 **	COPC
Benzo(g,h,i)perylene	185	17.3	NA	6.39E+00	NV	NA	COPC(NTD)
Benzo(k)fluoranthene	185	9.7	NA	3.54E+00	2.10E+01	1.7E-01 **	COPC(MC)
Chrysene	185	23.2	NA	5.39E+00	2.10E+02	2.6E-02 **	COPC(MC)
Dibenzo(a,h)anthracene	185	7.0	NA	8.40E-01	2.10E-01	4.0E+00 **	COPC
Fluoranthene	185	21.6	NA	2.45E+01	2.20E+04	1.1E-03	BSL
Fluorene	185	22.2	NA	8.15E+00	2.60E+04	3.1E-04	BSL
Indeno(1,2,3-cd)pyrene	185	13.0	NA	4.23E+00	2.10E+00	2.0E+00 **	COPC
Naphthalene	185	27.6	NA	7.11E+01	1.90E+02	3.7E-01 **	COPC(MC)
Phenanthrene	185	35.7	NA	3.58E+01	NV	NA	COPC(NTD)
Pyrene	185	35.7	NA	2.44E+01	2.90E+04	8.4E-04	BSL
Hydrocarbons							
GRO	332	43.4	NA	7.62E+03	2.20E+04	3.5E-01 **	COPC(MC)
DRO	327	37.3	NA	3.55E+04	7.00E+04	5.1E-01 **	COPC(MC)
Lube oil	327	28.7	NA	1.92E+04	5.00E+02	3.8E+01 **	COPC
Metals							
Arsenic	78	100.0	6	2.42E+01	1.60E+00	1.5E+01 **	COPC
Barium	78	100.0	NV	1.61E+02	6.70E+04	2.4E-03	BSL
Cadmium	101	1.0	1	6.68E-01	4.50E+02	1.5E-03	IFD, BSL
Chromium	104	100.0	27	9.22E+01	4.50E+02	2.0E-01 **	COPC(MC)
Lead	179	97.2	17	2.00E+02	8.00E+02	2.5E-01 **	COPC(MC)
Mercury	78	3.8	0.04	5.51E-01	3.10E+02	1.8E-03	IFD, BSL
Selenium	78	25.6	NV	2.45E+01	5.10E+03	4.8E-03	BSL
Cumulative Risk Score						1.15E+02	
Total Number of Chemicals						50	

Table 3-2
Identification of Chemicals of Potential Concern for Groundwater
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Chemicals of Interest	Sample Size	Detection Frequency (%)	Maximum Detected Concentration	Screening Value ⁴	Chemical Risk Score ³	Comment
Volatile Organic Compounds (ug/L)						
1,2,4-Trimethylbenzene	220	48.2	3.47E+03	1.20E+01	2.9E+02	COPC
1,2-Dichloroethane	220	0.9	6.80E+00	1.20E-01	5.7E+01	IFD
1,3,5-Trimethylbenzene	220	37.3	9.58E+02	1.20E+01	8.0E+01	COPC
4-Isopropyltoluene	24	16.7	1.51E+01	NV	NA	COPC(NTD)
Benzene	261	51.0	3.02E+03	3.50E-01	8.6E+03	COPC
Ethylbenzene	261	60.9	2.89E+03	1.30E+03	2.2E+00	COPC
Isopropylbenzene	220	54.5	2.33E+02	6.60E+02	3.5E-01	BSL
Methylene chloride	24	4.2	5.08E+00	4.30E+00	1.2E+00	IFD
Methyl-t-butyl ether	220	3.6	9.80E-01	1.10E+01	8.9E-02	IFD, BSL
Naphthalene	220	51.8	1.50E+03	6.20E+00	2.4E+02	COPC
n-Butylbenzene	24	29.2	1.82E+01	2.40E+02	7.6E-02	BSL
n-Propylbenzene	220	61.4	6.76E+02	2.40E+02	2.8E+00	COPC
sec-Butylbenzene	24	16.7	6.25E+00	2.40E+02	2.6E-02	BSL
tert-Butylbenzene	24	4.2	6.50E-01	2.40E+02	2.7E-03	IFD, BSL
Tetrachloroethene	24	8.3	4.10E-01	1.00E-01	4.1E+00	COPC
Toluene	261	46.0	8.17E+03	7.20E+02	1.1E+01	COPC
Xylenes	261	52.9	1.49E+04	2.10E+02	7.1E+01	COPC
Semivolatile Organic Compounds (ug/L)						
Acenaphthene	225	35.1	7.37E+00	3.70E+02	2.0E-02	BSL
Acenaphthylene	225	0.9	9.98E-02	NV	NA	IFD
Anthracene	225	4.4	1.56E-01	1.80E+03	8.7E-05	IFD, BSL
Benzo(a)anthracene	225	4.0	4.75E-02	9.20E-02	5.2E-01	IFD, BSL
Benzo(a)pyrene	225	2.2	6.90E-02	9.20E-03	7.5E+00	IFD

Table 3-2
Identification of Chemicals of Potential Concern for Groundwater
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Chemicals of Interest	Sample Size	Detection Frequency (%)	Maximum Detected Concentration	Screening Value ⁴	Chemical Risk Score ³	Comment
Semivolatile Organic Compounds (ug/L), cont.						
Benzo(b)fluoranthene	225	3.1	6.25E-02	9.20E-02	6.8E-01	IFD, BSL
Benzo(k)fluoranthene	225	2.2	5.48E-02	9.20E-01	6.0E-02	IFD, BSL
Chrysene	225	6.2	5.00E-01	9.20E+00	5.4E-02	BSL
Dibenzo(a,h)anthracene	225	0.9	1.11E-02	9.20E-03	1.2E+00	IFD
Fluoranthene	225	2.2	1.23E-01	1.50E+03	8.2E-05	IFD, BSL
Fluorene	225	30.7	1.72E+01	2.40E+02	7.2E-02	BSL
Indeno(1,2,3-cd)pyrene	225	1.3	1.40E-02	9.20E-02	1.5E-01	IFD, BSL
Naphthalene	225	58.7	1.64E+03	6.20E+00	2.6E+02	COPC
Phenanthrene	225	18.7	3.99E+01	NV	NA	COPC(NTD)
Pyrene	225	2.7	2.00E-01	1.80E+02	1.1E-03	IFD, BSL
Hydrocarbons (mg/L)						
GRO	210	56.2	6.77E+01	1.00E-01	6.8E+02	COPC
DRO	220	42.3	9.38E+00	8.80E-02	1.1E+02	COPC
Lube oil	220	10.5	2.18E+00	NV	NA	COPC(NTD)
Metals (mg/L)						
Arsenic	84	76.2	3.72E-02	4.50E-05	8.3E+02	COPC
Barium	84	100.0	2.54E-01	2.60E+00	9.8E-02	BSL
Cadmium	104	3.8	7.00E-04	1.80E-02	3.9E-02	IFD, BSL
Calcium	42	100.0	1.36E+02	NV	NA	COPC(NTD)
Chromium	110	62.7	1.56E-01	NV	NA	COPC(NTD)
Chromium, Hexavalent	4	50.0	1.48E-02	1.10E-01	1.3E-01	BSL
Iron	64	100.0	6.83E+01	1.10E+01	6.2E+00	COPC
Lead	176	85.2	1.48E-01	1.50E-02	9.9E+00	COPC
Magnesium	42	100.0	4.68E+01	NV	NA	COPC(NTD)
Manganese	42	100.0	1.05E+01	8.80E-01	1.2E+01	COPC
Mercury	84	13.1	3.30E-04	1.10E-02	3.0E-02	BSL
Potassium	42	100.0	1.24E+01	NV	NA	COPC(NTD)
Selenium	84	31.0	4.41E-03	1.80E-01	2.5E-02	BSL
Silver	84	4.8	1.80E-04	1.80E-01	1.0E-03	IFD, BSL
Sodium	42	100.0	9.63E+01	NV	NA	COPC(NTD)

Table Notes
Astoria Area-Wide Petroleum Site
Astoria, Oregon

% = percent.

** = Chemical risk score > 1/Total Number of Chemicals.

bgs = below ground surface.

BSL = below baseline.

COPC = chemical of potential concern.

COPC(MC) = chemical of potential concern because of additive effect of multiple chemicals.

COPC(NTD) = chemical of potential concern because of no toxicity data.

DEQ = Oregon Department of Environmental Quality.

DRO = diesel-range organics.

Ecology = Washington State Department of Ecology.

GRO = gasoline-range organics.

ID = identification.

IFD = infrequently detected.

LOF = locality of the facility.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

MSL = mean sea level.

NA = not applicable.

np = no product.

NV = no value.

PRG = preliminary remediation goal.

Pt = point.

RBC = risk-based concentration.

ug/L = micrograms per liter.

USEPA = U.S. Environmental Protection Agency.

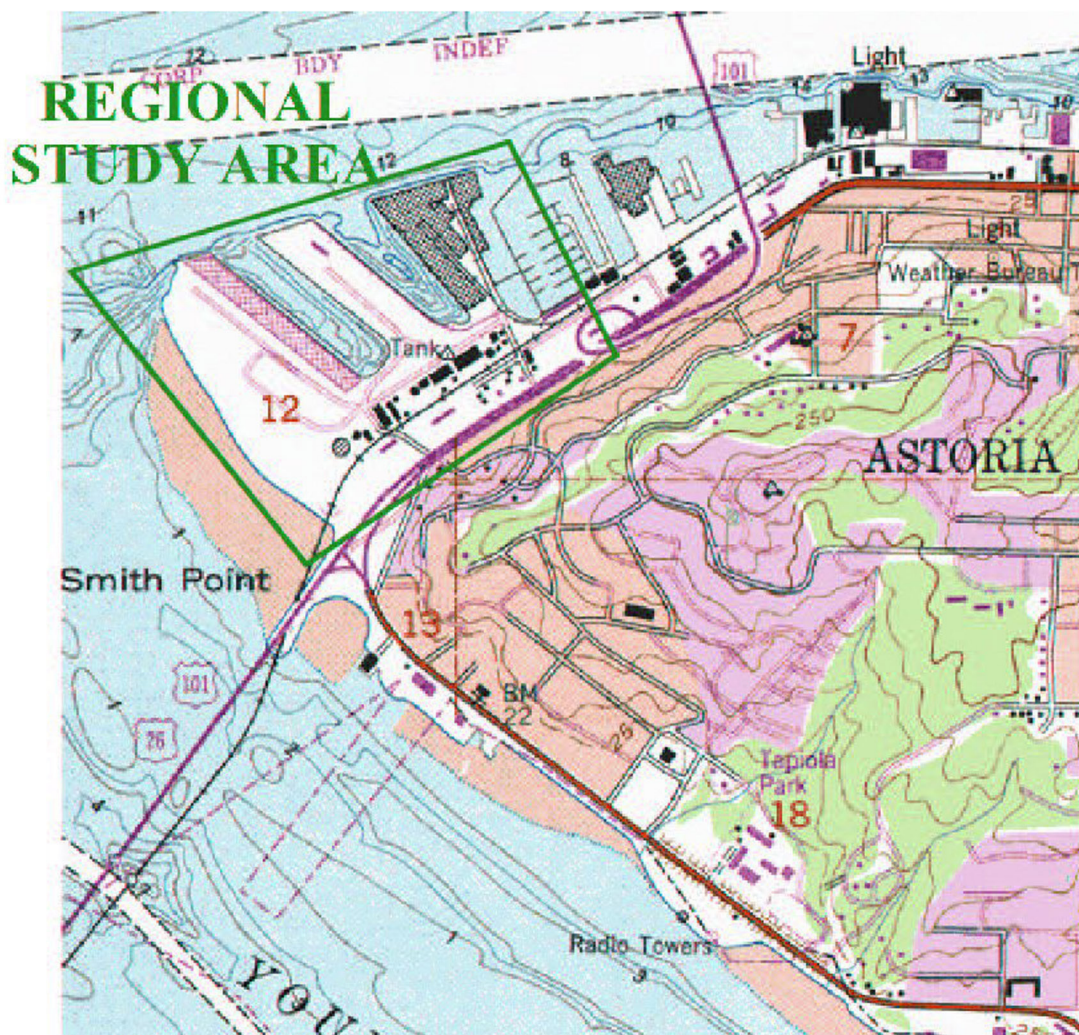
¹Background concentration is 90th percentile values from Clark County (Ecology, 1994).

²Industrial Soil PRG (USEPA, 2004a) with the exception of hydrocarbons. GRO and DRO screening values are RBCs for soil ingestion, dermal contact, and inhalation for occupational workers (DEQ, 2003) and the lube oil screening value is the level 2 DEQ soil matrix value (DEQ, 2000).

³Chemical Risk Score = maximum detected concentration/screening level.

⁴Tap Water Preliminary Remediation Goal (USEPA, 2004) with the exception of hydrocarbons and lead. Hydrocarbon and lead screening values are RBCs for ingestion and inhalation from tap water (DEQ, 2003).

FIGURES



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

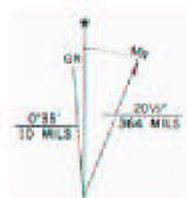
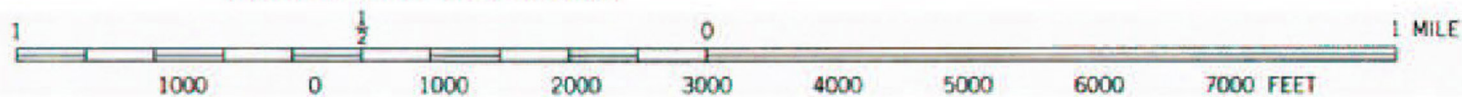
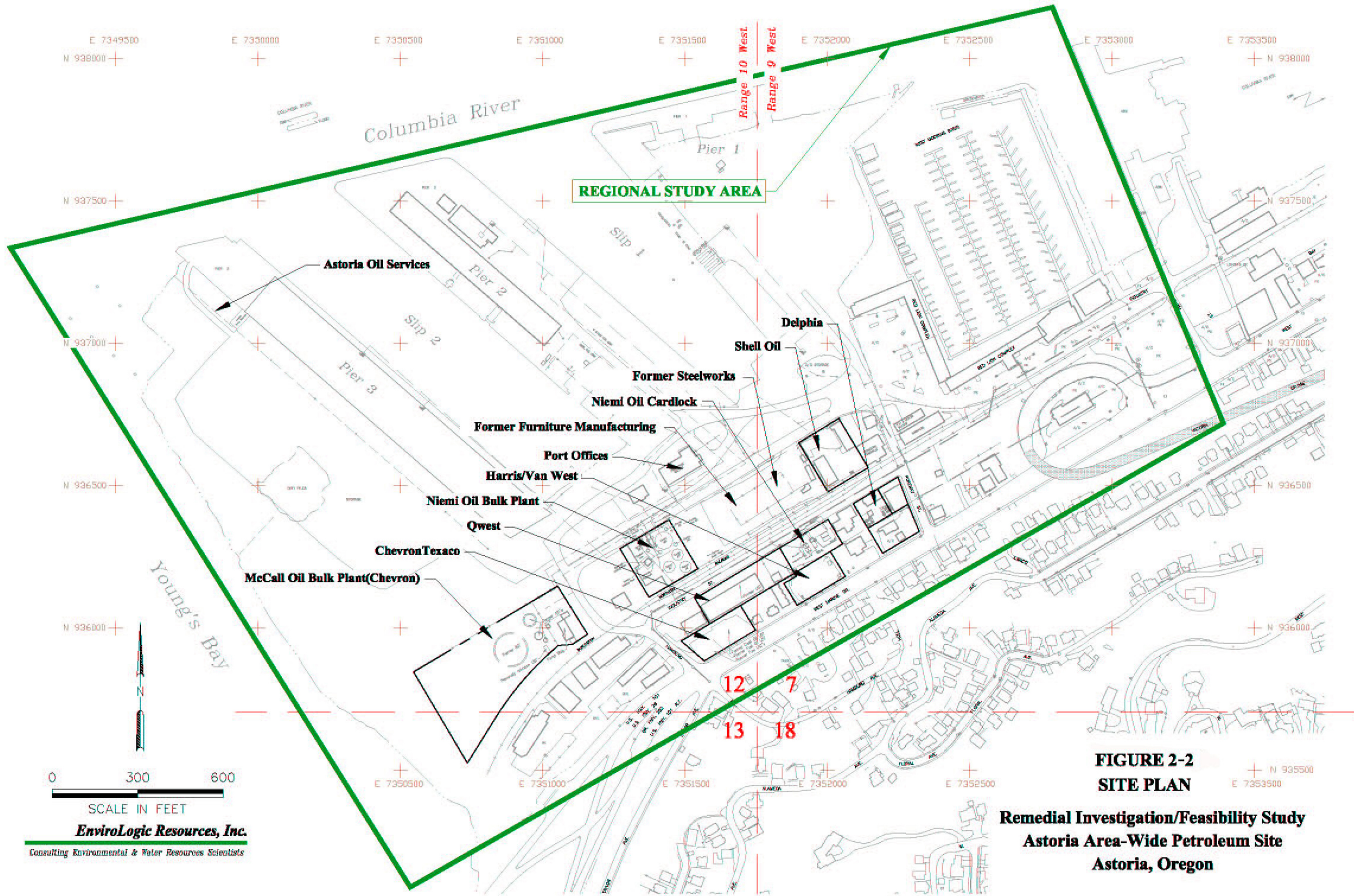


FIGURE 2-1
SITE LOCATION

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

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Consulting Environmental & Water Resources Scientists



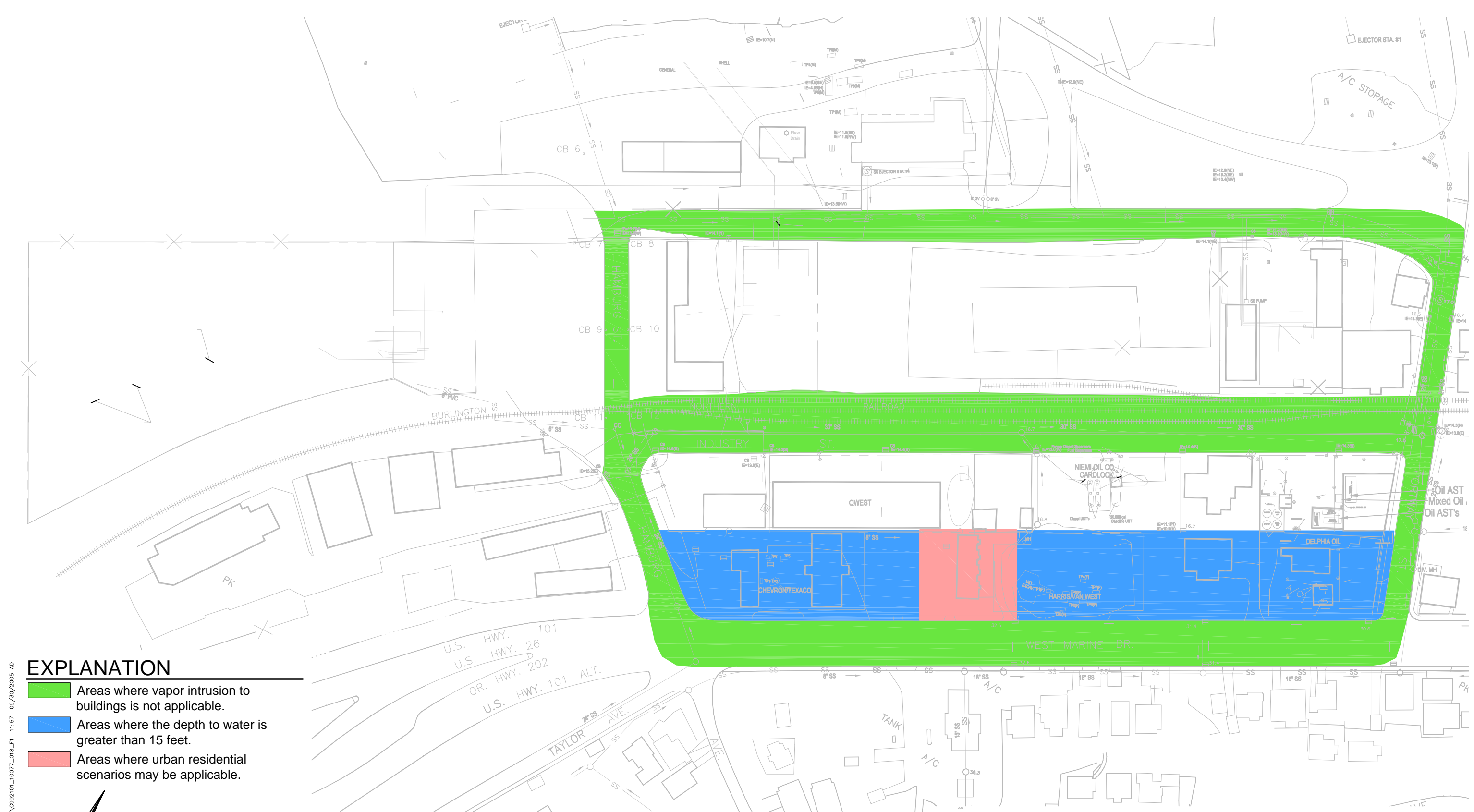
**FIGURE 2-2
SITE PLAN**

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

**Figure 4-1
Preliminary Conceptual Site Model of
Potential Human Exposure Pathways
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

Primary Source	Primary Release Mechanism	Secondary Sources	Secondary Release Mechanism	Tertiary Source	Point of Potential Contact	Exposure Route	Industrial Worker	Excavation Worker	Urban Resident	Recreationist
							adult	adult	adult/child	adult/child
Soil					Surface soil	Ingestion Dermal Contact Inhalation (dust)	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	∅ ∅ ∅
					Subsurface soil	Ingestion Dermal Contact Inhalation (dust)	∅ ∅ ∅	✓ ✓ ✓	∅ ∅ ∅	∅ ∅ ∅
	Volatilization	Indoor air			Indoor air	Inhalation	✓	∅	✓	∅
							Outdoor air	Inhalation	✓	
	Volatilization	Indoor air			Indoor air	Inhalation	✓		∅	✓
							Outdoor air	Inhalation	✓	
	Leaching	Groundwater			Groundwater	Ingestion Dermal Contact Inhalation	∅ ∅ ∅		 ✓ ✓	∅ ∅ ∅
							Discharge	Columbia River	Surface Water and Sediment	Incidental Ingestion Dermal Contact
	Fish Tissue (via bioaccumulation)	Ingestion	∅	∅	∅					

Notes:
 Primary pathway →
 Potentially Complete exposure route ✓
 Incomplete exposure route ∅
 Insignificant exposure route |



EXPLANATION

- Areas where vapor intrusion to buildings is not applicable.
- Areas where the depth to water is greater than 15 feet.
- Areas where urban residential scenarios may be applicable.



EnviroLogic Resources, Inc.
 Consulting Environmental & Water Resources Scientists

FIGURE 4-2
EXPOSURE ZONE MAP
 Remedial Investigation/Feasibility Study
 Astoria Area-Wide Petroleum Site
 Astoria, Oregon

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APPENDIX A
SUMMARY OF ANALYTICAL RESULTS

APPENDIX A TABLES

Tables

- A-1 Total Petroleum Hydrocarbons in Soil (mg/kg)
- A-2 Semivolatile Organic Compounds in Soil (mg/kg)
- A-3 Volatile Organic Compounds in Soil (mg/kg)
- A-4 Metals in Soil (mg/kg)
- A-5 Total Petroleum Hydrocarbons in Groundwater (mg/L)
- A-6 Semivolatile Organic Compounds in Groundwater ($\mu\text{g/L}$)
- A-7 Volatile Organic Compounds in Groundwater ($\mu\text{g/L}$)
- A-8 Metals in Groundwater (mg/L)

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB801(Q)-0	8/26/2002	0	2 U	11.2	23.4
SB802(Q)-0	8/26/2002	0	2 U	24.6	57.9
SB803(Q)-0	8/26/2002	0	2 U	20.2	25.3
SB-804(Q)-0	8/26/2002	0	2 U	3.9 U	7.8 U
SB-805(Q)-0	8/26/2002	0	2 U	11.7	22.2
SB-800 (Q)-0	8/27/2002	0	1.25 U	12.5 U	25 U
SB-811 (Q)-0	8/27/2002	0	1.25 U	12.5 U	25 U
SB812(Q)-0	8/27/2002	0	2 U	3.9 U	7.8 U
SB813(Q)-0	8/27/2002	0	R	25	50
SB814(Q)-0	8/27/2002	0	2 U	3.9 U	7.8 U
SB815(Q)-0	8/27/2002	0	2 U	13.5	7.8 U
SB816(Q)-0	8/27/2002	0	2 U	3.9 U	7.8 U
SB-823 (Q)-0	8/27/2002	0	1.25 U	48.6	146
SB-824 (Q)-0	8/27/2002	0	1.25 U	12.5 U	25 U
SB-825 (Q)-0	8/27/2002	0	1.25 U	12.5 U	25 U
SB-826 (Q)-0	8/27/2002	0	1.25 U	12.5 U	25 U
SB-806 (Q)-0	8/28/2002	0	1.25 U	12.5 U	25 U
SB-807 (Q)-0	8/28/2002	0	2.96	82.9	349
SB-809 (Q)-0	8/28/2002	0	3.08	12.5 U	25 U
SB-810 (Q)-0	8/28/2002	0	1.25 U	12.5 U	25 U
SB-817 (Q)-0	8/28/2002	0	1.25 U	12.5 U	25 U
SB-818 (Q)-0	8/28/2002	0	1.25 U	12.5 U	25 U
SB-819 (Q)-0	8/28/2002	0	1.25 U	12.5 U	25 U
SB-828 (Q)-0	8/28/2002	0	2.5	12.5 U	25 U
SB-829 (Q)-0	8/28/2002	0	3.44	39.8	201
SB-830 (Q)-0	8/28/2002	0	1.25 U	12.5 U	25 U
SB-831 (Q)-0	8/28/2002	0	1.25 U	12.5 U	25 U
SB-832 (Q)-0	8/28/2002	0	1.25 U	12.5 U	25 U
SB-833 (Q)-0	8/28/2002	0	1.25 U	125 U	563
SB-820 (Q)-0	8/29/2002	0	2.6	47.5	131
SB-821 (Q)-0	8/29/2002	0	1.25 U	12.5 U	131
SB-822 (Q)-0	8/29/2002	0	1.25 U	12.5 U	25 U
SB-827 (Q)-0	8/29/2002	0	1.25 U	12.5 U	25 U

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
Ex-1/S-1	3/30/2004	1	1.26	26.5	34
Ex-2/S-1	3/30/2004	1	3.18	16.1	110
Ex-3/S-1	3/31/2004	1	1.08	770	760
SB-618 (N)-1.5	9/12/2002	1.5	7.89	239	133
SB-701(P)-2	8/20/2002	2	1.25 U	12.5 U	25 U
SB-702(P)-2	8/21/2002	2	1.25 U	12.5 U	25 U
SB-703(P)-2	8/21/2002	2	15.8	102	453
SB-704(P)-2	8/21/2002	2	1.25 U	12.5 U	128
SB-707(P)-2	8/21/2002	2	1.25 U	12.5 U	25 U
SB-712(P)-2	8/21/2002	2	1.25 U	125 U	2110
SB-713(P)-2	8/21/2002	2	1.25 U	12.5 U	25 U
SB-714(P)-2	8/21/2002	2	1.25 U	66.4	162
SB-718(P)-2	8/21/2002	2	1.25 U	12.5 U	25 U
SB202(C)2	8/22/2002	2	5.03	6030	7700
SB-720(P)-2	8/23/2002	2	7.63	12.5 U	142
SB801(Q)-2	8/26/2002	2	2 U	3.9 U	7.8 U
SB802(Q)-2	8/26/2002	2	2 U	3.9 U	7.8 U
SB803(Q)-2	8/26/2002	2	2 U	3.9 U	31.1
SB-804(Q)-2	8/26/2002	2	2 U	152.5 U	953
SB-805(Q)-2	8/26/2002	2	13.1	16	31.6
SB-800 (Q)-2	8/27/2002	2	1.25 U	12.5 U	25 U
SB816(Q)-2	8/27/2002	2	2 U	3.9 U	7.8 U
SB-823 (Q)-2	8/27/2002	2	1.25 U	12.5 U	25 U
SB-825 (Q)-2	8/27/2002	2	1.25 U	12.5 U	25 U
SB-806 (Q)-2	8/28/2002	2	1.25 U	12.5 U	25 U
SB-809 (Q)-2	8/28/2002	2	1.25 U	12.5 U	25 U
SB-810 (Q)-2	8/28/2002	2	1.25 U	12.5 U	25 U
SB-817 (Q)-2	8/28/2002	2	2.88	116	162
SB-828 (Q)-2	8/28/2002	2	6.87	12.5 U	25 U
SB-829 (Q)-2	8/28/2002	2	1.25 U	12.5 U	25 U
SB-829 (Q)-2C	8/28/2002	2	1.25 U	12.5 U	25 U
SB-830 (Q)-2	8/28/2002	2	1.25 U	12.5 U	25 U
SB-832 (Q)-2	8/28/2002	2	1.25 U	12.5 U	25 U

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB-833 (Q)-2	8/28/2002	2	1.25 U	12.5 U	25 U
SB-820 (Q)-2	8/29/2002	2	3.41	30.4	67.2
SB-822 (Q)-2	8/29/2002	2	1.25 U	12.5 U	25 U
SB-822 (Q)-2C	8/29/2002	2	1.25 U	12.5 U	25 U
SB-827 (Q)-2	8/29/2002	2	3.19	12.5 U	25 U
SB-622 (N)-2	9/12/2002	2	1.25 U	NV	NV
SB-624 (N)-2	9/12/2002	2	1.25 U	12.5 U	25 U
SB-625 (N)-2	9/12/2002	2	1.25 U	12.5 U	25 U
SB-008(A)-2	8/26/2003	2	4.93	16.6	59
SB-009(A)-2	8/27/2003	2	7.84	12.5 U	25 U
SB-010(A)-2	8/27/2003	2	6.39	12.5 U	25 U
SB-627(N)-2	8/28/2003	2	31.4	132	239
SB-912(S)-2	9/3/2003	2	2 U	27.8	130
SB-913(S)-2	9/3/2003	2	2.58	2440	6390
SB-914(S)-2	9/3/2003	2	2 U	12.5 U	25 U
SB-253(C)-2	9/4/2003	2	2 U	12.5 U	25 U
SB-254(C)-2	9/4/2003	2	2 U	125 U	1010
SB-834(Q)-2	9/5/2003	2	2 U	12.5 U	25 U
SB-835(Q)-2	9/5/2003	2	2 U	12.5 U	107
SB-321(D)-2	9/9/2003	2	392	1780	3560
SB-326(D)-2	9/9/2003	2	31.6	12.5 U	25 U
SB-320(D)-2	9/10/2003	2	2 U	12.5 U	25 U
SB-322(D)-2	9/10/2003	2	4.31	12.5 U	27.8
SB-324(D)-2	9/10/2003	2	2.75	12.5 U	25 U
SB-325(D)-2	9/10/2003	2	5.53	12.5 U	25 U
SB-327(D)-2	9/10/2003	2	2.78	12.5 U	25 U
SB-328(D)-2	9/10/2003	2	2 U	12.5 U	48.1
SB-410(F)-2'	3/31/2004	2	4.45	48.2	179
Ex-2/S-2	4/1/2004	2	2.09	12.5 U	35.6
SB-706(P)-2.5	8/21/2002	2.5	1.25 U	12.5 U	25 U
SB-400(F)-2.5	8/22/2002	2.5	1.25 U	12.5 U	25 U
SB-404(F)-2.5	8/22/2002	2.5	1.25 U	12.5 U	25 U
SB-405(F)-2.5	8/22/2002	2.5	1.25 U	12.5 U	25 U

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB-406(F)-2.5	8/22/2002	2.5	1.25 U	12.5 U	77.1
SB-407(F)-2.5	8/22/2002	2.5	1.25 U	12.5 U	56.3
SB-408(F)-2.5	8/22/2002	2.5	6.44	1470	229
SB-409(F)-2.5	8/22/2002	2.5	1.25 U	12.5 U	25 U
SB-401(F)-2.5	8/23/2002	2.5	1.25 U	12.5 U	25 U
SB-402(F)-2.5	8/23/2002	2.5	1.25 U	12.5 U	25 U
SB-002(A)-2.5	8/27/2003	2.5	8.4	12.5 U	25 U
SB-019(A)-2.5	8/27/2003	2.5	7.46	12.5 U	25 U
SB-255(C)-2.5	9/4/2003	2.5	2 U	77.5	325
SB-005(A)-2.5	9/5/2003	2.5	2 U	12.5 U	25 U
SB-705(P)-3	8/20/2002	3	1.25 U	12.5 U	25 U
SB-708(P)-3	8/20/2002	3	1.25 U	12.5 U	25 U
SB-716(P)-3	8/20/2002	3	1.25 U	12.5 U	25 U
SB-717(P)-3	8/20/2002	3	1.25 U	12.5 U	25 U
SB-700(P)-3	8/21/2002	3	1.25 U	12.5 U	117
SB-709(P)-3	8/21/2002	3	1.25 U	35.3	74.4
SB-710(P)-3	8/21/2002	3	1.25 U	250 U	2450
SB-711(P)-3	8/21/2002	3	1.25 U	12.5 U	150
SB-715(P)-3	8/21/2002	3	1.25 U	12.5 U	25 U
SB100(C)3	8/22/2002	3	2 U	12.5 U	25 U
SB101(C)3	8/22/2002	3	2 U	12.5 U	25 U
SB103(C)3	8/22/2002	3	2 U	76.4	283
SB200(C)3	8/22/2002	3	2 U	12.5 U	25 U
SB201(C)3	8/22/2002	3	2 U	12.5 U	25 U
SB202(C)3	8/22/2002	3	2 U	38.8	57.8
SB203(C)3	8/22/2002	3	2 U	12.5 U	25 U
SB204(C)3	8/22/2002	3	2 U	12.5 U	25 U
SB-824 (Q)-3	8/27/2002	3	1.25 U	12.5 U	25 U
SB-826 (Q)-3	8/27/2002	3	1.25 U	12.5 U	25 U
SB-617 (N)-3	9/12/2002	3	NV	54.1	25 U
SB-620 (N)-3	9/12/2002	3	1.25 U	NV	NV
SB-602(N)-3	9/13/2002	3	2.56	NV	NV
SB-604(N)-3	9/13/2002	3	1.25 U	NV	NV

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB-606(N)-3	9/13/2002	3	1.25 U	NV	NV
SB104(C)4	8/22/2002	4	2 U	12.5 U	25 U
SB-900(S)-4	8/26/2002	4	NV	96	184
SB-904 (S)-4	8/26/2002	4	1.25 U	1200	3070
SB-905 (S)-4	8/26/2002	4	3.23	3630	7500
SB-906 (S)-4	8/27/2002	4	NV	1570	1100
SB-908 (S)-4	8/27/2002	4	NV	7550	12300
SB-909 (S)-4	8/27/2002	4	3.19	1300	5500
SB-910 (S)-4	8/27/2002	4	NV	32.5	241
SB-818 (Q)-4	8/28/2002	4	2.6	29.6	25 U
SB-831 (Q)-4	8/28/2002	4	1.25 U	12.5 U	25 U
SB-020(A)-4'	3/31/2004	4	2 U	12.5 U	25 U
SB-410(F)-4'	3/31/2004	4	2 U	12.5 U	25 U
SB812(Q)-4.5	8/27/2002	4.5	2 U	13.2	7.8 U
SB814(Q)-4.5	8/27/2002	4.5	2 U	16.1	7.8 U
SB815(Q)-4.5	8/27/2002	4.5	2 U	163	571
SB-400(F)-5	8/22/2002	5	1.25 U	12.5 U	25 U
SB-409(F)-5	8/22/2002	5	1.25 U	12.5 U	25 U
SB-719(P)-5	8/23/2002	5	5.07	12.5 U	110
SB-811 (Q)-5	8/27/2002	5	1.25 U	12.5 U	25 U
SB813(Q)-5	8/27/2002	5	2 U	3.9 U	7.8 U
SB-819 (Q)-5	8/28/2002	5	2.5	69.8	25 U
SB-821 (Q)-5	8/29/2002	5	1950	1070	87.2
SB-821 (Q)-5C	8/29/2002	5	459	324	25 U
SB-321(D)-5	9/9/2003	5	1530	6370	19200
SB-326(D)-5	9/9/2003	5	870	12.5 U	47.2
SB-320(D)-5	9/10/2003	5	2 U	12.5 U	25 U
SB-322(D)-5	9/10/2003	5	4.61	12.5 U	25 U
SB-324(D)-5	9/10/2003	5	2.63	12.5 U	25 U
SB-325(D)-5	9/10/2003	5	2 U	12.5 U	25 U
SB-327(D)-5	9/10/2003	5	6.22	12.5 U	25 U
SB-328(D)-5	9/10/2003	5	67.9	21.3	104
SB-915(s)-5.0	3/31/2004	5	NV	12.5 U	294

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB-705(P)-5.5	8/20/2002	5.5	1.25 U	12.5 U	25 U
SB-706(P)-5.5	8/21/2002	5.5	1.25 U	12.5 U	25 U
SB-613 (N)-5.5	9/12/2002	5.5	2110	2270	500 U
SB-617 (N)-5.5	9/12/2002	5.5	4.32	NV	NV
SB200(C)6	8/22/2002	6	2 U	12.5 U	25 U
SB201(C)6	8/22/2002	6	2 U	37.5	159
SB-608(N)-6	9/13/2002	6	82.8	NV	NV
SB256 (c) 6	3/31/2004	6	6.23	12.5 U	25 U
SB-501 (M) 4-8	8/29/2002	6	20.6	282	25 U
SB-827 (Q)-6.5	8/29/2002	6.5	3.16	12.5 U	25 U
SB408/S-2(6-7)	8/22/2002	6.5	34.8	NV	NV
SB-715(P)-7	8/21/2002	7	8.52	71	157
SB202(C)7	8/22/2002	7	2 U	28.7	25 U
SB203(C)7	8/22/2002	7	2 U	12.5 U	25 U
SB-807 (Q)-7	8/28/2002	7	2300	485	25 U
SB-612 (N)-7	9/12/2002	7	4100	4580	500 U
SB-614 (N)-7	9/12/2002	7	1370	809	250 U
SB-615 (N)-7	9/12/2002	7	1340	2070	500 U
SB-616 (N)-7	9/12/2002	7	4000	7880	500 U
SB-618 (N)-7	9/12/2002	7	1780	7490	500 U
SB-619 (N)-7	9/12/2002	7	1.25 U	NV	NV
SB-620 (N)-7	9/12/2002	7	2130	3480	125 U
SB-621 (N)-7	9/12/2002	7	1.25 U	NV	NV
SB-622 (N)-7	9/12/2002	7	1.25 U	NV	NV
SB-623 (N)-7	9/12/2002	7	1460	2420	125 U
SB-624 (N)-7	9/12/2002	7	753	5930	125 U
SB-625 (N)-7	9/12/2002	7	6.4	2170	250 U
SB-626 (N)-7	9/12/2002	7	4560	9600	255
SB-600(N)-7	9/13/2002	7	2510	NV	NV
SB-601(N)-7	9/13/2002	7	3750	1380	25 U
SB-602(N)-7	9/13/2002	7	337	528	25 U
SB-603(N)-7	9/13/2002	7	3750	1520	500 U
SB-604(N)-7	9/13/2002	7	601	2780	500 U

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB-605(N)-7	9/13/2002	7	3000	2260	500 U
SB-606(N)-7	9/13/2002	7	1.25 U	NV	NV
SB-912(S)-7	9/3/2003	7	2 U	12.5 U	25 U
SB-913(S)-7	9/3/2003	7	4.64	2050	1250
SB-254(C)-7	9/4/2003	7	2 U	12.5 U	25 U
SB-255(C)-7	9/4/2003	7	10	196	301
SB-005(A)-7	9/5/2003	7	2 U	12.5 U	25 U
SB-835(Q)-7	9/5/2003	7	2 U	12.5 U	25 U
SB-015(A)-7	9/10/2003	7	695	12.5 U	25 U
SB-323(D)-7	9/10/2003	7	2.61	12.5 U	25 U
SB-006(A)-7'	3/31/2004	7	2190	14000	1000 U
SB-721(P)-7'	3/31/2004	7	2 U	12.5 U	25 U
SB407/S-2(6-8)	8/22/2002	7	1470	NV	NV
SB-714(P)-7.5	8/21/2002	7.5	1150	6240	250 U
SB-405(F)-7.5	8/22/2002	7.5	93.9	12.5 U	25 U
SB-407(F)-7.5	8/22/2002	7.5	1570	413	25 U
SB-408(F)-7.5	8/22/2002	7.5	3.66	150	53.4
SB-007(A)-7.5	8/26/2003	7.5	2520	6840	500 U
SB-008(A)-7.5	8/26/2003	7.5	2 U	12.5 U	25 U
SB-001(A)-7.5	8/27/2003	7.5	4.64	12.5 U	25 U
SB-002(A)-7.5	8/27/2003	7.5	3.18	12.5 U	25 U
SB-009(A)-7.5	8/27/2003	7.5	1670	12200	1000 U
SB-010(A)-7.5	8/27/2003	7.5	2.76	12.5 U	25 U
SB-019(A)-7.5	8/27/2003	7.5	5960	2370	67.8
SB-629(N)-7.5	8/28/2003	7.5	1650	10800	500 U
SB-011(A)-7.5	9/3/2003	7.5	2 U	12.5 U	25 U
SB-013(A)-7.5	9/3/2003	7.5	2 U	12.5 U	25 U
SB-914(S)-7.5	9/3/2003	7.5	2 U	12.5 U	25 U
SB-253(C)-7.5	9/4/2003	7.5	2 U	12.5 U	25 U
SB-834(Q)-7.5	9/5/2003	7.5	2 U	12.5 U	25 U
SB-017(A)-7.5	9/8/2003	7.5	2 U	12.5 U	25 U
SB-632(N)-7.5	9/8/2003	7.5	1690	282	36.5
SB204(C)8	8/22/2002	8	5.51	12.5 U	25 U

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB-406(F)-8	8/22/2002	8	5.03	12.5 U	25 U
SB-901 (S)-8	8/26/2002	8	1.25 U	12.5 U	25 U
SB-902 (S)-8	8/26/2002	8	29.6	81.3	25 U
SB-903 (S)-8	8/26/2002	8	1.25 U	437	162
SB-908 (S)-8	8/27/2002	8	NV	12.5 U	25 U
SB-911 (S)-8	8/27/2002	8	1.25 U	12.5 U	25 U
SB-806 (Q)-8	8/28/2002	8	4.68	12.5 U	25 U
SB-810 (Q)-8	8/28/2002	8	1.25 U	12.5 U	25 U
SB-822 (Q)-8	8/29/2002	8	7620	429	25 U
SB-720(P)-8.5	8/23/2002	8.5	3420	6110	250 U
SB-804(Q)-8.5	8/26/2002	8.5	2 U	22.5	169
SB-809 (Q)-8.5	8/28/2002	8.5	2.5	12.5 U	25 U
SB-828 (Q)-8.5	8/28/2002	8.5	2.5	12.5 U	25 U
SB-830 (Q)-8.5	8/28/2002	8.5	1.25 U	31.9	130
SB802(Q)-9	8/26/2002	9	2 U	24.5	57.7
SB803(Q)-9	8/26/2002	9	2 U	57.7	244
SB-811 (Q)-9	8/27/2002	9	2.5	12.5 U	60.8
SB-811 (Q)-9C	8/27/2002	9	2.5	12.5 U	63
SB812(Q)-9	8/27/2002	9	2 U	3.9 U	7.8 U
SB814(Q)-9	8/27/2002	9	2 U	14.1	7.8 U
SB-823 (Q)-9	8/27/2002	9	1.25 U	25 U	288
SB-824 (Q)-9	8/27/2002	9	2.93	12.5 U	25 U
SB-825 (Q)-9	8/27/2002	9	2.5	12.5 U	25 U
SB-826 (Q)-9	8/27/2002	9	1.25 U	12.5 U	25 U
SB-807 (Q)-9	8/28/2002	9	28.5	12.5 U	25 U
SB-817 (Q)-9	8/28/2002	9	1.25 U	38.6	90.6
SB-818 (Q)-9	8/28/2002	9	1.25 U	12.5 U	25 U
SB-829 (Q)-9	8/28/2002	9	1.25 U	125 U	926
SB-831 (Q)-9	8/28/2002	9	1.25 U	27.2	25 U
SB-832 (Q)-9	8/28/2002	9	7.11	12.5 U	25 U
SB-820 (Q)-9	8/29/2002	9	3.44	12.5 U	25 U
SB-820 (Q)-9C	8/29/2002	9	537	186	181
SB-821 (Q)-9	8/29/2002	9	12.3	12.5 U	25 U

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB-020(A)-9'	3/31/2004	9	2 U	12.5 U	25 U
SB-410(F)-9'	3/31/2004	9	2 U	12.5 U	25 U
SB-705(P)-9.5	8/20/2002	9.5	1.25 U	12.5 U	60.1
SB-706(P)-9.5	8/21/2002	9.5	1.25 U	12.5 U	56.9
SB801(Q)-9.5	8/26/2002	9.5	2 U	3.9 U	7.8 U
SB813(Q)-9.5	8/27/2002	9.5	2 U	3.9 U	7.8 U
SB815(Q)-9.5	8/27/2002	9.5	2 U	16.7	24.9
SB816(Q)-9.5	8/27/2002	9.5	2 U	3.9 U	7.8 U
SB-708(P)-10	8/20/2002	10	1.25 U	12.5 U	25 U
SB-716(P)-10	8/20/2002	10	1.25 U	12.5 U	25 U
SB-717(P)-10	8/20/2002	10	1.25 U	12.5 U	25 U
SB-703(P)-10	8/21/2002	10	1.25 U	12.5 U	25 U
SB-707(P)-10	8/21/2002	10	1.25 U	12.5 U	25 U
SB-709(P)-10	8/21/2002	10	1.25 U	12.5 U	25 U
SB-711(P)-10	8/21/2002	10	1.25 U	12.5 U	127
SB-712(P)-10	8/21/2002	10	1.25 U	125 U	1630
SB-713(P)-10	8/21/2002	10	1.25 U	12.5 U	25 U
SB-714(P)-10	8/21/2002	10	3460	5780	250 U
SB-718(P)-10	8/21/2002	10	1.25 U	12.5 U	25 U
SB-805(Q)-10	8/26/2002	10	2 U	3.9 U	7.8 U
SB-901 (S)-10	8/26/2002	10	1.25 U	12.5 U	25 U
SB-903 (S)-10	8/26/2002	10	396	16400	250 U
SB-908 (S)-10	8/27/2002	10	1.25 U	12.5 U	25 U
SB-909 (S)-10	8/27/2002	10	1.25 U	125 U	894
SB-910 (S)-10	8/27/2002	10	1.25 U	12.5 U	25 U
SB-911 (S)-10	8/27/2002	10	2.62	12.5 U	25 U
SB-500 (M) 8-12	8/29/2002	10	1.25 U	12.5 U	25 U
SB-501 (M) 8-12	8/29/2002	10	1300	1680	25 U
SB-502 (M) 8-12	8/29/2002	10	217	10800	500 U
SB-503 (M) 8-12	8/29/2002	10	490	16800	250 U
SB-505 (M) 8-12	8/29/2002	10	186	4750	250 U
SB-506 (M) 8-12	8/29/2002	10	890	2520	25 U
SB-507 (M) 8-12	8/29/2002	10	532	16100	250 U

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB-508 (M) 8-12	8/29/2002	10	1380	3270	25 U
SB-509 (M) 8-12	8/29/2002	10	6.51	41.4	75.6
SB-510 (M) 8-12	8/29/2002	10	2040	35500	250 U
SB-822 (Q)-10	8/29/2002	10	10.5	25	25 U
SB-625 (N)-10	9/12/2002	10	55.5	1630	25 U
SB-326(D)-10	9/9/2003	10	1920	202	25 U
SB-324(D)-10	9/10/2003	10	586	4630	25 U
SB-325(D)-10	9/10/2003	10	2 U	12.5 U	25 U
SB-327(D)-10	9/10/2003	10	758	9640	500 U
SB-328(D)-10	9/10/2003	10	1360	3580	25 U
SB-700(P)-10.5	8/21/2002	10.5	2920	703	25 U
SB-800 (Q)-10.5	8/27/2002	10.5	2.5	12.5 U	25 U
SB-833 (Q)-10.5	8/28/2002	10.5	6.48	12.5 U	25 U
SB-701(P)-11	8/20/2002	11	1.25 U	12.5 U	25 U
SB-702(P)-11	8/21/2002	11	1.25 U	12.5 U	25 U
SB-704(P)-11	8/21/2002	11	1.25 U	12.5 U	25 U
SB-715(P)-11	8/21/2002	11	1.25 U	77.6	180
SB-806 (Q)-11	8/28/2002	11	3.93	12.5 U	25 U
SB-819 (Q)-11	8/28/2002	11	3.36	12.5 U	25 U
SB-619 (N)-11	9/12/2002	11	18.1	NV	NV
SB-607(N)-11	9/13/2002	11	1.25 U	12.5 U	25 U
SB-720(P)-11.5	8/23/2002	11.5	2590	4350	25 U
SB-701(P)-12	8/20/2002	12	1.25 U	12.5 U	25 U
SB-705(P)-12	8/20/2002	12	1.25 U	12.5 U	25 U
SB-706(P)-12	8/21/2002	12	1.25 U	12.5 U	25 U
SB-719(P)-12	8/23/2002	12	14.5	12.5 U	25 U
SB-900(S)-12	8/26/2002	12	2160	261	25 U
SB-902 (S)-12	8/26/2002	12	NV	1770	76.7
SB-904 (S)-12	8/26/2002	12	647	23100	250 U
SB-905 (S)-12	8/26/2002	12	1.25 U	12.5 U	25 U
SB-906 (S)-12	8/27/2002	12	NV	11200	250 U
SB-504 (M) 10-12	8/29/2002	12	3.17	12.5 U	25 U
SB102(C)1-3	8/22/2002	13	8.31	12.5 U	25 U

Table A-1
Total Petroleum Hydrocarbons in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics
SB-324(D)-15	9/10/2003	15	162	433	125 U
SB-325(D)-15	9/10/2003	15	6.05	12.5 U	25 U
SB-327(D)-15	9/10/2003	15	390	22	25 U
SB-328(D)-15	9/10/2003	15	11.4	22.8	25 U
SB101(C)18	8/22/2002	18	2 U	12.5 U	25 U
SB102(C)18	8/22/2002	18	2 U	73.9	473
SB103(C)18	8/22/2002	18	2 U	44.5	126
SB100(C)20	8/22/2002	20	6.31	12.5 U	25 U
SB104(C)20	8/22/2002	20	5.14	12.5 U	74.1
SB-404(F)-20	8/22/2002	20	7.81	12.5 U	25 U
SB-401(F)-20	8/23/2002	20	1.25 U	12.5 U	71.7
SB-402(F)-20	8/23/2002	20	1.25 U	12.5 U	71.7
Number of Samples			332 144	327 122	327 94
Average Concentration			310	1032	323
Median Concentration			2	12.5	25
Frequency of Detection			43	37	29
Minimum Value			1.08	3.9	7.8
Maximum Detection			7620	35500	19200

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene
Ex-1/S-1	3/30/2004	1	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
Ex-2/S-1	3/30/2004	1	NV	0.0067 U	0.0067 U	0.0067 U	0.0076	0.00973
Ex-3/S-1	3/31/2004	1	NV	0.0335 U	0.0335 U	0.0202	0.0967	0.102
Ex-4/S-1	3/29/2004	1	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 232 (C)-8	8/30/2002	8	NV	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB 233 (C)-3	8/30/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 234 (C)-8	8/30/2002	8	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 235 (C)-6	8/30/2002	6	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 236 (C)-6	8/30/2002	6	NV	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB 237 (C)-6	8/30/2002	6	NV	0.0152	0.0067 U	0.0118	0.0067 U	0.0067 U
SB 238 (C)-3	8/30/2002	3	NV	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB-001(A)-7.5	8/27/2003	7.5	NV	0.0067 U	0.0067 U	0.00516	0.0067 U	0.0067 U
SB-002(A)-2.5	8/27/2003	2.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-002(A)-7.5	8/27/2003	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-003(A)-5	9/4/2003	5	NV	0.0134 U	0.0134 U	0.0134 U	0.0105	0.0145
SB-005(A)-2.5	9/5/2003	2.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-005(A)-7	9/5/2003	7	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.00469
SB-006(A)-7'	3/31/2004	7	NV	2.47	0.5 U	3.35 U	0.335 U	0.335 U
SB-007(A)-7.5	8/26/2003	7.5	NV	1.46	1.34 U	0.526	0.134 U	0.134 U
SB-008(A)-2	8/26/2003	2	NV	0.0987	0.134 U	0.207	2.53	2.59
SB-008(A)-7.5	8/26/2003	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-009(A)-2	8/27/2003	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-009(A)-7.5	8/27/2003	7.5	NV	1.34 U	1.34 U	2.17	0.134 U	0.134 U
SB-010(A)-2	8/27/2003	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-010(A)-7.5	8/27/2003	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-011(A)-7.5	9/3/2003	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-013(A)-7.5	9/3/2003	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-015(A)-7	9/10/2003	7	NV	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene
SB-016(A)-7	9/4/2003	7	NV	0.0649	0.0335 U	0.0466	0.0335 U	0.0335 U
SB-017(A)-7.5	9/8/2003	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-019(A)-2.5	8/27/2003	2.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-019(A)-7.5	8/27/2003	7.5	NV	0.449	0.335 U	0.22	0.335 U	0.335 U
SB-020(A)-4'	3/31/2004	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-020(A)-9'	3/31/2004	9	NV	0.00651	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB100(C)20	8/22/2002	20	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB100(C)3	8/22/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB200(C)3	8/22/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB200(C)6	8/22/2002	6	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB201(C)3	8/22/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB201(C)6	8/22/2002	6	NV	0.0134 U	0.0134 U	0.0134 U	0.0342	0.031
SB202(C)2	8/22/2002	2	NV	0.84 U	0.84 U	0.84 U	0.84 U	0.741
SB202(C)3	8/22/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB202(C)7	8/22/2002	7	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB203(C)3	8/22/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB203(C)7	8/22/2002	7	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB204(C)3	8/22/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB204(C)8	8/22/2002	8	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB205(C)-4.5	8/27/2002	4.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB206(C)-6	8/27/2002	6	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB207(C)-4.5	8/27/2002	4.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB208(C)-3.5	8/27/2002	3.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB209(C)-3	8/27/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB210(C)-3.5	8/27/2002	3.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB211(C)-3	8/27/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.011
SB212(C)-2.5	8/27/2002	2.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB213(C)-4	8/27/2002	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene
SB214(C)-5	8/27/2002	5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB215(C)-5	8/27/2002	5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB216(C)-3	8/27/2002	3	NV	0.0117	0.0067 U	0.0117	0.00632	0.00491
SB217(C)-3	8/28/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB218(C)-2.5	8/28/2002	2.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB219(C)-4	8/28/2002	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB220 (C)-5	8/28/2002	5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB221 (C)-4.5	8/28/2002	4.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB222 (C)-4.5	8/28/2002	4.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB223 (C)-6	8/29/2002	6	NV	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB224 (C)-2	8/29/2002	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB225 (C)-3	8/29/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB226 (C)-3	8/29/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB227 (C)-8	8/29/2002	8	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB228 (C)-4	8/29/2002	4	NV	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0241
SB229 (C)-8	8/29/2002	8	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB230 (C)-8	8/29/2002	8	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB231 (C)-2	8/29/2002	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-239(C)-4	9/3/2002	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-240(C)-6	9/3/2002	6	NV	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB-241(C)-5	9/3/2002	5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-242(C)-4	9/3/2002	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-243(C)-4	9/3/2002	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-244(C)-3	9/3/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-245(C)-5	9/3/2002	5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-246(C)-5	9/3/2002	5	NV	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB-247(C)-6	9/3/2002	6	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-250(C)-4	9/9/2002	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene
SB-251(C)-4	9/9/2002	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-252(C)-5	9/9/2002	5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-253(C)-2	9/4/2003	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-253(C)-7.5	9/4/2003	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-254(C)-2	9/4/2003	2	NV	0.02	0.0335 U	0.0598	0.117	0.167
SB-254(C)-7	9/4/2003	7	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-255(C)-2.5	9/4/2003	2.5	NV	0.357	0.084 U	1.79	0.27	0.118
SB-255(C)-7	9/4/2003	7	NV	7.4	0.953	3.72	4.43	5.84
SB256 (c) 6	3/31/2004	6	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-301-D-3.5	8/20/2002	3.5	NV	0.257	0.0335 U	0.286	0.0335 U	0.0335 U
SB-304-D-2.0	8/19/2002	2	NV	0.345	0.067 U	0.0478	0.067 U	0.067 U
SB-304-D-5.0	8/19/2002	5	NV	0.086	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-305-D-2.0	8/19/2002	2	NV	0.0702	0.0335 U	0.032	0.0067 U	0.0067 U
SB-305-D-4.5	8/19/2002	4.5	NV	0.00887	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-306-D-2.0	8/19/2002	2	NV	0.494	0.067 U	0.0877	0.067 U	0.067 U
SB-306-D-4.5	8/19/2002	4.5	NV	0.841	0.067 U	0.175	0.067 U	0.067 U
SB-307-D-2.0	8/19/2002	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-309-D-2.0	8/19/2002	2	NV	0.272	0.0335 U	0.0826	0.0335 U	0.0335 U
SB-309-D-5.0	8/19/2002	5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-310-D-2.0	8/19/2002	2	NV	0.0115	0.0067 U	0.00393	0.0067 U	0.0067 U
SB-310-D-5.0	8/19/2002	5	NV	0.325	0.067 U	0.0572	0.067 U	0.067 U
SB-311-D-5.0	8/19/2002	5	NV	0.0134 U	0.139	0.0166	0.265	0.405
SB-312-D-5.0	8/19/2002	5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-314-D-10.0	8/20/2002	10	NV	0.414	0.067 U	0.67 U	0.005	0.0067 U
SB-314-D-15.0	8/20/2002	15	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-314-D-2.0	8/20/2002	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-315-D-2.0	8/20/2002	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-315-D-5.0	8/20/2002	5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene
SB-316-D-10.0	8/20/2002	10	NV	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-316-D-14.5	8/20/2002	14.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-316-D-2.0	8/20/2002	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-323(D)-7	9/10/2003	7	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-406(F)-2.5	8/22/2002	2.5	NV	0.0067 U	0.0067 U	0.0067 U	0.00903	0.0171
SB-407(F)-7.5	8/22/2002	7.5	NV	0.0335 U	0.0335 U	0.0216	0.0335 U	0.0335 U
SB-408(F)-2.5	8/22/2002	2.5	NV	0.067 U	0.067 U	0.067 U	0.0134	0.0582
SB-408(F)-7.5	8/22/2002	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-410(F)-4'	3/31/2004	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-601(N)-3	9/13/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-601(N)-7	9/13/2002	7	NV	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-602(N)-7	9/13/2002	7	NV	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U
SB-603(N)-7	9/13/2002	7	NV	0.134	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-604(N)-7	9/13/2002	7	NV	0.335 U	0.067 U	0.067 U	0.067 U	0.067 U
SB-605(N)-3	9/13/2002	3	NV	0.0195	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-605(N)-7	9/13/2002	7	NV	0.529	0.067 U	0.067 U	0.067 U	0.067 U
SB-608(N)-3	9/13/2002	3	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-612 (N)-7	9/12/2002	7	NV	0.484	0.149	0.149	0.05 U	0.05 U
SB-617 (N)-3	9/12/2002	3	NV	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SB-618 (N)-7	9/12/2002	7	80.5	0.825 U	0.825 U	0.825 U	0.825 U	0.825 U
SB-619 (N)-11	9/12/2002	11	NV	0.351	0.0543	0.294	0.005 U	0.005 U
SB-619 (N)-7	9/12/2002	7	NV	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SB-620 (N)-7	9/12/2002	7	NV	0.758	0.159	0.558	0.0123	0.005 U
SB-624 (N)-7	9/12/2002	7	38.1	1.65 U	1.65 U	1.65 U	1.65 U	1.65 U
SB-625 (N)-7	9/12/2002	7	NV	0.0203	0.0275	0.275	0.005 U	0.005 U
SB-626 (N)-7	9/12/2002	7	NV	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SB-627(N)-2	8/28/2003	2	NV	0.0335 U	0.0335 U	0.0335 U	0.0387	0.0577
SB-629(N)-7.5	8/28/2003	7.5	NV	1.51 U	0.67 U	1.35	0.335 U	0.335 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene
SB-632(N)-7.5	9/8/2003	7.5	NV	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
SB-700(P)-10.5	8/21/2002	10.5	NV	0.0346	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-701(P)-11	8/20/2002	11	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-702(P)-11	8/21/2002	11	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-704(P)-11	8/21/2002	11	NV	NV	NV	NV	NV	NV
SB-704(P)-2	8/21/2002	2	NV	NV	NV	NV	NV	NV
SB-705(P)-12	8/20/2002	12	NV	NV	NV	NV	NV	NV
SB-705(P)-3	8/20/2002	3	NV	NV	NV	NV	NV	NV
SB-705(P)-5.5	8/20/2002	5.5	NV	NV	NV	NV	NV	NV
SB-705(P)-9.5	8/20/2002	9.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-706(P)-9.5	8/21/2002	9.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-707(P)-10	8/21/2002	10	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-708(P)-10	8/20/2002	10	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-710(P)-3	8/21/2002	3	NV	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0117
SB-712(P)-10	8/21/2002	10	NV	0.215	0.0359	0.62	0.326	0.151
SB-714(P)-7.5	8/21/2002	7.5	NV	0.833	0.134 U	0.67 U	0.0427	0.0284
SB-716(P)-10	8/20/2002	10	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-719(P)-12	8/23/2002	12	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-720(P)-11.5	8/23/2002	11.5	NV	0.604	0.0335 U	0.382	0.0335 U	0.0335 U
SB-720(P)-2	8/23/2002	2	NV	0.0076	0.0067 U	0.0139	0.225	0.238
SB-721(P)-7'	3/31/2004	7	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-820 (Q)-0C	8/29/2002	0	NV	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-834(Q)-2	9/5/2003	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-834(Q)-7.5	9/5/2003	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-835(Q)-2	9/5/2003	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0108	0.0169
SB-835(Q)-7	9/5/2003	7	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-900(S)-12	8/26/2002	12	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-900(S)-4	8/26/2002	4	NV	0.0067 U	0.0067 U	0.00544	0.00997	0.00982

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene						
SB-902 (S)-12	8/26/2002	12	NV	0.067 U	0.0335 U	0.027	0.0335 U	0.0067 U						
SB-903 (S)-10	8/26/2002	10	NV	0.84 U	0.1675 U	0.359	0.1675 U	0.0067 U						
SB-904 (S)-12	8/26/2002	12	NV	1.49	0.1675 U	0.43	0.1675 U	0.0067 U						
SB-905 (S)-12	8/26/2002	12	NV	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0067 U						
SB-906 (S)-12	8/27/2002	12	NV	0.633	0.1675 U	0.379	0.0208	0.00686						
SB-906 (S)-4	8/27/2002	4	NV	0.0335 U	0.0335 U	0.0335 U	0.0067 U	0.0067 U						
SB-908 (S)-10	8/27/2002	10	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U						
SB-908 (S)-4	8/27/2002	4	NV	0.67 U	0.335 U	0.67 U	0.254	0.148						
SB-908 (S)-8	8/27/2002	8	NV	0.335 U	0.335 U	0.335 U	0.335 U	0.0809						
SB-909 (S)-4	8/27/2002	4	NV	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U						
SB-910 (S)-4	8/27/2002	4	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U						
SB-912(S)-2	9/3/2003	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U						
SB-912(S)-7	9/3/2003	7	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U						
SB-913(S)-2	9/3/2003	2	NV	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U						
SB-913(S)-7	9/3/2003	7	NV	0.1675 U	0.1675 U	0.1675 U	0.1675 U	0.1675 U						
SB-914(S)-2	9/3/2003	2	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U						
SB-914(S)-7.5	9/3/2003	7.5	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U						
SB-915(s)-5.0	3/31/2004	5	NV	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U						
SB-D-DUP-0819	8/19/2002	2	NV	0.067 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U						
SB-D-DUP-3	8/20/2002	3	NV	0.00889	0.0134 U	0.0134 U	0.0134 U	0.0134 U						
TP201(C)6E	8/27/2002	6	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U						
TP202(C)6W	8/27/2002	6	NV	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U						
Number of Samples			2	2	185	37	185	7	185	35	185	22	185	26
Average Concentration			59.3		0.18		0.07		0.14		0.09		0.09	
Median Concentration			59.3		0.0067		0.0067		0.0067		0.0067		0.0067	
Frequency of Detection			100		20		4		19		12		14	
Minimum Value			38.1		0.005		0.005		0.00393		0.005		0.00469	
Maximum Detection			80.5		7.4		1.65		3.72		4.43		5.84	

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Benzo(b) Fluoranthene	Benzo(g,h,i) Perylene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene
Ex-1/S-1	3/30/2004	1	0.0067 U	0.0111	0.0067 U	0.00424	0.0067 U	0.0067 U
Ex-2/S-1	3/30/2004	1	0.00986	0.0184	0.00631	0.0114	0.0067 U	0.00865
Ex-3/S-1	3/31/2004	1	0.0941	0.089	0.0592	0.106	0.0233	0.152
Ex-4/S-1	3/29/2004	1	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 232 (C)-8	8/30/2002	8	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB 233 (C)-3	8/30/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 234 (C)-8	8/30/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 235 (C)-6	8/30/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 236 (C)-6	8/30/2002	6	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB 237 (C)-6	8/30/2002	6	0.0067 U	0.0067 U	0.0067 U	0.00634	0.0067 U	0.0067 U
SB 238 (C)-3	8/30/2002	3	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB-001(A)-7.5	8/27/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-002(A)-2.5	8/27/2003	2.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-002(A)-7.5	8/27/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-003(A)-5	9/4/2003	5	0.0124	0.0299	0.0135	0.016	0.0134 U	0.0244
SB-005(A)-2.5	9/5/2003	2.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-005(A)-7	9/5/2003	7	0.0067 U	0.00558	0.0067 U	0.0049	0.0067 U	0.00753
SB-006(A)-7'	3/31/2004	7	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U	0.273
SB-007(A)-7.5	8/26/2003	7.5	0.134 U	0.134 U	0.134 U	0.0797	0.134 U	0.128
SB-008(A)-2	8/26/2003	2	3.14	1.78	1.67	3.05	0.661	3.92
SB-008(A)-7.5	8/26/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-009(A)-2	8/27/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-009(A)-7.5	8/27/2003	7.5	0.134 U	0.134 U	0.134 U	0.0798	0.134 U	1.34 U
SB-010(A)-2	8/27/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-010(A)-7.5	8/27/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-011(A)-7.5	9/3/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-013(A)-7.5	9/3/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-015(A)-7	9/10/2003	7	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Benzo(b) Fluoranthene	Benzo(g,h,i) Perylene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene
SB-016(A)-7	9/4/2003	7	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-017(A)-7.5	9/8/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-019(A)-2.5	8/27/2003	2.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-019(A)-7.5	8/27/2003	7.5	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U
SB-020(A)-4'	3/31/2004	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-020(A)-9'	3/31/2004	9	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.01005 U
SB100(C)20	8/22/2002	20	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB100(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB200(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB200(C)6	8/22/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB201(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB201(C)6	8/22/2002	6	0.0188	0.0209	0.0134 U	0.0843	0.0134 U	0.0112
SB202(C)2	8/22/2002	2	0.84 U	0.472	0.84 U	1.51	0.84 U	0.84 U
SB202(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB202(C)7	8/22/2002	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB203(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB203(C)7	8/22/2002	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB204(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB204(C)8	8/22/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB205(C)-4.5	8/27/2002	4.5	0.0134 U	0.0067 U	0.0134 U	0.0067 U	0.0067 U	0.0067 U
SB206(C)-6	8/27/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB207(C)-4.5	8/27/2002	4.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB208(C)-3.5	8/27/2002	3.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB209(C)-3	8/27/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB210(C)-3.5	8/27/2002	3.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB211(C)-3	8/27/2002	3	0.00371	0.0213	0.0067 U	0.0132	0.00545	0.0067 U
SB212(C)-2.5	8/27/2002	2.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB213(C)-4	8/27/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Benzo(b) Fluoranthene	Benzo(g,h,i) Perylene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene
SB214(C)-5	8/27/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB215(C)-5	8/27/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB216(C)-3	8/27/2002	3	0.0067 U	0.00412	0.0067 U	0.0106	0.0067 U	0.00404
SB217(C)-3	8/28/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB218(C)-2.5	8/28/2002	2.5	0.0067 U	0.0067 U	0.0067 U	0.00477	0.0067 U	0.0067 U
SB219(C)-4	8/28/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB220 (C)-5	8/28/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB221 (C)-4.5	8/28/2002	4.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB222 (C)-4.5	8/28/2002	4.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB223 (C)-6	8/29/2002	6	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB224 (C)-2	8/29/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB225 (C)-3	8/29/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB226 (C)-3	8/29/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB227 (C)-8	8/29/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB228 (C)-4	8/29/2002	4	0.0255	0.0226	0.0134 U	0.0189	0.0134 U	0.014
SB229 (C)-8	8/29/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB230 (C)-8	8/29/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB231 (C)-2	8/29/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-239(C)-4	9/3/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-240(C)-6	9/3/2002	6	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB-241(C)-5	9/3/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-242(C)-4	9/3/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-243(C)-4	9/3/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-244(C)-3	9/3/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-245(C)-5	9/3/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-246(C)-5	9/3/2002	5	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB-247(C)-6	9/3/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-250(C)-4	9/9/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Benzo(b) Fluoranthene	Benzo(g,h,i) Perylene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene
SB-251(C)-4	9/9/2002	4	0.0067 U	0.00629	0.0067 U	0.00363	0.0067 U	0.0067 U
SB-252(C)-5	9/9/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-253(C)-2	9/4/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-253(C)-7.5	9/4/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-254(C)-2	9/4/2003	2	0.249	0.158	0.0335 U	0.199	0.0439	0.215
SB-254(C)-7	9/4/2003	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-255(C)-2.5	9/4/2003	2.5	0.151	0.0893	0.151	0.434	0.084 U	0.843
SB-255(C)-7	9/4/2003	7	3.48	6.39	3.54	5.39	0.694	24.5
SB256 (c) 6	3/31/2004	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-301-D-3.5	8/20/2002	3.5	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0277
SB-304-D-2.0	8/19/2002	2	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
SB-304-D-5.0	8/19/2002	5	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-305-D-2.0	8/19/2002	2	0.0067 U	0.0067 U	0.0067 U	0.00442	0.0067 U	0.00652
SB-305-D-4.5	8/19/2002	4.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-306-D-2.0	8/19/2002	2	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.0434
SB-306-D-4.5	8/19/2002	4.5	0.067 U	0.067 U	0.067 U	0.0408	0.067 U	0.0872
SB-307-D-2.0	8/19/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-309-D-2.0	8/19/2002	2	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0353
SB-309-D-5.0	8/19/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-310-D-2.0	8/19/2002	2	0.0067 U	0.0067 U	0.0067 U	0.00369	0.0067 U	0.00439
SB-310-D-5.0	8/19/2002	5	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.0401
SB-311-D-5.0	8/19/2002	5	0.447	0.599	0.384	0.374	0.112	0.507
SB-312-D-5.0	8/19/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-314-D-10.0	8/20/2002	10	0.0067 U	0.0067 U	0.0067 U	0.0249	0.0067 U	0.067 U
SB-314-D-15.0	8/20/2002	15	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-314-D-2.0	8/20/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-315-D-2.0	8/20/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-315-D-5.0	8/20/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Benzo(b) Fluoranthene	Benzo(g,h,i) Perylene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene
SB-316-D-10.0	8/20/2002	10	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-316-D-14.5	8/20/2002	14.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-316-D-2.0	8/20/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.00948
SB-323(D)-7	9/10/2003	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-406(F)-2.5	8/22/2002	2.5	0.0122	0.0286	0.00808	0.0186	0.00415	0.0205
SB-407(F)-7.5	8/22/2002	7.5	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0186
SB-408(F)-2.5	8/22/2002	2.5	0.0267	0.098	0.036	0.065	0.015	0.0678
SB-408(F)-7.5	8/22/2002	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-410(F)-4'	3/31/2004	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-601(N)-3	9/13/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-601(N)-7	9/13/2002	7	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-602(N)-7	9/13/2002	7	0.05 U	0.05 U	0.5 U	0.5 U	0.00005 U	0.05 U
SB-603(N)-7	9/13/2002	7	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-604(N)-7	9/13/2002	7	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
SB-605(N)-3	9/13/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-605(N)-7	9/13/2002	7	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
SB-608(N)-3	9/13/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-612 (N)-7	9/12/2002	7	0.05 U	0.05 U	0.05 U	0.05 U	0.00005 U	0.05 U
SB-617 (N)-3	9/12/2002	3	0.005 U	0.005 U	0.005 U	0.005 U	0.000005 U	0.005 U
SB-618 (N)-7	9/12/2002	7	0.825 U	0.825 U	0.825 U	0.825 U	0.000825 U	0.825 U
SB-619 (N)-11	9/12/2002	11	0.005 U	0.005 U	0.005 U	0.0115	0.000005 U	0.0527
SB-619 (N)-7	9/12/2002	7	0.005 U	0.005 U	0.005 U	0.005 U	0.000005 U	0.005 U
SB-620 (N)-7	9/12/2002	7	0.013	0.005 U	0.0109	0.0362	0.000005 U	0.126
SB-624 (N)-7	9/12/2002	7	1.65 U	1.65 U	1.65 U	1.65 U	0.00165 U	1.65 U
SB-625 (N)-7	9/12/2002	7	0.005 U	0.005 U	0.005 U	0.0181	0.000005 U	0.0145
SB-626 (N)-7	9/12/2002	7	0.005 U	0.005 U	0.005 U	0.005 U	0.000005 U	0.005 U
SB-627(N)-2	8/28/2003	2	0.0759	0.119	0.0433	0.0629	0.0227	0.0526
SB-629(N)-7.5	8/28/2003	7.5	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Benzo(b) Fluoranthene	Benzo(g,h,i) Perylene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene
SB-632(N)-7.5	9/8/2003	7.5	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
SB-700(P)-10.5	8/21/2002	10.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-701(P)-11	8/20/2002	11	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-702(P)-11	8/21/2002	11	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-704(P)-11	8/21/2002	11	NV	NV	NV	NV	NV	NV
SB-704(P)-2	8/21/2002	2	NV	NV	NV	NV	NV	NV
SB-705(P)-12	8/20/2002	12	NV	NV	NV	NV	NV	NV
SB-705(P)-3	8/20/2002	3	NV	NV	NV	NV	NV	NV
SB-705(P)-5.5	8/20/2002	5.5	NV	NV	NV	NV	NV	NV
SB-705(P)-9.5	8/20/2002	9.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-706(P)-9.5	8/21/2002	9.5	0.0067 U	0.0067 U	0.0067 U	0.00531	0.0067 U	0.0067 U
SB-707(P)-10	8/21/2002	10	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-708(P)-10	8/20/2002	10	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-710(P)-3	8/21/2002	3	0.0268 U	0.021	0.0134 U	0.0368	0.0134 U	0.0106
SB-712(P)-10	8/21/2002	10	0.324	0.124	0.268	0.698	0.0475	1.02
SB-714(P)-7.5	8/21/2002	7.5	0.0289	0.0203	0.0169	0.0639	0.00513	0.0869
SB-716(P)-10	8/20/2002	10	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-719(P)-12	8/23/2002	12	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-720(P)-11.5	8/23/2002	11.5	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0401
SB-720(P)-2	8/23/2002	2	0.233	0.16	0.187	0.285	0.052	0.331
SB-721(P)-7'	3/31/2004	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-820 (Q)-0C	8/29/2002	0	0.0272	0.0371	0.0335 U	0.0238	0.0335 U	0.0286
SB-834(Q)-2	9/5/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-834(Q)-7.5	9/5/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-835(Q)-2	9/5/2003	2	0.0205	0.0232	0.0162	0.0244	0.00498	0.0229
SB-835(Q)-7	9/5/2003	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-900(S)-12	8/26/2002	12	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-900(S)-4	8/26/2002	4	0.0067 U	0.0105	0.00397	0.0155	0.0067 U	0.0204

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Benzo(b) Fluoranthene	Benzo(g,h,i) Perylene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene
SB-902 (S)-12	8/26/2002	12	0.0067 U	0.0067 U	0.0067 U	0.0335 U	0.0067 U	0.0067 U
SB-903 (S)-10	8/26/2002	10	0.00753	0.0067 U	0.00481	0.1675 U	0.0067 U	0.103
SB-904 (S)-12	8/26/2002	12	0.0335 U	0.0067 U	0.0335 U	0.1675 U	0.0067 U	0.1675 U
SB-905 (S)-12	8/26/2002	12	0.0067 U	0.00857	0.0067 U	0.0335 U	0.0067 U	0.0335 U
SB-906 (S)-12	8/27/2002	12	0.0335 U	0.00582	0.0335 U	0.066	0.0067 U	0.1675 U
SB-906 (S)-4	8/27/2002	4	0.0067 U	0.0108	0.0067 U	0.00707	0.0067 U	0.0067 U
SB-908 (S)-10	8/27/2002	10	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-908 (S)-4	8/27/2002	4	0.0868	0.122	0.148	0.585	0.134 U	0.335 U
SB-908 (S)-8	8/27/2002	8	0.134 U	0.134 U	0.134 U	0.302	0.134 U	0.335 U
SB-909 (S)-4	8/27/2002	4	0.067 U	0.08	0.067 U	0.0389	0.067 U	0.0494
SB-910 (S)-4	8/27/2002	4	0.0067 U	0.00519	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-912(S)-2	9/3/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-912(S)-7	9/3/2003	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-913(S)-2	9/3/2003	2	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U
SB-913(S)-7	9/3/2003	7	0.1675 U	0.1675 U	0.1675 U	0.1675 U	0.1675 U	0.1675 U
SB-914(S)-2	9/3/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-914(S)-7.5	9/3/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-915(s)-5.0	3/31/2004	5	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-D-DUP-0819	8/19/2002	2	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U
SB-D-DUP-3	8/20/2002	3	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0104
TP201(C)6E	8/27/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
TP202(C)6W	8/27/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
Number of Samples			185 22	185 32	185 18	185 43	185 13	185 40
Average Concentration			0.09	0.09	0.08	0.11	0.04	0.22
Median Concentration			0.0067	0.0067	0.0067	0.0067	0.0067	0.0067
Frequency of Detection			12	17	10	23	7	22
Minimum Value			0.00371	0.00412	0.00397	0.00363	0.000005	0.00404
Maximum Detection			3.48	6.39	3.54	5.39	0.84	24.5

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Fluorene	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
Ex-1/S-1	3/30/2004	1	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.00563
Ex-2/S-1	3/30/2004	1	0.0067 U	0.0083	0.0352	0.0067 U	0.0162
Ex-3/S-1	3/31/2004	1	0.0335 U	0.0629	0.0335 U	0.0862	0.194
Ex-4/S-1	3/29/2004	1	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 232 (C)-8	8/30/2002	8	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB 233 (C)-3	8/30/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 234 (C)-8	8/30/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 235 (C)-6	8/30/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB 236 (C)-6	8/30/2002	6	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0107
SB 237 (C)-6	8/30/2002	6	0.0394	0.0067 U	0.0067 U	0.0625	0.0119
SB 238 (C)-3	8/30/2002	3	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB-001(A)-7.5	8/27/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-002(A)-2.5	8/27/2003	2.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-002(A)-7.5	8/27/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-003(A)-5	9/4/2003	5	0.0134 U	0.0182	0.00983	0.0175	0.031
SB-005(A)-2.5	9/5/2003	2.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-005(A)-7	9/5/2003	7	0.0067 U	0.00376	0.0067 U	0.0067 U	0.00871
SB-006(A)-7'	3/31/2004	7	6.7	0.335 U	61.2	12.5	1.09
SB-007(A)-7.5	8/26/2003	7.5	3.22	0.134 U	44.9	5.25	0.388
SB-008(A)-2	8/26/2003	2	0.134 U	1.64	0.134 U	1.05	3.58
SB-008(A)-7.5	8/26/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-009(A)-2	8/27/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-009(A)-7.5	8/27/2003	7.5	7.8	0.134 U	10.5	16.4	0.969
SB-010(A)-2	8/27/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-010(A)-7.5	8/27/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-011(A)-7.5	9/3/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-013(A)-7.5	9/3/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-015(A)-7	9/10/2003	7	0.067 U	0.067 U	7.06	0.067 U	0.067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Fluorene	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
SB-016(A)-7	9/4/2003	7	0.151	0.0335 U	0.552	0.346	0.0335 U
SB-017(A)-7.5	9/8/2003	7.5	0.0067 U	0.0067 U	0.00659	0.0067 U	0.0067 U
SB-019(A)-2.5	8/27/2003	2.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-019(A)-7.5	8/27/2003	7.5	0.823	0.335 U	35.6	2.33	0.336
SB-020(A)-4'	3/31/2004	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-020(A)-9'	3/31/2004	9	0.0067 U	0.0067 U	0.00541	0.0343	0.00823
SB100(C)20	8/22/2002	20	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB100(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.00837	0.00879	0.00391
SB200(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB200(C)6	8/22/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB201(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB201(C)6	8/22/2002	6	0.0134 U	0.0134 U	0.0134 U	0.0128	0.0934
SB202(C)2	8/22/2002	2	0.84 U	0.84 U	0.84 U	0.84 U	2.88
SB202(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB202(C)7	8/22/2002	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB203(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB203(C)7	8/22/2002	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB204(C)3	8/22/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB204(C)8	8/22/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB205(C)-4.5	8/27/2002	4.5	0.0067 U	0.0067 U	0.0067 U	0.0116	0.00787
SB206(C)-6	8/27/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB207(C)-4.5	8/27/2002	4.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB208(C)-3.5	8/27/2002	3.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB209(C)-3	8/27/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB210(C)-3.5	8/27/2002	3.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB211(C)-3	8/27/2002	3	0.0067 U	0.00711	0.0067 U	0.0067 U	0.00446
SB212(C)-2.5	8/27/2002	2.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB213(C)-4	8/27/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Fluorene	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
SB214(C)-5	8/27/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB215(C)-5	8/27/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.00562
SB216(C)-3	8/27/2002	3	0.0127	0.0067 U	0.0067 U	0.0412	0.0351
SB217(C)-3	8/28/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB218(C)-2.5	8/28/2002	2.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0108
SB219(C)-4	8/28/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB220 (C)-5	8/28/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB221 (C)-4.5	8/28/2002	4.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB222 (C)-4.5	8/28/2002	4.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB223 (C)-6	8/29/2002	6	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB224 (C)-2	8/29/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB225 (C)-3	8/29/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB226 (C)-3	8/29/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB227 (C)-8	8/29/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB228 (C)-4	8/29/2002	4	0.0134 U	0.00816	0.0134 U	0.0134 U	0.0233
SB229 (C)-8	8/29/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB230 (C)-8	8/29/2002	8	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB231 (C)-2	8/29/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-239(C)-4	9/3/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-240(C)-6	9/3/2002	6	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB-241(C)-5	9/3/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-242(C)-4	9/3/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-243(C)-4	9/3/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-244(C)-3	9/3/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-245(C)-5	9/3/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-246(C)-5	9/3/2002	5	0.0134 U	0.0134 U	0.0134 U	0.0134 U	0.0134 U
SB-247(C)-6	9/3/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-250(C)-4	9/9/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Fluorene	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
SB-251(C)-4	9/9/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-252(C)-5	9/9/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-253(C)-2	9/4/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-253(C)-7.5	9/4/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-254(C)-2	9/4/2003	2	0.0267	0.1	0.0335 U	0.172	0.263
SB-254(C)-7	9/4/2003	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-255(C)-2.5	9/4/2003	2.5	0.52	0.0623	0.0621	0.996	0.776
SB-255(C)-7	9/4/2003	7	8.15	4.23	10.2	35.8	24.4
SB256 (c) 6	3/31/2004	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-301-D-3.5	8/20/2002	3.5	0.734	0.0335 U	0.578	2.38	0.0918
SB-304-D-2.0	8/19/2002	2	0.395	0.067 U	1.06	0.633	0.1
SB-304-D-5.0	8/19/2002	5	0.124	0.0335 U	0.448	0.197	0.0329
SB-305-D-2.0	8/19/2002	2	0.136	0.0067 U	0.25	0.312	0.0245
SB-305-D-4.5	8/19/2002	4.5	0.0191	0.0067 U	0.154	0.0146	0.0067 U
SB-306-D-2.0	8/19/2002	2	1.03	0.067 U	1.35	1.26	0.124
SB-306-D-4.5	8/19/2002	4.5	1.52	0.067 U	0.335 U	2.49	0.192
SB-307-D-2.0	8/19/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-309-D-2.0	8/19/2002	2	0.552	0.0335 U	0.067 U	1.16	0.0801
SB-309-D-5.0	8/19/2002	5	0.00644	0.0067 U	0.0067 U	0.0202	0.00413
SB-310-D-2.0	8/19/2002	2	0.0254	0.0067 U	0.14	0.0582	0.00763
SB-310-D-5.0	8/19/2002	5	0.666	0.067 U	1.57	0.965	0.0712
SB-311-D-5.0	8/19/2002	5	0.0134 U	0.45	0.0246	0.0657	0.671
SB-312-D-5.0	8/19/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-314-D-10.0	8/20/2002	10	1.66	0.0067 U	2.09	4.13	0.428
SB-314-D-15.0	8/20/2002	15	0.0067 U	0.0067 U	0.0509	0.0067 U	0.0067 U
SB-314-D-2.0	8/20/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-315-D-2.0	8/20/2002	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-315-D-5.0	8/20/2002	5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Fluorene	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
SB-316-D-10.0	8/20/2002	10	0.0335 U	0.0335 U	0.981	0.0335 U	0.0335 U
SB-316-D-14.5	8/20/2002	14.5	0.0067 U	0.0067 U	0.272	0.0067 U	0.0067 U
SB-316-D-2.0	8/20/2002	2	0.0067 U	0.0067 U	0.0067 U	0.00986	0.0136
SB-323(D)-7	9/10/2003	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-406(F)-2.5	8/22/2002	2.5	0.0067 U	0.0186	0.00892	0.0105	0.0241
SB-407(F)-7.5	8/22/2002	7.5	0.0263	0.0335 U	0.588	0.0492	0.0215
SB-408(F)-2.5	8/22/2002	2.5	0.067 U	0.0672	0.067 U	0.067 U	0.084
SB-408(F)-7.5	8/22/2002	7.5	0.0067 U	0.0067 U	0.0276	0.0067 U	0.00613
SB-410(F)-4'	3/31/2004	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-601(N)-3	9/13/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-601(N)-7	9/13/2002	7	0.0335 U	0.0335 U	36.3	0.0335 U	0.0335 U
SB-602(N)-7	9/13/2002	7	0.5 U	0.5 U	71.1	1.64	0.145
SB-603(N)-7	9/13/2002	7	0.335 U	0.0335 U	33.3	0.321	0.0335 U
SB-604(N)-7	9/13/2002	7	0.319	0.067 U	20.8	0.383	0.067 U
SB-605(N)-3	9/13/2002	3	0.0403	0.0067 U	0.348	0.0718	0.0067 U
SB-605(N)-7	9/13/2002	7	0.67 U	0.067 U	38.7	1.49	0.145
SB-608(N)-3	9/13/2002	3	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-612 (N)-7	9/12/2002	7	0.722	0.05 U	38.3	2.43	0.164
SB-617 (N)-3	9/12/2002	3	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SB-618 (N)-7	9/12/2002	7	2.55	0.825 U	42.8	6.04	0.825 U
SB-619 (N)-11	9/12/2002	11	1.81	0.005 U	21.3	3.95	0.133
SB-619 (N)-7	9/12/2002	7	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SB-620 (N)-7	9/12/2002	7	1.3	0.005 U	9.28	5.92	0.453
SB-624 (N)-7	9/12/2002	7	5.58	1.65 U	6.07	8.52	1.65 U
SB-625 (N)-7	9/12/2002	7	0.0268	0.005 U	0.0377	0.0333	0.005 U
SB-626 (N)-7	9/12/2002	7	0.005 U	0.005 U	0.005 U	0.0391	0.005 U
SB-627(N)-2	8/28/2003	2	0.0335 U	0.0743	0.0291	0.0385	0.074
SB-629(N)-7.5	8/28/2003	7.5	7.06	0.335 U	25.5	13	0.671

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Fluorene	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
SB-632(N)-7.5	9/8/2003	7.5	0.0589	0.067 U	36.6	0.0714	0.067 U
SB-700(P)-10.5	8/21/2002	10.5	0.0168	0.0067 U	1.94	0.0133	0.0067 U
SB-701(P)-11	8/20/2002	11	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-702(P)-11	8/21/2002	11	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-704(P)-11	8/21/2002	11	NV	NV	NV	NV	NV
SB-704(P)-2	8/21/2002	2	NV	NV	NV	NV	NV
SB-705(P)-12	8/20/2002	12	NV	NV	NV	NV	NV
SB-705(P)-3	8/20/2002	3	NV	NV	NV	NV	NV
SB-705(P)-5.5	8/20/2002	5.5	NV	NV	NV	NV	NV
SB-705(P)-9.5	8/20/2002	9.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-706(P)-9.5	8/21/2002	9.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-707(P)-10	8/21/2002	10	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-708(P)-10	8/20/2002	10	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-710(P)-3	8/21/2002	3	0.0134 U	0.00864	0.0134 U	0.0134 U	0.0163
SB-712(P)-10	8/21/2002	10	0.318	0.116	0.067 U	0.9	0.753
SB-714(P)-7.5	8/21/2002	7.5	1.78	0.0133	39.7	4.77	0.567
SB-716(P)-10	8/20/2002	10	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-719(P)-12	8/23/2002	12	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-720(P)-11.5	8/23/2002	11.5	1.24	0.0335 U	24.1	4.35	0.181
SB-720(P)-2	8/23/2002	2	0.0067 U	0.143	0.0067 U	0.0928	0.335
SB-721(P)-7'	3/31/2004	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-820 (Q)-0C	8/29/2002	0	0.0335 U	0.0252	0.0335 U	0.0335 U	0.0225
SB-834(Q)-2	9/5/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-834(Q)-7.5	9/5/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-835(Q)-2	9/5/2003	2	0.0067 U	0.0149	0.0067 U	0.0117	0.0244
SB-835(Q)-7	9/5/2003	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U
SB-900(S)-12	8/26/2002	12	0.0067 U	0.0067 U	0.67 U	0.0067 U	0.0067 U
SB-900(S)-4	8/26/2002	4	0.0067 U	0.00763	0.00822	0.0239	0.0301

Table A-2
Semivolatile Organic Compounds in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Fluorene	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene					
SB-902 (S)-12	8/26/2002	12	0.198	0.0067 U	0.1675 U	0.169	0.0335 U					
SB-903 (S)-10	8/26/2002	10	2.03	0.0067 U	1.675 U	2.66	0.202					
SB-904 (S)-12	8/26/2002	12	2.49	0.0067 U	15.1	3.32	0.193					
SB-905 (S)-12	8/26/2002	12	0.0335 U	0.00438	0.0335 U	0.0304	0.0335 U					
SB-906 (S)-12	8/27/2002	12	2.05	0.00544	1.675 U	3	0.216					
SB-906 (S)-4	8/27/2002	4	0.0335 U	0.00516	0.0335 U	0.035	0.0121					
SB-908 (S)-10	8/27/2002	10	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U					
SB-908 (S)-4	8/27/2002	4	0.67 U	0.134 U	1.675 U	0.799	0.462					
SB-908 (S)-8	8/27/2002	8	0.335 U	0.134 U	0.335 U	0.306	0.264					
SB-909 (S)-4	8/27/2002	4	0.067 U	0.067 U	0.067 U	0.0495	0.0412					
SB-910 (S)-4	8/27/2002	4	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U					
SB-912(S)-2	9/3/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U					
SB-912(S)-7	9/3/2003	7	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U					
SB-913(S)-2	9/3/2003	2	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U					
SB-913(S)-7	9/3/2003	7	0.1675 U	0.1675 U	0.1675 U	0.1675 U	0.1675 U					
SB-914(S)-2	9/3/2003	2	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U					
SB-914(S)-7.5	9/3/2003	7.5	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U					
SB-915(s)-5.0	3/31/2004	5	0.0335 U	0.0335 U	0.0335 U	0.0335 U	0.0335 U					
SB-D-DUP-0819	8/19/2002	2	0.0335 U	0.0335 U	0.211	0.0507	0.0695					
SB-D-DUP-3	8/20/2002	3	0.0134 U	0.0134 U	0.515	0.0115	0.0254					
TP201(C)6E	8/27/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U					
TP202(C)6W	8/27/2002	6	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U					
Number of Samples			185	41	185	24	185	51	185	66	185	66
Average Concentration			0.37		0.08		3.52		0.84		0.25	
Median Concentration			0.0067		0.0067		0.0067		0.0067		0.0067	
Frequency of Detection			22		13		28		36		36	
Minimum Value			0.005		0.00376		0.005		0.005		0.00391	
Maximum Detection			8.15		4.23		71.1		35.8		24.4	

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4-Trimethylbenzene	1,2-Dichloroethane	1,3,5-Trimethylbenzene	1,4-Dichlorobenzene	2-Butanone
SB801(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB802(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB803(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB-804(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB-805(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB-800 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-811 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB812(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB813(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB814(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB815(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB816(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-823 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-824 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-825 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-826 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-806 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-807 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-809 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-810 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-817 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-818 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-819 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-828 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-829 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-830 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-831 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-832 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-833 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-820 (Q)-0	8/29/2002	0	NV	NV	NV	NV	NV
SB-820 (Q)-0C	8/29/2002	0	0.0144	0.05 U	0.05 U	0.05 U	0.5 U
SB-821 (Q)-0	8/29/2002	0	NV	NV	NV	NV	NV
SB-822 (Q)-0	8/29/2002	0	NV	NV	NV	NV	NV
SB-827 (Q)-0	8/29/2002	0	NV	NV	NV	NV	NV
Ex-4/S-1	3/29/2004	1	NV	NV	NV	NV	NV
Ex-1/S-1	3/30/2004	1	NV	NV	NV	NV	NV
Ex-2/S-1	3/30/2004	1	NV	NV	NV	NV	NV
Ex-3/S-1	3/31/2004	1	NV	NV	NV	NV	NV
SB-618 (N)-1.5	9/12/2002	1.5	NV	NV	NV	NV	NV
SB-304-D-2.0	8/19/2002	2	23.7	0.05 U	8.97	NV	NV
SB-305-D-2.0	8/19/2002	2	23.1	0.05 U	5.69	NV	NV
SB-306-D-2.0	8/19/2002	2	34.9	0.05 U	17	NV	NV
SB-307-D-2.0	8/19/2002	2	0.000155 U	0.025 U	0.0005 U	NV	NV
SB-309-D-2.0	8/19/2002	2	6.8	0.025 U	2.25	NV	NV
SB-310-D-2.0	8/19/2002	2	13.7	0.025 U	3.83	NV	NV
SB-D-DUP-0819	8/19/2002	2	8.6	0.025 U	3.99	NV	NV
SB-315-D-2.0	8/20/2002	2	0.00447	0.000304	0.0182	NV	NV
SB-316-D-2.0	8/20/2002	2	0.05 U	0.025 U	0.0001375 U	NV	NV
SB-701(P)-2	8/20/2002	2	0.000115	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-702(P)-2	8/21/2002	2	0.000218	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-703(P)-2	8/21/2002	2	0.00328	0.0005 U	0.00158	0.0005 U	0.025 U
SB-704(P)-2	8/21/2002	2	0.000203	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-707(P)-2	8/21/2002	2	NV	NV	NV	NV	NV
SB-712(P)-2	8/21/2002	2	NV U	0.0005 U	0.000392	0.0005 U	0.025 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-713(P)-2	8/21/2002	2	NV	NV	NV	NV	NV
SB-714(P)-2	8/21/2002	2	NV	NV	NV	NV	NV
SB-718(P)-2	8/21/2002	2	NV	NV	NV	NV	NV
SB102(C)1-3	8/22/2002	2	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB202(C)2	8/22/2002	2	0.00329	0.0005 U	0.00273	0.0005 U	0.025 U
SB-720(P)-2	8/23/2002	2	NV	NV	NV	NV	NV
SB801(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB802(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB803(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB-804(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB-805(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB-800 (Q)-2	8/27/2002	2	NV	NV	NV	NV	NV
SB816(Q)-2	8/27/2002	2	NV	NV	NV	NV	NV
SB-823 (Q)-2	8/27/2002	2	NV	NV	NV	NV	NV
SB-825 (Q)-2	8/27/2002	2	NV	NV	NV	NV	NV
SB-806 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-809 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-810 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-817 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-828 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-829 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-829 (Q)-2C	8/28/2002	2	NV	NV	NV	NV	NV
SB-830 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-832 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-833 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB224 (C)-2	8/29/2002	2	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB231 (C)-2	8/29/2002	2	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-820 (Q)-2	8/29/2002	2	NV	NV	NV	NV	NV
SB-822 (Q)-2	8/29/2002	2	NV	NV	NV	NV	NV
SB-822 (Q)-2C	8/29/2002	2	NV	NV	NV	NV	NV
SB-827 (Q)-2	8/29/2002	2	NV	NV	NV	NV	NV
SB-622 (N)-2	9/12/2002	2	NV	NV	NV	NV	NV
SB-624 (N)-2	9/12/2002	2	NV	NV	NV	NV	NV
SB-625 (N)-2	9/12/2002	2	NV	NV	NV	NV	NV
SB-008(A)-2	8/26/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-009(A)-2	8/27/2003	2	0.0438	0.025 U	0.0109	NV	NV
SB-010(A)-2	8/27/2003	2	0.0105	0.025 U	0.025 U	NV	NV
SB-627(N)-2	8/28/2003	2	0.0194	0.025 U	0.025 U	NV	NV
SB-912(S)-2	9/3/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-913(S)-2	9/3/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-914(S)-2	9/3/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-253(C)-2	9/4/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-254(C)-2	9/4/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-834(Q)-2	9/5/2003	2	0.0334	0.025 U	0.0108	NV	NV
SB-835(Q)-2	9/5/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-321(D)-2	9/9/2003	2	10.3	0.025 U	0.187	NV	NV
SB-326(D)-2	9/9/2003	2	0.123	0.025 U	0.0537	NV	NV
SB-320(D)-2	9/10/2003	2	0.0334	0.025 U	0.025 U	NV	NV
SB-322(D)-2	9/10/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-324(D)-2	9/10/2003	2	0.0526	0.025 U	0.025 U	NV	NV
SB-325(D)-2	9/10/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-325(D)-DUP	9/10/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-327(D)-2	9/10/2003	2	0.05 U	0.025 U	0.025 U	NV	NV
SB-328(D)-2	9/10/2003	2	0.05 U	0.025 U	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-410(F)-2'	3/31/2004	2	0.0186	0.025 U	0.025 U	NV	NV
SB-706(P)-2.5	8/21/2002	2.5	NV	NV	NV	NV	NV
SB-400(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-404(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-405(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-406(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-407(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-408(F)-2.5	8/22/2002	2.5	0.000415	0.0005 U	0.000208	NV	NV
SB-409(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-401(F)-2.5	8/23/2002	2.5	NV	NV	NV	NV	NV
SB-402(F)-2.5	8/23/2002	2.5	0.00354	0.0005 U	0.00112	NV	NV
SB212(C)-2.5	8/27/2002	2.5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB218(C)-2.5	8/28/2002	2.5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-002(A)-2.5	8/27/2003	2.5	0.05 U	0.025 U	0.025 U	NV	NV
SB-019(A)-2.5	8/27/2003	2.5	0.05 U	0.025 U	0.025 U	NV	NV
SB-255(C)-2.5	9/4/2003	2.5	0.0136	0.025 U	0.025 U	NV	NV
SB-005(A)-2.5	9/5/2003	2.5	0.05 U	0.025 U	0.025 U	NV	NV
SB-705(P)-3	8/20/2002	3	NV	NV	NV	NV	NV
SB-708(P)-3	8/20/2002	3	NV	NV	NV	NV	NV
SB-716(P)-3	8/20/2002	3	0.00018	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-717(P)-3	8/20/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-D-DUP-3	8/20/2002	3	44.5	0.05 U	13.5	NV	NV
SB-700(P)-3	8/21/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-709(P)-3	8/21/2002	3	0.000222	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-710(P)-3	8/21/2002	3	0.000215	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-711(P)-3	8/21/2002	3	0.000442	0.0005 U	0.000168	0.0005 U	0.025 U
SB-715(P)-3	8/21/2002	3	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB100(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB101(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.000333	0.0005 U	0.025 U
SB103(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB200(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB201(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB202(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB203(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB204(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB209(C)-3	8/27/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB211(C)-3	8/27/2002	3	0.0005 U	0.0005 U	0.000173	0.0005 U	0.025 U
SB216(C)-3	8/27/2002	3	0.0005 U	0.0005 U	0.000158	0.0005 U	0.025 U
SB-824 (Q)-3	8/27/2002	3	NV	NV	NV	NV	NV
SB-826 (Q)-3	8/27/2002	3	NV	NV	NV	NV	NV
SB217(C)-3	8/28/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB225 (C)-3	8/29/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB226 (C)-3	8/29/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB 233 (C)-3	8/30/2002	3	0.0005 U	0.0005 U	0.000159	0.0005 U	0.025 U
SB 238 (C)-3	8/30/2002	3	0.0005 U	0.0005 U	0.000336	0.0005 U	0.025 U
SB-244(C)-3	9/3/2002	3	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-617 (N)-3	9/12/2002	3	0.05 U	0.025 U	0.025 U	NV	NV
SB-620 (N)-3	9/12/2002	3	NV	NV	NV	NV	NV
SB-601(N)-3	9/13/2002	3	0.05 U	0.025 U	0.025 U	NV	NV
SB-602(N)-3	9/13/2002	3	NV	NV	NV	NV	NV
SB-604(N)-3	9/13/2002	3	NV	NV	NV	NV	NV
SB-605(N)-3	9/13/2002	3	20.3	0.025 U	4.02	NV	NV
SB-606(N)-3	9/13/2002	3	NV	NV	NV	NV	NV
SB-608(N)-3	9/13/2002	3	0.05 U	0.025 U	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-609(N)-3	9/13/2002	3	0.05 U	0.025 U	0.025 U	NV	NV
SB-301-D-3.5	8/20/2002	3.5	26.7	0.05 U	9.38	NV	NV
SB208(C)-3.5	8/27/2002	3.5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB210(C)-3.5	8/27/2002	3.5	0.0005 U	0.0005 U	0.000159	0.0005 U	0.025 U
SB104(C)4	8/22/2002	4	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-900(S)-4	8/26/2002	4	0.0005 U	0.0005 U	0.0005 U	NV	NV
SB-904 (S)-4	8/26/2002	4	NV	NV	NV	NV	NV
SB-905 (S)-4	8/26/2002	4	NV	NV	NV	NV	NV
SB213(C)-4	8/27/2002	4	0.0005 U	0.0005 U	0.000157	0.0005 U	0.025 U
SB-906 (S)-4	8/27/2002	4	0.0005 U	0.0005 U	0.0005 U	NV	NV
SB-908 (S)-4	8/27/2002	4	1.1	0.025 U	0.456	NV	NV
SB-909 (S)-4	8/27/2002	4	NV	NV	NV	NV	NV
SB-910 (S)-4	8/27/2002	4	0.0005 U	0.0005 U	0.000375	NV	NV
SB219(C)-4	8/28/2002	4	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-818 (Q)-4	8/28/2002	4	NV	NV	NV	NV	NV
SB-831 (Q)-4	8/28/2002	4	NV	NV	NV	NV	NV
SB228 (C)-4	8/29/2002	4	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-239(C)-4	9/3/2002	4	0.000189	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-242(C)-4	9/3/2002	4	0.000156	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-243(C)-4	9/3/2002	4	0.000947	0.0005 U	0.000377	0.0005 U	0.025 U
SB-250(C)-4	9/9/2002	4	0.0005 U	0.0005 U	0.000448	0.0005 U	0.025 U
SB-251(C)-4	9/9/2002	4	0.0021	0.0005 U	0.000611	0.0005 U	0.025 U
SB-020(A)-4'	3/31/2004	4	0.05 U	0.025 U	0.025 U	NV	NV
SB-410(F)-4'	3/31/2004	4	0.05 U	0.025 U	0.025 U	NV	NV
SB-305-D-4.5	8/19/2002	4.5	2.36	0.025 U	0.569	NV	NV
SB-306-D-4.5	8/19/2002	4.5	0.547	0.05 U	4.51	NV	NV
SB205(C)-4.5	8/27/2002	4.5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U

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Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB207(C)-4.5	8/27/2002	4.5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB812(Q)-4.5	8/27/2002	4.5	NV	NV	NV	NV	NV
SB814(Q)-4.5	8/27/2002	4.5	NV	NV	NV	NV	NV
SB815(Q)-4.5	8/27/2002	4.5	NV	NV	NV	NV	NV
SB221 (C)-4.5	8/28/2002	4.5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB222 (C)-4.5	8/28/2002	4.5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-304-D-5.0	8/19/2002	5	30.1	0.05 U	7.28	NV	NV
SB-309-D-5.0	8/19/2002	5	0.0003515 U	0.025 U	0.00051	NV	NV
SB-310-D-5.0	8/19/2002	5	41.3	0.125 U	49.6	NV	NV
SB-311-D-5.0	8/19/2002	5	0.000221 U	0.0005 U	0.0005 U	NV	NV
SB-312-D-5.0	8/19/2002	5	0.044	0.0005 U	0.0451	NV	NV
SB-313-D-5.0	8/20/2002	5	14.4	0.025 U	5.18	NV	NV
SB-316-D-5.0	8/20/2002	5	95.2	0.125 U	31.6	NV	NV
SB-400(F)-5	8/22/2002	5	NV	NV	NV	NV	NV
SB-409(F)-5	8/22/2002	5	NV	NV	NV	NV	NV
SB-719(P)-5	8/23/2002	5	NV	NV	NV	NV	NV
SB214(C)-5	8/27/2002	5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB215(C)-5	8/27/2002	5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-811 (Q)-5	8/27/2002	5	NV	NV	NV	NV	NV
SB813(Q)-5	8/27/2002	5	NV	NV	NV	NV	NV
SB220 (C)-5	8/28/2002	5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-819 (Q)-5	8/28/2002	5	NV	NV	NV	NV	NV
SB-821 (Q)-5	8/29/2002	5	NV	NV	NV	NV	NV
SB-821 (Q)-5C	8/29/2002	5	NV	NV	NV	NV	NV
SB-241(C)-5	9/3/2002	5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-245(C)-5	9/3/2002	5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-246(C)-5	9/3/2002	5	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-252(C)-5	9/9/2002	5	0.0005 U	0.0005 U	0.00042	0.0005 U	0.025 U
SB-321(D)-5	9/9/2003	5	39.5	0.125 U	22.2	NV	NV
SB-326(D)-5	9/9/2003	5	22.5	0.125 U	8.02	NV	NV
SB-320(D)-5	9/10/2003	5	0.05 U	0.025 U	0.025 U	NV	NV
SB-322(D)-5	9/10/2003	5	0.05 U	0.025 U	0.025 U	NV	NV
SB-324(D)-5	9/10/2003	5	0.0187	0.025 U	0.025 U	NV	NV
SB-325(D)-5	9/10/2003	5	0.05 U	0.025 U	0.025 U	NV	NV
SB-327(D)-5	9/10/2003	5	0.05 U	0.025 U	0.025 U	NV	NV
SB-328(D)-5	9/10/2003	5	0.0888	0.025 U	0.0407	NV	NV
SB-705(P)-5.5	8/20/2002	5.5	NV	NV	NV	NV	NV
SB-706(P)-5.5	8/21/2002	5.5	0.00047	0.0005 U	0.000157	0.0005 U	0.0325
SB-710(P)-5.5	8/21/2002	5.5	0.000531	0.0005 U	0.000387	0.0005 U	0.0444
SB-613 (N)-5.5	9/12/2002	5.5	NV	NV	NV	NV	NV
SB-617 (N)-5.5	9/12/2002	5.5	NV	NV	NV	NV	NV
SB200(C)6	8/22/2002	6	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB201(C)6	8/22/2002	6	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB206(C)-6	8/27/2002	6	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
TP201(C)6E	8/27/2002	6	0.000304	0.0005 U	0.0005 U	0.0005 U	0.025 U
TP202(C)6W	8/27/2002	6	0.000247	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB223 (C)-6	8/29/2002	6	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-501 (M) 4-8	8/29/2002	6	NV	NV	NV	NV	NV
SB 235 (C)-6	8/30/2002	6	0.0005 U	0.0005 U	0.000184	0.0005 U	0.025 U
SB 236 (C)-6	8/30/2002	6	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB 237 (C)-6	8/30/2002	6	0.0304	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-240(C)-6	9/3/2002	6	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-247(C)-6	9/3/2002	6	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-608(N)-6	9/13/2002	6	0.05 U	0.025 U	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB256 (c) 6	3/31/2004	6	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U
SB408/S-2(6-7)	8/22/2002	6.5	NV	NV	NV	NV	NV
SB-827 (Q)-6.5	8/29/2002	6.5	NV	NV	NV	NV	NV
SB-715(P)-7	8/21/2002	7	NV	NV	NV	NV	NV
SB202(C)7	8/22/2002	7	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB203(C)7	8/22/2002	7	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB407/S-2(6-8)	8/22/2002	7	NV	NV	NV	NV	NV
SB-807 (Q)-7	8/28/2002	7	NV	NV	NV	NV	NV
SB-612 (N)-7	9/12/2002	7	480	1.25 U	148	NV	NV
SB-614 (N)-7	9/12/2002	7	NV	NV	NV	NV	NV
SB-615 (N)-7	9/12/2002	7	NV	NV	NV	NV	NV
SB-616 (N)-7	9/12/2002	7	NV	NV	NV	NV	NV
SB-618 (N)-7	9/12/2002	7	150	0.5 U	47.3	0.5 U	5 U
SB-619 (N)-7	9/12/2002	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-620 (N)-7	9/12/2002	7	121	1.25 U	39.3	NV	NV
SB-621 (N)-7	9/12/2002	7	NV	NV	NV	NV	NV
SB-622 (N)-7	9/12/2002	7	0.00294	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-623 (N)-7	9/12/2002	7	102	0.25 U	4.24	NV	NV
SB-624 (N)-7	9/12/2002	7	31.9	0.25 U	10.5	0.25 U	2.5 U
SB-625 (N)-7	9/12/2002	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-626 (N)-7	9/12/2002	7	221	1.25 U	66.4	NV	NV
SB-600(N)-7	9/13/2002	7	NV	NV	NV	NV	NV
SB-601(N)-7	9/13/2002	7	252	2.5 U	65.9	NV	NV
SB-602(N)-7	9/13/2002	7	689	1.25 U	189	NV	NV
SB-603(N)-7	9/13/2002	7	151	1.25 U	40.3	NV	NV
SB-604(N)-7	9/13/2002	7	392	0.5 U	118	NV	NV
SB-605(N)-7	9/13/2002	7	567	1.25 U	137	NV	NV

Table A-3
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Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-606(N)-7	9/13/2002	7	NV	NV	NV	NV	NV
SB-609(N)-7	9/13/2002	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-912(S)-7	9/3/2003	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-913(S)-7	9/3/2003	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-254(C)-7	9/4/2003	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-255(C)-7	9/4/2003	7	0.0355	0.025 U	0.02	NV	NV
SB-005(A)-7	9/5/2003	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-835(Q)-7	9/5/2003	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-015(A)-7	9/10/2003	7	44.1	0.125 U	11.6	NV	NV
SB-323(D)-7	9/10/2003	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-006(A)-7'	3/31/2004	7	186	0.25 U	31.1	NV	NV
SB-721(P)-7'	3/31/2004	7	0.05 U	0.025 U	0.025 U	NV	NV
SB-714(P)-7.5	8/21/2002	7.5	NV	NV	NV	NV	NV
SB-405(F)-7.5	8/22/2002	7.5	21.7	0.025 U	5.58	NV	NV
SB-407(F)-7.5	8/22/2002	7.5	24	0.05 U	9.48	NV	NV
SB-408(F)-7.5	8/22/2002	7.5	NV	NV	NV	NV	NV
SB-007(A)-7.5	8/26/2003	7.5	247	1.25 U	58	NV	NV
SB-008(A)-7.5	8/26/2003	7.5	0.05 U	0.025 U	0.025 U	NV	NV
SB-001(A)-7.5	8/27/2003	7.5	0.05 U	0.025 U	0.025 U	NV	NV
SB-002(A)-7.5	8/27/2003	7.5	0.05 U	0.025 U	0.025 U	NV	NV
SB-009(A)-7.5	8/27/2003	7.5	2.47	0.25 U	2.62	NV	NV
SB-010(A)-7.5	8/27/2003	7.5	0.05 U	0.025 U	0.025 U	NV	NV
SB-019(A)-7.5	8/27/2003	7.5	288	1.25 U	46.3	NV	NV
SB-629(N)-7.5	8/28/2003	7.5	36.2	0.25 U	11.6	NV	NV
SB-011(A)-7.5	9/3/2003	7.5	0.05 U	0.025 U	0.025 U	NV	NV
SB-013(A)-7.5	9/3/2003	7.5	0.0151	0.025 U	0.025 U	NV	NV
SB-914(S)-7.5	9/3/2003	7.5	0.05 U	0.025 U	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-253(C)-7.5	9/4/2003	7.5	0.05 U	0.025 U	0.025 U	NV	NV
SB-834(Q)-7.5	9/5/2003	7.5	0.0166	0.025 U	0.025 U	NV	NV
SB-017(A)-7.5	9/8/2003	7.5	0.0503	0.025 U	0.025 U	NV	NV
SB-632(N)-7.5	9/8/2003	7.5	152	0.25 U	36.8	NV	NV
SB204(C)8	8/22/2002	8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-406(F)-8	8/22/2002	8	NV	NV	NV	NV	NV
SB-901 (S)-8	8/26/2002	8	NV	NV	NV	NV	NV
SB-902 (S)-8	8/26/2002	8	NV	NV	NV	NV	NV
SB-903 (S)-8	8/26/2002	8	NV	NV	NV	NV	NV
SB-908 (S)-8	8/27/2002	8	0.0005 U	0.0005 U	0.000215	NV	NV
SB-911 (S)-8	8/27/2002	8	NV	NV	NV	NV	NV
SB-806 (Q)-8	8/28/2002	8	NV	NV	NV	NV	NV
SB-810 (Q)-8	8/28/2002	8	NV	NV	NV	NV	NV
SB227 (C)-8	8/29/2002	8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB229 (C)-8	8/29/2002	8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB230 (C)-8	8/29/2002	8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-822 (Q)-8	8/29/2002	8	NV	NV	NV	NV	NV
SB 232 (C)-8	8/30/2002	8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB 234 (C)-8	8/30/2002	8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-720(P)-8.5	8/23/2002	8.5	NV	NV	NV	NV	NV
SB-804(Q)-8.5	8/26/2002	8.5	NV	NV	NV	NV	NV
SB-809 (Q)-8.5	8/28/2002	8.5	NV	NV	NV	NV	NV
SB-828 (Q)-8.5	8/28/2002	8.5	NV	NV	NV	NV	NV
SB-830 (Q)-8.5	8/28/2002	8.5	NV	NV	NV	NV	NV
SB802(Q)-9	8/26/2002	9	NV	NV	NV	NV	NV
SB803(Q)-9	8/26/2002	9	NV	NV	NV	NV	NV
SB-811 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-811 (Q)-9C	8/27/2002	9	NV	NV	NV	NV	NV
SB812(Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB814(Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-823 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-824 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-825 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-826 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-807 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-817 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-818 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-829 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-831 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-832 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-820 (Q)-9	8/29/2002	9	NV	NV	NV	NV	NV
SB-820 (Q)-9C	8/29/2002	9	NV	NV	NV	NV	NV
SB-821 (Q)-9	8/29/2002	9	NV	NV	NV	NV	NV
SB-020(A)-9'	3/31/2004	9	0.05 U	0.025 U	0.025 U	NV	NV
SB-410(F)-9'	3/31/2004	9	0.05 U	0.025 U	0.025 U	NV	NV
SB-705(P)-9.5	8/20/2002	9.5	NV	NV	NV	NV	NV
SB-706(P)-9.5	8/21/2002	9.5	NV	NV	NV	NV	NV
SB801(Q)-9.5	8/26/2002	9.5	NV	NV	NV	NV	NV
SB813(Q)-9.5	8/27/2002	9.5	NV	NV	NV	NV	NV
SB815(Q)-9.5	8/27/2002	9.5	NV	NV	NV	NV	NV
SB816(Q)-9.5	8/27/2002	9.5	NV	NV	NV	NV	NV
SB-316-D-10.0	8/20/2002	10	174	0.25 U	55.1	NV	NV
SB-318-D-10.0	8/20/2002	10	80.2	0.125 U	25	NV	NV
SB-708(P)-10	8/20/2002	10	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-716(P)-10	8/20/2002	10	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-717(P)-10	8/20/2002	10	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-703(P)-10	8/21/2002	10	0.000256	0.0005 U	0.000163	0.0005 U	0.025 U
SB-707(P)-10	8/21/2002	10	0.000109	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-709(P)-10	8/21/2002	10	NV U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-711(P)-10	8/21/2002	10	0.000745	0.0005 U	0.000257	0.0005 U	0.025 U
SB-712(P)-10	8/21/2002	10	0.000382	0.0005 U	0.000244	0.0005 U	0.025 U
SB-713(P)-10	8/21/2002	10	NV	NV	NV	NV	NV
SB-714(P)-10	8/21/2002	10	262	0.5 U	83.5	NV	NV
SB-718(P)-10	8/21/2002	10	NV	NV	NV	NV	NV
SB-805(Q)-10	8/26/2002	10	NV	NV	NV	NV	NV
SB-901 (S)-10	8/26/2002	10	NV	NV	NV	NV	NV
SB-903 (S)-10	8/26/2002	10	6.02	0.125 U	1.5	NV	NV
SB-908 (S)-10	8/27/2002	10	0.0005 U	0.0005 U	0.000164	NV	NV
SB-909 (S)-10	8/27/2002	10	NV	NV	NV	NV	NV
SB-910 (S)-10	8/27/2002	10	NV	NV	NV	NV	NV
SB-911 (S)-10	8/27/2002	10	NV	NV	NV	NV	NV
SB-500 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-501 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-502 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-503 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-505 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-506 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-507 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-508 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-509 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-510 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-822 (Q)-10	8/29/2002	10	NV	NV	NV	NV	NV
SB-625 (N)-10	9/12/2002	10	NV	NV	NV	NV	NV
SB-326(D)-10	9/9/2003	10	26.6	0.125 U	9.67	NV	NV
SB-324(D)-10	9/10/2003	10	18.2	0.05 U	0.41	NV	NV
SB-325(D)-10	9/10/2003	10	0.05 U	0.025 U	0.025 U	NV	NV
SB-327(D)-10	9/10/2003	10	8.15	0.05 U	1.19	NV	NV
SB-328(D)-10	9/10/2003	10	77	0.25 U	13.1	NV	NV
SB-700(P)-10.5	8/21/2002	10.5	11.7	0.05 U	3.97	0.05 U	0.5 U
SB-800 (Q)-10.5	8/27/2002	10.5	NV	NV	NV	NV	NV
SB-833 (Q)-10.5	8/28/2002	10.5	NV	NV	NV	NV	NV
SB-701(P)-11	8/20/2002	11	0.000167	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-702(P)-11	8/21/2002	11	0.000208	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-704(P)-11	8/21/2002	11	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-715(P)-11	8/21/2002	11	NV	NV	NV	NV	NV
SB-806 (Q)-11	8/28/2002	11	NV	NV	NV	NV	NV
SB-819 (Q)-11	8/28/2002	11	NV	NV	NV	NV	NV
SB-504 (M) 10-12	8/29/2002	11	NV	NV	NV	NV	NV
SB-619 (N)-11	9/12/2002	11	284	0.25 U	58.3	NV	NV
SB-607(N)-11	9/13/2002	11	NV	NV	NV	NV	NV
SB-720(P)-11.5	8/23/2002	11.5	NV	NV	NV	NV	NV
SB-701(P)-12	8/20/2002	12	0.0134	0.0005 U	0.000329	0.0005 U	0.025 U
SB-705(P)-12	8/20/2002	12	NV	NV	NV	NV	NV
SB-706(P)-12	8/21/2002	12	NV	NV	NV	NV	NV
SB-719(P)-12	8/23/2002	12	NV	NV	NV	NV	NV
SB-900(S)-12	8/26/2002	12	0.05 U	0.025 U	0.025 U	NV	NV
SB-902 (S)-12	8/26/2002	12	0.0122	0.0005 U	0.0005 U	NV	NV
SB-904 (S)-12	8/26/2002	12	5.37	0.125 U	1.3	NV	NV

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Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	1,2,4- Trimethylbenzene	1,2- Dichloroethane	1,3,5- Trimethylbenzene	1,4- Dichlorobenzene	2-Butanone
SB-905 (S)-12	8/26/2002	12	0.000895	0.0005 U	0.000184	NV	NV
SB-906 (S)-12	8/27/2002	12	14	0.025 U	3.91	NV	NV
SB-316-D-14.5	8/20/2002	14.5	115	0.125 U	36.4	NV	NV
SB-314-D-15.0	8/20/2002	15	0.313	0.000315	0.108	NV	NV
SB-315-D-15.0	8/20/2002	15	0.133	0.0005 U	0.00119	NV	NV
SB-318-D-15.0	8/20/2002	15	63.1	0.5 U	18.6	NV	NV
SB-324(D)-15	9/10/2003	15	0.824	0.025 U	0.146	NV	NV
SB-324(D)-DUP	9/10/2003	15	7.29	0.025 U	0.86	NV	NV
SB-325(D)-15	9/10/2003	15	0.05 U	0.025 U	0.025 U	NV	NV
SB-327(D)-15	9/10/2003	15	40.8	0.125 U	5.59	NV	NV
SB-328(D)-15	9/10/2003	15	0.313	0.025 U	0.109	NV	NV
SB-313-D-18.0	8/20/2002	18	3.74	0.025 U	0.517	NV	NV
SB101(C)18	8/22/2002	18	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB102(C)18	8/22/2002	18	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB103(C)18	8/22/2002	18	0.0005 U	0.0005 U	0.00018	0.0005 U	0.0579
SB100(C)20	8/22/2002	20	0.179	0.0005 U	0.0705	0.000222	0.145
SB104(C)20	8/22/2002	20	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.025 U
SB-404(F)-20	8/22/2002	20	NV	NV	NV	NV	NV
SB-401(F)-20	8/23/2002	20	NV	NV	NV	NV	NV
SB-402(F)-20	8/23/2002	20	NV	NV	NV	NV	NV
Number of Samples			232 107	234 2	234 98	99 1	99 4
Average Concentration			25.1	0.1	6.8	0.0	0.1
Median Concentration			0.0439	0.025	0.025	0.0005	0.025
Frequency of Detection			46.1	0.9	41.9	1.0	4.0
Minimum Value			0.000109	0.000304	0.0001375	0.000222	0.025
Maximum Detection			689	0.000315	189	0.000222	0.145

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB801(Q)-0	8/26/2002	0	NV	NV	0.025 U	NV	NV
SB802(Q)-0	8/26/2002	0	NV	NV	0.025 U	NV	NV
SB803(Q)-0	8/26/2002	0	NV	NV	0.025 U	NV	NV
SB-804(Q)-0	8/26/2002	0	NV	NV	0.025 U	NV	NV
SB-805(Q)-0	8/26/2002	0	NV	NV	0.025 U	NV	NV
SB-800 (Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB-811 (Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB812(Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB813(Q)-0	8/27/2002	0	NV	NV	R	NV	NV
SB814(Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB815(Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB816(Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB-823 (Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB-824 (Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB-825 (Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB-826 (Q)-0	8/27/2002	0	NV	NV	0.025 U	NV	NV
SB-806 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-807 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-809 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-810 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-817 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-818 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-819 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-828 (Q)-0	8/28/2002	0	NV	NV	0.05	NV	NV
SB-829 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-830 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-831 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV

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Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-832 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-833 (Q)-0	8/28/2002	0	NV	NV	0.025 U	NV	NV
SB-820 (Q)-0	8/29/2002	0	NV	NV	0.025 U	NV	NV
SB-820 (Q)-0C	8/29/2002	0	0.1 U	1.25 U	0.05 U	NV U	0.5 U
SB-821 (Q)-0	8/29/2002	0	NV	NV	0.025 U	NV	NV
SB-822 (Q)-0	8/29/2002	0	NV	NV	0.025 U	NV	NV
SB-827 (Q)-0	8/29/2002	0	NV	NV	0.025 U	NV	NV
Ex-4/S-1	3/29/2004	1	NV	NV	0.025 U	NV	NV
Ex-1/S-1	3/30/2004	1	NV	NV	0.025 U	NV	NV
Ex-2/S-1	3/30/2004	1	NV	NV	0.0493	NV	NV
Ex-3/S-1	3/31/2004	1	NV	NV	0.025 U	NV	NV
SB-618 (N)-1.5	9/12/2002	1.5	NV	NV	0.025 U	NV	NV
SB-304-D-2.0	8/19/2002	2	NV	NV	0.05 U	NV	NV
SB-305-D-2.0	8/19/2002	2	NV	NV	0.05 U	NV	NV
SB-306-D-2.0	8/19/2002	2	NV	NV	0.0263	NV	NV
SB-307-D-2.0	8/19/2002	2	NV	NV	0.0005 U	NV	NV
SB-309-D-2.0	8/19/2002	2	NV	NV	0.0526	NV	NV
SB-310-D-2.0	8/19/2002	2	NV	NV	0.025 U	NV	NV
SB-D-DUP-0819	8/19/2002	2	NV	NV	0.025 U	NV	NV
SB-315-D-2.0	8/20/2002	2	NV	NV	0.00371	NV	NV
SB-316-D-2.0	8/20/2002	2	NV	NV	0.025 U	NV	NV
SB-701(P)-2	8/20/2002	2	0.0005 U	0.01 U	0.025 U	0.0025 U	0.01 U
SB-702(P)-2	8/21/2002	2	0.0005 U	0.0266	0.025 U	0.0025 U	0.01 U
SB-703(P)-2	8/21/2002	2	0.00247	0.119	0.025 U	0.0025 U	0.000519
SB-704(P)-2	8/21/2002	2	0.0005 U	0.01 U	0.025 U	0.0025 U	0.01 U
SB-707(P)-2	8/21/2002	2	NV	NV	0.025 U	NV	NV
SB-712(P)-2	8/21/2002	2	0.0005 U	NV U	0.025 U	0.0025 U	0.01 U

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Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-713(P)-2	8/21/2002	2	NV	NV	0.025 U	NV	NV
SB-714(P)-2	8/21/2002	2	NV	NV	0.025 U	NV	NV
SB-718(P)-2	8/21/2002	2	NV	NV	0.025 U	NV	NV
SB102(C)1-3	8/22/2002	2	0.0005 U	0.00613	0.0005 U	0.0025 U	0.01 U
SB202(C)2	8/22/2002	2	0.00336	0.0477	0.0005 U	0.0025 U	0.01 U
SB-720(P)-2	8/23/2002	2	NV	NV	0.025 U	NV	NV
SB801(Q)-2	8/26/2002	2	NV	NV	0.025 U	NV	NV
SB802(Q)-2	8/26/2002	2	NV	NV	0.025 U	NV	NV
SB803(Q)-2	8/26/2002	2	NV	NV	0.025 U	NV	NV
SB-804(Q)-2	8/26/2002	2	NV	NV	0.025 U	NV	NV
SB-805(Q)-2	8/26/2002	2	NV	NV	0.025 U	NV	NV
SB-800 (Q)-2	8/27/2002	2	NV	NV	0.025 U	NV	NV
SB816(Q)-2	8/27/2002	2	NV	NV	0.025 U	NV	NV
SB-823 (Q)-2	8/27/2002	2	NV	NV	0.025 U	NV	NV
SB-825 (Q)-2	8/27/2002	2	NV	NV	0.025 U	NV	NV
SB-806 (Q)-2	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB-809 (Q)-2	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB-810 (Q)-2	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB-817 (Q)-2	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB-828 (Q)-2	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB-829 (Q)-2	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB-829 (Q)-2C	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB-830 (Q)-2	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB-832 (Q)-2	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB-833 (Q)-2	8/28/2002	2	NV	NV	0.025 U	NV	NV
SB224 (C)-2	8/29/2002	2	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB231 (C)-2	8/29/2002	2	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-820 (Q)-2	8/29/2002	2	NV	NV	0.025 U	NV	NV
SB-822 (Q)-2	8/29/2002	2	NV	NV	0.025 U	NV	NV
SB-822 (Q)-2C	8/29/2002	2	NV	NV	0.025 U	NV	NV
SB-827 (Q)-2	8/29/2002	2	NV	NV	0.025 U	NV	NV
SB-622 (N)-2	9/12/2002	2	NV	NV	0.025 U	NV	NV
SB-624 (N)-2	9/12/2002	2	NV	NV	0.025 U	NV	NV
SB-625 (N)-2	9/12/2002	2	NV	NV	0.025 U	NV	NV
SB-008(A)-2	8/26/2003	2	NV	NV	0.025 U	NV	NV
SB-009(A)-2	8/27/2003	2	NV	NV	0.025 U	NV	NV
SB-010(A)-2	8/27/2003	2	NV	NV	0.025 U	NV	NV
SB-627(N)-2	8/28/2003	2	NV	NV	0.025 U	NV	NV
SB-912(S)-2	9/3/2003	2	NV	NV	0.025 U	NV	NV
SB-913(S)-2	9/3/2003	2	NV	NV	0.025 U	NV	NV
SB-914(S)-2	9/3/2003	2	NV	NV	0.025 U	NV	NV
SB-253(C)-2	9/4/2003	2	NV	NV	0.025 U	NV	NV
SB-254(C)-2	9/4/2003	2	NV	NV	0.025 U	NV	NV
SB-834(Q)-2	9/5/2003	2	NV	NV	0.025 U	NV	NV
SB-835(Q)-2	9/5/2003	2	NV	NV	0.025 U	NV	NV
SB-321(D)-2	9/9/2003	2	NV	NV	0.0456	NV	NV
SB-326(D)-2	9/9/2003	2	NV	NV	0.0689	NV	NV
SB-320(D)-2	9/10/2003	2	NV	NV	0.025 U	NV	NV
SB-322(D)-2	9/10/2003	2	NV	NV	0.025 U	NV	NV
SB-324(D)-2	9/10/2003	2	NV	NV	0.025 U	NV	NV
SB-325(D)-2	9/10/2003	2	NV	NV	0.025 U	NV	NV
SB-325(D)-DUP	9/10/2003	2	NV	NV	0.025 U	NV	NV
SB-327(D)-2	9/10/2003	2	NV	NV	0.025 U	NV	NV
SB-328(D)-2	9/10/2003	2	NV	NV	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-410(F)-2'	3/31/2004	2	NV	NV	0.02 U	NV	NV
SB-706(P)-2.5	8/21/2002	2.5	NV	NV	0.025 U	NV	NV
SB-400(F)-2.5	8/22/2002	2.5	NV	NV	0.025 U	NV	NV
SB-404(F)-2.5	8/22/2002	2.5	NV	NV	0.025 U	NV	NV
SB-405(F)-2.5	8/22/2002	2.5	NV	NV	0.025 U	NV	NV
SB-406(F)-2.5	8/22/2002	2.5	NV	NV	0.025 U	NV	NV
SB-407(F)-2.5	8/22/2002	2.5	NV	NV	0.025 U	NV	NV
SB-408(F)-2.5	8/22/2002	2.5	NV	NV	0.025 U	NV	NV
SB-409(F)-2.5	8/22/2002	2.5	NV	NV	0.025 U	NV	NV
SB-401(F)-2.5	8/23/2002	2.5	NV	NV	0.025 U	NV	NV
SB-402(F)-2.5	8/23/2002	2.5	NV	NV	0.025 U	NV	NV
SB212(C)-2.5	8/27/2002	2.5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB218(C)-2.5	8/28/2002	2.5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-002(A)-2.5	8/27/2003	2.5	NV	NV	0.025 U	NV	NV
SB-019(A)-2.5	8/27/2003	2.5	NV	NV	0.025 U	NV	NV
SB-255(C)-2.5	9/4/2003	2.5	NV	NV	0.025 U	NV	NV
SB-005(A)-2.5	9/5/2003	2.5	NV	NV	0.025 U	NV	NV
SB-705(P)-3	8/20/2002	3	NV	NV	0.025 U	NV	NV
SB-708(P)-3	8/20/2002	3	NV	NV	0.025 U	NV	NV
SB-716(P)-3	8/20/2002	3	0.0005 U	0.01 U	0.025 U	0.0025 U	0.01 U
SB-717(P)-3	8/20/2002	3	0.0005 U	0.01 U	0.025 U	0.0025 U	0.01 U
SB-D-DUP-3	8/20/2002	3	NV	NV	0.168	NV	NV
SB-700(P)-3	8/21/2002	3	0.0005 U	0.01 U	0.025 U	0.0025 U	0.01 U
SB-709(P)-3	8/21/2002	3	0.00937	0.0266	0.025 U	0.000359	0.01 U
SB-710(P)-3	8/21/2002	3	0.0005 U	0.01 U	0.025 U	0.0025 U	0.01 U
SB-711(P)-3	8/21/2002	3	0.0005 U	0.01 U	0.025 U	0.000358	0.01 U
SB-715(P)-3	8/21/2002	3	NV	NV	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB100(C)3	8/22/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB101(C)3	8/22/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB103(C)3	8/22/2002	3	0.0005 U	0.0102	0.0005 U	0.0025 U	0.01 U
SB200(C)3	8/22/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB201(C)3	8/22/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB202(C)3	8/22/2002	3	0.0005 U	0.00483	0.0005 U	0.0025 U	0.01 U
SB203(C)3	8/22/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB204(C)3	8/22/2002	3	0.0005 U	0.0059	0.0005 U	0.0025 U	0.01 U
SB209(C)-3	8/27/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB211(C)-3	8/27/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB216(C)-3	8/27/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-824 (Q)-3	8/27/2002	3	NV	NV	0.025 U	NV	NV
SB-826 (Q)-3	8/27/2002	3	NV	NV	0.025 U	NV	NV
SB217(C)-3	8/28/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB225 (C)-3	8/29/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB226 (C)-3	8/29/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB 233 (C)-3	8/30/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB 238 (C)-3	8/30/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-244(C)-3	9/3/2002	3	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-617 (N)-3	9/12/2002	3	NV	NV	0.025 U	NV	NV
SB-620 (N)-3	9/12/2002	3	NV	NV	0.025 U	NV	NV
SB-601(N)-3	9/13/2002	3	NV	NV	0.025 U	NV	NV
SB-602(N)-3	9/13/2002	3	NV	NV	0.025 U	NV	NV
SB-604(N)-3	9/13/2002	3	NV	NV	0.025 U	NV	NV
SB-605(N)-3	9/13/2002	3	NV	NV	0.157	NV	NV
SB-606(N)-3	9/13/2002	3	NV	NV	0.025 U	NV	NV
SB-608(N)-3	9/13/2002	3	NV	NV	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-609(N)-3	9/13/2002	3	NV	NV	0.025 U	NV	NV
SB-301-D-3.5	8/20/2002	3.5	NV	NV	0.05 U	NV	NV
SB208(C)-3.5	8/27/2002	3.5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB210(C)-3.5	8/27/2002	3.5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB104(C)4	8/22/2002	4	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-900(S)-4	8/26/2002	4	NV	NV	0.0005 U	NV	NV
SB-904 (S)-4	8/26/2002	4	NV	NV	0.025 U	NV	NV
SB-905 (S)-4	8/26/2002	4	NV	NV	0.025 U	NV	NV
SB213(C)-4	8/27/2002	4	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-906 (S)-4	8/27/2002	4	NV	NV	0.0005 U	NV	NV
SB-908 (S)-4	8/27/2002	4	NV	NV	0.025 U	NV	NV
SB-909 (S)-4	8/27/2002	4	NV	NV	0.025 U	NV	NV
SB-910 (S)-4	8/27/2002	4	NV	NV	0.0005 U	NV	NV
SB219(C)-4	8/28/2002	4	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-818 (Q)-4	8/28/2002	4	NV	NV	0.025 U	NV	NV
SB-831 (Q)-4	8/28/2002	4	NV	NV	0.025 U	NV	NV
SB228 (C)-4	8/29/2002	4	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-239(C)-4	9/3/2002	4	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-242(C)-4	9/3/2002	4	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-243(C)-4	9/3/2002	4	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-250(C)-4	9/9/2002	4	0.0005 U	0.01 U	0.0005 U	0.000698	0.01 U
SB-251(C)-4	9/9/2002	4	0.0005 U	0.01 U	0.0005 U	0.000601	0.01 U
SB-020(A)-4'	3/31/2004	4	NV	NV	0.02 U	NV	NV
SB-410(F)-4'	3/31/2004	4	NV	NV	0.02 U	NV	NV
SB-305-D-4.5	8/19/2002	4.5	NV	NV	0.025 U	NV	NV
SB-306-D-4.5	8/19/2002	4.5	NV	NV	0.265	NV	NV
SB205(C)-4.5	8/27/2002	4.5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB207(C)-4.5	8/27/2002	4.5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB812(Q)-4.5	8/27/2002	4.5	NV	NV	0.025 U	NV	NV
SB814(Q)-4.5	8/27/2002	4.5	NV	NV	0.025 U	NV	NV
SB815(Q)-4.5	8/27/2002	4.5	NV	NV	0.025 U	NV	NV
SB221 (C)-4.5	8/28/2002	4.5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB222 (C)-4.5	8/28/2002	4.5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-304-D-5.0	8/19/2002	5	NV	NV	0.05 U	NV	NV
SB-309-D-5.0	8/19/2002	5	NV	NV	0.000283	NV	NV
SB-310-D-5.0	8/19/2002	5	NV	NV	0.226	NV	NV
SB-311-D-5.0	8/19/2002	5	NV	NV	0.025 U	NV	NV
SB-312-D-5.0	8/19/2002	5	NV	NV	0.025 U	NV	NV
SB-313-D-5.0	8/20/2002	5	NV	NV	0.0376	NV	NV
SB-316-D-5.0	8/20/2002	5	NV	NV	0.114	NV	NV
SB-400(F)-5	8/22/2002	5	NV	NV	0.025 U	NV	NV
SB-409(F)-5	8/22/2002	5	NV	NV	0.025 U	NV	NV
SB-719(P)-5	8/23/2002	5	NV	NV	0.025 U	NV	NV
SB214(C)-5	8/27/2002	5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB215(C)-5	8/27/2002	5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-811 (Q)-5	8/27/2002	5	NV	NV	0.025 U	NV	NV
SB813(Q)-5	8/27/2002	5	NV	NV	0.025 U	NV	NV
SB220 (C)-5	8/28/2002	5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-819 (Q)-5	8/28/2002	5	NV	NV	0.025 U	NV	NV
SB-821 (Q)-5	8/29/2002	5	NV	NV	1.29	NV	NV
SB-821 (Q)-5C	8/29/2002	5	NV	NV	0.1 U	NV	NV
SB-241(C)-5	9/3/2002	5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-245(C)-5	9/3/2002	5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-246(C)-5	9/3/2002	5	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-252(C)-5	9/9/2002	5	0.0005 U	0.01 U	0.0005 U	0.00062	0.01 U
SB-321(D)-5	9/9/2003	5	NV	NV	0.563	NV	NV
SB-326(D)-5	9/9/2003	5	NV	NV	0.599	NV	NV
SB-320(D)-5	9/10/2003	5	NV	NV	0.025 U	NV	NV
SB-322(D)-5	9/10/2003	5	NV	NV	0.025 U	NV	NV
SB-324(D)-5	9/10/2003	5	NV	NV	0.025 U	NV	NV
SB-325(D)-5	9/10/2003	5	NV	NV	0.025 U	NV	NV
SB-327(D)-5	9/10/2003	5	NV	NV	0.025 U	NV	NV
SB-328(D)-5	9/10/2003	5	NV	NV	0.025 U	NV	NV
SB-705(P)-5.5	8/20/2002	5.5	NV	NV	0.025 U	NV	NV
SB-706(P)-5.5	8/21/2002	5.5	0.0005 U	0.159	0.025 U	NV U	0.00208
SB-710(P)-5.5	8/21/2002	5.5	0.0005 U	0.13	0.000244	0.0025 U	0.00242
SB-613 (N)-5.5	9/12/2002	5.5	NV	NV	2.5 U	NV	NV
SB-617 (N)-5.5	9/12/2002	5.5	NV	NV	0.025 U	NV	NV
SB200(C)6	8/22/2002	6	0.0005 U	0.00889	0.0005 U	0.0025 U	0.01 U
SB201(C)6	8/22/2002	6	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB206(C)-6	8/27/2002	6	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
TP201(C)6E	8/27/2002	6	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
TP202(C)6W	8/27/2002	6	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB223 (C)-6	8/29/2002	6	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-501 (M) 4-8	8/29/2002	6	NV	NV	0.03	NV	NV
SB 235 (C)-6	8/30/2002	6	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB 236 (C)-6	8/30/2002	6	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB 237 (C)-6	8/30/2002	6	0.0164	0.0114	0.0005 U	0.0025 U	0.01 U
SB-240(C)-6	9/3/2002	6	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-247(C)-6	9/3/2002	6	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-608(N)-6	9/13/2002	6	NV	NV	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB256 (c) 6	3/31/2004	6	0.1 U	1.25 U	0.05 U	0.25 U	0.5 U
SB408/S-2(6-7)	8/22/2002	6.5	NV	NV	0.025 U	NV	NV
SB-827 (Q)-6.5	8/29/2002	6.5	NV	NV	0.025 U	NV	NV
SB-715(P)-7	8/21/2002	7	NV	NV	0.025 U	NV	NV
SB202(C)7	8/22/2002	7	0.0005 U	0.00504	0.0005 U	0.0025 U	0.01 U
SB203(C)7	8/22/2002	7	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB407/S-2(6-8)	8/22/2002	7	NV	NV	0.5 U	NV	NV
SB-807 (Q)-7	8/28/2002	7	NV	NV	0.25 U	NV	NV
SB-612 (N)-7	9/12/2002	7	NV	NV	17.2	NV	NV
SB-614 (N)-7	9/12/2002	7	NV	NV	0.5 U	NV	NV
SB-615 (N)-7	9/12/2002	7	NV	NV	0.5 U	NV	NV
SB-616 (N)-7	9/12/2002	7	NV	NV	2.5 U	NV	NV
SB-618 (N)-7	9/12/2002	7	1 U	12.5 U	0.5 U	2.5 U	5 U
SB-619 (N)-7	9/12/2002	7	NV	NV	0.025 U	NV	NV
SB-620 (N)-7	9/12/2002	7	NV	NV	2.5 U	NV	NV
SB-621 (N)-7	9/12/2002	7	NV	NV	0.025 U	NV	NV
SB-622 (N)-7	9/12/2002	7	0.0005 U	0.01 U	0.025 U	0.0025 U	0.01 U
SB-623 (N)-7	9/12/2002	7	NV	NV	0.5 U	NV	NV
SB-624 (N)-7	9/12/2002	7	4.34	6.25 U	0.25 U	1.25 U	2.5 U
SB-625 (N)-7	9/12/2002	7	NV	NV	0.025 U	NV	NV
SB-626 (N)-7	9/12/2002	7	NV	NV	2.5 U	NV	NV
SB-600(N)-7	9/13/2002	7	NV	NV	2.5 U	NV	NV
SB-601(N)-7	9/13/2002	7	NV	NV	5 U	NV	NV
SB-602(N)-7	9/13/2002	7	NV	NV	0.5 U	NV	NV
SB-603(N)-7	9/13/2002	7	NV	NV	2.5 U	NV	NV
SB-604(N)-7	9/13/2002	7	NV	NV	0.5 U	NV	NV
SB-605(N)-7	9/13/2002	7	NV	NV	3.22	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-606(N)-7	9/13/2002	7	NV	NV	0.025 U	NV	NV
SB-609(N)-7	9/13/2002	7	NV	NV	0.025 U	NV	NV
SB-912(S)-7	9/3/2003	7	NV	NV	0.025 U	NV	NV
SB-913(S)-7	9/3/2003	7	NV	NV	0.025 U	NV	NV
SB-254(C)-7	9/4/2003	7	NV	NV	0.025 U	NV	NV
SB-255(C)-7	9/4/2003	7	NV	NV	0.0122	NV	NV
SB-005(A)-7	9/5/2003	7	NV	NV	0.025 U	NV	NV
SB-835(Q)-7	9/5/2003	7	NV	NV	0.025 U	NV	NV
SB-015(A)-7	9/10/2003	7	NV	NV	0.116	NV	NV
SB-323(D)-7	9/10/2003	7	NV	NV	0.025 U	NV	NV
SB-006(A)-7'	3/31/2004	7	NV	NV	4.39	NV	NV
SB-721(P)-7'	3/31/2004	7	NV	NV	0.02 U	NV	NV
SB-714(P)-7.5	8/21/2002	7.5	NV	NV	1 U	NV	NV
SB-405(F)-7.5	8/22/2002	7.5	NV	NV	0.05 U	NV	NV
SB-407(F)-7.5	8/22/2002	7.5	NV	NV	0.5 U	NV	NV
SB-408(F)-7.5	8/22/2002	7.5	NV	NV	0.025 U	NV	NV
SB-007(A)-7.5	8/26/2003	7.5	NV	NV	1.19	NV	NV
SB-008(A)-7.5	8/26/2003	7.5	NV	NV	0.025 U	NV	NV
SB-001(A)-7.5	8/27/2003	7.5	NV	NV	0.025 U	NV	NV
SB-002(A)-7.5	8/27/2003	7.5	NV	NV	0.025 U	NV	NV
SB-009(A)-7.5	8/27/2003	7.5	NV	NV	0.309	NV	NV
SB-010(A)-7.5	8/27/2003	7.5	NV	NV	0.025 U	NV	NV
SB-019(A)-7.5	8/27/2003	7.5	NV	NV	1.25 U	NV	NV
SB-629(N)-7.5	8/28/2003	7.5	NV	NV	0.131	NV	NV
SB-011(A)-7.5	9/3/2003	7.5	NV	NV	0.025 U	NV	NV
SB-013(A)-7.5	9/3/2003	7.5	NV	NV	0.025 U	NV	NV
SB-914(S)-7.5	9/3/2003	7.5	NV	NV	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-253(C)-7.5	9/4/2003	7.5	NV	NV	0.025 U	NV	NV
SB-834(Q)-7.5	9/5/2003	7.5	NV	NV	0.025 U	NV	NV
SB-017(A)-7.5	9/8/2003	7.5	NV	NV	0.025 U	NV	NV
SB-632(N)-7.5	9/8/2003	7.5	NV	NV	0.25 U	NV	NV
SB204(C)8	8/22/2002	8	0.0005 U	0.00462	0.0005 U	0.0025 U	0.01 U
SB-406(F)-8	8/22/2002	8	NV	NV	0.025 U	NV	NV
SB-901 (S)-8	8/26/2002	8	NV	NV	0.025 U	NV	NV
SB-902 (S)-8	8/26/2002	8	NV	NV	0.025 U	NV	NV
SB-903 (S)-8	8/26/2002	8	NV	NV	0.025 U	NV	NV
SB-908 (S)-8	8/27/2002	8	NV	NV	0.0005 U	NV	NV
SB-911 (S)-8	8/27/2002	8	NV	NV	0.025 U	NV	NV
SB-806 (Q)-8	8/28/2002	8	NV	NV	0.025 U	NV	NV
SB-810 (Q)-8	8/28/2002	8	NV	NV	0.025 U	NV	NV
SB227 (C)-8	8/29/2002	8	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB229 (C)-8	8/29/2002	8	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB230 (C)-8	8/29/2002	8	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-822 (Q)-8	8/29/2002	8	NV	NV	0.307	NV	NV
SB 232 (C)-8	8/30/2002	8	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB 234 (C)-8	8/30/2002	8	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-720(P)-8.5	8/23/2002	8.5	NV	NV	5.86	NV	NV
SB-804(Q)-8.5	8/26/2002	8.5	NV	NV	0.025 U	NV	NV
SB-809 (Q)-8.5	8/28/2002	8.5	NV	NV	0.05	NV	NV
SB-828 (Q)-8.5	8/28/2002	8.5	NV	NV	0.05	NV	NV
SB-830 (Q)-8.5	8/28/2002	8.5	NV	NV	0.025 U	NV	NV
SB802(Q)-9	8/26/2002	9	NV	NV	0.025 U	NV	NV
SB803(Q)-9	8/26/2002	9	NV	NV	0.025 U	NV	NV
SB-811 (Q)-9	8/27/2002	9	NV	NV	0.05	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-811 (Q)-9C	8/27/2002	9	NV	NV	0.05	NV	NV
SB812(Q)-9	8/27/2002	9	NV	NV	0.025 U	NV	NV
SB814(Q)-9	8/27/2002	9	NV	NV	0.025 U	NV	NV
SB-823 (Q)-9	8/27/2002	9	NV	NV	0.025 U	NV	NV
SB-824 (Q)-9	8/27/2002	9	NV	NV	0.025 U	NV	NV
SB-825 (Q)-9	8/27/2002	9	NV	NV	0.05	NV	NV
SB-826 (Q)-9	8/27/2002	9	NV	NV	0.025 U	NV	NV
SB-807 (Q)-9	8/28/2002	9	NV	NV	0.0632	NV	NV
SB-817 (Q)-9	8/28/2002	9	NV	NV	0.025 U	NV	NV
SB-818 (Q)-9	8/28/2002	9	NV	NV	0.025 U	NV	NV
SB-829 (Q)-9	8/28/2002	9	NV	NV	0.025 U	NV	NV
SB-831 (Q)-9	8/28/2002	9	NV	NV	0.025 U	NV	NV
SB-832 (Q)-9	8/28/2002	9	NV	NV	0.025 U	NV	NV
SB-820 (Q)-9	8/29/2002	9	NV	NV	0.025 U	NV	NV
SB-820 (Q)-9C	8/29/2002	9	NV	NV	3.54	NV	NV
SB-821 (Q)-9	8/29/2002	9	NV	NV	0.025 U	NV	NV
SB-020(A)-9'	3/31/2004	9	NV	NV	0.02 U	NV	NV
SB-410(F)-9'	3/31/2004	9	NV	NV	0.02 U	NV	NV
SB-705(P)-9.5	8/20/2002	9.5	NV	NV	0.025 U	NV	NV
SB-706(P)-9.5	8/21/2002	9.5	NV	NV	0.025 U	NV	NV
SB801(Q)-9.5	8/26/2002	9.5	NV	NV	0.025 U	NV	NV
SB813(Q)-9.5	8/27/2002	9.5	NV	NV	0.025 U	NV	NV
SB815(Q)-9.5	8/27/2002	9.5	NV	NV	0.025 U	NV	NV
SB816(Q)-9.5	8/27/2002	9.5	NV	NV	0.025 U	NV	NV
SB-316-D-10.0	8/20/2002	10	NV	NV	1.52	NV	NV
SB-318-D-10.0	8/20/2002	10	NV	NV	0.125 U	NV	NV
SB-708(P)-10	8/20/2002	10	NV	NV	0.025 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-716(P)-10	8/20/2002	10	0.0005 U	0.0077	0.025 U	0.0025 U	0.01 U
SB-717(P)-10	8/20/2002	10	0.0005 U	0.0058	0.025 U	0.0025 U	0.01 U
SB-703(P)-10	8/21/2002	10	0.0005 U	0.0337	0.025 U	0.0025 U	0.01 U
SB-707(P)-10	8/21/2002	10	0.0005 U	0.00583	0.025 U	0.0025 U	0.01 U
SB-709(P)-10	8/21/2002	10	0.0005 U	NV U	0.025 U	0.000385	0.01 U
SB-711(P)-10	8/21/2002	10	0.0005 U	0.01 U	0.025 U	0.000428	0.01 U
SB-712(P)-10	8/21/2002	10	0.0005 U	0.01 U	0.025 U	0.0025 U	0.01 U
SB-713(P)-10	8/21/2002	10	NV	NV	0.025 U	NV	NV
SB-714(P)-10	8/21/2002	10	NV	NV	2.5 U	NV	NV
SB-718(P)-10	8/21/2002	10	NV	NV	0.025 U	NV	NV
SB-805(Q)-10	8/26/2002	10	NV	NV	0.025 U	NV	NV
SB-901 (S)-10	8/26/2002	10	NV	NV	0.025 U	NV	NV
SB-903 (S)-10	8/26/2002	10	NV	NV	0.25 U	NV	NV
SB-908 (S)-10	8/27/2002	10	NV	NV	0.025 U	NV	NV
SB-909 (S)-10	8/27/2002	10	NV	NV	0.025 U	NV	NV
SB-910 (S)-10	8/27/2002	10	NV	NV	0.025 U	NV	NV
SB-911 (S)-10	8/27/2002	10	NV	NV	0.025 U	NV	NV
SB-500 (M) 8-12	8/29/2002	10	NV	NV	0.025 U	NV	NV
SB-501 (M) 8-12	8/29/2002	10	NV	NV	6.11	NV	NV
SB-502 (M) 8-12	8/29/2002	10	NV	NV	0.0763	NV	NV
SB-503 (M) 8-12	8/29/2002	10	NV	NV	0.25 U	NV	NV
SB-505 (M) 8-12	8/29/2002	10	NV	NV	0.101	NV	NV
SB-506 (M) 8-12	8/29/2002	10	NV	NV	2.14	NV	NV
SB-507 (M) 8-12	8/29/2002	10	NV	NV	2.61	NV	NV
SB-508 (M) 8-12	8/29/2002	10	NV	NV	3.12	NV	NV
SB-509 (M) 8-12	8/29/2002	10	NV	NV	0.025 U	NV	NV
SB-510 (M) 8-12	8/29/2002	10	NV	NV	1.43	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-822 (Q)-10	8/29/2002	10	NV	NV	0.025 U	NV	NV
SB-625 (N)-10	9/12/2002	10	NV	NV	0.025 U	NV	NV
SB-326(D)-10	9/9/2003	10	NV	NV	0.639	NV	NV
SB-324(D)-10	9/10/2003	10	NV	NV	0.141	NV	NV
SB-325(D)-10	9/10/2003	10	NV	NV	0.025 U	NV	NV
SB-327(D)-10	9/10/2003	10	NV	NV	0.05 U	NV	NV
SB-328(D)-10	9/10/2003	10	NV	NV	0.472	NV	NV
SB-700(P)-10.5	8/21/2002	10.5	1.42	1.25 U	1 U	NV U	0.5 U
SB-800 (Q)-10.5	8/27/2002	10.5	NV	NV	0.05	NV	NV
SB-833 (Q)-10.5	8/28/2002	10.5	NV	NV	0.025 U	NV	NV
SB-701(P)-11	8/20/2002	11	0.0005 U	0.0515	0.025 U	0.0025 U	0.00389
SB-702(P)-11	8/21/2002	11	0.0005 U	0.0214	0.025 U	0.0025 U	0.01 U
SB-704(P)-11	8/21/2002	11	0.0005 U	0.00597	0.025 U	0.0025 U	0.01 U
SB-715(P)-11	8/21/2002	11	NV	NV	0.025 U	NV	NV
SB-806 (Q)-11	8/28/2002	11	NV	NV	0.025 U	NV	NV
SB-819 (Q)-11	8/28/2002	11	NV	NV	0.025 U	NV	NV
SB-504 (M) 10-12	8/29/2002	11	NV	NV	0.025 U	NV	NV
SB-619 (N)-11	9/12/2002	11	NV	NV	0.025 U	NV	NV
SB-607(N)-11	9/13/2002	11	NV	NV	0.025 U	NV	NV
SB-720(P)-11.5	8/23/2002	11.5	NV	NV	2.5 U	NV	NV
SB-701(P)-12	8/20/2002	12	0.0005 U	0.0246	0.025 U	0.0025 U	0.000431
SB-705(P)-12	8/20/2002	12	NV	NV	0.025 U	NV	NV
SB-706(P)-12	8/21/2002	12	NV	NV	0.025 U	NV	NV
SB-719(P)-12	8/23/2002	12	NV	NV	0.025 U	NV	NV
SB-900(S)-12	8/26/2002	12	NV	NV	2.5 U	NV	NV
SB-902 (S)-12	8/26/2002	12	NV	NV	0.0005 U	NV	NV
SB-904 (S)-12	8/26/2002	12	NV	NV	0.5 U	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	4-Isopropyltoluene	Acetone	Benzene	Bromomethane	Carbon Disulfide
SB-905 (S)-12	8/26/2002	12	NV	NV	0.025 U	NV	NV
SB-906 (S)-12	8/27/2002	12	NV	NV	0.025 U	NV	NV
SB-316-D-14.5	8/20/2002	14.5	NV	NV	0.37	NV	NV
SB-314-D-15.0	8/20/2002	15	NV	NV	0.00516	NV	NV
SB-315-D-15.0	8/20/2002	15	NV	NV	0.000165	NV	NV
SB-318-D-15.0	8/20/2002	15	NV	NV	0.5 U	NV	NV
SB-324(D)-15	9/10/2003	15	NV	NV	0.0328	NV	NV
SB-324(D)-DUP	9/10/2003	15	NV	NV	0.156	NV	NV
SB-325(D)-15	9/10/2003	15	NV	NV	0.025 U	NV	NV
SB-327(D)-15	9/10/2003	15	NV	NV	0.125 U	NV	NV
SB-328(D)-15	9/10/2003	15	NV	NV	0.0414	NV	NV
SB-313-D-18.0	8/20/2002	18	NV	NV	0.025 U	NV	NV
SB101(C)18	8/22/2002	18	0.0005 U	0.00791	0.0005 U	0.0025 U	0.01 U
SB102(C)18	8/22/2002	18	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB103(C)18	8/22/2002	18	0.0005 U	0.285	0.000291	0.0025 U	0.00262
SB100(C)20	8/22/2002	20	0.00258	0.543	0.00306	0.0025 U	0.00188
SB104(C)20	8/22/2002	20	0.0005 U	0.01 U	0.0005 U	0.0025 U	0.01 U
SB-404(F)-20	8/22/2002	20	NV	NV	0.025 U	NV	NV
SB-401(F)-20	8/23/2002	20	NV	NV	0.025 U	NV	NV
SB-402(F)-20	8/23/2002	20	NV	NV	0.025 U	NV	NV
Number of Samples			99 7	97 23	424 56	96 4	99 7
Average Concentration			0.1	0.3	0.2	0.0	0.1
Median Concentration			0.0005	0.01	0.025	0.0025	0.01
Frequency of Detection			7.1	23.7	13.2	4.2	7.1
Minimum Value			0.0005	0.00462	0.000165	0.000358	0.000431
Maximum Detection			4.34	0.543	17.2	0.000428	0.00389

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropylbenzene	Methyl iodide
SB801(Q)-0	8/26/2002	0	NV	0.025 U	NV	NV	NV
SB802(Q)-0	8/26/2002	0	NV	0.025 U	NV	NV	NV
SB803(Q)-0	8/26/2002	0	NV	0.025 U	NV	NV	NV
SB-804(Q)-0	8/26/2002	0	NV	0.025 U	NV	NV	NV
SB-805(Q)-0	8/26/2002	0	NV	0.025 U	NV	NV	NV
SB-800 (Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB-811 (Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB812(Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB813(Q)-0	8/27/2002	0	NV	R	NV	NV	NV
SB814(Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB815(Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB816(Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB-823 (Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB-824 (Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB-825 (Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB-826 (Q)-0	8/27/2002	0	NV	0.025 U	NV	NV	NV
SB-806 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-807 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-809 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-810 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-817 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-818 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-819 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-828 (Q)-0	8/28/2002	0	NV	0.05	NV	NV	NV
SB-829 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-830 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-831 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropylbenzene	Methyl iodide
SB-832 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-833 (Q)-0	8/28/2002	0	NV	0.025 U	NV	NV	NV
SB-820 (Q)-0	8/29/2002	0	NV	0.025 U	NV	NV	NV
SB-820 (Q)-0C	8/29/2002	0	0.0167	NV U	NV	0.0189	0.5 U
SB-821 (Q)-0	8/29/2002	0	NV	0.025 U	NV	NV	NV
SB-822 (Q)-0	8/29/2002	0	NV	0.025 U	NV	NV	NV
SB-827 (Q)-0	8/29/2002	0	NV	0.025 U	NV	NV	NV
Ex-4/S-1	3/29/2004	1	NV	0.025 U	NV	NV	NV
Ex-1/S-1	3/30/2004	1	NV	0.025 U	NV	NV	NV
Ex-2/S-1	3/30/2004	1	NV	0.0778	NV	NV	NV
Ex-3/S-1	3/31/2004	1	NV	0.025 U	NV	NV	NV
SB-618 (N)-1.5	9/12/2002	1.5	NV	0.025 U	NV	NV	NV
SB-304-D-2.0	8/19/2002	2	NV	0.593	NV	0.283	NV
SB-305-D-2.0	8/19/2002	2	NV	0.728	NV	0.308	NV
SB-306-D-2.0	8/19/2002	2	NV	3.47	NV	2.72	NV
SB-307-D-2.0	8/19/2002	2	NV	0.0075 U	NV	0.0005 U	NV
SB-309-D-2.0	8/19/2002	2	NV	1.95	NV	0.83	NV
SB-310-D-2.0	8/19/2002	2	NV	0.314	NV	0.313	NV
SB-D-DUP-0819	8/19/2002	2	NV	0.0974	NV	0.0552	NV
SB-315-D-2.0	8/20/2002	2	NV	0.02845 U	NV	0.0132	NV
SB-316-D-2.0	8/20/2002	2	NV	0.02	NV	0.0005 U	NV
SB-701(P)-2	8/20/2002	2	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-702(P)-2	8/21/2002	2	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-703(P)-2	8/21/2002	2	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-704(P)-2	8/21/2002	2	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-707(P)-2	8/21/2002	2	NV	0.025 U	NV	NV	NV
SB-712(P)-2	8/21/2002	2	0.0025 U	0.025 U	NV	0.0005 U	0.01 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-713(P)-2	8/21/2002	2	NV	0.025 U	NV	NV	NV
SB-714(P)-2	8/21/2002	2	NV	0.025 U	NV	NV	NV
SB-718(P)-2	8/21/2002	2	NV	0.025 U	NV	NV	NV
SB102(C)1-3	8/22/2002	2	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB202(C)2	8/22/2002	2	0.0025 U	0.000475	NV	0.0005 U	0.01 U
SB-720(P)-2	8/23/2002	2	NV	0.025 U	NV	NV	NV
SB801(Q)-2	8/26/2002	2	NV	0.025 U	NV	NV	NV
SB802(Q)-2	8/26/2002	2	NV	0.025 U	NV	NV	NV
SB803(Q)-2	8/26/2002	2	NV	0.025 U	NV	NV	NV
SB-804(Q)-2	8/26/2002	2	NV	0.025 U	NV	NV	NV
SB-805(Q)-2	8/26/2002	2	NV	0.025 U	NV	NV	NV
SB-800 (Q)-2	8/27/2002	2	NV	0.025 U	NV	NV	NV
SB816(Q)-2	8/27/2002	2	NV	0.025 U	NV	NV	NV
SB-823 (Q)-2	8/27/2002	2	NV	0.025 U	NV	NV	NV
SB-825 (Q)-2	8/27/2002	2	NV	0.025 U	NV	NV	NV
SB-806 (Q)-2	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB-809 (Q)-2	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB-810 (Q)-2	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB-817 (Q)-2	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB-828 (Q)-2	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB-829 (Q)-2	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB-829 (Q)-2C	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB-830 (Q)-2	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB-832 (Q)-2	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB-833 (Q)-2	8/28/2002	2	NV	0.025 U	NV	NV	NV
SB224 (C)-2	8/29/2002	2	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB231 (C)-2	8/29/2002	2	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-820 (Q)-2	8/29/2002	2	NV	0.025 U	NV	NV	NV
SB-822 (Q)-2	8/29/2002	2	NV	0.025 U	NV	NV	NV
SB-822 (Q)-2C	8/29/2002	2	NV	0.025 U	NV	NV	NV
SB-827 (Q)-2	8/29/2002	2	NV	0.025 U	NV	NV	NV
SB-622 (N)-2	9/12/2002	2	NV	0.025 U	NV	NV	NV
SB-624 (N)-2	9/12/2002	2	NV	0.025 U	NV	NV	NV
SB-625 (N)-2	9/12/2002	2	NV	0.025 U	NV	NV	NV
SB-008(A)-2	8/26/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-009(A)-2	8/27/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-010(A)-2	8/27/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-627(N)-2	8/28/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-912(S)-2	9/3/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-913(S)-2	9/3/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-914(S)-2	9/3/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-253(C)-2	9/4/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-254(C)-2	9/4/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-834(Q)-2	9/5/2003	2	NV	0.0119	NV	0.1 U	NV
SB-835(Q)-2	9/5/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-321(D)-2	9/9/2003	2	NV	1.9	NV	0.313	NV
SB-326(D)-2	9/9/2003	2	NV	0.0234	NV	0.1 U	NV
SB-320(D)-2	9/10/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-322(D)-2	9/10/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-324(D)-2	9/10/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-325(D)-2	9/10/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-325(D)-DUP	9/10/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-327(D)-2	9/10/2003	2	NV	0.025 U	NV	0.1 U	NV
SB-328(D)-2	9/10/2003	2	NV	0.025 U	NV	0.1 U	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-410(F)-2'	3/31/2004	2	NV	0.025 U	NV	0.1 U	NV
SB-706(P)-2.5	8/21/2002	2.5	NV	0.025 U	NV	NV	NV
SB-400(F)-2.5	8/22/2002	2.5	NV	0.025 U	NV	NV	NV
SB-404(F)-2.5	8/22/2002	2.5	NV	0.025 U	NV	NV	NV
SB-405(F)-2.5	8/22/2002	2.5	NV	0.025 U	NV	NV	NV
SB-406(F)-2.5	8/22/2002	2.5	NV	0.025 U	NV	NV	NV
SB-407(F)-2.5	8/22/2002	2.5	NV	0.025 U	NV	NV	NV
SB-408(F)-2.5	8/22/2002	2.5	NV	0.025 U	NV	0.0005 U	NV
SB-409(F)-2.5	8/22/2002	2.5	NV	0.025 U	NV	NV	NV
SB-401(F)-2.5	8/23/2002	2.5	NV	0.025 U	NV	NV	NV
SB-402(F)-2.5	8/23/2002	2.5	NV	0.025 U	NV	0.000321	NV
SB212(C)-2.5	8/27/2002	2.5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB218(C)-2.5	8/28/2002	2.5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-002(A)-2.5	8/27/2003	2.5	NV	0.025 U	NV	0.1 U	NV
SB-019(A)-2.5	8/27/2003	2.5	NV	0.025 U	NV	0.1 U	NV
SB-255(C)-2.5	9/4/2003	2.5	NV	0.025 U	NV	0.1 U	NV
SB-005(A)-2.5	9/5/2003	2.5	NV	0.025 U	NV	0.1 U	NV
SB-705(P)-3	8/20/2002	3	NV	0.025 U	1 U	NV	NV
SB-708(P)-3	8/20/2002	3	NV	0.025 U	NV	NV	NV
SB-716(P)-3	8/20/2002	3	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-717(P)-3	8/20/2002	3	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-D-DUP-3	8/20/2002	3	NV	17.6	NV	1.94	NV
SB-700(P)-3	8/21/2002	3	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-709(P)-3	8/21/2002	3	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-710(P)-3	8/21/2002	3	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-711(P)-3	8/21/2002	3	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-715(P)-3	8/21/2002	3	NV	0.025 U	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB100(C)3	8/22/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB101(C)3	8/22/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB103(C)3	8/22/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB200(C)3	8/22/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB201(C)3	8/22/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB202(C)3	8/22/2002	3	0.0025 U	0.00015	NV	0.0005 U	0.01 U
SB203(C)3	8/22/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB204(C)3	8/22/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB209(C)-3	8/27/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB211(C)-3	8/27/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB216(C)-3	8/27/2002	3	0.0025 U	0.000147	NV	0.0005 U	0.01 U
SB-824 (Q)-3	8/27/2002	3	NV	0.025 U	NV	NV	NV
SB-826 (Q)-3	8/27/2002	3	NV	0.025 U	NV	NV	NV
SB217(C)-3	8/28/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB225 (C)-3	8/29/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB226 (C)-3	8/29/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB 233 (C)-3	8/30/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB 238 (C)-3	8/30/2002	3	0.0025 U	0.000509	NV	0.0005 U	0.01 U
SB-244(C)-3	9/3/2002	3	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-617 (N)-3	9/12/2002	3	NV	0.025 U	NV	0.1 U	NV
SB-620 (N)-3	9/12/2002	3	NV	0.025 U	NV	NV	NV
SB-601(N)-3	9/13/2002	3	NV	0.025 U	NV	0.1 U	NV
SB-602(N)-3	9/13/2002	3	NV	0.025 U	NV	NV	NV
SB-604(N)-3	9/13/2002	3	NV	0.025 U	NV	NV	NV
SB-605(N)-3	9/13/2002	3	NV	4.3	NV	0.543	NV
SB-606(N)-3	9/13/2002	3	NV	0.025 U	NV	NV	NV
SB-608(N)-3	9/13/2002	3	NV	0.025 U	NV	0.1 U	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-609(N)-3	9/13/2002	3	NV	0.025 U	NV	0.1 U	NV
SB-301-D-3.5	8/20/2002	3.5	NV	0.751	NV	0.371	NV
SB208(C)-3.5	8/27/2002	3.5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB210(C)-3.5	8/27/2002	3.5	0.0025 U	0.000169	NV	0.0005 U	0.01 U
SB104(C)4	8/22/2002	4	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-900(S)-4	8/26/2002	4	NV	0.0005 U	NV	0.0005 U	NV
SB-904 (S)-4	8/26/2002	4	NV	0.025 U	NV	NV	NV
SB-905 (S)-4	8/26/2002	4	NV	0.025 U	NV	NV	NV
SB213(C)-4	8/27/2002	4	0.0025 U	0.00022	NV	0.0005 U	0.01 U
SB-906 (S)-4	8/27/2002	4	NV	0.0005 U	NV	0.0005 U	NV
SB-908 (S)-4	8/27/2002	4	NV	0.147	NV	0.0353	NV
SB-909 (S)-4	8/27/2002	4	NV	0.025 U	NV	NV	NV
SB-910 (S)-4	8/27/2002	4	NV	0.000279	NV	0.0005 U	NV
SB219(C)-4	8/28/2002	4	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-818 (Q)-4	8/28/2002	4	NV	0.025 U	NV	NV	NV
SB-831 (Q)-4	8/28/2002	4	NV	0.025 U	NV	NV	NV
SB228 (C)-4	8/29/2002	4	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-239(C)-4	9/3/2002	4	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-242(C)-4	9/3/2002	4	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-243(C)-4	9/3/2002	4	0.0025 U	0.000441	NV	0.0005 U	0.01 U
SB-250(C)-4	9/9/2002	4	0.0025 U	0.000615	NV	0.0005 U	0.01 U
SB-251(C)-4	9/9/2002	4	0.0025 U	0.00102	NV	0.0005 U	0.01 U
SB-020(A)-4'	3/31/2004	4	NV	0.025 U	NV	0.1 U	NV
SB-410(F)-4'	3/31/2004	4	NV	0.025 U	NV	0.1 U	NV
SB-305-D-4.5	8/19/2002	4.5	NV	0.125	NV	0.0445	NV
SB-306-D-4.5	8/19/2002	4.5	NV	3.16	NV	9.51	NV
SB205(C)-4.5	8/27/2002	4.5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB207(C)-4.5	8/27/2002	4.5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB812(Q)-4.5	8/27/2002	4.5	NV	0.025 U	NV	NV	NV
SB814(Q)-4.5	8/27/2002	4.5	NV	0.025 U	NV	NV	NV
SB815(Q)-4.5	8/27/2002	4.5	NV	0.025 U	NV	NV	NV
SB221 (C)-4.5	8/28/2002	4.5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB222 (C)-4.5	8/28/2002	4.5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-304-D-5.0	8/19/2002	5	NV	1.34	NV	0.626	NV
SB-309-D-5.0	8/19/2002	5	NV	0.000453	NV	0.0215	NV
SB-310-D-5.0	8/19/2002	5	NV	6.96	NV	11.2	NV
SB-311-D-5.0	8/19/2002	5	NV	0.00915 U	NV	0.1 U	NV
SB-312-D-5.0	8/19/2002	5	NV	0.00915 U	NV	0.0183	NV
SB-313-D-5.0	8/20/2002	5	NV	2.59	NV	0.504	NV
SB-316-D-5.0	8/20/2002	5	NV	32	NV	4.06	NV
SB-400(F)-5	8/22/2002	5	NV	0.025 U	NV	NV	NV
SB-409(F)-5	8/22/2002	5	NV	0.025 U	NV	NV	NV
SB-719(P)-5	8/23/2002	5	NV	0.025 U	NV	NV	NV
SB214(C)-5	8/27/2002	5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB215(C)-5	8/27/2002	5	0.0025 U	0.000147	NV	0.0005 U	0.01 U
SB-811 (Q)-5	8/27/2002	5	NV	0.025 U	NV	NV	NV
SB813(Q)-5	8/27/2002	5	NV	0.025 U	NV	NV	NV
SB220 (C)-5	8/28/2002	5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-819 (Q)-5	8/28/2002	5	NV	0.025 U	NV	NV	NV
SB-821 (Q)-5	8/29/2002	5	NV	19.9	NV	NV	NV
SB-821 (Q)-5C	8/29/2002	5	NV	6.57	NV	NV	NV
SB-241(C)-5	9/3/2002	5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-245(C)-5	9/3/2002	5	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-246(C)-5	9/3/2002	5	0.0025 U	0.000151	NV	0.0005 U	0.01 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-252(C)-5	9/9/2002	5	0.0025 U	0.000536	NV	0.0005 U	0.01 U
SB-321(D)-5	9/9/2003	5	NV	3.52	NV	3.76	NV
SB-326(D)-5	9/9/2003	5	NV	7.91	NV	1.06	NV
SB-320(D)-5	9/10/2003	5	NV	0.025 U	NV	0.1 U	NV
SB-322(D)-5	9/10/2003	5	NV	0.025 U	NV	0.1 U	NV
SB-324(D)-5	9/10/2003	5	NV	0.025 U	NV	0.1 U	NV
SB-325(D)-5	9/10/2003	5	NV	0.025 U	NV	0.1 U	NV
SB-327(D)-5	9/10/2003	5	NV	0.025 U	NV	0.1 U	NV
SB-328(D)-5	9/10/2003	5	NV	0.0493	NV	0.1 U	NV
SB-705(P)-5.5	8/20/2002	5.5	NV	0.025 U	2.8	NV	NV
SB-706(P)-5.5	8/21/2002	5.5	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-710(P)-5.5	8/21/2002	5.5	0.0025 U	0.00146	NV	0.0005 U	0.01 U
SB-613 (N)-5.5	9/12/2002	5.5	NV	26.2	NV	NV	NV
SB-617 (N)-5.5	9/12/2002	5.5	NV	0.025 U	NV	NV	NV
SB200(C)6	8/22/2002	6	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB201(C)6	8/22/2002	6	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB206(C)-6	8/27/2002	6	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
TP201(C)6E	8/27/2002	6	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
TP202(C)6W	8/27/2002	6	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB223 (C)-6	8/29/2002	6	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-501 (M) 4-8	8/29/2002	6	NV	0.418	NV	NV	NV
SB 235 (C)-6	8/30/2002	6	0.0025 U	0.00016	NV	0.0005 U	0.01 U
SB 236 (C)-6	8/30/2002	6	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB 237 (C)-6	8/30/2002	6	0.0025 U	0.000882	NV	0.00746	0.01 U
SB-240(C)-6	9/3/2002	6	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-247(C)-6	9/3/2002	6	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-608(N)-6	9/13/2002	6	NV	0.025 U	NV	0.213	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropylbenzene	Methyl iodide
SB256 (c) 6	3/31/2004	6	0.25 U	0.05 U	NV	0.1 U	NV
SB408/S-2(6-7)	8/22/2002	6.5	NV	0.296	NV	NV	NV
SB-827 (Q)-6.5	8/29/2002	6.5	NV	0.025 U	NV	NV	NV
SB-715(P)-7	8/21/2002	7	NV	0.025 U	NV	NV	NV
SB202(C)7	8/22/2002	7	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB203(C)7	8/22/2002	7	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB407/S-2(6-8)	8/22/2002	7	NV	3.19	NV	NV	NV
SB-807 (Q)-7	8/28/2002	7	NV	13	NV	NV	NV
SB-612 (N)-7	9/12/2002	7	NV	90.1	NV	15.2	NV
SB-614 (N)-7	9/12/2002	7	NV	11.9	NV	NV	NV
SB-615 (N)-7	9/12/2002	7	NV	29.4	NV	NV	NV
SB-616 (N)-7	9/12/2002	7	NV	68.5	NV	NV	NV
SB-618 (N)-7	9/12/2002	7	2.5 U	31.9	NV	2.95	5 U
SB-619 (N)-7	9/12/2002	7	NV	0.025 U	NV	0.1 U	NV
SB-620 (N)-7	9/12/2002	7	NV	21.2	NV	5 U	NV
SB-621 (N)-7	9/12/2002	7	NV	0.025 U	NV	NV	NV
SB-622 (N)-7	9/12/2002	7	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-623 (N)-7	9/12/2002	7	NV	8.19	NV	5.34	NV
SB-624 (N)-7	9/12/2002	7	1.25 U	3.47	NV	2.65	2.5 U
SB-625 (N)-7	9/12/2002	7	NV	0.025 U	NV	0.1 U	NV
SB-626 (N)-7	9/12/2002	7	NV	106	NV	5 U	NV
SB-600(N)-7	9/13/2002	7	NV	31.6	NV	NV	NV
SB-601(N)-7	9/13/2002	7	NV	82.2	NV	10 U	NV
SB-602(N)-7	9/13/2002	7	NV	3.39	NV	22.6	NV
SB-603(N)-7	9/13/2002	7	NV	71.5	NV	5 U	NV
SB-604(N)-7	9/13/2002	7	NV	35.4	NV	12.1	NV
SB-605(N)-7	9/13/2002	7	NV	151	NV	17.7	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-606(N)-7	9/13/2002	7	NV	0.025 U	NV	NV	NV
SB-609(N)-7	9/13/2002	7	NV	0.025 U	NV	0.1 U	NV
SB-912(S)-7	9/3/2003	7	NV	0.025 U	NV	0.1 U	NV
SB-913(S)-7	9/3/2003	7	NV	0.025 U	NV	0.1 U	NV
SB-254(C)-7	9/4/2003	7	NV	0.025 U	NV	0.1 U	NV
SB-255(C)-7	9/4/2003	7	NV	0.025 U	NV	0.1 U	NV
SB-005(A)-7	9/5/2003	7	NV	0.025 U	NV	0.1 U	NV
SB-835(Q)-7	9/5/2003	7	NV	0.025 U	NV	0.1 U	NV
SB-015(A)-7	9/10/2003	7	NV	11.7	NV	1.41	NV
SB-323(D)-7	9/10/2003	7	NV	0.025 U	NV	0.1 U	NV
SB-006(A)-7'	3/31/2004	7	NV	73.8	NV	7.68	NV
SB-721(P)-7'	3/31/2004	7	NV	0.025 U	NV	0.1 U	NV
SB-714(P)-7.5	8/21/2002	7.5	NV	27.2	NV	NV	NV
SB-405(F)-7.5	8/22/2002	7.5	NV	0.138	NV	0.36	NV
SB-407(F)-7.5	8/22/2002	7.5	NV	1.02	NV	0.535	NV
SB-408(F)-7.5	8/22/2002	7.5	NV	0.025 U	NV	NV	NV
SB-007(A)-7.5	8/26/2003	7.5	NV	68.8	NV	7.3	NV
SB-008(A)-7.5	8/26/2003	7.5	NV	0.025 U	NV	0.1 U	NV
SB-001(A)-7.5	8/27/2003	7.5	NV	0.025 U	NV	0.1 U	NV
SB-002(A)-7.5	8/27/2003	7.5	NV	0.025 U	NV	0.1 U	NV
SB-009(A)-7.5	8/27/2003	7.5	NV	4.72	NV	1.6	NV
SB-010(A)-7.5	8/27/2003	7.5	NV	0.025 U	NV	0.1 U	NV
SB-019(A)-7.5	8/27/2003	7.5	NV	53.3	NV	8.76	NV
SB-629(N)-7.5	8/28/2003	7.5	NV	6.1	NV	3.19	NV
SB-011(A)-7.5	9/3/2003	7.5	NV	0.025 U	NV	0.1 U	NV
SB-013(A)-7.5	9/3/2003	7.5	NV	0.025 U	NV	0.1 U	NV
SB-914(S)-7.5	9/3/2003	7.5	NV	0.025 U	NV	0.1 U	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-253(C)-7.5	9/4/2003	7.5	NV	0.025 U	NV	0.1 U	NV
SB-834(Q)-7.5	9/5/2003	7.5	NV	0.025 U	NV	0.1 U	NV
SB-017(A)-7.5	9/8/2003	7.5	NV	0.025 U	NV	0.1 U	NV
SB-632(N)-7.5	9/8/2003	7.5	NV	12.4	NV	4.18	NV
SB204(C)8	8/22/2002	8	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-406(F)-8	8/22/2002	8	NV	0.025 U	NV	NV	NV
SB-901 (S)-8	8/26/2002	8	NV	0.025 U	NV	NV	NV
SB-902 (S)-8	8/26/2002	8	NV	0.025 U	NV	NV	NV
SB-903 (S)-8	8/26/2002	8	NV	0.025 U	NV	NV	NV
SB-908 (S)-8	8/27/2002	8	NV	0.000194	NV	0.0005 U	NV
SB-911 (S)-8	8/27/2002	8	NV	0.025 U	NV	NV	NV
SB-806 (Q)-8	8/28/2002	8	NV	0.025 U	NV	NV	NV
SB-810 (Q)-8	8/28/2002	8	NV	0.025 U	NV	NV	NV
SB227 (C)-8	8/29/2002	8	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB229 (C)-8	8/29/2002	8	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB230 (C)-8	8/29/2002	8	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-822 (Q)-8	8/29/2002	8	NV	17.7	NV	NV	NV
SB 232 (C)-8	8/30/2002	8	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB 234 (C)-8	8/30/2002	8	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-720(P)-8.5	8/23/2002	8.5	NV	44.9	NV	NV	NV
SB-804(Q)-8.5	8/26/2002	8.5	NV	0.025 U	NV	NV	NV
SB-809 (Q)-8.5	8/28/2002	8.5	NV	0.05	NV	NV	NV
SB-828 (Q)-8.5	8/28/2002	8.5	NV	0.05	NV	NV	NV
SB-830 (Q)-8.5	8/28/2002	8.5	NV	0.025 U	NV	NV	NV
SB802(Q)-9	8/26/2002	9	NV	0.025 U	NV	NV	NV
SB803(Q)-9	8/26/2002	9	NV	0.025 U	NV	NV	NV
SB-811 (Q)-9	8/27/2002	9	NV	0.05	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-811 (Q)-9C	8/27/2002	9	NV	0.05	NV	NV	NV
SB812(Q)-9	8/27/2002	9	NV	0.025 U	NV	NV	NV
SB814(Q)-9	8/27/2002	9	NV	0.025 U	NV	NV	NV
SB-823 (Q)-9	8/27/2002	9	NV	0.025 U	NV	NV	NV
SB-824 (Q)-9	8/27/2002	9	NV	0.025 U	NV	NV	NV
SB-825 (Q)-9	8/27/2002	9	NV	0.05	NV	NV	NV
SB-826 (Q)-9	8/27/2002	9	NV	0.025 U	NV	NV	NV
SB-807 (Q)-9	8/28/2002	9	NV	0.172	NV	NV	NV
SB-817 (Q)-9	8/28/2002	9	NV	0.025 U	NV	NV	NV
SB-818 (Q)-9	8/28/2002	9	NV	0.025 U	NV	NV	NV
SB-829 (Q)-9	8/28/2002	9	NV	0.025 U	NV	NV	NV
SB-831 (Q)-9	8/28/2002	9	NV	0.025 U	NV	NV	NV
SB-832 (Q)-9	8/28/2002	9	NV	0.025 U	NV	NV	NV
SB-820 (Q)-9	8/29/2002	9	NV	0.025 U	NV	NV	NV
SB-820 (Q)-9C	8/29/2002	9	NV	8.72	NV	NV	NV
SB-821 (Q)-9	8/29/2002	9	NV	0.174	NV	NV	NV
SB-020(A)-9'	3/31/2004	9	NV	0.025 U	NV	0.1 U	NV
SB-410(F)-9'	3/31/2004	9	NV	0.025 U	NV	0.1 U	NV
SB-705(P)-9.5	8/20/2002	9.5	NV	0.025 U	1 U	NV	NV
SB-706(P)-9.5	8/21/2002	9.5	NV	0.025 U	NV	NV	NV
SB801(Q)-9.5	8/26/2002	9.5	NV	0.025 U	NV	NV	NV
SB813(Q)-9.5	8/27/2002	9.5	NV	0.025 U	NV	NV	NV
SB815(Q)-9.5	8/27/2002	9.5	NV	0.025 U	NV	NV	NV
SB816(Q)-9.5	8/27/2002	9.5	NV	0.025 U	NV	NV	NV
SB-316-D-10.0	8/20/2002	10	NV	53.7	NV	6.97	NV
SB-318-D-10.0	8/20/2002	10	NV	15.6	NV	2.22	NV
SB-708(P)-10	8/20/2002	10	NV	0.025 U	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-716(P)-10	8/20/2002	10	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-717(P)-10	8/20/2002	10	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-703(P)-10	8/21/2002	10	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-707(P)-10	8/21/2002	10	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-709(P)-10	8/21/2002	10	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-711(P)-10	8/21/2002	10	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-712(P)-10	8/21/2002	10	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-713(P)-10	8/21/2002	10	NV	0.025 U	NV	NV	NV
SB-714(P)-10	8/21/2002	10	NV	87.1	NV	6.72	NV
SB-718(P)-10	8/21/2002	10	NV	0.025 U	NV	NV	NV
SB-805(Q)-10	8/26/2002	10	NV	0.025 U	NV	NV	NV
SB-901 (S)-10	8/26/2002	10	NV	0.025 U	NV	NV	NV
SB-903 (S)-10	8/26/2002	10	NV	0.25 U	NV	0.185	NV
SB-908 (S)-10	8/27/2002	10	NV	0.025 U	NV	0.0005 U	NV
SB-909 (S)-10	8/27/2002	10	NV	0.025 U	NV	NV	NV
SB-910 (S)-10	8/27/2002	10	NV	0.025 U	NV	NV	NV
SB-911 (S)-10	8/27/2002	10	NV	0.025 U	NV	NV	NV
SB-500 (M) 8-12	8/29/2002	10	NV	0.025 U	NV	NV	NV
SB-501 (M) 8-12	8/29/2002	10	NV	32.3	NV	NV	NV
SB-502 (M) 8-12	8/29/2002	10	NV	0.518	NV	NV	NV
SB-503 (M) 8-12	8/29/2002	10	NV	0.25 U	NV	NV	NV
SB-505 (M) 8-12	8/29/2002	10	NV	0.616	NV	NV	NV
SB-506 (M) 8-12	8/29/2002	10	NV	13.5	NV	NV	NV
SB-507 (M) 8-12	8/29/2002	10	NV	7.79	NV	NV	NV
SB-508 (M) 8-12	8/29/2002	10	NV	32.7	NV	NV	NV
SB-509 (M) 8-12	8/29/2002	10	NV	0.025 U	NV	NV	NV
SB-510 (M) 8-12	8/29/2002	10	NV	6.53	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropyl- benzene	Methyl iodide
SB-822 (Q)-10	8/29/2002	10	NV	0.025 U	NV	NV	NV
SB-625 (N)-10	9/12/2002	10	NV	0.025 U	NV	NV	NV
SB-326(D)-10	9/9/2003	10	NV	9.62	NV	1.28	NV
SB-324(D)-10	9/10/2003	10	NV	0.381	NV	1.38	NV
SB-325(D)-10	9/10/2003	10	NV	0.025 U	NV	0.1 U	NV
SB-327(D)-10	9/10/2003	10	NV	0.158	NV	0.655	NV
SB-328(D)-10	9/10/2003	10	NV	0.695	NV	3.18	NV
SB-700(P)-10.5	8/21/2002	10.5	0.25 U	6.12	NV	0.638	NV
SB-800 (Q)-10.5	8/27/2002	10.5	NV	0.05	NV	NV	NV
SB-833 (Q)-10.5	8/28/2002	10.5	NV	0.025 U	NV	NV	NV
SB-701(P)-11	8/20/2002	11	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-702(P)-11	8/21/2002	11	0.0025 U	0.025 U	NV	0.0005 U	0.01 U
SB-704(P)-11	8/21/2002	11	0.0025 U	0.025 U	1 U	0.0005 U	0.01 U
SB-715(P)-11	8/21/2002	11	NV	0.025 U	NV	NV	NV
SB-806 (Q)-11	8/28/2002	11	NV	0.025 U	NV	NV	NV
SB-819 (Q)-11	8/28/2002	11	NV	0.025 U	NV	NV	NV
SB-504 (M) 10-12	8/29/2002	11	NV	0.025 U	NV	NV	NV
SB-619 (N)-11	9/12/2002	11	NV	0.356	NV	10.2	NV
SB-607(N)-11	9/13/2002	11	NV	0.025 U	NV	NV	NV
SB-720(P)-11.5	8/23/2002	11.5	NV	41.4	NV	NV	NV
SB-701(P)-12	8/20/2002	12	0.00153	0.025 U	NV	0.000848	0.00499
SB-705(P)-12	8/20/2002	12	NV	0.025 U	1 U	NV	NV
SB-706(P)-12	8/21/2002	12	NV	0.025 U	NV	NV	NV
SB-719(P)-12	8/23/2002	12	NV	0.025 U	NV	NV	NV
SB-900(S)-12	8/26/2002	12	NV	8.56	NV	0.1 U	NV
SB-902 (S)-12	8/26/2002	12	NV	0.0005 U	NV	0.0093	NV
SB-904 (S)-12	8/26/2002	12	NV	0.5 U	NV	0.298	NV

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Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Chloromethane	Ethylbenzene	Formaldehyde	Isopropylbenzene	Methyl iodide
SB-905 (S)-12	8/26/2002	12	NV	0.025 U	NV	0.0005 U	NV
SB-906 (S)-12	8/27/2002	12	NV	0.304	NV	0.5	NV
SB-316-D-14.5	8/20/2002	14.5	NV	25.5	NV	4.99	NV
SB-314-D-15.0	8/20/2002	15	NV	0.219	NV	0.0137	NV
SB-315-D-15.0	8/20/2002	15	NV	0.0176	NV	0.1 U	NV
SB-318-D-15.0	8/20/2002	15	NV	13	NV	1.68	NV
SB-324(D)-15	9/10/2003	15	NV	0.298	NV	0.0644	NV
SB-324(D)-DUP	9/10/2003	15	NV	0.972	NV	0.485	NV
SB-325(D)-15	9/10/2003	15	NV	0.025 U	NV	0.1 U	NV
SB-327(D)-15	9/10/2003	15	NV	10.1	NV	1.81	NV
SB-328(D)-15	9/10/2003	15	NV	0.0515	NV	0.0364	NV
SB-313-D-18.0	8/20/2002	18	NV	3.95	NV	3.67	NV
SB101(C)18	8/22/2002	18	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB102(C)18	8/22/2002	18	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB103(C)18	8/22/2002	18	0.0025 U	0.000263	NV	0.0005 U	0.01 U
SB100(C)20	8/22/2002	20	0.0025 U	0.0427	NV	0.00675	0.01 U
SB104(C)20	8/22/2002	20	0.0025 U	0.0005 U	NV	0.0005 U	0.01 U
SB-404(F)-20	8/22/2002	20	NV	0.025 U	NV	NV	NV
SB-401(F)-20	8/23/2002	20	NV	0.025 U	NV	NV	NV
SB-402(F)-20	8/23/2002	20	NV	0.025 U	NV	NV	NV
Number of Samples			99 2	423 115	5 1	234 65	97 1
Average Concentration			0.0	3.8	1.4	1.0	0.1
Median Concentration			0.0025	0.025	1	0.1	0.01
Frequency of Detection			2.0	27.2	20.0	27.8	1.0
Minimum Value			0.00153	0.000147	1	0.000321	0.00499
Maximum Detection			0.0167	151	2.8	22.6	0.00499

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB801(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB802(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB803(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB-804(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB-805(Q)-0	8/26/2002	0	NV	NV	NV	NV	NV
SB-800 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-811 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB812(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB813(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB814(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB815(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB816(Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-823 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-824 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-825 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-826 (Q)-0	8/27/2002	0	NV	NV	NV	NV	NV
SB-806 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-807 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-809 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-810 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-817 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-818 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-819 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-828 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-829 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-830 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-831 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-832 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-833 (Q)-0	8/28/2002	0	NV	NV	NV	NV	NV
SB-820 (Q)-0	8/29/2002	0	NV	NV	NV	NV	NV
SB-820 (Q)-0C	8/29/2002	0	NV U	0.07	0.0555	0.0267	0.05 U
SB-821 (Q)-0	8/29/2002	0	NV	NV	NV	NV	NV
SB-822 (Q)-0	8/29/2002	0	NV	NV	NV	NV	NV
SB-827 (Q)-0	8/29/2002	0	NV	NV	NV	NV	NV
Ex-4/S-1	3/29/2004	1	NV	NV	NV	NV	NV
Ex-1/S-1	3/30/2004	1	NV	NV	NV	NV	NV
Ex-2/S-1	3/30/2004	1	NV	NV	NV	NV	NV
Ex-3/S-1	3/31/2004	1	NV	NV	NV	NV	NV
SB-618 (N)-1.5	9/12/2002	1.5	NV	0.226	NV	NV	NV
SB-304-D-2.0	8/19/2002	2	NV	1.08	NV	1.03	NV
SB-305-D-2.0	8/19/2002	2	NV	0.56	NV	1.44	NV
SB-306-D-2.0	8/19/2002	2	NV	1.34	NV	11.6	NV
SB-307-D-2.0	8/19/2002	2	NV	0.0005 U	NV	0.025 U	NV
SB-309-D-2.0	8/19/2002	2	NV	0.0655	NV	2.87	NV
SB-310-D-2.0	8/19/2002	2	NV	0.535	NV	1.53	NV
SB-D-DUP-0819	8/19/2002	2	NV	0.211	NV	0.0822	NV
SB-315-D-2.0	8/20/2002	2	NV	0.00062 U	NV	0.0238	NV
SB-316-D-2.0	8/20/2002	2	NV	0.001125 U	NV	0.00025	NV
SB-701(P)-2	8/20/2002	2	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-702(P)-2	8/21/2002	2	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-703(P)-2	8/21/2002	2	0.0125 U	0.00104	0.000835	0.00106	0.000632
SB-704(P)-2	8/21/2002	2	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-707(P)-2	8/21/2002	2	NV	NV	NV	NV	NV
SB-712(P)-2	8/21/2002	2	0.0125 U	0.00345	0.000261	0.00049	NV U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-713(P)-2	8/21/2002	2	NV	NV	NV	NV	NV
SB-714(P)-2	8/21/2002	2	NV	NV	NV	NV	NV
SB-718(P)-2	8/21/2002	2	NV	NV	NV	NV	NV
SB102(C)1-3	8/22/2002	2	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB202(C)2	8/22/2002	2	0.0138	0.00664	0.0327	0.0005 U	0.000917
SB-720(P)-2	8/23/2002	2	NV	NV	NV	NV	NV
SB801(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB802(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB803(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB-804(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB-805(Q)-2	8/26/2002	2	NV	NV	NV	NV	NV
SB-800 (Q)-2	8/27/2002	2	NV	NV	NV	NV	NV
SB816(Q)-2	8/27/2002	2	NV	NV	NV	NV	NV
SB-823 (Q)-2	8/27/2002	2	NV	NV	NV	NV	NV
SB-825 (Q)-2	8/27/2002	2	NV	NV	NV	NV	NV
SB-806 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-809 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-810 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-817 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-828 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-829 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-829 (Q)-2C	8/28/2002	2	NV	NV	NV	NV	NV
SB-830 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-832 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB-833 (Q)-2	8/28/2002	2	NV	NV	NV	NV	NV
SB224 (C)-2	8/29/2002	2	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB231 (C)-2	8/29/2002	2	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-820 (Q)-2	8/29/2002	2	NV	NV	NV	NV	NV
SB-822 (Q)-2	8/29/2002	2	NV	NV	NV	NV	NV
SB-822 (Q)-2C	8/29/2002	2	NV	NV	NV	NV	NV
SB-827 (Q)-2	8/29/2002	2	NV	NV	NV	NV	NV
SB-622 (N)-2	9/12/2002	2	NV	0.025 U	NV	NV	NV
SB-624 (N)-2	9/12/2002	2	NV	0.025 U	NV	NV	NV
SB-625 (N)-2	9/12/2002	2	NV	0.025 U	NV	NV	NV
SB-008(A)-2	8/26/2003	2	NV	0.1 U	NV	0.025 U	NV
SB-009(A)-2	8/27/2003	2	NV	0.208	NV	0.025 U	NV
SB-010(A)-2	8/27/2003	2	NV	0.262	NV	0.025 U	NV
SB-627(N)-2	8/28/2003	2	NV	0.0335	NV	0.025 U	NV
SB-912(S)-2	9/3/2003	2	NV	0.1 U	NV	0.025 U	NV
SB-913(S)-2	9/3/2003	2	NV	0.1 U	NV	0.025 U	NV
SB-914(S)-2	9/3/2003	2	NV	0.1 U	NV	0.025 U	NV
SB-253(C)-2	9/4/2003	2	NV	0.1 U	NV	0.025 U	NV
SB-254(C)-2	9/4/2003	2	NV	0.0255	NV	0.025 U	NV
SB-834(Q)-2	9/5/2003	2	NV	0.0808	NV	0.0129	NV
SB-835(Q)-2	9/5/2003	2	NV	0.1 U	NV	0.025 U	NV
SB-321(D)-2	9/9/2003	2	NV	0.1 U	NV	1.14	NV
SB-326(D)-2	9/9/2003	2	NV	0.0344	NV	0.0289	NV
SB-320(D)-2	9/10/2003	2	NV	0.0204	NV	0.025 U	NV
SB-322(D)-2	9/10/2003	2	NV	0.1 U	NV	0.025 U	NV
SB-324(D)-2	9/10/2003	2	NV	0.218	NV	0.025 U	NV
SB-325(D)-2	9/10/2003	2	NV	0.1 U	NV	0.025 U	NV
SB-325(D)-DUP	9/10/2003	2	NV	0.1 U	NV	0.025 U	NV
SB-327(D)-2	9/10/2003	2	NV	0.0329	NV	0.025 U	NV
SB-328(D)-2	9/10/2003	2	NV	0.031	NV	0.025 U	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-410(F)-2'	3/31/2004	2	NV	0.023	NV	0.025 U	NV
SB-706(P)-2.5	8/21/2002	2.5	NV	NV	NV	NV	NV
SB-400(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-404(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-405(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-406(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-407(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-408(F)-2.5	8/22/2002	2.5	NV	0.0005 U	NV	0.0005 U	NV
SB-409(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	NV
SB-401(F)-2.5	8/23/2002	2.5	NV	NV	NV	NV	NV
SB-402(F)-2.5	8/23/2002	2.5	NV	0.00732	NV	0.000871	NV
SB212(C)-2.5	8/27/2002	2.5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB218(C)-2.5	8/28/2002	2.5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-002(A)-2.5	8/27/2003	2.5	NV	0.1 U	NV	0.025 U	NV
SB-019(A)-2.5	8/27/2003	2.5	NV	0.1 U	NV	0.025 U	NV
SB-255(C)-2.5	9/4/2003	2.5	NV	0.0147	NV	0.025 U	NV
SB-005(A)-2.5	9/5/2003	2.5	NV	0.1 U	NV	0.025 U	NV
SB-705(P)-3	8/20/2002	3	NV	NV	NV	NV	NV
SB-708(P)-3	8/20/2002	3	NV	NV	NV	NV	NV
SB-716(P)-3	8/20/2002	3	0.0125 U	0.00052	0.0005 U	0.0005 U	0.0005 U
SB-717(P)-3	8/20/2002	3	0.0125 U	0.000488	0.0005 U	0.0005 U	0.0005 U
SB-D-DUP-3	8/20/2002	3	NV	1.64	NV	7.94	NV
SB-700(P)-3	8/21/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-709(P)-3	8/21/2002	3	0.0125 U	NV U	0.0005 U	0.0005 U	0.0005 U
SB-710(P)-3	8/21/2002	3	0.0125 U	0.000591	0.0005 U	0.0005 U	0.0005 U
SB-711(P)-3	8/21/2002	3	0.0125 U	NV U	0.0005 U	0.0005 U	0.0005 U
SB-715(P)-3	8/21/2002	3	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB100(C)3	8/22/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB101(C)3	8/22/2002	3	0.0125 U	0.0005 U	0.000195	0.0005 U	0.000206
SB103(C)3	8/22/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB200(C)3	8/22/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB201(C)3	8/22/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB202(C)3	8/22/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB203(C)3	8/22/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB204(C)3	8/22/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB209(C)-3	8/27/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB211(C)-3	8/27/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB216(C)-3	8/27/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-824 (Q)-3	8/27/2002	3	NV	NV	NV	NV	NV
SB-826 (Q)-3	8/27/2002	3	NV	NV	NV	NV	NV
SB217(C)-3	8/28/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB225 (C)-3	8/29/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB226 (C)-3	8/29/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB 233 (C)-3	8/30/2002	3	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB 238 (C)-3	8/30/2002	3	0.0125 U	0.0005 U	0.000282	0.0005 U	0.0005 U
SB-244(C)-3	9/3/2002	3	0.0177	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-617 (N)-3	9/12/2002	3	NV	0.025 U	NV	0.025 U	NV
SB-620 (N)-3	9/12/2002	3	NV	0.0517	NV	NV	NV
SB-601(N)-3	9/13/2002	3	NV	0.1 U	NV	0.025 U	NV
SB-602(N)-3	9/13/2002	3	NV	0.502	NV	NV	NV
SB-604(N)-3	9/13/2002	3	NV	0.025 U	NV	NV	NV
SB-605(N)-3	9/13/2002	3	NV	5.22	NV	2.34	NV
SB-606(N)-3	9/13/2002	3	NV	0.025 U	NV	NV	NV
SB-608(N)-3	9/13/2002	3	NV	0.1 U	NV	0.025 U	NV

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Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-609(N)-3	9/13/2002	3	NV	0.1 U	NV	0.025 U	NV
SB-301-D-3.5	8/20/2002	3.5	NV	1.63	NV	1.82	NV
SB208(C)-3.5	8/27/2002	3.5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB210(C)-3.5	8/27/2002	3.5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB104(C)4	8/22/2002	4	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-900(S)-4	8/26/2002	4	NV	0.00071	NV	0.0005 U	NV
SB-904 (S)-4	8/26/2002	4	NV	NV	NV	NV	NV
SB-905 (S)-4	8/26/2002	4	NV	NV	NV	NV	NV
SB213(C)-4	8/27/2002	4	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-906 (S)-4	8/27/2002	4	NV	0.0005 U	NV	0.0005 U	NV
SB-908 (S)-4	8/27/2002	4	NV	0.1 U	NV	0.0662	NV
SB-909 (S)-4	8/27/2002	4	NV	NV	NV	NV	NV
SB-910 (S)-4	8/27/2002	4	NV	0.0005 U	NV	0.000257	NV
SB219(C)-4	8/28/2002	4	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-818 (Q)-4	8/28/2002	4	NV	NV	NV	NV	NV
SB-831 (Q)-4	8/28/2002	4	NV	NV	NV	NV	NV
SB228 (C)-4	8/29/2002	4	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-239(C)-4	9/3/2002	4	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-242(C)-4	9/3/2002	4	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-243(C)-4	9/3/2002	4	0.0116	0.0005 U	0.0005 U	0.000248	0.0005 U
SB-250(C)-4	9/9/2002	4	0.0125 U	0.00126	0.000188	0.0005 U	0.0005 U
SB-251(C)-4	9/9/2002	4	0.0103	0.00129	0.000242	0.0005 U	0.000443
SB-020(A)-4'	3/31/2004	4	NV	0.1 U	NV	0.025 U	NV
SB-410(F)-4'	3/31/2004	4	NV	0.1 U	NV	0.025 U	NV
SB-305-D-4.5	8/19/2002	4.5	NV	0.529	NV	0.168	NV
SB-306-D-4.5	8/19/2002	4.5	NV	0.319	NV	37	NV
SB205(C)-4.5	8/27/2002	4.5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB207(C)-4.5	8/27/2002	4.5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB812(Q)-4.5	8/27/2002	4.5	NV	NV	NV	NV	NV
SB814(Q)-4.5	8/27/2002	4.5	NV	NV	NV	NV	NV
SB815(Q)-4.5	8/27/2002	4.5	NV	NV	NV	NV	NV
SB221 (C)-4.5	8/28/2002	4.5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB222 (C)-4.5	8/28/2002	4.5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-304-D-5.0	8/19/2002	5	NV	1.38	NV	2.99	NV
SB-309-D-5.0	8/19/2002	5	NV	0.0002605 U	NV	0.000997	NV
SB-310-D-5.0	8/19/2002	5	NV	2.68	NV	44.3	NV
SB-311-D-5.0	8/19/2002	5	NV	0.0172	NV	0.0005 U	NV
SB-312-D-5.0	8/19/2002	5	NV	0.0924	NV	0.000677	NV
SB-313-D-5.0	8/20/2002	5	NV	0.705	NV	2.28	NV
SB-316-D-5.0	8/20/2002	5	NV	3.21	NV	16	NV
SB-400(F)-5	8/22/2002	5	NV	NV	NV	NV	NV
SB-409(F)-5	8/22/2002	5	NV	NV	NV	NV	NV
SB-719(P)-5	8/23/2002	5	NV	NV	NV	NV	NV
SB214(C)-5	8/27/2002	5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB215(C)-5	8/27/2002	5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-811 (Q)-5	8/27/2002	5	NV	NV	NV	NV	NV
SB813(Q)-5	8/27/2002	5	NV	NV	NV	NV	NV
SB220 (C)-5	8/28/2002	5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-819 (Q)-5	8/28/2002	5	NV	NV	NV	NV	NV
SB-821 (Q)-5	8/29/2002	5	NV	NV	NV	NV	NV
SB-821 (Q)-5C	8/29/2002	5	NV	NV	NV	NV	NV
SB-241(C)-5	9/3/2002	5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-245(C)-5	9/3/2002	5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-246(C)-5	9/3/2002	5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U

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Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-252(C)-5	9/9/2002	5	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-321(D)-5	9/9/2003	5	NV	0.285	NV	14.1	NV
SB-326(D)-5	9/9/2003	5	NV	1.24	NV	4.21	NV
SB-320(D)-5	9/10/2003	5	NV	0.1 U	NV	0.025 U	NV
SB-322(D)-5	9/10/2003	5	NV	0.0273	NV	0.025 U	NV
SB-324(D)-5	9/10/2003	5	NV	0.0299	NV	0.025 U	NV
SB-325(D)-5	9/10/2003	5	NV	0.1 U	NV	0.025 U	NV
SB-327(D)-5	9/10/2003	5	NV	0.1 U	NV	0.025 U	NV
SB-328(D)-5	9/10/2003	5	NV	0.0234	NV	0.037	NV
SB-705(P)-5.5	8/20/2002	5.5	NV	NV	NV	NV	NV
SB-706(P)-5.5	8/21/2002	5.5	0.0125 U	0.000541	0.0005 U	0.0005 U	0.000228
SB-710(P)-5.5	8/21/2002	5.5	0.0121	0.00099	0.0005 U	0.000273	0.000344
SB-613 (N)-5.5	9/12/2002	5.5	NV	34.1	NV	NV	NV
SB-617 (N)-5.5	9/12/2002	5.5	NV	0.113	NV	NV	NV
SB200(C)6	8/22/2002	6	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB201(C)6	8/22/2002	6	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB206(C)-6	8/27/2002	6	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
TP201(C)6E	8/27/2002	6	0.0125 U	0.000672	0.0005 U	0.0005 U	0.0005 U
TP202(C)6W	8/27/2002	6	0.0125 U	0.000461	0.0005 U	0.0005 U	0.0005 U
SB223 (C)-6	8/29/2002	6	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-501 (M) 4-8	8/29/2002	6	NV	NV	NV	NV	NV
SB 235 (C)-6	8/30/2002	6	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB 236 (C)-6	8/30/2002	6	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB 237 (C)-6	8/30/2002	6	0.0125 U	0.0005 U	0.0334	0.00597	0.0005 U
SB-240(C)-6	9/3/2002	6	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-247(C)-6	9/3/2002	6	0.0165	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-608(N)-6	9/13/2002	6	NV	0.1 U	NV	0.343	NV

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Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB256 (c) 6	3/31/2004	6	0.25 U	0.1 U	0.25 U	0.05 U	0.05 U
SB408/S-2(6-7)	8/22/2002	6.5	NV	1.37	NV	NV	NV
SB-827 (Q)-6.5	8/29/2002	6.5	NV	NV	NV	NV	NV
SB-715(P)-7	8/21/2002	7	NV	NV	NV	NV	NV
SB202(C)7	8/22/2002	7	0.0125 U	0.000354	0.0005 U	0.0005 U	0.0005 U
SB203(C)7	8/22/2002	7	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB407/S-2(6-8)	8/22/2002	7	NV	1.46	NV	NV	NV
SB-807 (Q)-7	8/28/2002	7	NV	NV	NV	NV	NV
SB-612 (N)-7	9/12/2002	7	NV	94.1	NV	71.5	NV
SB-614 (N)-7	9/12/2002	7	NV	30.6	NV	NV	NV
SB-615 (N)-7	9/12/2002	7	NV	25.3	NV	NV	NV
SB-616 (N)-7	9/12/2002	7	NV	81.3	NV	NV	NV
SB-618 (N)-7	9/12/2002	7	2.5 U	36.1	15	17.9	29
SB-619 (N)-7	9/12/2002	7	NV	0.025 U	NV	0.025 U	NV
SB-620 (N)-7	9/12/2002	7	NV	30.6	NV	14.3	NV
SB-621 (N)-7	9/12/2002	7	NV	0.025 U	NV	NV	NV
SB-622 (N)-7	9/12/2002	7	0.0125 U	0.025 U	0.0005 U	0.0005 U	0.0005 U
SB-623 (N)-7	9/12/2002	7	NV	18.3	NV	12.9	NV
SB-624 (N)-7	9/12/2002	7	1.25 U	9.65	8.89	6.5	7.89
SB-625 (N)-7	9/12/2002	7	NV	0.025 U	NV	0.025 U	NV
SB-626 (N)-7	9/12/2002	7	NV	96.2	NV	33.8	NV
SB-600(N)-7	9/13/2002	7	NV	69	NV	NV	NV
SB-601(N)-7	9/13/2002	7	NV	94.4	NV	34.2	NV
SB-602(N)-7	9/13/2002	7	NV	11.3	NV	91.3	NV
SB-603(N)-7	9/13/2002	7	NV	79.7	NV	19.2	NV
SB-604(N)-7	9/13/2002	7	NV	58.3	NV	57.9	NV
SB-605(N)-7	9/13/2002	7	NV	132	NV	72.2	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-606(N)-7	9/13/2002	7	NV	0.025 U	NV	NV	NV
SB-609(N)-7	9/13/2002	7	NV	0.1 U	NV	0.025 U	NV
SB-912(S)-7	9/3/2003	7	NV	0.1 U	NV	0.025 U	NV
SB-913(S)-7	9/3/2003	7	NV	0.1 U	NV	0.025 U	NV
SB-254(C)-7	9/4/2003	7	NV	0.1 U	NV	0.025 U	NV
SB-255(C)-7	9/4/2003	7	NV	4.23	NV	0.025 U	NV
SB-005(A)-7	9/5/2003	7	NV	0.0167	NV	0.025 U	NV
SB-835(Q)-7	9/5/2003	7	NV	0.1 U	NV	0.025 U	NV
SB-015(A)-7	9/10/2003	7	NV	15.7	NV	5.61	NV
SB-323(D)-7	9/10/2003	7	NV	0.1 U	NV	0.025 U	NV
SB-006(A)-7'	3/31/2004	7	NV	38	NV	34.7	NV
SB-721(P)-7'	3/31/2004	7	NV	0.1 U	NV	0.025 U	NV
SB-714(P)-7.5	8/21/2002	7.5	NV	NV	NV	NV	NV
SB-405(F)-7.5	8/22/2002	7.5	NV	6.49	NV	2.13	NV
SB-407(F)-7.5	8/22/2002	7.5	NV	1.01	NV	3.68	NV
SB-408(F)-7.5	8/22/2002	7.5	NV	NV	NV	NV	NV
SB-007(A)-7.5	8/26/2003	7.5	NV	53.4	NV	38.2	NV
SB-008(A)-7.5	8/26/2003	7.5	NV	0.1 U	NV	0.025 U	NV
SB-001(A)-7.5	8/27/2003	7.5	NV	0.1 U	NV	0.025 U	NV
SB-002(A)-7.5	8/27/2003	7.5	NV	0.0287	NV	0.025 U	NV
SB-009(A)-7.5	8/27/2003	7.5	NV	11.3	NV	3.9	NV
SB-010(A)-7.5	8/27/2003	7.5	NV	0.0438	NV	0.025 U	NV
SB-019(A)-7.5	8/27/2003	7.5	NV	85.3	NV	38.3	NV
SB-629(N)-7.5	8/28/2003	7.5	NV	25.5	NV	7.18	NV
SB-011(A)-7.5	9/3/2003	7.5	NV	0.1 U	NV	0.025 U	NV
SB-013(A)-7.5	9/3/2003	7.5	NV	0.1 U	NV	0.025 U	NV
SB-914(S)-7.5	9/3/2003	7.5	NV	0.1 U	NV	0.025 U	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-253(C)-7.5	9/4/2003	7.5	NV	0.1 U	NV	0.025 U	NV
SB-834(Q)-7.5	9/5/2003	7.5	NV	0.127	NV	0.025 U	NV
SB-017(A)-7.5	9/8/2003	7.5	NV	0.1 U	NV	0.025 U	NV
SB-632(N)-7.5	9/8/2003	7.5	NV	38.9	NV	16.6	NV
SB204(C)8	8/22/2002	8	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-406(F)-8	8/22/2002	8	NV	NV	NV	NV	NV
SB-901 (S)-8	8/26/2002	8	NV	NV	NV	NV	NV
SB-902 (S)-8	8/26/2002	8	NV	NV	NV	NV	NV
SB-903 (S)-8	8/26/2002	8	NV	NV	NV	NV	NV
SB-908 (S)-8	8/27/2002	8	NV	0.0005 U	NV	0.0005 U	NV
SB-911 (S)-8	8/27/2002	8	NV	NV	NV	NV	NV
SB-806 (Q)-8	8/28/2002	8	NV	NV	NV	NV	NV
SB-810 (Q)-8	8/28/2002	8	NV	NV	NV	NV	NV
SB227 (C)-8	8/29/2002	8	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB229 (C)-8	8/29/2002	8	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB230 (C)-8	8/29/2002	8	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-822 (Q)-8	8/29/2002	8	NV	NV	NV	NV	NV
SB 232 (C)-8	8/30/2002	8	0.0116	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB 234 (C)-8	8/30/2002	8	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-720(P)-8.5	8/23/2002	8.5	NV	NV	NV	NV	NV
SB-804(Q)-8.5	8/26/2002	8.5	NV	NV	NV	NV	NV
SB-809 (Q)-8.5	8/28/2002	8.5	NV	NV	NV	NV	NV
SB-828 (Q)-8.5	8/28/2002	8.5	NV	NV	NV	NV	NV
SB-830 (Q)-8.5	8/28/2002	8.5	NV	NV	NV	NV	NV
SB802(Q)-9	8/26/2002	9	NV	NV	NV	NV	NV
SB803(Q)-9	8/26/2002	9	NV	NV	NV	NV	NV
SB-811 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-811 (Q)-9C	8/27/2002	9	NV	NV	NV	NV	NV
SB812(Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB814(Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-823 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-824 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-825 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-826 (Q)-9	8/27/2002	9	NV	NV	NV	NV	NV
SB-807 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-817 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-818 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-829 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-831 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-832 (Q)-9	8/28/2002	9	NV	NV	NV	NV	NV
SB-820 (Q)-9	8/29/2002	9	NV	NV	NV	NV	NV
SB-820 (Q)-9C	8/29/2002	9	NV	NV	NV	NV	NV
SB-821 (Q)-9	8/29/2002	9	NV	NV	NV	NV	NV
SB-020(A)-9'	3/31/2004	9	NV	0.1 U	NV	0.025 U	NV
SB-410(F)-9'	3/31/2004	9	NV	0.1 U	NV	0.025 U	NV
SB-705(P)-9.5	8/20/2002	9.5	NV	NV	NV	NV	NV
SB-706(P)-9.5	8/21/2002	9.5	NV	NV	NV	NV	NV
SB801(Q)-9.5	8/26/2002	9.5	NV	NV	NV	NV	NV
SB813(Q)-9.5	8/27/2002	9.5	NV	NV	NV	NV	NV
SB815(Q)-9.5	8/27/2002	9.5	NV	NV	NV	NV	NV
SB816(Q)-9.5	8/27/2002	9.5	NV	NV	NV	NV	NV
SB-316-D-10.0	8/20/2002	10	NV	5.96	NV	27.3	NV
SB-318-D-10.0	8/20/2002	10	NV	8.34	NV	10.1	NV
SB-708(P)-10	8/20/2002	10	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-716(P)-10	8/20/2002	10	0.0125 U	0.000576	0.0005 U	0.0005 U	0.0005 U
SB-717(P)-10	8/20/2002	10	0.0125 U	0.000501	0.0005 U	0.0005 U	0.0005 U
SB-703(P)-10	8/21/2002	10	0.0125 U	0.000874	0.000233	0.0005 U	0.0005 U
SB-707(P)-10	8/21/2002	10	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-709(P)-10	8/21/2002	10	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-711(P)-10	8/21/2002	10	0.0125 U	NV U	0.0005 U	0.0005 U	0.0005 U
SB-712(P)-10	8/21/2002	10	0.0125 U	NV U	0.0005 U	0.000191	0.00305
SB-713(P)-10	8/21/2002	10	NV	NV	NV	NV	NV
SB-714(P)-10	8/21/2002	10	NV	37	NV	34.4	NV
SB-718(P)-10	8/21/2002	10	NV	NV	NV	NV	NV
SB-805(Q)-10	8/26/2002	10	NV	NV	NV	NV	NV
SB-901 (S)-10	8/26/2002	10	NV	NV	NV	NV	NV
SB-903 (S)-10	8/26/2002	10	NV	0.5 U	NV	0.446	NV
SB-908 (S)-10	8/27/2002	10	NV	0.0005 U	NV	0.0005 U	NV
SB-909 (S)-10	8/27/2002	10	NV	NV	NV	NV	NV
SB-910 (S)-10	8/27/2002	10	NV	NV	NV	NV	NV
SB-911 (S)-10	8/27/2002	10	NV	NV	NV	NV	NV
SB-500 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-501 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-502 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-503 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-505 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-506 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-507 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-508 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-509 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV
SB-510 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-822 (Q)-10	8/29/2002	10	NV	NV	NV	NV	NV
SB-625 (N)-10	9/12/2002	10	NV	0.898	NV	NV	NV
SB-326(D)-10	9/9/2003	10	NV	1.32	NV	5.19	NV
SB-324(D)-10	9/10/2003	10	NV	0.791	NV	3.43	NV
SB-325(D)-10	9/10/2003	10	NV	0.0141	NV	0.025 U	NV
SB-327(D)-10	9/10/2003	10	NV	2.85	NV	1.22	NV
SB-328(D)-10	9/10/2003	10	NV	9.58	NV	12.4	NV
SB-700(P)-10.5	8/21/2002	10.5	0.25 U	1.81	2.93	1.4	0.947
SB-800 (Q)-10.5	8/27/2002	10.5	NV	NV	NV	NV	NV
SB-833 (Q)-10.5	8/28/2002	10.5	NV	NV	NV	NV	NV
SB-701(P)-11	8/20/2002	11	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-702(P)-11	8/21/2002	11	0.0125 U	0.00183	0.0005 U	0.0005 U	0.0005 U
SB-704(P)-11	8/21/2002	11	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-715(P)-11	8/21/2002	11	NV	NV	NV	NV	NV
SB-806 (Q)-11	8/28/2002	11	NV	NV	NV	NV	NV
SB-819 (Q)-11	8/28/2002	11	NV	NV	NV	NV	NV
SB-504 (M) 10-12	8/29/2002	11	NV	NV	NV	NV	NV
SB-619 (N)-11	9/12/2002	11	NV	1.43	NV	36.7	NV
SB-607(N)-11	9/13/2002	11	NV	0.0947	NV	NV	NV
SB-720(P)-11.5	8/23/2002	11.5	NV	NV	NV	NV	NV
SB-701(P)-12	8/20/2002	12	0.0125 U	0.0465	0.000418	0.00315	0.000583
SB-705(P)-12	8/20/2002	12	NV	NV	NV	NV	NV
SB-706(P)-12	8/21/2002	12	NV	NV	NV	NV	NV
SB-719(P)-12	8/23/2002	12	NV	NV	NV	NV	NV
SB-900(S)-12	8/26/2002	12	NV	0.0886	NV	0.025 U	NV
SB-902 (S)-12	8/26/2002	12	NV	0.0005 U	NV	0.0228	NV
SB-904 (S)-12	8/26/2002	12	NV	4.06	NV	0.637	NV

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Methylene Chloride	Naphthalene	N-Butylbenzene	N-Propylbenzene	O-Xylene
SB-905 (S)-12	8/26/2002	12	NV	0.00884	NV	0.0005 U	NV
SB-906 (S)-12	8/27/2002	12	NV	0.146	NV	1.15	NV
SB-316-D-14.5	8/20/2002	14.5	NV	4.58	NV	18.9	NV
SB-314-D-15.0	8/20/2002	15	NV	0.0198	NV	0.0531	NV
SB-315-D-15.0	8/20/2002	15	NV	0.0417	NV	0.0143	NV
SB-318-D-15.0	8/20/2002	15	NV	6.57	NV	7.2	NV
SB-324(D)-15	9/10/2003	15	NV	0.413	NV	0.191	NV
SB-324(D)-DUP	9/10/2003	15	NV	2.59	NV	1.43	NV
SB-325(D)-15	9/10/2003	15	NV	0.1 U	NV	0.025 U	NV
SB-327(D)-15	9/10/2003	15	NV	4.19	NV	7.49	NV
SB-328(D)-15	9/10/2003	15	NV	0.11	NV	0.153	NV
SB-313-D-18.0	8/20/2002	18	NV	0.486	NV	16.1	NV
SB101(C)18	8/22/2002	18	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB102(C)18	8/22/2002	18	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB103(C)18	8/22/2002	18	0.013	0.0005 U	0.0005 U	0.0005 U	0.000415
SB100(C)20	8/22/2002	20	0.0146	0.0179	0.0204	0.0005 U	0.0613
SB104(C)20	8/22/2002	20	0.0125 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
SB-404(F)-20	8/22/2002	20	NV	NV	NV	NV	NV
SB-401(F)-20	8/23/2002	20	NV	NV	NV	NV	NV
SB-402(F)-20	8/23/2002	20	NV	NV	NV	NV	NV
Number of Samples			98 8	250 113	99 15	234 79	98 12
Average Concentration			0.1	5.2	0.3	3.9	0.4
Median Concentration			0.0125	0.03195	0.0005	0.025	0.0005
Frequency of Detection			8.2	45.2	15.2	33.8	12.2
Minimum Value			0.0103	0.0002605	0.000188	0.000191	0.000206
Maximum Detection			0.0177	132	15	91.3	29

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB801(Q)-0	8/26/2002	0	NV	NV	NV	NV	0.025 U
SB802(Q)-0	8/26/2002	0	NV	NV	NV	NV	0.025 U
SB803(Q)-0	8/26/2002	0	NV	NV	NV	NV	0.025 U
SB-804(Q)-0	8/26/2002	0	NV	NV	NV	NV	0.025 U
SB-805(Q)-0	8/26/2002	0	NV	NV	NV	NV	0.025 U
SB-800 (Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB-811 (Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB812(Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB813(Q)-0	8/27/2002	0	NV	NV	NV	NV	R
SB814(Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB815(Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB816(Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB-823 (Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB-824 (Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB-825 (Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB-826 (Q)-0	8/27/2002	0	NV	NV	NV	NV	0.025 U
SB-806 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-807 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-809 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-810 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-817 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-818 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-819 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-828 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.05
SB-829 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-830 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-831 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-832 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-833 (Q)-0	8/28/2002	0	NV	NV	NV	NV	0.025 U
SB-820 (Q)-0	8/29/2002	0	NV	NV	NV	NV	0.025 U
SB-820 (Q)-0C	8/29/2002	0	0.0411	0.05 U	0.05 U	0.0144	0.0644
SB-821 (Q)-0	8/29/2002	0	NV	NV	NV	NV	0.025 U
SB-822 (Q)-0	8/29/2002	0	NV	NV	NV	NV	0.025 U
SB-827 (Q)-0	8/29/2002	0	NV	NV	NV	NV	0.025 U
Ex-4/S-1	3/29/2004	1	NV	NV	NV	NV	0.025 U
Ex-1/S-1	3/30/2004	1	NV	NV	NV	NV	0.025 U
Ex-2/S-1	3/30/2004	1	NV	NV	NV	NV	0.129
Ex-3/S-1	3/31/2004	1	NV	NV	NV	NV	0.025 U
SB-618 (N)-1.5	9/12/2002	1.5	NV	NV	NV	NV	0.106
SB-304-D-2.0	8/19/2002	2	NV	NV	NV	NV	3.52
SB-305-D-2.0	8/19/2002	2	NV	NV	NV	NV	2.56
SB-306-D-2.0	8/19/2002	2	NV	NV	NV	NV	7.72
SB-307-D-2.0	8/19/2002	2	NV	NV	NV	NV	0.001 U
SB-309-D-2.0	8/19/2002	2	NV	NV	NV	NV	7.66
SB-310-D-2.0	8/19/2002	2	NV	NV	NV	NV	1.34
SB-D-DUP-0819	8/19/2002	2	NV	NV	NV	NV	0.78
SB-315-D-2.0	8/20/2002	2	NV	NV	NV	NV	0.05 U
SB-316-D-2.0	8/20/2002	2	NV	NV	NV	NV	0.05 U
SB-701(P)-2	8/20/2002	2	0.0005 U	0.0005 U	0.00165	0.001 U	0.025 U
SB-702(P)-2	8/21/2002	2	0.0005 U	0.0005 U	0.0005 U	0.00151	0.025 U
SB-703(P)-2	8/21/2002	2	0.000248	0.0005 U	0.0005 U	0.00593	0.025 U
SB-704(P)-2	8/21/2002	2	0.0005 U	0.0005 U	0.0005 U	0.00118	0.025 U
SB-707(P)-2	8/21/2002	2	NV	NV	NV	NV	0.025 U
SB-712(P)-2	8/21/2002	2	0.0005 U	0.0005 U	0.0005 U	0.0101	0.025 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-713(P)-2	8/21/2002	2	NV	NV	NV	NV	0.025 U
SB-714(P)-2	8/21/2002	2	NV	NV	NV	NV	0.025 U
SB-718(P)-2	8/21/2002	2	NV	NV	NV	NV	0.025 U
SB102(C)1-3	8/22/2002	2	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB202(C)2	8/22/2002	2	0.00255	0.0005 U	0.00628	0.00119	0.002107
SB-720(P)-2	8/23/2002	2	NV	NV	NV	NV	0.0628
SB801(Q)-2	8/26/2002	2	NV	NV	NV	NV	0.025 U
SB802(Q)-2	8/26/2002	2	NV	NV	NV	NV	0.025 U
SB803(Q)-2	8/26/2002	2	NV	NV	NV	NV	0.025 U
SB-804(Q)-2	8/26/2002	2	NV	NV	NV	NV	0.025 U
SB-805(Q)-2	8/26/2002	2	NV	NV	NV	NV	1.1
SB-800 (Q)-2	8/27/2002	2	NV	NV	NV	NV	0.025 U
SB816(Q)-2	8/27/2002	2	NV	NV	NV	NV	0.025 U
SB-823 (Q)-2	8/27/2002	2	NV	NV	NV	NV	0.025 U
SB-825 (Q)-2	8/27/2002	2	NV	NV	NV	NV	0.025 U
SB-806 (Q)-2	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB-809 (Q)-2	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB-810 (Q)-2	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB-817 (Q)-2	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB-828 (Q)-2	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB-829 (Q)-2	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB-829 (Q)-2C	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB-830 (Q)-2	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB-832 (Q)-2	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB-833 (Q)-2	8/28/2002	2	NV	NV	NV	NV	0.025 U
SB224 (C)-2	8/29/2002	2	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB231 (C)-2	8/29/2002	2	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-820 (Q)-2	8/29/2002	2	NV	NV	NV	NV	0.025 U
SB-822 (Q)-2	8/29/2002	2	NV	NV	NV	NV	0.025 U
SB-822 (Q)-2C	8/29/2002	2	NV	NV	NV	NV	0.025 U
SB-827 (Q)-2	8/29/2002	2	NV	NV	NV	NV	0.025 U
SB-622 (N)-2	9/12/2002	2	NV	NV	NV	NV	0.025 U
SB-624 (N)-2	9/12/2002	2	NV	NV	NV	NV	0.025 U
SB-625 (N)-2	9/12/2002	2	NV	NV	NV	NV	0.025 U
SB-008(A)-2	8/26/2003	2	NV	NV	NV	NV	0.05 U
SB-009(A)-2	8/27/2003	2	NV	NV	NV	NV	0.05 U
SB-010(A)-2	8/27/2003	2	NV	NV	NV	NV	0.05 U
SB-627(N)-2	8/28/2003	2	NV	NV	NV	NV	0.05 U
SB-912(S)-2	9/3/2003	2	NV	NV	NV	NV	0.05 U
SB-913(S)-2	9/3/2003	2	NV	NV	NV	NV	0.05 U
SB-914(S)-2	9/3/2003	2	NV	NV	NV	NV	0.05 U
SB-253(C)-2	9/4/2003	2	NV	NV	NV	NV	0.05 U
SB-254(C)-2	9/4/2003	2	NV	NV	NV	NV	0.05 U
SB-834(Q)-2	9/5/2003	2	NV	NV	NV	NV	0.05 U
SB-835(Q)-2	9/5/2003	2	NV	NV	NV	NV	0.05 U
SB-321(D)-2	9/9/2003	2	NV	NV	NV	NV	4.15
SB-326(D)-2	9/9/2003	2	NV	NV	NV	NV	0.05 U
SB-320(D)-2	9/10/2003	2	NV	NV	NV	NV	0.05 U
SB-322(D)-2	9/10/2003	2	NV	NV	NV	NV	0.05 U
SB-324(D)-2	9/10/2003	2	NV	NV	NV	NV	0.05 U
SB-325(D)-2	9/10/2003	2	NV	NV	NV	NV	0.05 U
SB-325(D)-DUP	9/10/2003	2	NV	NV	NV	NV	0.05 U
SB-327(D)-2	9/10/2003	2	NV	NV	NV	NV	0.05 U
SB-328(D)-2	9/10/2003	2	NV	NV	NV	NV	0.05 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-410(F)-2'	3/31/2004	2	NV	NV	NV	NV	0.05 U
SB-706(P)-2.5	8/21/2002	2.5	NV	NV	NV	NV	0.025 U
SB-400(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	0.025 U
SB-404(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	0.025 U
SB-405(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	0.025 U
SB-406(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	0.025 U
SB-407(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	0.025 U
SB-408(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	0.025 U
SB-409(F)-2.5	8/22/2002	2.5	NV	NV	NV	NV	0.025 U
SB-401(F)-2.5	8/23/2002	2.5	NV	NV	NV	NV	0.025 U
SB-402(F)-2.5	8/23/2002	2.5	NV	NV	NV	NV	0.025 U
SB212(C)-2.5	8/27/2002	2.5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB218(C)-2.5	8/28/2002	2.5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-002(A)-2.5	8/27/2003	2.5	NV	NV	NV	NV	0.05 U
SB-019(A)-2.5	8/27/2003	2.5	NV	NV	NV	NV	0.05 U
SB-255(C)-2.5	9/4/2003	2.5	NV	NV	NV	NV	0.05 U
SB-005(A)-2.5	9/5/2003	2.5	NV	NV	NV	NV	0.05 U
SB-705(P)-3	8/20/2002	3	NV	NV	NV	NV	0.025 U
SB-708(P)-3	8/20/2002	3	NV	NV	NV	NV	0.025 U
SB-716(P)-3	8/20/2002	3	0.0005 U	0.0005 U	0.00186	0.000244	0.025 U
SB-717(P)-3	8/20/2002	3	0.0005 U	0.0005 U	0.00153	0.001 U	0.025 U
SB-D-DUP-3	8/20/2002	3	NV	NV	NV	NV	38
SB-700(P)-3	8/21/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.025 U
SB-709(P)-3	8/21/2002	3	0.0005 U	0.0005 U	0.0005 U	0.000761	0.025 U
SB-710(P)-3	8/21/2002	3	0.0005 U	0.0005 U	0.0005 U	0.00174	0.025 U
SB-711(P)-3	8/21/2002	3	0.0005 U	0.0005 U	0.0005 U	0.00165	0.025 U
SB-715(P)-3	8/21/2002	3	NV	NV	NV	NV	0.025 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB100(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB101(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.000401	0.000607
SB103(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.00291	0.000272	0.000772
SB200(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB201(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB202(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.00277	0.000396	0.000896
SB203(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.000248	0.000748
SB204(C)3	8/22/2002	3	0.0005 U	0.0005 U	0.0005 U	0.000244	0.000744
SB209(C)-3	8/27/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB211(C)-3	8/27/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB216(C)-3	8/27/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-824 (Q)-3	8/27/2002	3	NV	NV	NV	NV	0.025 U
SB-826 (Q)-3	8/27/2002	3	NV	NV	NV	NV	0.025 U
SB217(C)-3	8/28/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB225 (C)-3	8/29/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB226 (C)-3	8/29/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB 233 (C)-3	8/30/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB 238 (C)-3	8/30/2002	3	0.0005 U	0.0005 U	0.0005 U	0.00039	0.00089
SB-244(C)-3	9/3/2002	3	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-617 (N)-3	9/12/2002	3	NV	NV	NV	NV	0.025 U
SB-620 (N)-3	9/12/2002	3	NV	NV	NV	NV	0.025 U
SB-601(N)-3	9/13/2002	3	NV	NV	NV	NV	0.05 U
SB-602(N)-3	9/13/2002	3	NV	NV	NV	NV	0.025 U
SB-604(N)-3	9/13/2002	3	NV	NV	NV	NV	0.025 U
SB-605(N)-3	9/13/2002	3	NV	NV	NV	NV	14.3
SB-606(N)-3	9/13/2002	3	NV	NV	NV	NV	0.025 U
SB-608(N)-3	9/13/2002	3	NV	NV	NV	NV	0.05 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-609(N)-3	9/13/2002	3	NV	NV	NV	NV	0.05 U
SB-301-D-3.5	8/20/2002	3.5	NV	NV	NV	NV	1.39
SB208(C)-3.5	8/27/2002	3.5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB210(C)-3.5	8/27/2002	3.5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB104(C)4	8/22/2002	4	0.0005 U	0.0005 U	0.00287	0.000311	0.000811
SB-900(S)-4	8/26/2002	4	NV	NV	NV	NV	0.001 U
SB-904 (S)-4	8/26/2002	4	NV	NV	NV	NV	0.025 U
SB-905 (S)-4	8/26/2002	4	NV	NV	NV	NV	0.025 U
SB213(C)-4	8/27/2002	4	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-906 (S)-4	8/27/2002	4	NV	NV	NV	NV	0.001 U
SB-908 (S)-4	8/27/2002	4	NV	NV	NV	NV	0.385
SB-909 (S)-4	8/27/2002	4	NV	NV	NV	NV	0.025 U
SB-910 (S)-4	8/27/2002	4	NV	NV	NV	NV	0.000911
SB219(C)-4	8/28/2002	4	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-818 (Q)-4	8/28/2002	4	NV	NV	NV	NV	0.025 U
SB-831 (Q)-4	8/28/2002	4	NV	NV	NV	NV	0.025 U
SB228 (C)-4	8/29/2002	4	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-239(C)-4	9/3/2002	4	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-242(C)-4	9/3/2002	4	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-243(C)-4	9/3/2002	4	0.0005 U	0.0005 U	0.000592	0.001 U	0.0015 U
SB-250(C)-4	9/9/2002	4	0.0005 U	0.0005 U	0.0005 U	0.00076	0.00126
SB-251(C)-4	9/9/2002	4	0.0005 U	0.0005 U	0.0005 U	0.00219	0.002633
SB-020(A)-4'	3/31/2004	4	NV	NV	NV	NV	0.05 U
SB-410(F)-4'	3/31/2004	4	NV	NV	NV	NV	0.05 U
SB-305-D-4.5	8/19/2002	4.5	NV	NV	NV	NV	0.249
SB-306-D-4.5	8/19/2002	4.5	NV	NV	NV	NV	2.57
SB205(C)-4.5	8/27/2002	4.5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB207(C)-4.5	8/27/2002	4.5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB812(Q)-4.5	8/27/2002	4.5	NV	NV	NV	NV	0.025 U
SB814(Q)-4.5	8/27/2002	4.5	NV	NV	NV	NV	0.025 U
SB815(Q)-4.5	8/27/2002	4.5	NV	NV	NV	NV	0.025 U
SB221 (C)-4.5	8/28/2002	4.5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB222 (C)-4.5	8/28/2002	4.5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-304-D-5.0	8/19/2002	5	NV	NV	NV	NV	3.92
SB-309-D-5.0	8/19/2002	5	NV	NV	NV	NV	0.05 U
SB-310-D-5.0	8/19/2002	5	NV	NV	NV	NV	32
SB-311-D-5.0	8/19/2002	5	NV	NV	NV	NV	0.05 U
SB-312-D-5.0	8/19/2002	5	NV	NV	NV	NV	0.000784
SB-313-D-5.0	8/20/2002	5	NV	NV	NV	NV	8.46
SB-316-D-5.0	8/20/2002	5	NV	NV	NV	NV	69.8
SB-400(F)-5	8/22/2002	5	NV	NV	NV	NV	0.025 U
SB-409(F)-5	8/22/2002	5	NV	NV	NV	NV	0.025 U
SB-719(P)-5	8/23/2002	5	NV	NV	NV	NV	0.025 U
SB214(C)-5	8/27/2002	5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB215(C)-5	8/27/2002	5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-811 (Q)-5	8/27/2002	5	NV	NV	NV	NV	0.025 U
SB813(Q)-5	8/27/2002	5	NV	NV	NV	NV	0.025 U
SB220 (C)-5	8/28/2002	5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-819 (Q)-5	8/28/2002	5	NV	NV	NV	NV	0.05
SB-821 (Q)-5	8/29/2002	5	NV	NV	NV	NV	70.7
SB-821 (Q)-5C	8/29/2002	5	NV	NV	NV	NV	22.3
SB-241(C)-5	9/3/2002	5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-245(C)-5	9/3/2002	5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-246(C)-5	9/3/2002	5	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-252(C)-5	9/9/2002	5	0.0005 U	0.0005 U	0.0005 U	0.00062	0.00112
SB-321(D)-5	9/9/2003	5	NV	NV	NV	NV	31.6
SB-326(D)-5	9/9/2003	5	NV	NV	NV	NV	19.4
SB-320(D)-5	9/10/2003	5	NV	NV	NV	NV	0.05 U
SB-322(D)-5	9/10/2003	5	NV	NV	NV	NV	0.05 U
SB-324(D)-5	9/10/2003	5	NV	NV	NV	NV	0.05 U
SB-325(D)-5	9/10/2003	5	NV	NV	NV	NV	0.05 U
SB-327(D)-5	9/10/2003	5	NV	NV	NV	NV	0.05 U
SB-328(D)-5	9/10/2003	5	NV	NV	NV	NV	0.037
SB-705(P)-5.5	8/20/2002	5.5	NV	NV	NV	NV	0.025 U
SB-706(P)-5.5	8/21/2002	5.5	0.0005 U	0.0005 U	0.0005 U	0.00158	0.025 U
SB-710(P)-5.5	8/21/2002	5.5	0.0005 U	0.0005 U	0.0005 U	0.00317	0.003514
SB-613 (N)-5.5	9/12/2002	5.5	NV	NV	NV	NV	181
SB-617 (N)-5.5	9/12/2002	5.5	NV	NV	NV	NV	0.025 U
SB200(C)6	8/22/2002	6	0.0005 U	0.0005 U	0.0005 U	0.000231	0.000731
SB201(C)6	8/22/2002	6	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB206(C)-6	8/27/2002	6	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
TP201(C)6E	8/27/2002	6	0.0005 U	0.0005 U	0.000184	0.001 U	0.0015 U
TP202(C)6W	8/27/2002	6	0.0005 U	0.0005 U	0.000182	0.001 U	0.0015 U
SB223 (C)-6	8/29/2002	6	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-501 (M) 4-8	8/29/2002	6	NV	NV	NV	NV	0.604
SB 235 (C)-6	8/30/2002	6	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB 236 (C)-6	8/30/2002	6	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB 237 (C)-6	8/30/2002	6	0.00809	0.00961	0.0005 U	0.000868	0.001368
SB-240(C)-6	9/3/2002	6	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-247(C)-6	9/3/2002	6	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-608(N)-6	9/13/2002	6	NV	NV	NV	NV	0.05 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB256 (c) 6	3/31/2004	6	0.05 U	0.05 U	0.05 U	0.1 U	0.15 U
SB408/S-2(6-7)	8/22/2002	6.5	NV	NV	NV	NV	0.112
SB-827 (Q)-6.5	8/29/2002	6.5	NV	NV	NV	NV	0.025 U
SB-715(P)-7	8/21/2002	7	NV	NV	NV	NV	0.21
SB202(C)7	8/22/2002	7	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB203(C)7	8/22/2002	7	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB407/S-2(6-8)	8/22/2002	7	NV	NV	NV	NV	4.68
SB-807 (Q)-7	8/28/2002	7	NV	NV	NV	NV	57.9
SB-612 (N)-7	9/12/2002	7	NV	NV	NV	NV	478
SB-614 (N)-7	9/12/2002	7	NV	NV	NV	NV	79.9
SB-615 (N)-7	9/12/2002	7	NV	NV	NV	NV	156
SB-616 (N)-7	9/12/2002	7	NV	NV	NV	NV	207
SB-618 (N)-7	9/12/2002	7	0.5 U	0.5 U	0.5 U	132	137
SB-619 (N)-7	9/12/2002	7	NV	NV	NV	NV	0.025 U
SB-620 (N)-7	9/12/2002	7	NV	NV	NV	NV	96.7
SB-621 (N)-7	9/12/2002	7	NV	NV	NV	NV	0.025 U
SB-622 (N)-7	9/12/2002	7	0.0005 U	0.0005 U	0.0005 U	0.00515	0.025 U
SB-623 (N)-7	9/12/2002	7	NV	NV	NV	NV	17.4
SB-624 (N)-7	9/12/2002	7	4.88	0.25 U	0.25 U	16.7	24.59
SB-625 (N)-7	9/12/2002	7	NV	NV	NV	NV	0.025 U
SB-626 (N)-7	9/12/2002	7	NV	NV	NV	NV	195
SB-600(N)-7	9/13/2002	7	NV	NV	NV	NV	171
SB-601(N)-7	9/13/2002	7	NV	NV	NV	NV	426
SB-602(N)-7	9/13/2002	7	NV	NV	NV	NV	22.5
SB-603(N)-7	9/13/2002	7	NV	NV	NV	NV	393
SB-604(N)-7	9/13/2002	7	NV	NV	NV	NV	172
SB-605(N)-7	9/13/2002	7	NV	NV	NV	NV	333

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Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-606(N)-7	9/13/2002	7	NV	NV	NV	NV	0.025 U
SB-609(N)-7	9/13/2002	7	NV	NV	NV	NV	0.05 U
SB-912(S)-7	9/3/2003	7	NV	NV	NV	NV	0.05 U
SB-913(S)-7	9/3/2003	7	NV	NV	NV	NV	0.05 U
SB-254(C)-7	9/4/2003	7	NV	NV	NV	NV	0.05 U
SB-255(C)-7	9/4/2003	7	NV	NV	NV	NV	0.05 U
SB-005(A)-7	9/5/2003	7	NV	NV	NV	NV	0.05 U
SB-835(Q)-7	9/5/2003	7	NV	NV	NV	NV	0.05 U
SB-015(A)-7	9/10/2003	7	NV	NV	NV	NV	64.6
SB-323(D)-7	9/10/2003	7	NV	NV	NV	NV	0.05 U
SB-006(A)-7'	3/31/2004	7	NV	NV	NV	NV	86.9
SB-721(P)-7'	3/31/2004	7	NV	NV	NV	NV	0.05 U
SB-714(P)-7.5	8/21/2002	7.5	NV	NV	NV	NV	72.7
SB-405(F)-7.5	8/22/2002	7.5	NV	NV	NV	NV	0.708
SB-407(F)-7.5	8/22/2002	7.5	NV	NV	NV	NV	6.01
SB-408(F)-7.5	8/22/2002	7.5	NV	NV	NV	NV	0.025 U
SB-007(A)-7.5	8/26/2003	7.5	NV	NV	NV	NV	120
SB-008(A)-7.5	8/26/2003	7.5	NV	NV	NV	NV	0.05 U
SB-001(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	0.05 U
SB-002(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	0.05 U
SB-009(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	1.32
SB-010(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	0.05 U
SB-019(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	134
SB-629(N)-7.5	8/28/2003	7.5	NV	NV	NV	NV	37.9
SB-011(A)-7.5	9/3/2003	7.5	NV	NV	NV	NV	0.05 U
SB-013(A)-7.5	9/3/2003	7.5	NV	NV	NV	NV	0.05 U
SB-914(S)-7.5	9/3/2003	7.5	NV	NV	NV	NV	0.05 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-253(C)-7.5	9/4/2003	7.5	NV	NV	NV	NV	0.05 U
SB-834(Q)-7.5	9/5/2003	7.5	NV	NV	NV	NV	0.05 U
SB-017(A)-7.5	9/8/2003	7.5	NV	NV	NV	NV	0.05 U
SB-632(N)-7.5	9/8/2003	7.5	NV	NV	NV	NV	63.8
SB204(C)8	8/22/2002	8	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-406(F)-8	8/22/2002	8	NV	NV	NV	NV	0.025 U
SB-901 (S)-8	8/26/2002	8	NV	NV	NV	NV	0.025 U
SB-902 (S)-8	8/26/2002	8	NV	NV	NV	NV	0.025 U
SB-903 (S)-8	8/26/2002	8	NV	NV	NV	NV	0.025 U
SB-908 (S)-8	8/27/2002	8	NV	NV	NV	NV	0.000538
SB-911 (S)-8	8/27/2002	8	NV	NV	NV	NV	0.025 U
SB-806 (Q)-8	8/28/2002	8	NV	NV	NV	NV	0.025 U
SB-810 (Q)-8	8/28/2002	8	NV	NV	NV	NV	0.025 U
SB227 (C)-8	8/29/2002	8	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB229 (C)-8	8/29/2002	8	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB230 (C)-8	8/29/2002	8	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-822 (Q)-8	8/29/2002	8	NV	NV	NV	NV	62.9
SB 232 (C)-8	8/30/2002	8	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB 234 (C)-8	8/30/2002	8	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-720(P)-8.5	8/23/2002	8.5	NV	NV	NV	NV	104
SB-804(Q)-8.5	8/26/2002	8.5	NV	NV	NV	NV	0.025 U
SB-809 (Q)-8.5	8/28/2002	8.5	NV	NV	NV	NV	0.05
SB-828 (Q)-8.5	8/28/2002	8.5	NV	NV	NV	NV	0.05
SB-830 (Q)-8.5	8/28/2002	8.5	NV	NV	NV	NV	0.025 U
SB802(Q)-9	8/26/2002	9	NV	NV	NV	NV	0.025 U
SB803(Q)-9	8/26/2002	9	NV	NV	NV	NV	0.025 U
SB-811 (Q)-9	8/27/2002	9	NV	NV	NV	NV	0.05

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-811 (Q)-9C	8/27/2002	9	NV	NV	NV	NV	0.05
SB812(Q)-9	8/27/2002	9	NV	NV	NV	NV	0.025 U
SB814(Q)-9	8/27/2002	9	NV	NV	NV	NV	0.025 U
SB-823 (Q)-9	8/27/2002	9	NV	NV	NV	NV	0.025 U
SB-824 (Q)-9	8/27/2002	9	NV	NV	NV	NV	0.025 U
SB-825 (Q)-9	8/27/2002	9	NV	NV	NV	NV	0.05
SB-826 (Q)-9	8/27/2002	9	NV	NV	NV	NV	0.025 U
SB-807 (Q)-9	8/28/2002	9	NV	NV	NV	NV	0.778
SB-817 (Q)-9	8/28/2002	9	NV	NV	NV	NV	0.025 U
SB-818 (Q)-9	8/28/2002	9	NV	NV	NV	NV	0.025 U
SB-829 (Q)-9	8/28/2002	9	NV	NV	NV	NV	0.025 U
SB-831 (Q)-9	8/28/2002	9	NV	NV	NV	NV	0.025 U
SB-832 (Q)-9	8/28/2002	9	NV	NV	NV	NV	0.025 U
SB-820 (Q)-9	8/29/2002	9	NV	NV	NV	NV	0.025 U
SB-820 (Q)-9C	8/29/2002	9	NV	NV	NV	NV	31.7
SB-821 (Q)-9	8/29/2002	9	NV	NV	NV	NV	0.025 U
SB-020(A)-9'	3/31/2004	9	NV	NV	NV	NV	0.05 U
SB-410(F)-9'	3/31/2004	9	NV	NV	NV	NV	0.05 U
SB-705(P)-9.5	8/20/2002	9.5	NV	NV	NV	NV	0.025 U
SB-706(P)-9.5	8/21/2002	9.5	NV	NV	NV	NV	0.025 U
SB801(Q)-9.5	8/26/2002	9.5	NV	NV	NV	NV	0.025 U
SB813(Q)-9.5	8/27/2002	9.5	NV	NV	NV	NV	0.025 U
SB815(Q)-9.5	8/27/2002	9.5	NV	NV	NV	NV	0.025 U
SB816(Q)-9.5	8/27/2002	9.5	NV	NV	NV	NV	0.025 U
SB-316-D-10.0	8/20/2002	10	NV	NV	NV	NV	304
SB-318-D-10.0	8/20/2002	10	NV	NV	NV	NV	80
SB-708(P)-10	8/20/2002	10	NV	NV	NV	NV	0.025 U

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-716(P)-10	8/20/2002	10	0.0005 U	0.0005 U	0.0005 U	0.000249	0.025 U
SB-717(P)-10	8/20/2002	10	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.025 U
SB-703(P)-10	8/21/2002	10	0.0005 U	0.0005 U	0.0005 U	0.000525	0.025 U
SB-707(P)-10	8/21/2002	10	0.0005 U	0.0005 U	0.000208	0.001 U	0.025 U
SB-709(P)-10	8/21/2002	10	0.0005 U	0.0005 U	0.0005 U	0.000505	0.025 U
SB-711(P)-10	8/21/2002	10	0.0005 U	0.0005 U	0.0005 U	0.00172	0.025 U
SB-712(P)-10	8/21/2002	10	0.0005 U	0.0005 U	0.0005 U	0.00808	0.0763
SB-713(P)-10	8/21/2002	10	NV	NV	NV	NV	0.025 U
SB-714(P)-10	8/21/2002	10	NV	NV	NV	NV	344
SB-718(P)-10	8/21/2002	10	NV	NV	NV	NV	0.025 U
SB-805(Q)-10	8/26/2002	10	NV	NV	NV	NV	0.025 U
SB-901 (S)-10	8/26/2002	10	NV	NV	NV	NV	0.025 U
SB-903 (S)-10	8/26/2002	10	NV	NV	NV	NV	0.25 U
SB-908 (S)-10	8/27/2002	10	NV	NV	NV	NV	0.025 U
SB-909 (S)-10	8/27/2002	10	NV	NV	NV	NV	0.025 U
SB-910 (S)-10	8/27/2002	10	NV	NV	NV	NV	0.025 U
SB-911 (S)-10	8/27/2002	10	NV	NV	NV	NV	0.025 U
SB-500 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	0.025 U
SB-501 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	47.1
SB-502 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	0.494
SB-503 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	0.25 U
SB-505 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	0.25 U
SB-506 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	43
SB-507 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	4.38
SB-508 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	98.7
SB-509 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	0.025 U
SB-510 (M) 8-12	8/29/2002	10	NV	NV	NV	NV	17.6

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-822 (Q)-10	8/29/2002	10	NV	NV	NV	NV	0.05
SB-625 (N)-10	9/12/2002	10	NV	NV	NV	NV	0.0989
SB-326(D)-10	9/9/2003	10	NV	NV	NV	NV	23.3
SB-324(D)-10	9/10/2003	10	NV	NV	NV	NV	1.32
SB-325(D)-10	9/10/2003	10	NV	NV	NV	NV	0.05 U
SB-327(D)-10	9/10/2003	10	NV	NV	NV	NV	0.652
SB-328(D)-10	9/10/2003	10	NV	NV	NV	NV	0.385
SB-700(P)-10.5	8/21/2002	10.5	0.795	0.05 U	0.05 U	5.71	16
SB-800 (Q)-10.5	8/27/2002	10.5	NV	NV	NV	NV	0.05
SB-833 (Q)-10.5	8/28/2002	10.5	NV	NV	NV	NV	0.025 U
SB-701(P)-11	8/20/2002	11	0.0005 U	0.0005 U	0.00347	0.000335	0.025 U
SB-702(P)-11	8/21/2002	11	0.0005 U	0.0005 U	0.0005 U	0.000415	0.025 U
SB-704(P)-11	8/21/2002	11	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.025 U
SB-715(P)-11	8/21/2002	11	NV	NV	NV	NV	0.025 U
SB-806 (Q)-11	8/28/2002	11	NV	NV	NV	NV	0.025 U
SB-819 (Q)-11	8/28/2002	11	NV	NV	NV	NV	0.025 U
SB-504 (M) 10-12	8/29/2002	11	NV	NV	NV	NV	0.025 U
SB-619 (N)-11	9/12/2002	11	NV	NV	NV	NV	0.628
SB-607(N)-11	9/13/2002	11	NV	NV	NV	NV	0.025 U
SB-720(P)-11.5	8/23/2002	11.5	NV	NV	NV	NV	125
SB-701(P)-12	8/20/2002	12	0.0005 U	0.0005 U	0.0005 U	0.0193	0.025 U
SB-705(P)-12	8/20/2002	12	NV	NV	NV	NV	0.025 U
SB-706(P)-12	8/21/2002	12	NV	NV	NV	NV	0.025 U
SB-719(P)-12	8/23/2002	12	NV	NV	NV	NV	0.025 U
SB-900(S)-12	8/26/2002	12	NV	NV	NV	NV	16.4
SB-902 (S)-12	8/26/2002	12	NV	NV	NV	NV	0.029
SB-904 (S)-12	8/26/2002	12	NV	NV	NV	NV	3.63

Table A-3
Astoria Area-Wide Petroleum Site
Volatile Organic Compounds in Soil (mg/kg)
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Sec-Butylbenzene	Tert-Butylbenzene	Tetrachloroethene	Xylene, Isomers m & p	Xylenes
SB-905 (S)-12	8/26/2002	12	NV	NV	NV	NV	0.025 U
SB-906 (S)-12	8/27/2002	12	NV	NV	NV	NV	2.13
SB-316-D-14.5	8/20/2002	14.5	NV	NV	NV	NV	63.3
SB-314-D-15.0	8/20/2002	15	NV	NV	NV	NV	0.429
SB-315-D-15.0	8/20/2002	15	NV	NV	NV	NV	0.05 U
SB-318-D-15.0	8/20/2002	15	NV	NV	NV	NV	73.8
SB-324(D)-15	9/10/2003	15	NV	NV	NV	NV	0.179
SB-324(D)-DUP	9/10/2003	15	NV	NV	NV	NV	1.39
SB-325(D)-15	9/10/2003	15	NV	NV	NV	NV	0.05 U
SB-327(D)-15	9/10/2003	15	NV	NV	NV	NV	7.42
SB-328(D)-15	9/10/2003	15	NV	NV	NV	NV	0.05 U
SB-313-D-18.0	8/20/2002	18	NV	NV	NV	NV	1.33
SB101(C)18	8/22/2002	18	0.0005 U	0.0005 U	0.0005 U	0.000211	0.000711
SB102(C)18	8/22/2002	18	0.0005 U	0.0005 U	0.0005 U	0.000229	0.000729
SB103(C)18	8/22/2002	18	0.0005 U	0.0005 U	0.00598	0.000941	0.001356
SB100(C)20	8/22/2002	20	0.0005 U	0.0005 U	0.00454	0.14	0.2013
SB104(C)20	8/22/2002	20	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.0015 U
SB-404(F)-20	8/22/2002	20	NV	NV	NV	NV	0.0557
SB-401(F)-20	8/23/2002	20	NV	NV	NV	NV	0.025 U
SB-402(F)-20	8/23/2002	20	NV	NV	NV	NV	0.025 U
Number of Samples			99 6	99 1	99 14	99 40	424 122
Average Concentration			0.1	0.0	0.0	1.6	13.1
Median Concentration			0.0005	0.0005	0.0005	0.001	0.025
Frequency of Detection			6.1	1.0	14.1	40.4	28.8
Minimum Value			0.000248	0.0005	0.000182	0.000211	0.000538
Maximum Detection			4.88	0.00961	0.00628	132	478

Table A-4
Metals in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium
SB-304-D-2.0	8/19/2002	2	NV	NV	NV	NV	20.9	NV	NV
SB-305-D-2.0	8/19/2002	2	NV	NV	NV	NV	6.53	NV	NV
SB-306-D-2.0	8/19/2002	2	NV	NV	NV	NV	3.51	NV	NV
SB-307-D-2.0	8/19/2002	2	NV	NV	NV	NV	0.392 U	NV	NV
SB-309-D-2.0	8/19/2002	2	NV	NV	NV	NV	5.22	NV	NV
SB-310-D-2.0	8/19/2002	2	NV	NV	NV	NV	0.4145 U	NV	NV
SB-D-DUP-0819	8/19/2002	2	NV	NV	NV	NV	25.1	NV	NV
SB-315-D-2.0	8/20/2002	2	NV	NV	NV	NV	7.17	NV	NV
SB-316-D-2.0	8/20/2002	2	NV	NV	NV	NV	7.5	NV	NV
SB-701(P)-2	8/20/2002	2	1.23	29.9	0.25 U	3.97	2.15	0.04465 U	0.25 U
SB-702(P)-2	8/21/2002	2	8.46	161	0.25 U	21.9	36.7	0.142	1.9
SB-703(P)-2	8/21/2002	2	3.35	77.3	0.25 U	14.6	33.9	0.04465 U	0.62
SB-704(P)-2	8/21/2002	2	2.69	80.9	0.25 U	12.1	19.6	0.05 U	0.519
SB-707(P)-2	8/21/2002	2	2.93	46.2	0.25 U	10.4	9.9	0.05 U	0.25 U
SB202(C)2	8/22/2002	2	24.2	30.1	0.2065 U	8.48	23.1	0.0431 U	0.2065 U
SB224 (C)-2	8/29/2002	2	1.32	24.6	0.225 U	5.25	2.14	0.05 U	0.225 U
SB231 (C)-2	8/29/2002	2	3.93	49.4	0.2275 U	7.23	4.49	0.05 U	0.2275 U
SB-008(A)-2	8/26/2003	2	NV	NV	NV	NV	7.09	NV	NV
SB-009(A)-2	8/27/2003	2	NV	NV	NV	NV	4.66	NV	NV
SB-010(A)-2	8/27/2003	2	NV	NV	NV	NV	2.76	NV	NV
SB-627(N)-2	8/28/2003	2	NV	NV	NV	NV	31.4	NV	NV
SB-253(C)-2	9/4/2003	2	NV	NV	NV	NV	2.55	NV	NV
SB-254(C)-2	9/4/2003	2	NV	NV	NV	NV	34.1	NV	NV
SB-834(Q)-2	9/5/2003	2	NV	NV	NV	NV	3.21	NV	NV
SB-835(Q)-2	9/5/2003	2	NV	NV	NV	NV	17.9	NV	NV
SB-706(P)-2.5	8/21/2002	2.5	1.49	32.5	0.25 U	8	2.49	0.05 U	0.25 U
SB212(C)-2.5	8/27/2002	2.5	1.24	53.7	0.25 U	8.48	1.84	0.05 U	0.25 U

Table A-4
Metals in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium
SB218(C)-2.5	8/28/2002	2.5	2.43	45.7	0.25 U	9.06	2.62	0.0431 U	0.25 U
SB-002(A)-2.5	8/27/2003	2.5	NV	NV	NV	NV	2.51	NV	NV
SB-019(A)-2.5	8/27/2003	2.5	NV	NV	NV	NV	2.62	NV	NV
SB-255(C)-2.5	9/4/2003	2.5	NV	NV	NV	NV	38.8	NV	NV
SB-005(A)-2.5	9/5/2003	2.5	NV	NV	NV	NV	6.56	NV	NV
SB-705(P)-3	8/20/2002	3	1.36	38.6	0.25 U	7.96	2.24	0.0431 U	0.25 U
SB-708(P)-3	8/20/2002	3	1.59	46.6	0.25 U	11	4.19	0.05 U	0.25 U
SB-D-DUP-3	8/20/2002	3	NV	NV	NV	NV	9.2	NV	NV
SB-700(P)-3	8/21/2002	3	2.33	46	0.25 U	7.75	53.2	0.04465 U	0.25 U
SB100(C)3	8/22/2002	3	1.42	55.1	0.156 U	12.3	4.69	0.551	0.549
SB200(C)3	8/22/2002	3	2.03	37.7	0.2035 U	7.26	3.69	0.05 U	0.2035 U
SB201(C)3	8/22/2002	3	1.66	40.7	0.1925 U	8.79	5.54	0.05 U	0.1925 U
SB202(C)3	8/22/2002	3	1.84	31.8	0.1985 U	8.94	3.39	0.05 U	0.1985 U
SB203(C)3	8/22/2002	3	6.99	69.9	0.194 U	8.06	5.18	0.04465 U	0.194 U
SB204(C)3	8/22/2002	3	5.33	44.4	0.194 U	6.63	3.76	0.04465 U	0.194 U
SB209(C)-3	8/27/2002	3	1.59	41.4	0.25 U	8.7	6.68	0.04465 U	0.25 U
SB211(C)-3	8/27/2002	3	1.78	52.4	0.2175 U	9.56	3.35	0.0431 U	0.2175 U
SB216(C)-3	8/27/2002	3	1.58	40	0.25 U	9.36	2.26	0.0431 U	0.25 U
SB217(C)-3	8/28/2002	3	2.52	46.5	0.25 U	7.67	1.49	0.05 U	0.25 U
SB225 (C)-3	8/29/2002	3	6.67	36.2	0.2135 U	5.66	2.54	0.05 U	0.2135 U
SB226 (C)-3	8/29/2002	3	0.991	24.8	0.181 U	4.08	1.54	0.05 U	0.181 U
SB-244(C)-3	9/3/2002	3	2.86	42.9	0.2 U	10.1	3.33	0.05 U	0.453
SB-601(N)-3	9/13/2002	3	NV	NV	NV	NV	4.32	NV	NV
SB-605(N)-3	9/13/2002	3	NV	NV	NV	NV	3.84	NV	NV
SB-608(N)-3	9/13/2002	3	NV	NV	NV	NV	3.25	NV	NV
SB-721(P)-3'	3/31/2004	3	NV	NV	NV	NV	13	NV	NV
SB-301-D-3.5	8/20/2002	3.5	NV	NV	NV	NV	18.9	NV	NV

Table A-4
Metals in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium
SB208(C)-3.5	8/27/2002	3.5	1.92	45.5	0.25 U	10.2	2.49	0.05 U	0.592
SB210(C)-3.5	8/27/2002	3.5	1.79	36.5	0.25 U	8.91	1.85	0.05 U	0.539
SB-900(S)-4	8/26/2002	4	NV	NV	0.25 U	11.7	45.1	NV	NV
SB-904 (S)-4	8/26/2002	4	NV	NV	0.25 U	9.64	15.6	NV	NV
SB-905 (S)-4	8/26/2002	4	NV	NV	0.25 U	8.11	13.9	NV	NV
SB213(C)-4	8/27/2002	4	1.65	56.7	0.2275 U	11.5	2.67	0.0431 U	0.2275 U
SB-906 (S)-4	8/27/2002	4	NV	NV	0.212 U	12.4	200	NV	NV
SB-908 (S)-4	8/27/2002	4	NV	NV	0.1985 U	8.94	2.82	NV	NV
SB-909 (S)-4	8/27/2002	4	NV	NV	0.176 U	9.65	53.1	NV	NV
SB-910 (S)-4	8/27/2002	4	NV	NV	0.25 U	7.92	12	NV	NV
SB219(C)-4	8/28/2002	4	1.09	36.4	0.25 U	8.94	0.981	0.04465 U	0.25 U
SB228 (C)-4	8/29/2002	4	1.51	51.9	0.212 U	92.2	178	0.05 U	0.212 U
SB-239(C)-4	9/3/2002	4	1.77	40.9	0.1645 U	10.3	3.42	0.04465 U	0.1645 U
SB-242(C)-4	9/3/2002	4	1.33	43.5	0.2065 U	9.87	3.9	0.05 U	0.2065 U
SB-243(C)-4	9/3/2002	4	1.81	40.5	0.668	8.61	5.26	0.05 U	0.42
SB-250(C)-4	9/9/2002	4	1.72	49.6	0.181 U	10	7.47	0.05 U	0.181 U
SB-251(C)-4	9/9/2002	4	2.12	44.9	0.1645 U	6.78	4.16	0.04465 U	0.1645 U
SB-020(A)-4'	3/31/2004	4	NV	NV	NV	NV	4.59	NV	NV
SB-410(F)-4'	3/31/2004	4	NV	NV	NV	NV	1.66	NV	NV
SB-305-D-4.5	8/19/2002	4.5	NV	NV	NV	NV	3.38	NV	NV
SB-306-D-4.5	8/19/2002	4.5	NV	NV	NV	NV	0.77 U	NV	NV
SB205(C)-4.5	8/27/2002	4.5	2.04	34.3	0.25 U	12.2	1.33	0.05 U	0.564
SB207(C)-4.5	8/27/2002	4.5	2.49	76.1	0.221 U	10.8	3.22	0.05 U	0.641
SB221 (C)-4.5	8/28/2002	4.5	1.43	43	0.2155 U	7.81	2.66	0.05 U	0.2155 U
SB222 (C)-4.5	8/28/2002	4.5	1.38	35	0.2 U	9.73	3.25	0.05 U	0.2 U
SB-304-D-5.0	8/19/2002	5	NV	NV	NV	NV	8.16	NV	NV
SB-309-D-5.0	8/19/2002	5	NV	NV	NV	NV	0.3865 U	NV	NV

Table A-4
Metals in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium
SB-310-D-5.0	8/19/2002	5	NV	NV	NV	NV	144	NV	NV
SB-311-D-5.0	8/19/2002	5	NV	NV	NV	NV	32.5	NV	NV
SB-312-D-5.0	8/19/2002	5	NV	NV	NV	NV	2.42	NV	NV
SB-313-D-5.0	8/20/2002	5	NV	NV	NV	NV	23.7	NV	NV
SB-316-D-5.0	8/20/2002	5	NV	NV	NV	NV	7.96	NV	NV
SB214(C)-5	8/27/2002	5	1.59	38.6	0.2015 U	7.74	2.78	0.0431 U	0.2015 U
SB215(C)-5	8/27/2002	5	1.87	37.3	0.1955 U	10.2	2.47	0.05 U	0.1955 U
SB220 (C)-5	8/28/2002	5	1.18	31.8	0.25 U	6.06	8.5	0.05 U	0.25 U
SB-241(C)-5	9/3/2002	5	1.69	40.9	0.2015 U	12.4	4.24	0.05 U	0.2015 U
SB-245(C)-5	9/3/2002	5	1.52	33.7	0.168 U	7.56	2.33	0.05 U	0.168 U
SB-246(C)-5	9/3/2002	5	1.75	34.7	0.2135 U	15.6	3.51	0.04465 U	0.2135 U
SB-252(C)-5	9/9/2002	5	1.31	30.6	0.146 U	5.61	2.5	0.05 U	0.146 U
SB-705(P)-5.5	8/20/2002	5.5	5.77	98.3	0.25 U	28.3	9.35	0.05 U	0.569
SB-706(P)-5.5	8/21/2002	5.5	4.18	84	0.25 U	16.1	5.61	0.0431 U	0.512
SB200(C)6	8/22/2002	6	1.88	32.4	0.2015 U	10.8	4.03	0.0431 U	0.2015 U
SB201(C)6	8/22/2002	6	6.88	37	0.2135 U	14.8	18.5	0.05 U	0.2135 U
SB206(C)-6	8/27/2002	6	1.95	52.6	0.25 U	8.61	1.94	0.05 U	0.798
TP201(C)6E	8/27/2002	6	1.48	48	0.25 U	6.48	1.81	0.05 U	0.611
TP202(C)6W	8/27/2002	6	1.53	46.4	0.25 U	10.9	3.41	0.0431 U	0.25 U
SB223 (C)-6	8/29/2002	6	1.18	31.8	0.25 U	5.5	2.21	0.0431 U	0.25 U
SB-240(C)-6	9/3/2002	6	3.75	52.4	0.1865 U	11.9	5.42	0.05 U	0.1865 U
SB-247(C)-6	9/3/2002	6	1.41	34.4	0.168 U	7.4	2.69	0.05 U	0.168 U
SB-608(N)-6	9/13/2002	6	NV	NV	NV	NV	11.2	NV	NV
SB256 (c) 6	3/31/2004	6	2.19	37.5	0.2015 U	6.81	2.68	0.0357 U	0.2015 U
SB202(C)7	8/22/2002	7	2.07	36.2	0.188 U	6.98	3.2	0.05 U	0.188 U
SB203(C)7	8/22/2002	7	5.52	43.1	0.1785 U	9.53	4.97	0.05 U	0.1785 U
SB-615 (N)-7	9/12/2002	7	NV	NV	NV	NV	4.76	NV	NV

Table A-4
Metals in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium
SB-618 (N)-7	9/12/2002	7	NV	NV	NV	NV	7.6	NV	NV
SB-620 (N)-7	9/12/2002	7	NV	NV	NV	NV	3.76	NV	NV
SB-623 (N)-7	9/12/2002	7	NV	NV	NV	NV	4.91	NV	NV
SB-624 (N)-7	9/12/2002	7	NV	NV	NV	NV	3.75	NV	NV
SB-626 (N)-7	9/12/2002	7	NV	NV	NV	NV	6.45	NV	NV
SB-601(N)-7	9/13/2002	7	NV	NV	NV	NV	10.7	NV	NV
SB-602(N)-7	9/13/2002	7	NV	NV	NV	NV	3.13	NV	NV
SB-603(N)-7	9/13/2002	7	NV	NV	NV	NV	3.58	NV	NV
SB-604(N)-7	9/13/2002	7	NV	NV	NV	NV	27.4	NV	NV
SB-605(N)-7	9/13/2002	7	NV	NV	NV	NV	3.47	NV	NV
SB-254(C)-7	9/4/2003	7	NV	NV	NV	NV	31.5	NV	NV
SB-255(C)-7	9/4/2003	7	NV	NV	NV	NV	107	NV	NV
SB-005(A)-7	9/5/2003	7	NV	NV	NV	NV	3.24	NV	NV
SB-835(Q)-7	9/5/2003	7	NV	NV	NV	NV	2.49	NV	NV
SB-006(A)-7'	3/31/2004	7	NV	NV	NV	NV	2.34	NV	NV
SB-721(P)-7'	3/31/2004	7	NV	NV	NV	NV	5.36	NV	NV
SB-007(A)-7.5	8/26/2003	7.5	NV	NV	NV	NV	4.51	NV	NV
SB-008(A)-7.5	8/26/2003	7.5	NV	NV	NV	NV	4.24	NV	NV
SB-001(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	8.43	NV	NV
SB-002(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	2.72	NV	NV
SB-009(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	3.27	NV	NV
SB-010(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	2.86	NV	NV
SB-019(A)-7.5	8/27/2003	7.5	NV	NV	NV	NV	7.44	NV	NV
SB-629(N)-7.5	8/28/2003	7.5	NV	NV	NV	NV	2.49	NV	NV
SB-011(A)-7.5	9/3/2003	7.5	NV	NV	NV	NV	3.31	NV	NV
SB-253(C)-7.5	9/4/2003	7.5	NV	NV	NV	NV	3.73	NV	NV
SB-834(Q)-7.5	9/5/2003	7.5	NV	NV	NV	NV	3.63	NV	NV

Table A-4
Metals in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium
SB-632(N)-7.5	9/8/2003	7.5	NV	NV	NV	NV	27.7	NV	NV
SB204(C)8	8/22/2002	8	1.53	32.9	0.188 U	6.25	3.27	0.05 U	0.188 U
SB-901 (S)-8	8/26/2002	8	NV	NV	0.25 U	7.01	2.82	NV	NV
SB-902 (S)-8	8/26/2002	8	NV	NV	0.25 U	7.52	3.98	NV	NV
SB-903 (S)-8	8/26/2002	8	NV	NV	0.2275 U	6.09	5.94	NV	NV
SB-908 (S)-8	8/27/2002	8	NV	NV	0.2135 U	7.37	2.57	NV	NV
SB-911 (S)-8	8/27/2002	8	NV	NV	0.2035 U	7.36	3.55	NV	NV
SB227 (C)-8	8/29/2002	8	1.84	34.9	0.2015 U	6.42	2.76	0.05 U	0.2015 U
SB229 (C)-8	8/29/2002	8	1.55	27.8	0.2085 U	10.1	1.305 U	0.05 U	0.2085 U
SB230 (C)-8	8/29/2002	8	1.71	33	0.13 U	6.43	2.54	0.05 U	0.13 U
SB257 (c) 8	3/31/2004	8	NV	NV	NV	3.48	NV	NV	NV
SB258 (c) 8.5	3/31/2004	8.5	NV	NV	NV	16.3	NV	NV	NV
SB259 (c) 8.5	3/31/2004	8.5	NV	NV	NV	12.9	NV	NV	NV
SB-020(A)-9'	3/31/2004	9	NV	NV	NV	NV	2.48	NV	NV
SB-410(F)-9'	3/31/2004	9	NV	NV	NV	NV	5.42	NV	NV
SB-705(P)-9.5	8/20/2002	9.5	1.47	38.4	0.25 U	10.3	2.55	0.05 U	0.25 U
SB-706(P)-9.5	8/21/2002	9.5	1.88	50.1	0.25 U	8.61	3.85	0.05 U	0.637
SB-316-D-10.0	8/20/2002	10	NV	NV	NV	NV	13.9	NV	NV
SB-318-D-10.0	8/20/2002	10	NV	NV	NV	NV	4.89	NV	NV
SB-708(P)-10	8/20/2002	10	1.33	31.3	0.25 U	6.71	2.6	0.04465 U	0.25 U
SB-703(P)-10	8/21/2002	10	1.87	40.1	0.25 U	7.96	2.24	0.05 U	0.519
SB-707(P)-10	8/21/2002	10	12.8	40.8	0.25 U	7.01	2.03	0.0431 U	24.5
SB-714(P)-10	8/21/2002	10	NV	NV	NV	NV	4.57	NV	NV
SB-901 (S)-10	8/26/2002	10	NV	NV	0.25 U	13.9	4.84	NV	NV
SB-903 (S)-10	8/26/2002	10	NV	NV	0.212 U	9.24	2.74	NV	NV
SB-908 (S)-10	8/27/2002	10	NV	NV	0.185 U	9.77	2.23	NV	NV
SB-909 (S)-10	8/27/2002	10	NV	NV	0.2 U	13.1	37.7	NV	NV

Table A-4
Metals in Soil (mg/kg)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Feet bgs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium
SB-910 (S)-10	8/27/2002	10	NV	NV	0.221 U	7.31	2.79	NV	NV
SB-911 (S)-10	8/27/2002	10	NV	NV	0.25 U	11.3	3.99	NV	NV
SB-700(P)-10.5	8/21/2002	10.5	1.25	48.5	0.25 U	10.6	9.04	0.0431 U	0.524
SB-701(P)-11	8/20/2002	11	2.07	50.7	0.25 U	13.1	3.46	0.05 U	0.25 U
SB-702(P)-11	8/21/2002	11	0.811	29.6	0.25 U	5.11	2.08	0.134	0.25 U
SB-704(P)-11	8/21/2002	11	1.16	31.9	0.25 U	10.2	2.12	0.0431 U	0.501
SB-701(P)-12	8/20/2002	12	1.34	36	0.25 U	10.2	2.41	0.04465 U	0.25 U
SB-705(P)-12	8/20/2002	12	1.89	33.4	0.25 U	7.73	2.29	0.05 U	0.25 U
SB-706(P)-12	8/21/2002	12	2.28	38.2	0.25 U	8.72	2.13	0.04465 U	0.25 U
SB-900(S)-12	8/26/2002	12	NV	NV	0.1895 U	9.62	7.91	NV	NV
SB-902 (S)-12	8/26/2002	12	NV	NV	0.25 U	9.89	4.46	NV	NV
SB-904 (S)-12	8/26/2002	12	NV	NV	0.25 U	11.6	2.93	NV	NV
SB-905 (S)-12	8/26/2002	12	NV	NV	0.2135 U	7.47	2.75	NV	NV
SB-906 (S)-12	8/27/2002	12	NV	NV	0.223 U	11.5	3.22	NV	NV
SB-316-D-14.5	8/20/2002	14.5	NV	NV	NV	NV	5.96	NV	NV
SB-314-D-15.0	8/20/2002	15	NV	NV	NV	NV	4.36	NV	NV
SB-315-D-15.0	8/20/2002	15	NV	NV	NV	NV	3.72	NV	NV
SB-318-D-15.0	8/20/2002	15	NV	NV	NV	NV	7.76	NV	NV
SB-313-D-18.0	8/20/2002	18	NV	NV	NV	NV	13.2	NV	NV
SB100(C)20	8/22/2002	20	3.84	149	0.185 U	18.9	15.3	0.0431 U	1
Number of Samples			78 78	78 78	101 1	104 104	179 174	78 3	78 20
Average Concentration			2.71	46.02	0.23	10.34	10.92	0.06	0.63
Median Concentration			1.785	40.6	0.2275	8.94	3.76	0.05	0.25
Frequency of Detection			100	100	1	100	97	4	26
Minimum Value			0.811	24.6	0.13	3.48	0.3865	0.0357	0.13
Maximum Detection			24.2	161	0.668	92.2	200	0.551	24.5
90th Percentile			5.39						
95th Percentile			6.90						

Table A-5
Total Petroleum Hydrocarbons in Groundwater (mg/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Gasoline-Range Organics	Diesel-Range Organics	Heavy-Oil-Range Organics
SB100(C)W	8/22/2002	0.04 U	0.125 U	0.25 U
SB103(C)W	8/22/2002	0.04 U	0.125 U	0.25 U
SB104(C)W	8/22/2002	0.04 U	0.125 U	0.25 U
SB200(C)W	8/22/2002	0.04 U	0.125 U	0.25 U
SB201(C)W	8/22/2002	0.04 U	0.125 U	0.25 U
SB202(C)W	8/22/2002	0.04 U	0.125 U	0.25 U
SB203(C)W	8/22/2002	0.158	0.471	0.25 U
SB204(C)W	8/22/2002	0.04 U	0.125 U	0.25 U
SB204(C)W2	8/22/2002	0.04 U	0.125 U	0.25 U
TW-400(F)	8/22/2002	0.04 U	0.125 U	0.25 U
TW-405(F)	8/22/2002	0.675	0.125 U	0.25 U
TW-406(F)	8/22/2002	5.38	0.125 U	0.25 U
TW-407(F)	8/22/2002	1.66	0.125 U	0.25 U
TW-408(F)	8/22/2002	0.182	0.367	0.25 U
TW-409(F)	8/22/2002	0.04 U	0.125 U	0.25 U
MW-1-082302	8/23/2002	0.143	0.125 U	0.25 U
TW-401(F)	8/23/2002	0.04 U	0.125 U	0.25 U
TW-402(F)	8/23/2002	0.04 U	0.125 U	0.25 U
SB-900(TW)	8/26/2002	NV	0.125 U	0.25 U
SB-903(TW)	8/26/2002	NV	6.66	0.5 U
SB-904(TW)	8/26/2002	NV	0.758	0.25 U
SB-905(TW)	8/26/2002	NV	1.44	0.25 U
SB-910(TW)	8/26/2002	NV	3.52	0.25 U
TW801(Q)-10	8/26/2002	0.04 U	0.125 U	0.25 U
TW-803(Q)-9	8/26/2002	0.04 U	0.125 U	0.25 U
TW-805(Q)-10	8/26/2002	0.119	0.125 U	0.25 U
SB-906(TW)	8/27/2002	NV	2.63	0.25 U
SB-908(TW)	8/27/2002	NV	0.688	0.624

Table A-5
Total Petroleum Hydrocarbons in Groundwater (mg/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Gasoline-Range Organics	Diesel-Range Organics	Heavy-Oil-Range Organics
SB-909(TW)	8/27/2002	NV	0.125 U	0.25 U
SB-911(TW)	8/27/2002	NV	9.04	0.25 U
TW-800(Q)-10.5	8/27/2002	0.04 U	0.125 U	0.25 U
TW814(Q)9	8/27/2002	0.04 U	0.143 U	0.2855 U
TW-816(Q)-12	8/27/2002	0.04 U	0.125 U	0.25 U
TW-825(Q)-8.5	8/27/2002	0.04 U	0.147 U	0.294 U
TW-826(Q)-9	8/27/2002	0.04 U	0.156 U	0.3125 U
TW-806 (Q)-11	8/28/2002	0.401	0.125 U	0.25 U
TW-810 (Q)-8	8/28/2002	0.04 U	0.303	0.25 U
TW-818 (Q)-11	8/28/2002	0.04 U	0.125 U	0.25 U
TW-819 (Q)-9.5	8/28/2002	0.41	0.309	0.25 U
TW-819 (Q)-9.5C	8/28/2002	0.718	0.34	0.25 U
TW-824(Q)-9	8/28/2002	0.04 U	0.125 U	0.25 U
TW-833 (Q)-10.5	8/28/2002	0.04 U	0.48	0.25 U
TW-833 (Q)-11C	8/28/2002	NV	0.125 U	0.25 U
TW-820 (Q)-10	8/29/2002	0.439	0.125 U	0.25 U
TW-822 (Q)-9	8/29/2002	2.74	0.335	0.25 U
TW-826 (Q)-8.5	8/29/2002	0.04 U	0.125 U	0.25 U
TW-828 (Q)-8.5	8/29/2002	0.04 U	0.429	0.25 U
BT-625(N)	9/12/2002	0.04 U	0.125 U	0.25 U
TW-612(N)	9/12/2002	9.34	4.7	0.25 U
TW-616(N)	9/12/2002	0.04 U	0.125 U	0.25 U
TW-619(N)	9/12/2002	1.56	0.125 U	0.25 U
TW-623(N)	9/12/2002	2.28	0.125 U	0.25 U
TW-625(N)	9/12/2002	0.04 U	0.125 U	0.25 U
BM-7(M)	6/19/2003	0.04 U	0.125 U	0.25 U
MW-10(M)	6/19/2003	2.4	1.43	0.25 U
MW-11(M)	6/19/2003	0.179	0.125 U	0.25 U
MW-2(M)	6/19/2003	9.44	2.9	0.25 U

Table A-5
Total Petroleum Hydrocarbons in Groundwater (mg/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Gasoline-Range Organics	Diesel-Range Organics	Heavy-Oil-Range Organics
MW-6(M)	6/19/2003	0.457	0.125 U	0.25 U
MW-7(M)	6/19/2003	0.04 U	0.125 U	0.25 U
MW-43(A)	10/13/2003	0.04 U	1	0.25 U
MW-47(A)	10/13/2003	0.04 U	0.125 U	0.25 U
MW-7(M)	10/13/2003	0.04 U	0.307	0.25 U
MW-32(A)	10/14/2003	0.04 U	0.125 U	0.25 U
MW-33(A)	10/14/2003	0.07	0.125 U	0.25 U
MW-34(A)	10/14/2003	0.04 U	0.125 U	0.25 U
MW-41(A)	10/14/2003	7.7	4.7	0.319
MW-46(A)	10/14/2003	0.04 U	0.125 U	0.25 U
MW-48(A)	10/14/2003	0.04 U	0.125 U	0.25 U
MW-10 (M)	10/15/2003	3.36	1.79	0.302
MW-11 (M)	10/15/2003	0.652	0.125 U	0.25 U
MW-2 (M)	10/15/2003	4.51	3.26	1.67
MW-42 (A)	10/15/2003	18.9	5.74	1.25 U
BM-31 (A)	10/16/2003	7.39	0.125 U	0.25 U
MW-22 (A)	10/16/2003	0.14	0.125 U	0.25 U
MW-30 (A)	10/16/2003	14.7	0.125 U	0.25 U
MW-31 (A)	10/16/2003	7.2	0.125 U	0.25 U
MW-35 (A)	10/16/2003	0.04 U	0.125 U	0.25 U
MW-39 (A)	10/16/2003	0.518	1.25	0.25 U
MW-45 (A)	10/16/2003	0.04 U	0.125 U	0.25 U
MW-17 (A)	10/17/2003	0.74	0.125 U	0.25 U
MW-26 (A)	10/17/2003	8.05	0.125 U	0.25 U
MW-28 (A)	10/17/2003	2.06	2.13	0.25 U
MW-37 (A)	10/17/2003	1.35	0.174	0.25 U
MW-40 (A)	10/17/2003	8.27	3.66	0.25 U
MW-44 (A)	10/17/2003	67.7	5.78	0.25 U
BM-19(A)	10/20/2003	0.04 U	0.176	0.25 U

Table A-5
Total Petroleum Hydrocarbons in Groundwater (mg/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Gasoline-Range Organics	Diesel-Range Organics	Heavy-Oil-Range Organics
MW-15(A)	10/20/2003	2.55	0.125 U	0.25 U
MW-16(A)	10/20/2003	0.457	0.125 U	0.425
MW-19(A)	10/20/2003	0.04 U	0.18	0.25 U
MW-20(A)	10/20/2003	1.4	1.37	0.71
MW-21(A)	10/20/2003	0.753	1.46	0.25 U
MW-23(A)	10/20/2003	0.04 U	0.125 U	0.25 U
MW-14(A)	10/21/2003	0.0718	0.125 U	0.25 U
MW-18(A)	10/21/2003	1.28	0.936	2.18
MW-24(A)	10/21/2003	0.376	0.125 U	0.25 U
MW-27(A)	10/21/2003	0.099	0.125 U	0.25 U
MW-29(A)	10/21/2003	60.2	4.12	0.25 U
MW-36(A)	10/21/2003	0.04 U	0.125 U	0.25 U
MW-38(A)	10/21/2003	0.04 U	0.125 U	0.25 U
MW-1(F)	10/22/2003	0.094	0.125 U	0.25 U
MW-12(A)	10/22/2003	0.0601	0.125 U	0.25 U
MW-13(A)	10/22/2003	10.1	0.125 U	0.25 U
MW-6(M)	10/22/2003	0.04 U	0.179	0.25 U
R-1(M)	10/22/2003	0.04 U	0.125 U	0.25 U
MW-2 (M)	1/12/2004	0.628	1.34	0.25 U
MW-31 (A)	1/12/2004	5.22	1.1	0.25 U
MW-32 (A)	1/12/2004	0.04 U	0.125 U	0.25 U
MW-33 (A)	1/12/2004	0.276	0.125 U	0.25 U
MW-43 (A)	1/12/2004	0.04 U	0.633	0.25 U
MW-6 (M)	1/12/2004	0.04 U	0.125 U	0.25 U
MW-7 (M)	1/12/2004	0.04 U	0.756	0.25 U
BM-21 (A)	1/13/2004	0.186	0.644	0.25 U
MW-10 (M)	1/13/2004	2.57	1.59	0.25 U
MW-11 (M)	1/13/2004	0.219	0.5	0.25 U
MW-19 (A)	1/13/2004	0.04 U	0.125 U	0.25 U

Table A-5
Total Petroleum Hydrocarbons in Groundwater (mg/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Gasoline-Range Organics	Diesel-Range Organics	Heavy-Oil-Range Organics
MW-20 (A)	1/13/2004	0.979	0.927	0.918
MW-21 (A)	1/13/2004	0.309	0.799	0.25 U
MW-34 (A)	1/13/2004	0.04 U	0.125 U	0.25 U
MW-27 (A)	1/14/2004	0.173	0.125 U	0.25 U
MW-36 (A)	1/14/2004	0.04 U	0.125 U	0.25 U
MW-38 (A)	1/14/2004	0.04 U	0.125 U	0.25 U
MW-46(A)	1/14/2004	0.04 U	0.125 U	0.25 U
MW-47 (A)	1/14/2004	0.0543	0.125 U	0.25 U
MW-48 (A)	1/14/2004	0.04 U	0.125 U	0.25 U
MW-1 (F)	1/15/2004	0.408	0.171	0.25 U
MW-12 (A)	1/15/2004	0.04 U	0.125 U	0.25 U
MW-13 (A)	1/15/2004	15.3	1.31	0.658
MW-14 (A)	1/15/2004	0.04 U	0.125 U	0.25 U
MW-23 (A)	1/15/2004	0.0617	0.125 U	0.25 U
MW-24 (A)	1/15/2004	4.05	0.125 U	0.25 U
MW-26 (A)	1/15/2004	24.8	0.125 U	0.25 U
MW-30 (A)	1/16/2004	9.57	0.125 U	0.25 U
MW-35 (A)	1/16/2004	0.04 U	0.125 U	0.25 U
MW-39 (A)	1/16/2004	0.291	0.806	0.25 U
MW-45 (A)	1/16/2004	0.04 U	0.125 U	0.25 U
BM-17(A)	1/19/2004	1.05	0.125 U	0.25 U
MW-16(A)	1/19/2004	0.141	0.125 U	0.25 U
MW-17(A)	1/19/2004	0.778	0.125 U	0.25 U
MW-18(A)	1/19/2004	0.83	0.807	0.25 U
MW-22(A)	1/19/2004	0.04 U	0.125 U	0.25 U
MW-28(A)	1/19/2004	13.8	0.125 U	0.25 U
MW-29(A)	1/19/2004	62	0.125 U	0.31
MW-40(A)	1/20/2004	31.4	9.38	0.598
MW-46 (A)	4/12/2004	0.0283	0.179	0.25 U

Table A-5
Total Petroleum Hydrocarbons in Groundwater (mg/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Gasoline-Range Organics	Diesel-Range Organics	Heavy-Oil-Range Organics
MW-47 (A)	4/12/2004	0.00685	0.207	0.25 U
MW-48 (A)	4/12/2004	0.0227	0.125 U	0.25 U
MW-7 (M)	4/12/2004	0.0149	0.401	0.25 U
BM-31 (A)	4/13/2004	4.77	1.37	0.25 U
MW-10 (M)	4/13/2004	2.44	2.67	0.379
MW-11 (M)	4/13/2004	0.106	0.222	0.25 U
MW-30 (A)	4/13/2004	8.09	0.125 U	0.25 U
MW-31 (A)	4/13/2004	3.23	1.42	0.25 U
MW-32 (A)	4/13/2004	0.04 U	0.125 U	0.25 U
MW-33 (A)	4/13/2004	0.434	0.125 U	0.25 U
MW-35 (A)	4/13/2004	0.04 U	0.125 U	0.25 U
MW-43 (A)	4/13/2004	0.04 U	1.05	0.25 U
MW-6 (M)	4/13/2004	0.04 U	0.125 U	0.25 U
MW-2(M)	4/14/2004	6.47	4.17	0.295
MW-24(A)	4/14/2004	0.813	0.735	0.25 U
MW-26(A)	4/14/2004	18.5	3.46	0.25 U
MW-27 (A)	4/14/2004	0.04 U	0.125 U	0.25 U
MW-28(A)	4/14/2004	8.91	0.851	0.25 U
MW-34 (A)	4/14/2004	0.04 U	0.125 U	0.25 U
MW-36 (A)	4/14/2004	0.04 U	0.125 U	0.25 U
MW-38 (A)	4/14/2004	0.04 U	0.125 U	0.25 U
MW-39 (A)	4/14/2004	0.381	1.17	0.25 U
MW-45 (A)	4/14/2004	0.04 U	0.125 U	0.25 U
BM-23(A)	4/15/2004	0.198	0.125 U	0.25 U
MW-1(F)	4/15/2004	0.141	0.163	0.25 U
MW-16(A)	4/15/2004	0.315	0.859	0.25 U
MW-17(A)	4/15/2004	0.516	0.49	0.25 U
MW-18(A)	4/15/2004	0.148	0.241	0.25 U
MW-19(A)	4/15/2004	0.04 U	0.125 U	0.25 U

Table A-5
Total Petroleum Hydrocarbons in Groundwater (mg/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Gasoline-Range Organics	Diesel-Range Organics	Heavy-Oil-Range Organics
MW-20(A)	4/15/2004	0.263	0.918	0.64
MW-22(A)	4/15/2004	0.04 U	0.125 U	0.25 U
MW-23(A)	4/15/2004	0.207	0.194	0.25 U
MW-12(A)	4/16/2004	0.04 U	0.125 U	0.25 U
MW-13(A)	4/16/2004	13.4	1.93	0.25 U
MW-14(A)	4/16/2004	0.04 U	0.125 U	0.25 U
MW-21(A)	4/16/2004	0.243	4.86	0.734
MW-29(A)	4/16/2004	34.2	3.66	0.25 U
MW-40(A)	4/16/2004	41.6	8.36	0.689
MW-10 (M)	7/19/2004	2.24	2.26	0.41
MW-32 (A)	7/19/2004	0.04 U	0.125 U	0.25 U
MW-33 (A)	7/19/2004	0.116	0.511	0.198
MW-6 (M)	7/19/2004	0.04 U	0.125 U	0.25 U
MW-7 (M)	7/19/2004	0.04 U	0.61	0.196
BM-19 (A)	7/20/2004	0.04 U	0.125 U	0.25 U
MW-1 (F)	7/20/2004	0.197	0.125 U	0.25 U
MW-19 (A)	7/20/2004	0.04 U	0.125 U	0.25 U
MW-20 (A)	7/20/2004	0.821	1.9	0.951
MW-21 (A)	7/20/2004	0.847	1.67	0.25 U
MW-22 (A)	7/20/2004	0.04 U	0.125 U	0.25 U
MW-23 (A)	7/20/2004	0.04 U	0.125 U	0.25 U
MW-30 (A)	7/20/2004	12.6	3.73	0.25 U
MW-31 (A)	7/20/2004	6.14	2.21	0.25 U
MW-34 (A)	7/20/2004	0.04 U	0.125 U	0.25 U
MW-35 (A)	7/20/2004	0.04 U	0.125 U	0.25 U
MW-11 (M)	7/21/2004	0.04 U	0.125 U	0.25 U
MW-18 (A)	7/21/2004	0.266	0.229	0.25 U
MW-39 (A)	7/21/2004	0.421	0.883	0.25 U
MW-43 (A)	7/21/2004	0.04 U	1.98	0.191

Table A-5
Total Petroleum Hydrocarbons in Groundwater (mg/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Gasoline-Range Organics		Diesel-Range Organics		Heavy-Oil-Range Organics	
MW-45 (A)	7/21/2004	0.04	U	0.125	U	0.25	U
MW-46 (A)	7/21/2004	0.04	U	0.125	U	0.25	U
MW-47 (A)	7/21/2004	0.04	U	0.125	U	0.25	U
MW-48 (A)	7/21/2004	0.04	U	0.125	U	0.25	U
BM-17 (A)	7/22/2004	0.131		0.11		0.25 U	
MW-12 (A)	7/22/2004	0.04	U	0.125	U	0.25 U	
MW-13 (A)	7/22/2004	9.14		1.04		0.25 U	
MW-16 (A)	7/22/2004	0.458		0.551		0.25 U	
MW-17 (A)	7/22/2004	0.124		0.137		0.25 U	
MW-2 (M)	7/22/2004	5.01		3.58		0.294	
MW-24 (A)	7/22/2004	0.915		0.359		0.25 U	
MW-26 (A)	7/22/2004	26		3.96		0.25 U	
MW-27 (A)	7/22/2004	0.04	U	0.125	U	0.25 U	
MW-29 (A)	7/22/2004	39.8		3.17		0.25 U	
MW-36 (A)	7/22/2004	0.04	U	0.125	U	0.25 U	
MW-38 (A)	7/22/2004	0.04	U	0.125	U	0.25 U	
MW-14 (A)	7/23/2004	0.04	U	0.125	U	0.25 U	
MW-28 (A)	7/23/2004	2.24		1.39		0.678	
Number of Samples		210	116	220	92	220	23
Average Concentration		3.34		0.83		0.30	
Median Concentration		0.1025		0.125		0.25	
Frequency of Detection		55		42		10	
Minimum Value		0.00685		0.11		0.191	
Maximum Detection		67.7		9.38		2.18	

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene
SB-304-D-9.0	8/19/2002	2.5 U	2.5 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-304-D-9.0 DUP	8/19/2002	2.5 U	2.5 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-305-D-9.0	8/19/2002	7.37	1.25 U	25 U	0.25 U	0.25 U	0.25 U
SB-306-D-9.0	8/19/2002	0.622	0.025 U	0.14	0.025 U	0.005 U	0.005 U
SB-307-D-9.0	8/19/2002	2.5 U	2.5 U	2.5 U	0.005 U	0.005 U	0.005 U
SB-309-D-9.0	8/19/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-311-D-10.0	8/19/2002	0.0567	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-312-D-10.0	8/19/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-319-D-14.0	8/19/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
BT-708(P)	8/20/2002	1 U	1 U	1 U	1 U	0.005 U	0.005 U
TW-313-D-22.0	8/20/2002	0.025 U	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U
TW-314-D-22.0	8/20/2002	0.025 U	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U
TW-318-D-22.0	8/20/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-705(P)	8/20/2002	0.02855 U	0.02855 U	0.02855 U	0.0057 U	0.0057 U	0.0057 U
TW-708(P)	8/20/2002	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U
TW-716(P)	8/20/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-717(P)	8/20/2002	0.1 U	0.1 U	0.1 U	0.1 U	0.005 U	0.005 U
TW-700(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-702(P)	8/21/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-710(P)	8/21/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-712(P)	8/21/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-714(P)	8/21/2002	1.55	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U
TW-718(P)	8/21/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB100(C)W	8/22/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB200(C)W	8/22/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB201(C)W	8/22/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB202(C)W	8/22/2002	0.157	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene
SB203(C)W	8/22/2002	1.09	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB204(C)W	8/22/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB204(C)W2	8/22/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-400(F)	8/22/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
BT-719(P)	8/23/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-1-082302	8/23/2002	0.0811	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-719(P)	8/23/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-720(P)	8/23/2002	2.5 U	2.5 U	0.0894	0.025 U	0.025 U	0.025 U
SB-900(TW)	8/26/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-901(TW)	8/26/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SB-902(TW)	8/26/2002	1.03	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
SB-903(TW)	8/26/2002	1.53	0.1 U	0.103	0.1 U	0.1 U	0.1 U
SB-904(TW)	8/26/2002	0.87	0.05 U	0.0657	0.05 U	0.05 U	0.05 U
SB-910(TW)	8/26/2002	0.591	0.05 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-906(TW)	8/27/2002	0.153	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-908(TW)	8/27/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-909(TW)	8/27/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
SB-911(TW)	8/27/2002	0.363	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U
BT-625(N)	9/12/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-612(N)	9/12/2002	1.15	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
TW-616(N)	9/12/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-619(N)	9/12/2002	0.142	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-623(N)	9/12/2002	0.37	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-624(N)	9/12/2002	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
TW-625(N)	9/12/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
BT-602(N)	9/13/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-600(N)	9/13/2002	0.195	0.025 U	0.025 U	0.125 U	0.125 U	0.125 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene
TW-601(N)	9/13/2002	0.191	0.025 U	0.025 U	1.25 U	0.005 U	0.005 U
TW-602(N)	9/13/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-603(N)	9/13/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
TW-608 (N)	9/13/2002	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
BM-7(M)	6/19/2003	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
MW-10(M)	6/19/2003	1 U	1 U	0.25 U	0.25 U	0.25 U	0.25 U
MW-11(M)	6/19/2003	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
MW-2(M)	6/19/2003	1.44	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
MW-6(M)	6/19/2003	0.214	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
MW-7(M)	6/19/2003	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
MW-43(A)	10/13/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-47(A)	10/13/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-7(M)	10/13/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-32(A)	10/14/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-33(A)	10/14/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-34(A)	10/14/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-41(A)	10/14/2003	2.45	0.625 U	0.625 U	0.005 U	0.005 U	0.005 U
MW-46(A)	10/14/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-48(A)	10/14/2003	0.362	0.025 U	0.025 U	0.0127	0.005 U	0.005 U
MW-10 (M)	10/15/2003	0.28	0.025 U	0.025 U	0.0475	0.069	0.0625
MW-11 (M)	10/15/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-2 (M)	10/15/2003	0.638	0.025 U	0.0568	0.005 U	0.005 U	0.005 U
MW-42 (A)	10/15/2003	1.1	0.025 U	0.0893	0.005 U	0.005 U	0.005 U
BM-31 (A)	10/16/2003	0.0594	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-22 (A)	10/16/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-30 (A)	10/16/2003	0.0531	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-31 (A)	10/16/2003	0.0661	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene
MW-35 (A)	10/16/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-39 (A)	10/16/2003	1.04	0.025 U	0.137	0.005 U	0.005 U	0.005 U
MW-45 (A)	10/16/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-17 (A)	10/17/2003	0.0612	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-26 (A)	10/17/2003	2.5 U	2.5 U	2.5 U	0.005 U	0.005 U	0.005 U
MW-28 (A)	10/17/2003	2.5 U	2.5 U	2.5 U	0.005 U	0.005 U	0.005 U
MW-37 (A)	10/17/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-40 (A)	10/17/2003	0.727	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-44 (A)	10/17/2003	0.194	0.025 U	0.04 U	0.005 U	0.005 U	0.005 U
BM-19(A)	10/20/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-15(A)	10/20/2003	0.0916	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-16(A)	10/20/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-19(A)	10/20/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-20(A)	10/20/2003	0.318	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-21(A)	10/20/2003	0.224	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-23(A)	10/20/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-14(A)	10/21/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-18(A)	10/21/2003	0.517	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-24(A)	10/21/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-27(A)	10/21/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-29(A)	10/21/2003	0.0959	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-36(A)	10/21/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-38(A)	10/21/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-1(F)	10/22/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-12(A)	10/22/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-13(A)	10/22/2003	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-6(M)	10/22/2003	0.146	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene
R-1(M)	10/22/2003	0.0873	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-2 (M)	1/12/2004	0.54	0.075 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-31 (A)	1/12/2004	0.096	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-32 (A)	1/12/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-33 (A)	1/12/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-43 (A)	1/12/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-6 (M)	1/12/2004	0.167	0.025 U	0.025 U	0.011	0.005 U	0.005 U
MW-7 (M)	1/12/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
BM-21 (A)	1/13/2004	0.253	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-10 (M)	1/13/2004	0.5 U	0.5 U	0.025 U	0.0114	0.0105	0.0124
MW-11 (M)	1/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-19 (A)	1/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-20 (A)	1/13/2004	0.345	0.0375 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-21 (A)	1/13/2004	0.185	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-34 (A)	1/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-27 (A)	1/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-36 (A)	1/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-38 (A)	1/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-46(A)	1/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-47 (A)	1/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-48 (A)	1/14/2004	0.176	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-1 (F)	1/15/2004	0.186	0.0998	0.025 U	0.005 U	0.005 U	0.005 U
MW-12 (A)	1/15/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-13 (A)	1/15/2004	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-14 (A)	1/15/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-23 (A)	1/15/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-24 (A)	1/15/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene
MW-26 (A)	1/15/2004	0.0687	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-30 (A)	1/16/2004	0.0751	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-35 (A)	1/16/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-39 (A)	1/16/2004	0.598	0.0625 U	0.0715	0.005 U	0.005 U	0.005 U
MW-45 (A)	1/16/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
BM-17(A)	1/19/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-16(A)	1/19/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-17(A)	1/19/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-18(A)	1/19/2004	0.632	0.05 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-22(A)	1/19/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-28(A)	1/19/2004	0.0548	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-29(A)	1/19/2004	0.126	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-40(A)	1/20/2004	0.553	0.075 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-46 (A)	4/12/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-47 (A)	4/12/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-48 (A)	4/12/2004	0.117	0.025 U	0.025 U	0.0109	0.0104	0.0105
MW-7 (M)	4/12/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
BM-31 (A)	4/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-10 (M)	4/13/2004	0.375	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-11 (M)	4/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-30 (A)	4/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-31 (A)	4/13/2004	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-32 (A)	4/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-33 (A)	4/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-35 (A)	4/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-43 (A)	4/13/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-6 (M)	4/13/2004	0.153	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene
MW-2(M)	4/14/2004	0.644	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
MW-24(A)	4/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-26(A)	4/14/2004	0.0548	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-27 (A)	4/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-28(A)	4/14/2004	0.0555	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-34 (A)	4/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-36 (A)	4/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-38 (A)	4/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-39 (A)	4/14/2004	0.462	0.05 U	0.0707	0.005 U	0.005 U	0.005 U
MW-45 (A)	4/14/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
BM-23(A)	4/15/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-1(F)	4/15/2004	0.112	0.0544	0.025 U	0.005 U	0.005 U	0.005 U
MW-16(A)	4/15/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-17(A)	4/15/2004	0.0532	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-18(A)	4/15/2004	0.312	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-19(A)	4/15/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-20(A)	4/15/2004	0.184	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-22(A)	4/15/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-23(A)	4/15/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-12(A)	4/16/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-13(A)	4/16/2004	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-14(A)	4/16/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-21(A)	4/16/2004	0.25 U	0.25 U	0.25 U	0.01 U	0.01 U	0.01 U
MW-29(A)	4/16/2004	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-40(A)	4/16/2004	0.822	0.15 U	0.1 U	0.02 U	0.02 U	0.02 U
MW-10 (M)	7/19/2004	0.365	0.025 U	0.025 U	0.0147	0.0111	0.0118
MW-32 (A)	7/19/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
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Astoria, Oregon

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene
MW-33 (A)	7/19/2004	0.0528	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-6 (M)	7/19/2004	0.228	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-7 (M)	7/19/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
BM-19 (A)	7/20/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-1 (F)	7/20/2004	0.102	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-19 (A)	7/20/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-20 (A)	7/20/2004	0.306	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-21 (A)	7/20/2004	0.318	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-22 (A)	7/20/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-23 (A)	7/20/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-30 (A)	7/20/2004	0.0744	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-31 (A)	7/20/2004	0.0652	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-34 (A)	7/20/2004	0.025 U	0.025 U	0.025 U	0.0262	0.005 U	0.0267
MW-35 (A)	7/20/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-11 (M)	7/21/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-18 (A)	7/21/2004	0.428	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-39 (A)	7/21/2004	1.4	0.25 U	0.156	0.005 U	0.005 U	0.005 U
MW-43 (A)	7/21/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-45 (A)	7/21/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-46 (A)	7/21/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-47 (A)	7/21/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-48 (A)	7/21/2004	0.201	0.025 U	0.025 U	0.0243	0.0177	0.0202
BM-17 (A)	7/22/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-12 (A)	7/22/2004	0.025 U	0.025 U	0.025 U	0.0139	0.005 U	0.0102
MW-13 (A)	7/22/2004	0.25 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
MW-16 (A)	7/22/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-17 (A)	7/22/2004	0.0864	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene
MW-2 (M)	7/22/2004	1.41	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
MW-24 (A)	7/22/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-26 (A)	7/22/2004	1.25 U	1.25 U	1.25 U	0.25 U	0.25 U	0.25 U
MW-27 (A)	7/22/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-29 (A)	7/22/2004	1.25 U	1.25 U	1.25 U	0.25 U	0.25 U	0.25 U
MW-36 (A)	7/22/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-38 (A)	7/22/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U
MW-14 (A)	7/23/2004	0.025 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U
MW-28 (A)	7/23/2004	0.25 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
Number of Samples		225 79	225 2	225 10	225 9	225 5	225 7
Average Concentration		0.31	0.16	0.23	0.05	0.04	0.04
Median Concentration		0.025	0.025	0.025	0.005	0.005	0.005
Frequency of Detection		35.1	0.9	4.4	4.0	2.2	3.1
Minimum Value		0.025	0.025	0.025	0.005	0.005	0.005
Maximum Detection		7.37	0.0998	0.156	0.0475	0.069	0.0625

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene
SB-304-D-9.0	8/19/2002	0.005 U	0.005 U	0.005 U	0.025 U	2.5 U
SB-304-D-9.0 DUP	8/19/2002	0.005 U	0.005 U	0.005 U	0.025 U	2.5 U
SB-305-D-9.0	8/19/2002	0.25 U	0.25 U	0.25 U	1.25 U	17.2
SB-306-D-9.0	8/19/2002	0.005 U	0.025 U	0.005 U	0.025 U	1.59
SB-307-D-9.0	8/19/2002	0.005 U	0.005 U	0.005 U	2.5 U	2.5 U
SB-309-D-9.0	8/19/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB-311-D-10.0	8/19/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB-312-D-10.0	8/19/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB-319-D-14.0	8/19/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
BT-708(P)	8/20/2002	0.005 U	1 U	0.005 U	1 U	1 U
TW-313-D-22.0	8/20/2002	0.005 U	0.025 U	0.005 U	0.025 U	0.025 U
TW-314-D-22.0	8/20/2002	0.005 U	0.025 U	0.005 U	0.025 U	0.025 U
TW-318-D-22.0	8/20/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-705(P)	8/20/2002	0.0057 U	0.0057 U	0.0057 U	0.02855 U	0.02855 U
TW-708(P)	8/20/2002	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U
TW-716(P)	8/20/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-717(P)	8/20/2002	0.005 U	0.1 U	0.005 U	0.1 U	0.133
TW-700(P)	8/21/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TW-702(P)	8/21/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-710(P)	8/21/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-712(P)	8/21/2002	0.005 U	0.0161	0.005 U	0.025 U	0.025 U
TW-714(P)	8/21/2002	1.25 U	1.25 U	1.25 U	1.25 U	2.3
TW-718(P)	8/21/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB100(C)W	8/22/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB200(C)W	8/22/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB201(C)W	8/22/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB202(C)W	8/22/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.255

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
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Astoria, Oregon

Sample ID	Sample Date	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene
SB203(C)W	8/22/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB204(C)W	8/22/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB204(C)W2	8/22/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-400(F)	8/22/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
BT-719(P)	8/23/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-1-082302	8/23/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.12
TW-719(P)	8/23/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-720(P)	8/23/2002	0.025 U	0.025 U	0.025 U	0.025 U	2.5 U
SB-900(TW)	8/26/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB-901(TW)	8/26/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.57
SB-902(TW)	8/26/2002	0.25 U	0.25 U	0.25 U	0.25 U	2.03
SB-903(TW)	8/26/2002	0.1 U	0.1 U	0.1 U	0.1 U	2.68
SB-904(TW)	8/26/2002	0.05 U	0.05 U	0.05 U	0.05 U	1.18
SB-910(TW)	8/26/2002	0.005 U	0.005 U	0.005 U	0.025 U	1.08
SB-906(TW)	8/27/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.232
SB-908(TW)	8/27/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB-909(TW)	8/27/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
SB-911(TW)	8/27/2002	0.05 U	0.05 U	0.05 U	0.05 U	0.377
BT-625(N)	9/12/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-612(N)	9/12/2002	0.025 U	0.025 U	0.025 U	0.025 U	1.3
TW-616(N)	9/12/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-619(N)	9/12/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.0906
TW-623(N)	9/12/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.353
TW-624(N)	9/12/2002	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
TW-625(N)	9/12/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
BT-602(N)	9/13/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-600(N)	9/13/2002	0.125 U	0.125 U	0.125 U	0.025 U	0.0613

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Semivolatile Organic Compounds in Groundwater (ug/L)
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Astoria, Oregon

Sample ID	Sample Date	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene
TW-601(N)	9/13/2002	0.005 U	1.25 U	0.005 U	0.025 U	0.0613
TW-602(N)	9/13/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
TW-603(N)	9/13/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.0566
TW-608 (N)	9/13/2002	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
BM-7(M)	6/19/2003	0.05 U	0.05 U	0.1 U	0.05 U	0.05 U
MW-10(M)	6/19/2003	0.25 U	0.25 U	0.5 U	0.25 U	1 U
MW-11(M)	6/19/2003	0.05 U	0.05 U	0.1 U	0.05 U	0.05 U
MW-2(M)	6/19/2003	0.25 U	0.25 U	0.5 U	0.25 U	2.16
MW-6(M)	6/19/2003	0.05 U	0.05 U	0.1 U	0.05 U	0.05 U
MW-7(M)	6/19/2003	0.05 U	0.05 U	0.1 U	0.05 U	0.05 U
MW-43(A)	10/13/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-47(A)	10/13/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-7(M)	10/13/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-32(A)	10/14/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-33(A)	10/14/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-34(A)	10/14/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-41(A)	10/14/2003	0.005 U	0.01 U	0.005 U	0.625 U	4.97
MW-46(A)	10/14/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-48(A)	10/14/2003	0.005 U	0.0157	0.005 U	0.123	0.204
MW-10 (M)	10/15/2003	0.0548	0.0554	0.0172	0.0655	0.238
MW-11 (M)	10/15/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-2 (M)	10/15/2003	0.005 U	0.005 U	0.005 U	0.0693	1.33
MW-42 (A)	10/15/2003	0.005 U	0.005 U	0.005 U	0.025 U	2.56
BM-31 (A)	10/16/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.0515
MW-22 (A)	10/16/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-30 (A)	10/16/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.0569
MW-31 (A)	10/16/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.0582

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene
MW-35 (A)	10/16/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-39 (A)	10/16/2003	0.005 U	0.005 U	0.005 U	0.025 U	2.24
MW-45 (A)	10/16/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-17 (A)	10/17/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-26 (A)	10/17/2003	0.005 U	0.005 U	0.005 U	2.5 U	2.5 U
MW-28 (A)	10/17/2003	0.005 U	0.005 U	0.005 U	2.5 U	2.5 U
MW-37 (A)	10/17/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-40 (A)	10/17/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.618
MW-44 (A)	10/17/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.362
BM-19(A)	10/20/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-15(A)	10/20/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.0941
MW-16(A)	10/20/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-19(A)	10/20/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-20(A)	10/20/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.434
MW-21(A)	10/20/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.327
MW-23(A)	10/20/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-14(A)	10/21/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-18(A)	10/21/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.22
MW-24(A)	10/21/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-27(A)	10/21/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-29(A)	10/21/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.0811
MW-36(A)	10/21/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-38(A)	10/21/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-1(F)	10/22/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-12(A)	10/22/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-13(A)	10/22/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-6(M)	10/22/2003	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene
R-1(M)	10/22/2003	0.005 U	0.015	0.005 U	0.025 U	0.025 U
MW-2 (M)	1/12/2004	0.01 U	0.01 U	0.01 U	0.05 U	0.78
MW-31 (A)	1/12/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.0661
MW-32 (A)	1/12/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-33 (A)	1/12/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-43 (A)	1/12/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-6 (M)	1/12/2004	0.005 U	0.013	0.005 U	0.025 U	0.025 U
MW-7 (M)	1/12/2004	0.005 U	0.0104	0.005 U	0.025 U	0.025 U
BM-21 (A)	1/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.374
MW-10 (M)	1/13/2004	0.005 U	0.0144	0.005 U	0.025 U	0.5 U
MW-11 (M)	1/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-19 (A)	1/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-20 (A)	1/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.527
MW-21 (A)	1/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.256
MW-34 (A)	1/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-27 (A)	1/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-36 (A)	1/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-38 (A)	1/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-46(A)	1/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-47 (A)	1/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-48 (A)	1/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.0763
MW-1 (F)	1/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.209
MW-12 (A)	1/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-13 (A)	1/15/2004	0.01 U	0.01 U	0.01 U	0.05 U	0.05 U
MW-14 (A)	1/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-23 (A)	1/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-24 (A)	1/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
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Astoria, Oregon

Sample ID	Sample Date	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene
MW-26 (A)	1/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.0718
MW-30 (A)	1/16/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.0613
MW-35 (A)	1/16/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-39 (A)	1/16/2004	0.005 U	0.005 U	0.005 U	0.025 U	1.04
MW-45 (A)	1/16/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
BM-17(A)	1/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-16(A)	1/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-17(A)	1/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-18(A)	1/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.39
MW-22(A)	1/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-28(A)	1/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.076
MW-29(A)	1/19/2004	0.005 U	0.0125	0.005 U	0.025 U	0.101
MW-40(A)	1/20/2004	0.01 U	0.01 U	0.01 U	0.05 U	0.72
MW-46 (A)	4/12/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-47 (A)	4/12/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-48 (A)	4/12/2004	0.005 U	0.0122	0.005 U	0.0507	0.0569
MW-7 (M)	4/12/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
BM-31 (A)	4/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-10 (M)	4/13/2004	0.01 U	0.01 U	0.01 U	0.05 U	0.187
MW-11 (M)	4/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-30 (A)	4/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-31 (A)	4/13/2004	0.01 U	0.01 U	0.01 U	0.05 U	0.05 U
MW-32 (A)	4/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-33 (A)	4/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-35 (A)	4/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-43 (A)	4/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-6 (M)	4/13/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene
MW-2(M)	4/14/2004	0.05 U	0.05 U	0.05 U	0.25 U	0.88
MW-24(A)	4/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-26(A)	4/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.0595
MW-27 (A)	4/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-28(A)	4/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.0763
MW-34 (A)	4/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-36 (A)	4/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-38 (A)	4/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-39 (A)	4/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.633
MW-45 (A)	4/14/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
BM-23(A)	4/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-1(F)	4/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.134
MW-16(A)	4/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-17(A)	4/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-18(A)	4/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.197
MW-19(A)	4/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-20(A)	4/15/2004	0.01 U	0.01 U	0.01 U	0.05 U	0.312
MW-22(A)	4/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-23(A)	4/15/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-12(A)	4/16/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-13(A)	4/16/2004	0.01 U	0.01 U	0.01 U	0.05 U	0.05 U
MW-14(A)	4/16/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-21(A)	4/16/2004	0.01 U	0.01 U	0.01 U	0.25 U	0.25 U
MW-29(A)	4/16/2004	0.01 U	0.01 U	0.01 U	0.05 U	0.05 U
MW-40(A)	4/16/2004	0.02 U	0.02 U	0.02 U	0.1 U	1.16
MW-10 (M)	7/19/2004	0.0106	0.0133	0.005 U	0.025 U	0.154
MW-32 (A)	7/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
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Astoria, Oregon

Sample ID	Sample Date	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene
MW-33 (A)	7/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-6 (M)	7/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-7 (M)	7/19/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
BM-19 (A)	7/20/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-1 (F)	7/20/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.0967
MW-19 (A)	7/20/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-20 (A)	7/20/2004	0.01 U	0.01 U	0.01 U	0.05 U	0.504
MW-21 (A)	7/20/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.516
MW-22 (A)	7/20/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-23 (A)	7/20/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-30 (A)	7/20/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.0577
MW-31 (A)	7/20/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-34 (A)	7/20/2004	0.0261	0.0306	0.0111	0.025 U	0.025 U
MW-35 (A)	7/20/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-11 (M)	7/21/2004	0.0075 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-18 (A)	7/21/2004	0.01 U	0.005 U	0.005 U	0.025 U	0.113
MW-39 (A)	7/21/2004	0.005 U	0.005 U	0.005 U	0.025 U	1.67
MW-43 (A)	7/21/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-45 (A)	7/21/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-46 (A)	7/21/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-47 (A)	7/21/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-48 (A)	7/21/2004	0.0176	0.0282	0.005 U	0.106	0.0602
BM-17 (A)	7/22/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-12 (A)	7/22/2004	0.015	0.0144	0.005 U	0.025 U	0.025 U
MW-13 (A)	7/22/2004	0.05 U	0.05 U	0.05 U	0.25 U	0.25 U
MW-16 (A)	7/22/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-17 (A)	7/22/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene
MW-2 (M)	7/22/2004	0.05 U	0.05 U	0.05 U	0.25 U	1.83
MW-24 (A)	7/22/2004	0.0075 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-26 (A)	7/22/2004	0.25 U	0.25 U	0.25 U	1.25 U	1.25 U
MW-27 (A)	7/22/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-29 (A)	7/22/2004	0.25 U	0.25 U	0.25 U	1.25 U	1.25 U
MW-36 (A)	7/22/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-38 (A)	7/22/2004	0.01 U	0.0412	0.005 U	0.025 U	0.025 U
MW-14 (A)	7/23/2004	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U
MW-28 (A)	7/23/2004	0.05 U	0.05 U	0.05 U	0.25 U	0.25 U
Number of Samples		225 5	225 14	225 2	225 5	225 69
Average Concentration		0.04	0.05	0.04	0.12	0.40
Median Concentration		0.005	0.005	0.005	0.025	0.025
Frequency of Detection		2.2	6.2	0.9	2.2	30.7
Minimum Value		0.005	0.005	0.005	0.025	0.025
Maximum Detection		0.0548	0.5	0.0111	0.123	17.2

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
SB-304-D-9.0	8/19/2002	0.005 U	6.27	0.03 U	0.025 U
SB-304-D-9.0 DUP	8/19/2002	0.005 U	5.37	0.025 U	0.025 U
SB-305-D-9.0	8/19/2002	0.25 U	220	39.9	1.25 U
SB-306-D-9.0	8/19/2002	0.005 U	3.49	2.09	0.125 U
SB-307-D-9.0	8/19/2002	0.005 U	68.5	2.5 U	0.04 U
SB-309-D-9.0	8/19/2002	0.005 U	0.066	0.025 U	0.025 U
SB-311-D-10.0	8/19/2002	0.005 U	0.901	0.025 U	0.025 U
SB-312-D-10.0	8/19/2002	0.005 U	0.025 U	0.025 U	0.025 U
SB-319-D-14.0	8/19/2002	0.005 U	0.025 U	0.025 U	0.025 U
BT-708(P)	8/20/2002	0.005 U	6.42	1 U	1 U
TW-313-D-22.0	8/20/2002	0.005 U	58.7	0.025 U	0.025 U
TW-314-D-22.0	8/20/2002	0.005 U	13.3	0.025 U	0.025 U
TW-318-D-22.0	8/20/2002	0.005 U	0.25	0.025 U	0.025 U
TW-705(P)	8/20/2002	0.0057 U	0.02855 U	0.02855 U	0.02855 U
TW-708(P)	8/20/2002	1.25 U	6.44	1.25 U	1.25 U
TW-716(P)	8/20/2002	0.005 U	0.025 U	0.025 U	0.025 U
TW-717(P)	8/20/2002	0.005 U	0.1 U	0.1 U	0.1 U
TW-700(P)	8/21/2002	0.5 U	41	0.5 U	0.5 U
TW-702(P)	8/21/2002	0.005 U	0.025 U	0.025 U	0.025 U
TW-710(P)	8/21/2002	0.005 U	0.025 U	0.025 U	0.025 U
TW-712(P)	8/21/2002	0.005 U	0.025 U	0.025 U	0.025 U
TW-714(P)	8/21/2002	1.25 U	258	1.25 U	1.25 U
TW-718(P)	8/21/2002	0.005 U	0.025 U	0.025 U	0.025 U
SB100(C)W	8/22/2002	0.005 U	0.025 U	0.025 U	0.025 U
SB200(C)W	8/22/2002	0.005 U	0.025 U	0.025 U	0.025 U
SB201(C)W	8/22/2002	0.005 U	0.025 U	0.025 U	0.025 U
SB202(C)W	8/22/2002	0.005 U	0.1 U	0.025 U	0.025 U

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Astoria, Oregon

Sample ID	Sample Date	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
SB203(C)W	8/22/2002	0.005 U	0.15 U	0.025 U	0.025 U
SB204(C)W	8/22/2002	0.005 U	0.025 U	0.025 U	0.025 U
SB204(C)W2	8/22/2002	0.005 U	0.025 U	0.025 U	0.025 U
TW-400(F)	8/22/2002	0.005 U	0.025 U	0.025 U	0.025 U
BT-719(P)	8/23/2002	0.005 U	0.25 U	0.025 U	0.025 U
MW-1-082302	8/23/2002	0.005 U	0.05 U	0.025 U	0.025 U
TW-719(P)	8/23/2002	0.005 U	0.25 U	0.025 U	0.025 U
TW-720(P)	8/23/2002	0.025 U	423	2.21	0.025 U
SB-900(TW)	8/26/2002	0.005 U	0.5 U	0.025 U	0.025 U
SB-901(TW)	8/26/2002	0.5 U	12.5	0.5 U	0.5 U
SB-902(TW)	8/26/2002	0.25 U	11.2	1.35	0.25 U
SB-903(TW)	8/26/2002	0.1 U	3.1	2.01	0.1 U
SB-904(TW)	8/26/2002	0.05 U	31.6	0.989	0.05 U
SB-910(TW)	8/26/2002	0.005 U	0.61	0.03 U	0.025 U
SB-906(TW)	8/27/2002	0.005 U	0.745	0.025 U	0.025 U
SB-908(TW)	8/27/2002	0.005 U	0.05 U	0.025 U	0.025 U
SB-909(TW)	8/27/2002	0.005 U	0.55 U	0.025 U	0.025 U
SB-911(TW)	8/27/2002	0.05 U	0.25 U	0.1 U	0.05 U
BT-625(N)	9/12/2002	0.005 U	0.025 U	0.025 U	0.025 U
TW-612(N)	9/12/2002	0.025 U	22.9	0.171	0.025 U
TW-616(N)	9/12/2002	0.005 U	0.339	0.025 U	0.025 U
TW-619(N)	9/12/2002	0.005 U	28	0.12	0.025 U
TW-623(N)	9/12/2002	0.005 U	12.3	0.874	0.025 U
TW-624(N)	9/12/2002	2.5 U	2.5 U	2.5 U	2.5 U
TW-625(N)	9/12/2002	0.005 U	0.025 U	0.025 U	0.025 U
BT-602(N)	9/13/2002	0.005 U	0.392	0.025 U	0.025 U
TW-600(N)	9/13/2002	0.125 U	175	0.025 U	0.125 U

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Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
TW-601(N)	9/13/2002	0.005 U	73.2	0.025 U	1.25 U
TW-602(N)	9/13/2002	0.005 U	1.51	0.025 U	0.025 U
TW-603(N)	9/13/2002	0.005 U	9.92	0.0679	0.025 U
TW-608 (N)	9/13/2002	0.005 U	0.025 U	0.025 U	0.025 U
BM-7(M)	6/19/2003	0.05 U	0.05 U	0.05 U	0.05 U
MW-10(M)	6/19/2003	0.25 U	16.3	0.25 U	0.25 U
MW-11(M)	6/19/2003	0.05 U	0.175 U	0.05 U	0.05 U
MW-2(M)	6/19/2003	0.25 U	524	1.45	0.25 U
MW-6(M)	6/19/2003	0.05 U	0.05 U	0.05 U	0.05 U
MW-7(M)	6/19/2003	0.05 U	0.05 U	0.05 U	0.05 U
MW-43(A)	10/13/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-47(A)	10/13/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-7(M)	10/13/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-32(A)	10/14/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-33(A)	10/14/2003	0.005 U	0.035 U	0.025 U	0.025 U
MW-34(A)	10/14/2003	0.005 U	0.0623	0.025 U	0.025 U
MW-41(A)	10/14/2003	0.005 U	82.3	6.93	0.2
MW-46(A)	10/14/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-48(A)	10/14/2003	0.005 U	0.538	0.345	0.0812
MW-10 (M)	10/15/2003	0.0408	12	0.104	0.0589
MW-11 (M)	10/15/2003	0.005 U	0.2 U	0.025 U	0.025 U
MW-2 (M)	10/15/2003	0.005 U	89.4	1.07	0.051
MW-42 (A)	10/15/2003	0.005 U	141	2.16	0.025 U
BM-31 (A)	10/16/2003	0.005 U	8.36	0.025 U	0.025 U
MW-22 (A)	10/16/2003	0.005 U	2.61	0.025 U	0.025 U
MW-30 (A)	10/16/2003	0.005 U	531	0.025 U	0.025 U
MW-31 (A)	10/16/2003	0.005 U	10	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
MW-35 (A)	10/16/2003	0.005 U	0.124	0.025 U	0.025 U
MW-39 (A)	10/16/2003	0.005 U	17.7	0.806	0.025 U
MW-45 (A)	10/16/2003	0.005 U	0.0896	0.025 U	0.025 U
MW-17 (A)	10/17/2003	0.005 U	2.37	0.025 U	0.025 U
MW-26 (A)	10/17/2003	0.005 U	107	2.5 U	0.025 U
MW-28 (A)	10/17/2003	0.005 U	112	2.5 U	0.025 U
MW-37 (A)	10/17/2003	0.005 U	11.1	0.025 U	0.025 U
MW-40 (A)	10/17/2003	0.005 U	43.8	0.317	0.025 U
MW-44 (A)	10/17/2003	0.005 U	696	0.44	0.025 U
BM-19(A)	10/20/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-15(A)	10/20/2003	0.005 U	1.28	0.106	0.025 U
MW-16(A)	10/20/2003	0.005 U	0.175 U	0.025 U	0.025 U
MW-19(A)	10/20/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-20(A)	10/20/2003	0.005 U	3.93	0.0697	0.025 U
MW-21(A)	10/20/2003	0.005 U	1.83	0.045 U	0.025 U
MW-23(A)	10/20/2003	0.005 U	0.0617	0.025 U	0.025 U
MW-14(A)	10/21/2003	0.005 U	0.977	0.025 U	0.025 U
MW-18(A)	10/21/2003	0.005 U	0.44	0.025 U	0.025 U
MW-24(A)	10/21/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-27(A)	10/21/2003	0.005 U	0.158	0.025 U	0.025 U
MW-29(A)	10/21/2003	0.005 U	1640	0.0638	0.025 U
MW-36(A)	10/21/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-38(A)	10/21/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-1(F)	10/22/2003	0.005 U	0.947	0.025 U	0.025 U
MW-12(A)	10/22/2003	0.005 U	0.025 U	0.025 U	0.025 U
MW-13(A)	10/22/2003	0.005 U	65.4	0.025 U	0.025 U
MW-6(M)	10/22/2003	0.005 U	0.025 U	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
R-1(M)	10/22/2003	0.005 U	0.0972	0.025 U	0.025 U
MW-2 (M)	1/12/2004	0.01 U	4.08	0.669	0.05 U
MW-31 (A)	1/12/2004	0.005 U	9.96	0.025 U	0.025 U
MW-32 (A)	1/12/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-33 (A)	1/12/2004	0.005 U	0.0875 U	0.025 U	0.025 U
MW-43 (A)	1/12/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-6 (M)	1/12/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-7 (M)	1/12/2004	0.005 U	0.025 U	0.025 U	0.025 U
BM-21 (A)	1/13/2004	0.005 U	1.75	0.0902	0.025 U
MW-10 (M)	1/13/2004	0.005 U	1.5 U	0.025 U	0.025 U
MW-11 (M)	1/13/2004	0.005 U	0.1625 U	0.025 U	0.025 U
MW-19 (A)	1/13/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-20 (A)	1/13/2004	0.005 U	9.6	0.0981	0.025 U
MW-21 (A)	1/13/2004	0.005 U	0.765	0.025 U	0.025 U
MW-34 (A)	1/13/2004	0.005 U	0.116	0.025 U	0.025 U
MW-27 (A)	1/14/2004	0.005 U	0.0512	0.025 U	0.025 U
MW-36 (A)	1/14/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-38 (A)	1/14/2004	0.005 U	0.121	0.025 U	0.025 U
MW-46(A)	1/14/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-47 (A)	1/14/2004	0.005 U	0.0783	0.025 U	0.025 U
MW-48 (A)	1/14/2004	0.005 U	0.397	0.131	0.025 U
MW-1 (F)	1/15/2004	0.005 U	0.75 U	0.0523	0.025 U
MW-12 (A)	1/15/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-13 (A)	1/15/2004	0.01 U	75.7	0.05 U	0.05 U
MW-14 (A)	1/15/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-23 (A)	1/15/2004	0.005 U	0.1125 U	0.025 U	0.025 U
MW-24 (A)	1/15/2004	0.005 U	44.6	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
MW-26 (A)	1/15/2004	0.005 U	564	0.025 U	0.025 U
MW-30 (A)	1/16/2004	0.005 U	696	0.025 U	0.025 U
MW-35 (A)	1/16/2004	0.005 U	0.349	0.025 U	0.025 U
MW-39 (A)	1/16/2004	0.005 U	17.3	0.629	0.025 U
MW-45 (A)	1/16/2004	0.005 U	0.025 U	0.025 U	0.025 U
BM-17(A)	1/19/2004	0.005 U	0.0625 U	0.025 U	0.025 U
MW-16(A)	1/19/2004	0.005 U	0.075 U	0.025 U	0.025 U
MW-17(A)	1/19/2004	0.005 U	0.125 U	0.025 U	0.025 U
MW-18(A)	1/19/2004	0.005 U	0.688	0.025 U	0.025 U
MW-22(A)	1/19/2004	0.005 U	0.0931	0.025 U	0.025 U
MW-28(A)	1/19/2004	0.005 U	78.4	0.07	0.025 U
MW-29(A)	1/19/2004	0.005 U	867	0.0802	0.025 U
MW-40(A)	1/20/2004	0.01 U	682	1.11	0.05 U
MW-46 (A)	4/12/2004	0.005 U	0.0526	0.025 U	0.025 U
MW-47 (A)	4/12/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-48 (A)	4/12/2004	0.005 U	0.244	0.101	0.0729
MW-7 (M)	4/12/2004	0.005 U	0.025 U	0.025 U	0.025 U
BM-31 (A)	4/13/2004	0.005 U	67.6	0.025 U	0.025 U
MW-10 (M)	4/13/2004	0.01 U	2.5 U	0.05 U	0.05 U
MW-11 (M)	4/13/2004	0.005 U	0.125 U	0.025 U	0.025 U
MW-30 (A)	4/13/2004	0.005 U	381	0.025 U	0.025 U
MW-31 (A)	4/13/2004	0.01 U	64.1	0.05 U	0.05 U
MW-32 (A)	4/13/2004	0.005 U	0.0375 U	0.025 U	0.025 U
MW-33 (A)	4/13/2004	0.005 U	0.325 U	0.025 U	0.025 U
MW-35 (A)	4/13/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-43 (A)	4/13/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-6 (M)	4/13/2004	0.005 U	0.025 U	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
MW-2(M)	4/14/2004	0.05 U	143	0.748	0.25 U
MW-24(A)	4/14/2004	0.005 U	20.8	0.025 U	0.025 U
MW-26(A)	4/14/2004	0.005 U	464	0.025 U	0.025 U
MW-27 (A)	4/14/2004	0.005 U	0.0763	0.025 U	0.025 U
MW-28(A)	4/14/2004	0.005 U	66.9	0.0564	0.025 U
MW-34 (A)	4/14/2004	0.005 U	0.162	0.025 U	0.025 U
MW-36 (A)	4/14/2004	0.005 U	0.214	0.025 U	0.025 U
MW-38 (A)	4/14/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-39 (A)	4/14/2004	0.005 U	4.14	0.357	0.025 U
MW-45 (A)	4/14/2004	0.005 U	0.0798	0.025 U	0.025 U
BM-23(A)	4/15/2004	0.005 U	1.21	0.025 U	0.025 U
MW-1(F)	4/15/2004	0.005 U	1.15 U	0.025 U	0.025 U
MW-16(A)	4/15/2004	0.005 U	0.225 U	0.025 U	0.025 U
MW-17(A)	4/15/2004	0.005 U	5.04	0.025 U	0.025 U
MW-18(A)	4/15/2004	0.005 U	0.119	0.025 U	0.025 U
MW-19(A)	4/15/2004	0.005 U	0.128	0.025 U	0.025 U
MW-20(A)	4/15/2004	0.01 U	0.4 U	0.05 U	0.05 U
MW-22(A)	4/15/2004	0.005 U	0.0757	0.025 U	0.025 U
MW-23(A)	4/15/2004	0.005 U	1.14	0.025 U	0.025 U
MW-12(A)	4/16/2004	0.005 U	0.0873	0.025 U	0.025 U
MW-13(A)	4/16/2004	0.01 U	94.5	0.05 U	0.05 U
MW-14(A)	4/16/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-21(A)	4/16/2004	0.01 U	1.27	0.25 U	0.05 U
MW-29(A)	4/16/2004	0.01 U	806	0.05 U	0.05 U
MW-40(A)	4/16/2004	0.02 U	850	2.13	0.1 U
MW-10 (M)	7/19/2004	0.005 U	1.25 U	0.025 U	0.025 U
MW-32 (A)	7/19/2004	0.005 U	0.025 U	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
MW-33 (A)	7/19/2004	0.005 U	0.4125 U	0.025 U	0.025 U
MW-6 (M)	7/19/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-7 (M)	7/19/2004	0.005 U	0.0868	0.025 U	0.025 U
BM-19 (A)	7/20/2004	0.005 U	0.168	0.025 U	0.025 U
MW-1 (F)	7/20/2004	0.005 U	0.625 U	0.025 U	0.025 U
MW-19 (A)	7/20/2004	0.005 U	0.15	0.025 U	0.025 U
MW-20 (A)	7/20/2004	0.01 U	2.77	0.128	0.05 U
MW-21 (A)	7/20/2004	0.005 U	2.09	0.108	0.025 U
MW-22 (A)	7/20/2004	0.005 U	0.93	0.025 U	0.025 U
MW-23 (A)	7/20/2004	0.005 U	0.0525	0.025 U	0.025 U
MW-30 (A)	7/20/2004	0.005 U	1130	0.0513	0.025 U
MW-31 (A)	7/20/2004	0.005 U	167	0.025 U	0.025 U
MW-34 (A)	7/20/2004	0.012	0.025 U	0.025 U	0.025 U
MW-35 (A)	7/20/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-11 (M)	7/21/2004	0.005 U	0.055 U	0.025 U	0.025 U
MW-18 (A)	7/21/2004	0.005 U	0.483	0.025 U	0.025 U
MW-39 (A)	7/21/2004	0.005 U	10.7	0.631	0.025 U
MW-43 (A)	7/21/2004	0.005 U	0.0605	0.025 U	0.025 U
MW-45 (A)	7/21/2004	0.005 U	0.1125 U	0.025 U	0.025 U
MW-46 (A)	7/21/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-47 (A)	7/21/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-48 (A)	7/21/2004	0.014	0.457	0.108	0.0883
BM-17 (A)	7/22/2004	0.005 U	0.246	0.025 U	0.025 U
MW-12 (A)	7/22/2004	0.005 U	0.0584	0.025 U	0.025 U
MW-13 (A)	7/22/2004	0.05 U	122	0.25 U	0.25 U
MW-16 (A)	7/22/2004	0.005 U	0.74	0.025 U	0.025 U
MW-17 (A)	7/22/2004	0.005 U	0.649	0.025 U	0.025 U

Table A-6
Semivolatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
MW-2 (M)	7/22/2004	0.05 U	132	1.55	0.25 U
MW-24 (A)	7/22/2004	0.005 U	13.4	0.025 U	0.025 U
MW-26 (A)	7/22/2004	0.25 U	534	1.25 U	1.25 U
MW-27 (A)	7/22/2004	0.005 U	0.0625 U	0.025 U	0.025 U
MW-29 (A)	7/22/2004	0.25 U	1040	1.25 U	1.25 U
MW-36 (A)	7/22/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-38 (A)	7/22/2004	0.005 U	0.025 U	0.025 U	0.025 U
MW-14 (A)	7/23/2004	0.005 U	0.0668	0.025 U	0.025 U
MW-28 (A)	7/23/2004	0.05 U	113	0.25 U	0.25 U
Number of Samples		225 3	225 132	225 42	225 6
Average Concentration		0.04	66.36	0.42	0.09
Median Concentration		0.005	0.325	0.025	0.025
Frequency of Detection		1.3	58.7	18.7	2.7
Minimum Value		0.005	0.025	0.025	0.025
Maximum Detection		0.014	1640	39.9	0.2

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	1,2,4- Trimethylbenzene	1,2-Dichloroethane	1,3,5- Trimethylbenzene	4-Isopropyltoluene	Benzene
BM-17 (A)	7/22/2004	0.16	0.25 U	0.25 U	NV	1.18
BM-17(A)	1/19/2004	0.62	0.25 U	2.21	NV	2.5
BM-19 (A)	7/20/2004	0.5 U	0.25 U	0.25 U	NV	0.46
BM-19(A)	10/20/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
BM-21 (A)	1/13/2004	0.5 U	0.25 U	0.25 U	NV	0.25
BM-23(A)	4/15/2004	1.89	0.25 U	0.57	NV	2.75
BM-31 (A)	10/16/2003	5 U	2.5 U	3.9	NV	1260
BM-31 (A)	4/13/2004	0.9	1.25 U	2.7	NV	538
BM-7(M)	6/19/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
BT-602(N)	9/13/2002	0.5 U	0.25 U	0.25 U	NV	0.25 U
BT-625(N)	9/12/2002	NV	NV	NV	NV	0.25 U
BT-708(P)	8/20/2002	5 U	2.5 U	2.5 U	NV	1230
BT-711(P)	8/21/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
BT-719(P)	8/23/2002	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-1 (F)	1/15/2004	0.09	0.25 U	0.25 U	NV	2.79
MW-1 (F)	7/20/2004	0.37	0.25 U	0.25 U	NV	0.23
MW-1(F)	10/22/2003	1.64	0.25 U	0.42	NV	0.41
MW-1(F)	4/15/2004	0.36	0.25 U	0.25 U	NV	0.1 U
MW-10 (M)	10/15/2003	6.3	0.5 U	1.34	NV	319
MW-10 (M)	1/13/2004	4.05	0.25 U	4.55	NV	50.3
MW-10 (M)	4/13/2004	3.71	0.25 U	3.15	NV	52.4
MW-10 (M)	7/19/2004	4.16	0.25 U	4.76	NV	34.4
MW-10(M)	6/19/2003	26.1	0.25 U	7.58	NV	21
MW-1-082302	8/23/2002	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-11 (M)	10/15/2003	0.5 U	0.25 U	0.31	NV	11.6
MW-11 (M)	1/13/2004	0.5 U	0.25 U	0.25 U	NV	8.86
MW-11 (M)	4/13/2004	0.19	0.25 U	0.25 U	NV	0.35
MW-11 (M)	7/21/2004	0.5 U	0.25 U	0.25 U	NV	0.44
MW-11(M)	6/19/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-12 (A)	1/15/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-12 (A)	7/22/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-12(A)	10/22/2003	0.15	0.25 U	0.25 U	NV	0.19
MW-12(A)	4/16/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-13 (A)	1/15/2004	393	6.8	5 U	NV	750
MW-13 (A)	7/22/2004	8.6	5 U	45.4	NV	256

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	1,2,4- Trimethylbenzene	1,2-Dichloroethane	1,3,5- Trimethylbenzene	4-Isopropyltoluene	Benzene
MW-13(A)	10/22/2003	17.4	1.25 U	42.8	NV	259
MW-13(A)	4/16/2004	31	5 U	41.8	NV	564
MW-14 (A)	1/15/2004	0.09	0.25 U	0.25 U	NV	0.65
MW-14 (A)	7/23/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-14(A)	10/21/2003	0.53	0.25 U	0.17	NV	0.77
MW-14(A)	4/16/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-15(A)	10/20/2003	7.37	0.26	6.87	NV	127
MW-16 (A)	7/22/2004	0.48	0.25 U	0.25 U	NV	7.26
MW-16(A)	10/20/2003	2.09	0.25 U	0.93	NV	11.4
MW-16(A)	1/19/2004	0.5 U	0.25 U	0.25 U	NV	2.32
MW-16(A)	4/15/2004	0.5 U	0.25 U	0.25 U	NV	11.7
MW-17 (A)	10/17/2003	3.19	0.25 U	0.54	NV	9.19
MW-17 (A)	7/22/2004	0.44	0.25 U	0.25 U	NV	1.22
MW-17(A)	1/19/2004	0.72	0.25 U	2.64	NV	2.52
MW-17(A)	4/15/2004	0.44	0.25 U	1.73	NV	2.69
MW-18 (A)	7/21/2004	0.09	0.25 U	0.34	NV	44.1
MW-18(A)	10/21/2003	0.72	0.5 U	1.56	NV	273
MW-18(A)	1/19/2004	0.29	0.25 U	1.15	NV	138
MW-18(A)	4/15/2004	0.17	0.25 U	0.25 U	NV	3.2
MW-19 (A)	1/13/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-19 (A)	7/20/2004	0.13	0.25 U	0.25 U	NV	0.31
MW-19(A)	10/20/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-19(A)	4/15/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-2 (M)	10/15/2003	2.23	0.25 U	0.25 U	NV	125
MW-2 (M)	1/12/2004	0.5 U	0.25 U	0.25 U	NV	10.6
MW-2 (M)	7/22/2004	16.3	1.25 U	2.7	NV	15.5
MW-2(M)	6/19/2003	100	1.25 U	14.6	NV	48.4
MW-2(M)	4/14/2004	87.6	1.25 U	3.55	NV	28.8
MW-20 (A)	1/13/2004	56.2	0.25 U	7.32	NV	3.64
MW-20 (A)	7/20/2004	19.6	0.25 U	1.89	NV	2.98
MW-20(A)	10/20/2003	15.9	0.25 U	2.06	NV	16.9
MW-20(A)	4/15/2004	5.97	0.25 U	0.59	NV	1.77
MW-21 (A)	1/13/2004	0.5 U	0.25 U	0.25 U	NV	0.31
MW-21 (A)	7/20/2004	0.22	0.25 U	0.25 U	NV	0.26
MW-21(A)	10/20/2003	0.2	0.25 U	0.24	NV	0.25 U

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	1,2,4- Trimethylbenzene	1,2-Dichloroethane	1,3,5- Trimethylbenzene	4-Isopropyltoluene	Benzene
MW-21(A)	4/16/2004	1.37	0.25 U	0.25 U	NV	0.7
MW-22(A)	10/16/2003	0.5 U	0.25 U	0.25 U	NV	19.4
MW-22(A)	7/20/2004	0.5 U	0.25 U	0.25 U	NV	0.26
MW-22(A)	1/19/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-22(A)	4/15/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-23(A)	1/15/2004	0.1	0.25 U	0.25 U	NV	0.25 U
MW-23(A)	7/20/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-23(A)	10/20/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-23(A)	4/15/2004	2.7	0.25 U	0.84	NV	3.04
MW-24(A)	1/15/2004	232	2.5 U	33.9	NV	2.7
MW-24(A)	7/22/2004	48.3	0.25 U	1.4	NV	0.55
MW-24(A)	10/21/2003	2.05	0.25 U	1.35	NV	0.62
MW-24(A)	4/14/2004	55	0.25 U	3.87	NV	0.16
MW-26(A)	10/17/2003	600	1.25 U	135	NV	3.05
MW-26(A)	1/15/2004	3120	5 U	682	NV	3
MW-26(A)	7/22/2004	3300	5 U	665	NV	2 U
MW-26(A)	4/14/2004	2580	5 U	565	NV	2 U
MW-27(A)	1/14/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-27(A)	4/14/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-27(A)	7/22/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-27(A)	10/21/2003	0.5 U	0.25 U	0.25 U	NV	0.98
MW-28(A)	10/17/2003	566	2.5 U	138	NV	208
MW-28(A)	7/23/2004	130	1.25 U	28.4	NV	72.2
MW-28(A)	1/19/2004	942	2.5 U	204	NV	702
MW-28(A)	4/14/2004	250	2.5 U	51.2	NV	179
MW-29(A)	7/22/2004	2260	12.5 U	521	NV	380
MW-29(A)	10/21/2003	1980	12.5 U	446	NV	482
MW-29(A)	1/19/2004	2630	12.5 U	568	NV	330
MW-29(A)	4/16/2004	1770	12.5 U	396	NV	148
MW-30(A)	10/16/2003	10 U	5 U	34.8	NV	262
MW-30(A)	1/16/2004	33.6	5 U	14.2	NV	341
MW-30(A)	4/13/2004	75.7	2.5 U	85.5	NV	533
MW-30(A)	7/20/2004	3.4	5 U	60.6	NV	407
MW-31(A)	10/16/2003	5 U	2.5 U	3.9	NV	1170
MW-31(A)	1/12/2004	5 U	2.5 U	2.2	NV	1390

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Sample ID	Sample Date	1,2,4- Trimethylbenzene	1,2-Dichloroethane	1,3,5- Trimethylbenzene	4-Isopropyltoluene	Benzene
MW-31 (A)	4/13/2004	0.85	1.25 U	2.65	NV	574
MW-31 (A)	7/20/2004	1.1	2.5 U	4.8	NV	1020
MW-32 (A)	1/12/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-32 (A)	4/13/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-32 (A)	7/19/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-32(A)	10/14/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-33 (A)	1/12/2004	0.5 U	0.25 U	0.25 U	NV	15
MW-33 (A)	4/13/2004	0.5 U	0.25 U	0.25 U	NV	12.1
MW-33 (A)	7/19/2004	0.5 U	0.25 U	0.25 U	NV	3.47
MW-33(A)	10/14/2003	0.5 U	0.25 U	0.25 U	NV	3.49
MW-34 (A)	1/13/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-34 (A)	4/14/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-34 (A)	7/20/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-34(A)	10/14/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-35 (A)	10/16/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-35 (A)	1/16/2004	0.13	0.25 U	0.25 U	NV	0.25 U
MW-35 (A)	4/13/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-35 (A)	7/20/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-36 (A)	1/14/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-36 (A)	4/14/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-36 (A)	7/22/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-36(A)	10/21/2003	0.15	0.25 U	0.25 U	NV	0.25 U
MW-37 (A)	10/17/2003	12.2	0.25 U	2.96	NV	0.16
MW-38 (A)	1/14/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-38 (A)	4/14/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-38 (A)	7/22/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-38(A)	10/21/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-39 (A)	10/16/2003	19.7	0.25 U	3.02	NV	3.98
MW-39 (A)	1/16/2004	14.4	0.25 U	2.7	NV	3.37
MW-39 (A)	4/14/2004	6.04	0.25 U	1.12	NV	3.4
MW-39 (A)	7/21/2004	7.49	0.25 U	1.9	NV	1.7
MW-40 (A)	10/17/2003	40.6	1.25 U	8.7	NV	81.2
MW-40(A)	1/20/2004	3170	5 U	527	NV	7.8
MW-40(A)	4/16/2004	3170	12.5 U	620	NV	83.5
MW-41(A)	10/14/2003	15.4	2.5 U	2.5 U	NV	355

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Sample ID	Sample Date	1,2,4- Trimethylbenzene	1,2-Dichloroethane	1,3,5- Trimethylbenzene	4-Isopropyltoluene	Benzene
MW-42 (A)	10/15/2003	44.8	5 U	11.2	NV	3020
MW-43 (A)	1/12/2004	0.5 U	0.25 U	0.25 U	NV	10.9
MW-43 (A)	4/13/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-43 (A)	7/21/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-43(A)	10/13/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-44 (A)	10/17/2003	3470	12.5 U	898	NV	898
MW-45 (A)	10/16/2003	0.5 U	0.25 U	0.25 U	NV	0.16
MW-45 (A)	1/16/2004	0.11	0.25 U	0.25 U	NV	0.25 U
MW-45 (A)	4/14/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-45 (A)	7/21/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-46 (A)	4/12/2004	0.32	0.25 U	0.25 U	NV	0.1 U
MW-46 (A)	7/21/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-46(A)	10/14/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-46(A)	1/14/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-47 (A)	1/14/2004	0.5 U	0.25 U	0.25 U	NV	0.21
MW-47 (A)	4/12/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-47 (A)	7/21/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-47(A)	10/13/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-48 (A)	1/14/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-48 (A)	4/12/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-48 (A)	7/21/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-48(A)	10/14/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-6 (M)	1/12/2004	0.92	0.25 U	0.2	NV	0.25 U
MW-6 (M)	4/13/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-6 (M)	7/19/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-6(M)	6/19/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-6(M)	10/22/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-7 (M)	1/12/2004	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-7 (M)	4/12/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-7 (M)	7/19/2004	0.5 U	0.25 U	0.25 U	NV	0.1 U
MW-7(M)	6/19/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
MW-7(M)	10/13/2003	0.5 U	0.25 U	0.25 U	NV	0.25 U
R-1(M)	10/22/2003	0.5 U	0.25 U	0.25 U	NV	0.23
SB100(C)W	8/22/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
SB103(C)W	8/22/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U

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Volatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	1,2,4- Trimethylbenzene	1,2-Dichloroethane	1,3,5- Trimethylbenzene	4-Isopropyltoluene	Benzene
SB104(C)W	8/22/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
SB200(C)W	8/22/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
SB201(C)W	8/22/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
SB202(C)W	8/22/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
SB203(C)W	8/22/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
SB204(C)W	8/22/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
SB204(C)W2	8/22/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
SB-304-D-9.0	8/19/2002	NV	NV	NV	NV	174
SB-304-D-9.0 DUP	8/19/2002	NV	NV	NV	NV	151
SB-305-D-9.0	8/19/2002	3040	5 U	958	NV	489
SB-306-D-9.0	8/19/2002	NV	NV	NV	NV	372
SB-307-D-9.0	8/19/2002	NV	NV	NV	NV	934
SB-309-D-9.0	8/19/2002	0.34	0.25 U	0.58	NV	19.2
SB-311-D-10.0	8/19/2002	NV	NV	NV	NV	24.2
SB-312-D-10.0	8/19/2002	0.5 U	0.25 U	0.25 U	NV	0.25 U
SB-319-D-14.0	8/19/2002	NV	NV	NV	NV	0.25 U
SB-900(TW)	8/26/2002	NV	NV	NV	NV	2.72
SB-901(TW)	8/26/2002	468	1.25 U	147	NV	5.92
SB-902(TW)	8/26/2002	NV	NV	NV	NV	0.25 U
SB-903(TW)	8/26/2002	79.8	0.25 U	17.4	NV	0.25 U
SB-904(TW)	8/26/2002	1.6	0.25 U	0.35	NV	0.25 U
SB-905(TW)	8/26/2002	35.6	0.25 U	7.17	NV	0.25 U
SB-906(TW)	8/27/2002	15.6	0.25 U	3.89	NV	0.25 U
SB-908(TW)	8/27/2002	0.3	0.25 U	0.25 U	NV	0.25 U
SB-909(TW)	8/27/2002	NV	NV	NV	NV	0.25 U
SB-910(TW)	8/26/2002	NV	NV	NV	NV	0.25 U
SB-911(TW)	8/27/2002	0.27	0.25 U	0.25 U	NV	0.718
TW-313-D-22.0	8/20/2002	NV	NV	NV	NV	255
TW-314-D-22.0	8/20/2002	NV	NV	NV	NV	68.3
TW-318-D-22.0	8/20/2002	0.66	0.25 U	0.25 U	NV	0.71
TW-400(F)	8/22/2002	NV	NV	NV	NV	0.25 U
TW-401(F)	8/23/2002	NV	NV	NV	NV	0.25 U
TW-402(F)	8/23/2002	NV	NV	NV	NV	0.25 U
TW-405(F)	8/22/2002	NV	NV	NV	NV	4.23
TW-406(F)	8/22/2002	NV	NV	NV	NV	14.2

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Sample ID	Sample Date	1,2,4- Trimethylbenzene	1,2-Dichloroethane	1,3,5- Trimethylbenzene	4-Isopropyltoluene	Benzene
TW-407(F)	8/22/2002	NV	NV	NV	NV	11.6
TW-408(F)	8/22/2002	NV	NV	NV	NV	0.853
TW-409(F)	8/22/2002	NV	NV	NV	NV	0.25 U
TW-600(N)	9/13/2002	7.35	1.25 U	1.25 U	NV	1.25 U
TW-601(N)	9/13/2002	192	0.5 U	0.5 U	NV	0.5 U
TW-602(N)	9/13/2002	0.5 U	0.25 U	0.25 U	NV	0.25 U
TW-603(N)	9/13/2002	1.72	0.25 U	0.25 U	NV	0.25 U
TW-608 (N)	9/13/2002	0.5 U	0.25 U	0.25 U	NV	0.25 U
TW-612(N)	9/12/2002	25 U	12.5 U	12.5 U	NV	2610
TW-616(N)	9/12/2002	0.5 U	0.25 U	0.25 U	NV	0.25 U
TW-619(N)	9/12/2002	9.5	1.25 U	1.25 U	NV	3.4
TW-623(N)	9/12/2002	22.2	0.25 U	20.8	NV	0.25 U
TW-624(N)	9/12/2002	31.5	0.2 U	50.5	8.94	0.2 U
TW-625(N)	9/12/2002	NV	NV	NV	NV	0.25 U
TW-700(P)	8/21/2002	803	1 U	272	15.1	1 U
TW-701(P)	8/20/2002	204	2 U	2.5 U	2.5 U	40.3
TW-702(P)	8/21/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
TW-703(P)	8/21/2002	53.8	0.4 U	33.5	14.7	3.3
TW-704(P)	8/21/2002	1.22	0.2 U	6.07	2.86	0.16
TW-706(P)	8/21/2002	113	1 U	40.8	1.25 U	106
TW-707(P)	8/21/2002	0.25 U	0.2 U	0.25 U	0.25 U	1.41
TW-708(P)	8/20/2002	5 U	2.5 U	2.5 U	NV	976
TW-709(P)	8/21/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
TW-710(P)	8/21/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
TW-711(P)	8/21/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
TW-712(P)	8/21/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
TW-714(P)	8/21/2002	914	5 U	115	NV	83.8
TW-716(P)	8/20/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
TW-717(P)	8/20/2002	0.25 U	0.2 U	0.25 U	0.25 U	0.2 U
TW-718(P)	8/21/2002	0.5 U	0.25 U	0.25 U	NV	0.25 U
TW-719(P)	8/23/2002	0.5 U	0.25 U	0.25 U	NV	0.25 U
TW-720(P)	8/23/2002	1810	5 U	119	NV	28
TW-800(Q)-10.5	8/27/2002	NV	NV	NV	NV	0.25 U
TW801(Q)-10	8/26/2002	NV	NV	NV	NV	0.25 U
TW-803(Q)-9	8/26/2002	NV	NV	NV	NV	0.25 U

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Sample ID	Sample Date	1,2,4- Trimethylbenzene	1,2-Dichloroethane	1,3,5- Trimethylbenzene	4-Isopropyltoluene	Benzene
TW-805(Q)-10	8/26/2002	NV	NV	NV	NV	1.98
TW-806 (Q)-11	8/28/2002	NV	NV	NV	NV	20.3
TW-810 (Q)-8	8/28/2002	NV	NV	NV	NV	0.25 U
TW814(Q)9	8/27/2002	NV	NV	NV	NV	0.25 U
TW-816(Q)-12	8/27/2002	NV	NV	NV	NV	0.25 U
TW-818 (Q)-11	8/28/2002	NV	NV	NV	NV	0.25 U
TW-819 (Q)-9.5	8/28/2002	NV	NV	NV	NV	8
TW-819 (Q)-9.5C	8/28/2002	NV	NV	NV	NV	13.7
TW-820 (Q)-10	8/29/2002	NV	NV	NV	NV	11
TW-822 (Q)-9	8/29/2002	NV	NV	NV	NV	31.3
TW-824(Q)-9	8/28/2002	NV	NV	NV	NV	2.4
TW-825(Q)-8.5	8/27/2002	NV	NV	NV	NV	0.25 U
TW-826 (Q)-8.5	8/29/2002	NV	NV	NV	NV	0.506
TW-826(Q)-9	8/27/2002	NV	NV	NV	NV	0.25 U
TW-828 (Q)-8.5	8/29/2002	NV	NV	NV	NV	0.25 U
TW-833 (Q)-10.5	8/28/2002	NV	NV	NV	NV	0.25 U
Number of Samples		220 106	220 2	220 82	24 4	261 133
Average Concentration		179	1.1	40	2.1	98
Median Concentration		0.5	0.25	0.25	0.25	0.25
Frequency of Detection		48.2	0.9	37.3	16.7	51.0
Minimum Value		0.09	0.2	0.17	0.25	0.1
Maximum Detection		3470	6.8	958	15.1	3020

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Sample ID	Sample Date	Ethylbenzene	Isopropylbenzene	Methylene Chloride	Methyl-t-butyl Ether	Naphthalene
BM-17 (A)	7/22/2004	0.58	1.75	NV	1 U	0.68
BM-17(A)	1/19/2004	50.3	6.44	NV	1 U	19.5
BM-19 (A)	7/20/2004	2.13	0.11	NV	0.11	0.92
BM-19(A)	10/20/2003	0.25 U	1 U	NV	0.23	1 U
BM-21 (A)	1/13/2004	1.2	2.36	NV	1 U	3.76
BM-23(A)	4/15/2004	12.1	2.64	NV	1 U	7.47
BM-31 (A)	10/16/2003	728	56.5	NV	10 U	15.3
BM-31 (A)	4/13/2004	432	33	NV	5 U	116
BM-7(M)	6/19/2003	0.25 U	1 U	NV	1 U	1 U
BT-602(N)	9/13/2002	0.25 U	1 U	NV	1 U	1 U
BT-625(N)	9/12/2002	0.25 U	NV	NV	NV	NV
BT-708(P)	8/20/2002	154	32.5	NV	10 U	10.1
BT-711(P)	8/21/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
BT-719(P)	8/23/2002	0.25 U	0.4	NV	1 U	1 U
MW-1 (F)	1/15/2004	1.99	2.1	NV	1 U	0.3
MW-1 (F)	7/20/2004	2.48	0.18	NV	1 U	2.05
MW-1(F)	10/22/2003	3.65	0.17	NV	1 U	1 U
MW-1(F)	4/15/2004	0.66	0.19	NV	1 U	0.72
MW-10 (M)	10/15/2003	182	18.5	NV	2 U	65.3
MW-10 (M)	1/13/2004	24.9	27.5	NV	1 U	1.64
MW-10 (M)	4/13/2004	32.1	23.1	NV	1 U	5.07
MW-10 (M)	7/19/2004	7.38	28.9	NV	1 U	2.57
MW-10(M)	6/19/2003	25	27.8	NV	1 U	20.6
MW-1-082302	8/23/2002	0.25 U	1 U	NV	1 U	1 U
MW-11 (M)	10/15/2003	0.38	4.37	NV	1 U	0.66
MW-11 (M)	1/13/2004	0.11	3.15	NV	1 U	1 U
MW-11 (M)	4/13/2004	0.53	0.43	NV	1 U	0.51
MW-11 (M)	7/21/2004	0.25 U	1 U	NV	1 U	1 U
MW-11(M)	6/19/2003	0.25 U	1 U	NV	1 U	1 U
MW-12 (A)	1/15/2004	0.25 U	1 U	NV	1 U	1 U
MW-12 (A)	7/22/2004	0.25 U	1 U	NV	1 U	1 U
MW-12(A)	10/22/2003	1.35	1 U	NV	1 U	1 U
MW-12(A)	4/16/2004	0.25 U	1 U	NV	1 U	1 U
MW-13 (A)	1/15/2004	2270	225	NV	20 U	223
MW-13 (A)	7/22/2004	1290	137	NV	20 U	118

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Ethylbenzene	Isopropylbenzene	Methylene Chloride	Methyl-t-butyl Ether	Naphthalene
MW-13(A)	10/22/2003	915	94.7	NV	5 U	122
MW-13(A)	4/16/2004	2190	233	NV	20 U	282
MW-14 (A)	1/15/2004	3.28	0.28	NV	1 U	0.19
MW-14 (A)	7/23/2004	0.25 U	1 U	NV	1 U	1 U
MW-14(A)	10/21/2003	2.36	0.11	NV	1 U	1 U
MW-14(A)	4/16/2004	0.25 U	1 U	NV	1 U	1 U
MW-15(A)	10/20/2003	27	42.4	NV	0.93	2.11
MW-16 (A)	7/22/2004	1.39	13.3	NV	1 U	0.49
MW-16(A)	10/20/2003	1.86	7.81	NV	1 U	1 U
MW-16(A)	1/19/2004	0.36	3.79	NV	1 U	0.28
MW-16(A)	4/15/2004	1.1	28.8	NV	0.38	0.86
MW-17 (A)	10/17/2003	14.7	2.9	NV	1 U	4.88
MW-17 (A)	7/22/2004	0.86	1.85	NV	1 U	0.66
MW-17(A)	1/19/2004	51.7	6.55	NV	1 U	19
MW-17(A)	4/15/2004	29.3	7.78	NV	1 U	15.6
MW-18 (A)	7/21/2004	1.92	9.41	NV	1 U	0.52
MW-18(A)	10/21/2003	2.18	25.8	NV	0.98	2 U
MW-18(A)	1/19/2004	5.45	13.8	NV	1 U	1.53
MW-18(A)	4/15/2004	0.26	2.09	NV	0.2	0.99
MW-19 (A)	1/13/2004	0.25 U	1 U	NV	1 U	1 U
MW-19 (A)	7/20/2004	1.58	1 U	NV	1 U	1.09
MW-19(A)	10/20/2003	0.25 U	1 U	NV	0.23	1 U
MW-19(A)	4/15/2004	0.25 U	1 U	NV	1 U	1 U
MW-2 (M)	10/15/2003	92.6	42.9	NV	1 U	125
MW-2 (M)	1/12/2004	2.52	10.2	NV	1 U	3.42
MW-2 (M)	7/22/2004	196	50.6	NV	5 U	179
MW-2(M)	6/19/2003	756	70.2	NV	5 U	656
MW-2(M)	4/14/2004	625	54.7	NV	5 U	334
MW-20 (A)	1/13/2004	12.5	6.54	NV	1 U	36.5
MW-20 (A)	7/20/2004	14.8	4.03	NV	1 U	5.12
MW-20(A)	10/20/2003	20.2	1.88	NV	1 U	11.1
MW-20(A)	4/15/2004	0.11	1.16	NV	1 U	1.94
MW-21 (A)	1/13/2004	1.45	2.53	NV	1 U	4.01
MW-21 (A)	7/20/2004	3.01	3.9	NV	1 U	2.96
MW-21(A)	10/20/2003	3.1	2.5	NV	1 U	3.04

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
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Astoria, Oregon

Sample ID	Sample Date	Ethylbenzene	Isopropylbenzene	Methylene Chloride	Methyl-t-butyl Ether	Naphthalene
MW-21(A)	4/16/2004	2.51	2.59	NV	1 U	1.11
MW-22 (A)	10/16/2003	52.9	2.78	NV	1 U	40.5
MW-22 (A)	7/20/2004	1.25	1 U	NV	1 U	0.81
MW-22(A)	1/19/2004	0.3	1 U	NV	1 U	1 U
MW-22(A)	4/15/2004	0.19	1 U	NV	1 U	0.32
MW-23 (A)	1/15/2004	0.52	1 U	NV	1 U	1 U
MW-23 (A)	7/20/2004	0.25 U	1 U	NV	1 U	1 U
MW-23(A)	10/20/2003	0.25 U	1 U	NV	1 U	1 U
MW-23(A)	4/15/2004	14.8	3.27	NV	1 U	9.17
MW-24 (A)	1/15/2004	60.1	4.8	NV	10 U	114
MW-24 (A)	7/22/2004	29.5	3.2	NV	1 U	23
MW-24(A)	10/21/2003	7.69	0.94	NV	1 U	1 U
MW-24(A)	4/14/2004	28.4	4.54	NV	1 U	40.9
MW-26 (A)	10/17/2003	373	32	NV	5 U	280
MW-26 (A)	1/15/2004	1280	104	NV	20 U	1030
MW-26 (A)	7/22/2004	886	102	NV	20 U	869
MW-26(A)	4/14/2004	852	96	NV	20 U	801
MW-27 (A)	1/14/2004	0.25 U	1 U	NV	1 U	1 U
MW-27 (A)	4/14/2004	0.25 U	1 U	NV	1 U	1 U
MW-27 (A)	7/22/2004	0.37	1 U	NV	1 U	1 U
MW-27(A)	10/21/2003	0.12	1 U	NV	1 U	1 U
MW-28 (A)	10/17/2003	334	24.4	NV	10 U	157
MW-28 (A)	7/23/2004	141	6.55	NV	5 U	68.6
MW-28(A)	1/19/2004	902	30.1	NV	10 U	398
MW-28(A)	4/14/2004	247	16.2	NV	10 U	118
MW-29 (A)	7/22/2004	1750	98.5	NV	50 U	1360
MW-29(A)	10/21/2003	2480	86	NV	50 U	1340
MW-29(A)	1/19/2004	2640	82	NV	50 U	1310
MW-29(A)	4/16/2004	1840	69.5	NV	50 U	1000
MW-30 (A)	10/16/2003	2080	88.8	NV	20 U	1130
MW-30 (A)	1/16/2004	1910	79	NV	20 U	1200
MW-30 (A)	4/13/2004	1850	70.2	NV	10 U	1030
MW-30 (A)	7/20/2004	2070	83.2	NV	20 U	1240
MW-31 (A)	10/16/2003	706	54.4	NV	10 U	16.2
MW-31 (A)	1/12/2004	798	44.2	NV	10 U	13.5

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Volatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	Ethylbenzene	Isopropylbenzene	Methylene Chloride	Methyl-t-butyl Ether	Naphthalene
MW-31 (A)	4/13/2004	533	35.2	NV	5 U	145
MW-31 (A)	7/20/2004	911	44.8	NV	10 U	191
MW-32 (A)	1/12/2004	0.25 U	1 U	NV	1 U	1 U
MW-32 (A)	4/13/2004	0.25 U	1 U	NV	1 U	1 U
MW-32 (A)	7/19/2004	0.25 U	1 U	NV	1 U	1 U
MW-32(A)	10/14/2003	0.25 U	1 U	NV	1 U	1 U
MW-33 (A)	1/12/2004	0.55	3.71	NV	1 U	0.19
MW-33 (A)	4/13/2004	1.82	4.07	NV	1 U	1 U
MW-33 (A)	7/19/2004	0.25 U	0.89	NV	1 U	1 U
MW-33(A)	10/14/2003	0.25 U	0.35	NV	1 U	1 U
MW-34 (A)	1/13/2004	0.25	1 U	NV	1 U	1 U
MW-34 (A)	4/14/2004	0.21	1 U	NV	1 U	1 U
MW-34 (A)	7/20/2004	0.25 U	1 U	NV	1 U	1 U
MW-34(A)	10/14/2003	0.29	1 U	NV	1 U	1 U
MW-35 (A)	10/16/2003	1.12	1 U	NV	1 U	1.04
MW-35 (A)	1/16/2004	0.42	1 U	NV	1 U	0.31
MW-35 (A)	4/13/2004	0.25 U	1 U	NV	1 U	1 U
MW-35 (A)	7/20/2004	0.25 U	1 U	NV	1 U	1 U
MW-36 (A)	1/14/2004	0.25 U	1 U	NV	1 U	0.68
MW-36 (A)	4/14/2004	0.92	1 U	NV	1 U	0.84
MW-36 (A)	7/22/2004	0.54	1 U	NV	1 U	1 U
MW-36(A)	10/21/2003	0.25 U	1 U	NV	1 U	1 U
MW-37 (A)	10/17/2003	17	6.72	NV	1 U	21.5
MW-38 (A)	1/14/2004	0.25 U	1 U	NV	1 U	1 U
MW-38 (A)	4/14/2004	0.25 U	1 U	NV	1 U	0.5
MW-38 (A)	7/22/2004	0.73	0.2	NV	1 U	0.48
MW-38(A)	10/21/2003	0.25 U	1 U	NV	1 U	1 U
MW-39 (A)	10/16/2003	10.9	3.42	NV	1 U	22.8
MW-39 (A)	1/16/2004	10.8	3.34	NV	1 U	23.4
MW-39 (A)	4/14/2004	9.92	3.36	NV	1 U	18.7
MW-39 (A)	7/21/2004	6.32	2.77	NV	1 U	13.8
MW-40 (A)	10/17/2003	650	44.8	NV	5 U	82.5
MW-40(A)	1/20/2004	2230	98	NV	20 U	1220
MW-40(A)	4/16/2004	2510	98.5	NV	50 U	1500
MW-41(A)	10/14/2003	1260	38.1	NV	10 U	105

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Volatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	Ethylbenzene	Isopropylbenzene	Methylene Chloride	Methyl-t-butyl Ether	Naphthalene
MW-42 (A)	10/15/2003	1850	63.4	NV	20 U	190
MW-43 (A)	1/12/2004	3.56	1 U	NV	1 U	1 U
MW-43 (A)	4/13/2004	0.48	1 U	NV	1 U	1 U
MW-43 (A)	7/21/2004	0.25 U	1 U	NV	1 U	1 U
MW-43(A)	10/13/2003	0.25 U	1 U	NV	1 U	1 U
MW-44 (A)	10/17/2003	2890	94	NV	50 U	1050
MW-45 (A)	10/16/2003	0.32	1 U	NV	1 U	1.11
MW-45 (A)	1/16/2004	0.23	1 U	NV	1 U	1 U
MW-45 (A)	4/14/2004	0.11	1 U	NV	1 U	1 U
MW-45 (A)	7/21/2004	0.11	1 U	NV	1 U	1 U
MW-46 (A)	4/12/2004	0.25 U	1 U	NV	1 U	1 U
MW-46 (A)	7/21/2004	0.25 U	1 U	NV	1 U	1 U
MW-46(A)	10/14/2003	0.25 U	1 U	NV	1 U	1 U
MW-46(A)	1/14/2004	0.25 U	1 U	NV	1 U	1 U
MW-47 (A)	1/14/2004	0.13	1 U	NV	1 U	1 U
MW-47 (A)	4/12/2004	0.25 U	1 U	NV	1 U	1 U
MW-47 (A)	7/21/2004	0.25 U	1 U	NV	1 U	1 U
MW-47(A)	10/13/2003	0.25 U	1 U	NV	1 U	1 U
MW-48 (A)	1/14/2004	0.25 U	1 U	NV	1 U	1 U
MW-48 (A)	4/12/2004	0.25 U	1 U	NV	1 U	1 U
MW-48 (A)	7/21/2004	0.25 U	1 U	NV	1 U	1 U
MW-48(A)	10/14/2003	0.25 U	1 U	NV	1 U	0.76
MW-6 (M)	1/12/2004	0.25 U	0.27	NV	1 U	0.4
MW-6 (M)	4/13/2004	0.25 U	1 U	NV	1 U	1 U
MW-6 (M)	7/19/2004	0.25 U	1 U	NV	1 U	1 U
MW-6(M)	6/19/2003	0.25 U	1 U	NV	1 U	1 U
MW-6(M)	10/22/2003	0.41	1 U	NV	1 U	1 U
MW-7 (M)	1/12/2004	0.25 U	1 U	NV	1 U	1 U
MW-7 (M)	4/12/2004	0.25 U	1 U	NV	1 U	1 U
MW-7 (M)	7/19/2004	0.25 U	0.12	NV	1 U	0.26
MW-7(M)	6/19/2003	0.25 U	1 U	NV	1 U	1 U
MW-7(M)	10/13/2003	0.25 U	1 U	NV	1 U	1 U
R-1(M)	10/22/2003	0.63	1 U	NV	1 U	1 U
SB100(C)W	8/22/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
SB103(C)W	8/22/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U

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Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Ethylbenzene	Isopropylbenzene	Methylene Chloride	Methyl-t-butyl Ether	Naphthalene
SB104(C)W	8/22/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
SB200(C)W	8/22/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
SB201(C)W	8/22/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
SB202(C)W	8/22/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
SB203(C)W	8/22/2002	0.2 U	0.4	2.5 U	0.2 U	0.25 U
SB204(C)W	8/22/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
SB204(C)W2	8/22/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
SB-304-D-9.0	8/19/2002	39.1	NV	NV	NV	NV
SB-304-D-9.0 DUP	8/19/2002	30.8	NV	NV	NV	NV
SB-305-D-9.0	8/19/2002	1760	128	NV	20 U	447
SB-306-D-9.0	8/19/2002	222	NV	NV	NV	NV
SB-307-D-9.0	8/19/2002	47.1	NV	NV	NV	NV
SB-309-D-9.0	8/19/2002	0.93	3.75	NV	1 U	0.235 U
SB-311-D-10.0	8/19/2002	4.13	NV	NV	NV	NV
SB-312-D-10.0	8/19/2002	0.25 U	0.17	NV	1 U	1 U
SB-319-D-14.0	8/19/2002	0.1685 U	NV	NV	NV	NV
SB-900(TW)	8/26/2002	0.977	NV	NV	NV	NV
SB-901(TW)	8/26/2002	7.82	16.3	NV	5 U	19.9
SB-902(TW)	8/26/2002	1.51	NV	NV	NV	NV
SB-903(TW)	8/26/2002	12.8	4.76	NV	1 U	1 U
SB-904(TW)	8/26/2002	0.25 U	0.17	NV	1 U	1 U
SB-905(TW)	8/26/2002	18.9	1.83	NV	1 U	18.4
SB-906(TW)	8/27/2002	0.15	1.16	NV	1 U	2.29
SB-908(TW)	8/27/2002	0.25 U	1 U	NV	0.14	1 U
SB-909(TW)	8/27/2002	0.25 U	NV	NV	NV	NV
SB-910(TW)	8/26/2002	0.803	NV	NV	NV	NV
SB-911(TW)	8/27/2002	13	1.1	NV	1 U	1 U
TW-313-D-22.0	8/20/2002	1280	NV	NV	NV	NV
TW-314-D-22.0	8/20/2002	90.9	NV	NV	NV	NV
TW-318-D-22.0	8/20/2002	0.95	1 U	NV	1 U	0.075 U
TW-400(F)	8/22/2002	0.25 U	NV	NV	NV	NV
TW-401(F)	8/23/2002	0.25 U	NV	NV	NV	NV
TW-402(F)	8/23/2002	0.25 U	NV	NV	NV	NV
TW-405(F)	8/22/2002	22.2	NV	NV	NV	NV
TW-406(F)	8/22/2002	249	NV	NV	NV	NV

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Sample ID	Sample Date	Ethylbenzene	Isopropylbenzene	Methylene Chloride	Methyl-t-butyl Ether	Naphthalene
TW-407(F)	8/22/2002	9.05	NV	NV	NV	NV
TW-408(F)	8/22/2002	3.98	NV	NV	NV	NV
TW-409(F)	8/22/2002	0.25 U	NV	NV	NV	NV
TW-600(N)	9/13/2002	799	34	NV	5 U	232
TW-601(N)	9/13/2002	119	29.1	NV	2 U	94.6
TW-602(N)	9/13/2002	0.25 U	1 U	NV	1 U	1 U
TW-603(N)	9/13/2002	1.13	1 U	NV	1 U	1 U
TW-608 (N)	9/13/2002	0.25 U	1 U	NV	1 U	1 U
TW-612(N)	9/12/2002	312	50 U	NV	50 U	50 U
TW-616(N)	9/12/2002	0.25 U	1 U	NV	1 U	1 U
TW-619(N)	9/12/2002	80.6	12	NV	5 U	34
TW-623(N)	9/12/2002	16.1	9.57	NV	1 U	21.6
TW-624(N)	9/12/2002	34.8	24.3	2.5 U	0.2 U	55.9
TW-625(N)	9/12/2002	0.25 U	NV	NV	NV	NV
TW-700(P)	8/21/2002	358	70.8	12.5 U	1 U	459
TW-701(P)	8/20/2002	933	41.2	25 U	2 U	236
TW-702(P)	8/21/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
TW-703(P)	8/21/2002	172	42.3	5.08	0.4 U	4.24
TW-704(P)	8/21/2002	1.46	17.8	2.5 U	0.2 U	3.23
TW-706(P)	8/21/2002	195	14.2	12.5 U	1 U	94.3
TW-707(P)	8/21/2002	2.87	0.25 U	2.5 U	0.2 U	0.25 U
TW-708(P)	8/20/2002	80.9	27.8	NV	10 U	10 U
TW-709(P)	8/21/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
TW-710(P)	8/21/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
TW-711(P)	8/21/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
TW-712(P)	8/21/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
TW-714(P)	8/21/2002	2110	73.2	NV	20 U	965
TW-716(P)	8/20/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
TW-717(P)	8/20/2002	0.2 U	0.25 U	2.5 U	0.2 U	0.25 U
TW-718(P)	8/21/2002	0.25 U	1 U	NV	1 U	1 U
TW-719(P)	8/23/2002	0.25 U	1 U	NV	1 U	0.25
TW-720(P)	8/23/2002	1530	56.2	NV	20 U	744
TW-800(Q)-10.5	8/27/2002	0.25 U	NV	NV	NV	NV
TW801(Q)-10	8/26/2002	0.25 U	NV	NV	NV	NV
TW-803(Q)-9	8/26/2002	0.25 U	NV	NV	NV	NV

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Volatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	Ethylbenzene	Isopropylbenzene	Methylene Chloride	Methyl-t-butyl Ether	Naphthalene
TW-805(Q)-10	8/26/2002	2.26	NV	NV	NV	NV
TW-806 (Q)-11	8/28/2002	0.25 U	NV	NV	NV	NV
TW-810 (Q)-8	8/28/2002	0.25 U	NV	NV	NV	NV
TW814(Q)9	8/27/2002	0.25 U	NV	NV	NV	NV
TW-816(Q)-12	8/27/2002	0.25 U	NV	NV	NV	NV
TW-818 (Q)-11	8/28/2002	0.25 U	NV	NV	NV	NV
TW-819 (Q)-9.5	8/28/2002	7.78	NV	NV	NV	NV
TW-819 (Q)-9.5C	8/28/2002	11	NV	NV	NV	NV
TW-820 (Q)-10	8/29/2002	30.2	NV	NV	NV	NV
TW-822 (Q)-9	8/29/2002	111	NV	NV	NV	NV
TW-824(Q)-9	8/28/2002	0.25 U	NV	NV	NV	NV
TW-825(Q)-8.5	8/27/2002	0.25 U	NV	NV	NV	NV
TW-826 (Q)-8.5	8/29/2002	0.25 U	NV	NV	NV	NV
TW-826(Q)-9	8/27/2002	0.25 U	NV	NV	NV	NV
TW-828 (Q)-8.5	8/29/2002	0.25 U	NV	NV	NV	NV
TW-833 (Q)-10.5	8/28/2002	0.25 U	NV	NV	NV	NV
Number of Samples		261 159	220 120	24 1	220 8	220 114
Average Concentration		219	18	4.4	4.4	110
Median Concentration		0.73	1	2.5	1	1
Frequency of Detection		60.9	54.5	4.2	3.6	51.8
Minimum Value		0.11	0.11	2.5	0.11	0.075
Maximum Detection		2890	233	5.08	0.98	1500

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	N-Butylbenzene	N-Propylbenzene	O-Xylene	Sec-Butylbenzene	Tert-Butylbenzene
BM-17 (A)	7/22/2004	NV	3.95	NV	NV	NV
BM-17(A)	1/19/2004	NV	16.4	NV	NV	NV
BM-19 (A)	7/20/2004	NV	0.21	NV	NV	NV
BM-19(A)	10/20/2003	NV	0.25 U	NV	NV	NV
BM-21 (A)	1/13/2004	NV	6.9	NV	NV	NV
BM-23(A)	4/15/2004	NV	5.04	NV	NV	NV
BM-31 (A)	10/16/2003	NV	156	NV	NV	NV
BM-31 (A)	4/13/2004	NV	73	NV	NV	NV
BM-7(M)	6/19/2003	NV	0.25 U	NV	NV	NV
BT-602(N)	9/13/2002	NV	0.25 U	NV	NV	NV
BT-625(N)	9/12/2002	NV	NV	NV	NV	NV
BT-708(P)	8/20/2002	NV	88.5	NV	NV	NV
BT-711(P)	8/21/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
BT-719(P)	8/23/2002	NV	0.41	NV	NV	NV
MW-1 (F)	1/15/2004	NV	1.13	NV	NV	NV
MW-1 (F)	7/20/2004	NV	0.4	NV	NV	NV
MW-1(F)	10/22/2003	NV	0.26	NV	NV	NV
MW-1(F)	4/15/2004	NV	0.26	NV	NV	NV
MW-10 (M)	10/15/2003	NV	48.6	NV	NV	NV
MW-10 (M)	1/13/2004	NV	28.9	NV	NV	NV
MW-10 (M)	4/13/2004	NV	21.7	NV	NV	NV
MW-10 (M)	7/19/2004	NV	37.1	NV	NV	NV
MW-10(M)	6/19/2003	NV	26.8	NV	NV	NV
MW-1-082302	8/23/2002	NV	0.25 U	NV	NV	NV
MW-11 (M)	10/15/2003	NV	7.48	NV	NV	NV
MW-11 (M)	1/13/2004	NV	1.3	NV	NV	NV
MW-11 (M)	4/13/2004	NV	3.19	NV	NV	NV
MW-11 (M)	7/21/2004	NV	0.25 U	NV	NV	NV
MW-11(M)	6/19/2003	NV	0.25 U	NV	NV	NV
MW-12 (A)	1/15/2004	NV	0.25 U	NV	NV	NV
MW-12 (A)	7/22/2004	NV	0.25 U	NV	NV	NV
MW-12(A)	10/22/2003	NV	0.25 U	NV	NV	NV
MW-12(A)	4/16/2004	NV	0.25 U	NV	NV	NV
MW-13 (A)	1/15/2004	NV	676	NV	NV	NV
MW-13 (A)	7/22/2004	NV	355	NV	NV	NV

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Volatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	N-Butylbenzene	N-Propylbenzene	O-Xylene	Sec-Butylbenzene	Tert-Butylbenzene
MW-13(A)	10/22/2003	NV	228	NV	NV	NV
MW-13(A)	4/16/2004	NV	657	NV	NV	NV
MW-14 (A)	1/15/2004	NV	0.66	NV	NV	NV
MW-14 (A)	7/23/2004	NV	0.25 U	NV	NV	NV
MW-14(A)	10/21/2003	NV	0.2	NV	NV	NV
MW-14(A)	4/16/2004	NV	0.25 U	NV	NV	NV
MW-15(A)	10/20/2003	NV	90.3	NV	NV	NV
MW-16 (A)	7/22/2004	NV	25.1	NV	NV	NV
MW-16(A)	10/20/2003	NV	12.3	NV	NV	NV
MW-16(A)	1/19/2004	NV	5.44	NV	NV	NV
MW-16(A)	4/15/2004	NV	29.9	NV	NV	NV
MW-17 (A)	10/17/2003	NV	7.97	NV	NV	NV
MW-17 (A)	7/22/2004	NV	4.37	NV	NV	NV
MW-17(A)	1/19/2004	NV	17.4	NV	NV	NV
MW-17(A)	4/15/2004	NV	23	NV	NV	NV
MW-18 (A)	7/21/2004	NV	19	NV	NV	NV
MW-18(A)	10/21/2003	NV	45	NV	NV	NV
MW-18(A)	1/19/2004	NV	26.9	NV	NV	NV
MW-18(A)	4/15/2004	NV	1.6	NV	NV	NV
MW-19 (A)	1/13/2004	NV	0.25 U	NV	NV	NV
MW-19 (A)	7/20/2004	NV	0.2	NV	NV	NV
MW-19(A)	10/20/2003	NV	0.25 U	NV	NV	NV
MW-19(A)	4/15/2004	NV	0.25 U	NV	NV	NV
MW-2 (M)	10/15/2003	NV	159	NV	NV	NV
MW-2 (M)	1/12/2004	NV	47.8	NV	NV	NV
MW-2 (M)	7/22/2004	NV	206	NV	NV	NV
MW-2(M)	6/19/2003	NV	270	NV	NV	NV
MW-2(M)	4/14/2004	NV	212	NV	NV	NV
MW-20 (A)	1/13/2004	NV	8.92	NV	NV	NV
MW-20 (A)	7/20/2004	NV	3	NV	NV	NV
MW-20(A)	10/20/2003	NV	3.62	NV	NV	NV
MW-20(A)	4/15/2004	NV	2.02	NV	NV	NV
MW-21 (A)	1/13/2004	NV	7.59	NV	NV	NV
MW-21 (A)	7/20/2004	NV	13.3	NV	NV	NV
MW-21(A)	10/20/2003	NV	7.31	NV	NV	NV

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	N-Butylbenzene	N-Propylbenzene	O-Xylene	Sec-Butylbenzene	Tert-Butylbenzene
MW-21(A)	4/16/2004	NV	3.97	NV	NV	NV
MW-22 (A)	10/16/2003	NV	7	NV	NV	NV
MW-22 (A)	7/20/2004	NV	0.18	NV	NV	NV
MW-22(A)	1/19/2004	NV	0.25	U	NV	NV
MW-22(A)	4/15/2004	NV	0.25	U	NV	NV
MW-23 (A)	1/15/2004	NV	0.17	NV	NV	NV
MW-23 (A)	7/20/2004	NV	0.25	U	NV	NV
MW-23(A)	10/20/2003	NV	0.15	NV	NV	NV
MW-23(A)	4/15/2004	NV	6.02	NV	NV	NV
MW-24 (A)	1/15/2004	NV	9.7	NV	NV	NV
MW-24 (A)	7/22/2004	NV	6.53	NV	NV	NV
MW-24(A)	10/21/2003	NV	2.01	NV	NV	NV
MW-24(A)	4/14/2004	NV	11.1	NV	NV	NV
MW-26 (A)	10/17/2003	NV	83.3	NV	NV	NV
MW-26 (A)	1/15/2004	NV	280	NV	NV	NV
MW-26 (A)	7/22/2004	NV	278	NV	NV	NV
MW-26(A)	4/14/2004	NV	251	NV	NV	NV
MW-27 (A)	1/14/2004	NV	0.25	U	NV	NV
MW-27 (A)	4/14/2004	NV	0.25	U	NV	NV
MW-27 (A)	7/22/2004	NV	0.25	U	NV	NV
MW-27(A)	10/21/2003	NV	0.25	U	NV	NV
MW-28 (A)	10/17/2003	NV	85.6	NV	NV	NV
MW-28 (A)	7/23/2004	NV	18.2	NV	NV	NV
MW-28(A)	1/19/2004	NV	92.4	NV	NV	NV
MW-28(A)	4/14/2004	NV	37.4	NV	NV	NV
MW-29 (A)	7/22/2004	NV	270	NV	NV	NV
MW-29(A)	10/21/2003	NV	234	NV	NV	NV
MW-29(A)	1/19/2004	NV	241	NV	NV	NV
MW-29(A)	4/16/2004	NV	188	NV	NV	NV
MW-30 (A)	10/16/2003	NV	238	NV	NV	NV
MW-30 (A)	1/16/2004	NV	232	NV	NV	NV
MW-30 (A)	4/13/2004	NV	170	NV	NV	NV
MW-30 (A)	7/20/2004	NV	218	NV	NV	NV
MW-31 (A)	10/16/2003	NV	152	NV	NV	NV
MW-31 (A)	1/12/2004	NV	121	NV	NV	NV

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
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Sample ID	Sample Date	N-Butylbenzene	N-Propylbenzene	O-Xylene	Sec-Butylbenzene	Tert-Butylbenzene
MW-31 (A)	4/13/2004	NV	80.2	NV	NV	NV
MW-31 (A)	7/20/2004	NV	119	NV	NV	NV
MW-32 (A)	1/12/2004	NV	0.25 U	NV	NV	NV
MW-32 (A)	4/13/2004	NV	0.25 U	NV	NV	NV
MW-32 (A)	7/19/2004	NV	0.25 U	NV	NV	NV
MW-32(A)	10/14/2003	NV	0.25 U	NV	NV	NV
MW-33 (A)	1/12/2004	NV	8.13	NV	NV	NV
MW-33 (A)	4/13/2004	NV	8.46	NV	NV	NV
MW-33 (A)	7/19/2004	NV	1.61	NV	NV	NV
MW-33(A)	10/14/2003	NV	0.63	NV	NV	NV
MW-34 (A)	1/13/2004	NV	0.25 U	NV	NV	NV
MW-34 (A)	4/14/2004	NV	0.25 U	NV	NV	NV
MW-34 (A)	7/20/2004	NV	0.25 U	NV	NV	NV
MW-34(A)	10/14/2003	NV	0.25 U	NV	NV	NV
MW-35 (A)	10/16/2003	NV	0.17	NV	NV	NV
MW-35 (A)	1/16/2004	NV	0.18	NV	NV	NV
MW-35 (A)	4/13/2004	NV	0.25 U	NV	NV	NV
MW-35 (A)	7/20/2004	NV	0.25 U	NV	NV	NV
MW-36 (A)	1/14/2004	NV	0.25 U	NV	NV	NV
MW-36 (A)	4/14/2004	NV	0.25 U	NV	NV	NV
MW-36 (A)	7/22/2004	NV	0.14	NV	NV	NV
MW-36(A)	10/21/2003	NV	0.25 U	NV	NV	NV
MW-37 (A)	10/17/2003	NV	10.4	NV	NV	NV
MW-38 (A)	1/14/2004	NV	0.15	NV	NV	NV
MW-38 (A)	4/14/2004	NV	0.25 U	NV	NV	NV
MW-38 (A)	7/22/2004	NV	0.51	NV	NV	NV
MW-38(A)	10/21/2003	NV	0.25 U	NV	NV	NV
MW-39 (A)	10/16/2003	NV	5.33	NV	NV	NV
MW-39 (A)	1/16/2004	NV	4.57	NV	NV	NV
MW-39 (A)	4/14/2004	NV	6.58	NV	NV	NV
MW-39 (A)	7/21/2004	NV	4.4	NV	NV	NV
MW-40 (A)	10/17/2003	NV	86.4	NV	NV	NV
MW-40(A)	1/20/2004	NV	334	NV	NV	NV
MW-40(A)	4/16/2004	NV	325	NV	NV	NV
MW-41(A)	10/14/2003	NV	88.9	NV	NV	NV

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Volatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	N-Butylbenzene	N-Propylbenzene	O-Xylene	Sec-Butylbenzene	Tert-Butylbenzene
MW-42 (A)	10/15/2003	NV	226	NV	NV	NV
MW-43 (A)	1/12/2004	NV	0.25 U	NV	NV	NV
MW-43 (A)	4/13/2004	NV	3.76	NV	NV	NV
MW-43 (A)	7/21/2004	NV	0.25 U	NV	NV	NV
MW-43(A)	10/13/2003	NV	0.25 U	NV	NV	NV
MW-44 (A)	10/17/2003	NV	388	NV	NV	NV
MW-45 (A)	10/16/2003	NV	0.21	NV	NV	NV
MW-45 (A)	1/16/2004	NV	0.25 U	NV	NV	NV
MW-45 (A)	4/14/2004	NV	0.25 U	NV	NV	NV
MW-45 (A)	7/21/2004	NV	0.25 U	NV	NV	NV
MW-46 (A)	4/12/2004	NV	0.25 U	NV	NV	NV
MW-46 (A)	7/21/2004	NV	0.25 U	NV	NV	NV
MW-46(A)	10/14/2003	NV	0.25 U	NV	NV	NV
MW-46(A)	1/14/2004	NV	0.25 U	NV	NV	NV
MW-47 (A)	1/14/2004	NV	0.25 U	NV	NV	NV
MW-47 (A)	4/12/2004	NV	0.25 U	NV	NV	NV
MW-47 (A)	7/21/2004	NV	0.25 U	NV	NV	NV
MW-47(A)	10/13/2003	NV	0.25 U	NV	NV	NV
MW-48 (A)	1/14/2004	NV	0.25 U	NV	NV	NV
MW-48 (A)	4/12/2004	NV	0.25 U	NV	NV	NV
MW-48 (A)	7/21/2004	NV	0.25 U	NV	NV	NV
MW-48(A)	10/14/2003	NV	0.25 U	NV	NV	NV
MW-6 (M)	1/12/2004	NV	0.49	NV	NV	NV
MW-6 (M)	4/13/2004	NV	0.25 U	NV	NV	NV
MW-6 (M)	7/19/2004	NV	0.25 U	NV	NV	NV
MW-6(M)	6/19/2003	NV	0.25 U	NV	NV	NV
MW-6(M)	10/22/2003	NV	0.25 U	NV	NV	NV
MW-7 (M)	1/12/2004	NV	0.25 U	NV	NV	NV
MW-7 (M)	4/12/2004	NV	0.25 U	NV	NV	NV
MW-7 (M)	7/19/2004	NV	0.17	NV	NV	NV
MW-7(M)	6/19/2003	NV	0.25 U	NV	NV	NV
MW-7(M)	10/13/2003	NV	0.25 U	NV	NV	NV
R-1(M)	10/22/2003	NV	0.25 U	NV	NV	NV
SB100(C)W	8/22/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
SB103(C)W	8/22/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U

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Sample ID	Sample Date	N-Butylbenzene	N-Propylbenzene	O-Xylene	Sec-Butylbenzene	Tert-Butylbenzene
SB104(C)W	8/22/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
SB200(C)W	8/22/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
SB201(C)W	8/22/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
SB202(C)W	8/22/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
SB203(C)W	8/22/2002	0.53	0.88	0.2 U	0.61	0.25 U
SB204(C)W	8/22/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
SB204(C)W2	8/22/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
SB-304-D-9.0	8/19/2002	NV	NV	NV	NV	NV
SB-304-D-9.0 DUP	8/19/2002	NV	NV	NV	NV	NV
SB-305-D-9.0	8/19/2002	NV	416	NV	NV	NV
SB-306-D-9.0	8/19/2002	NV	NV	NV	NV	NV
SB-307-D-9.0	8/19/2002	NV	NV	NV	NV	NV
SB-309-D-9.0	8/19/2002	NV	5.72	NV	NV	NV
SB-311-D-10.0	8/19/2002	NV	NV	NV	NV	NV
SB-312-D-10.0	8/19/2002	NV	0.32	NV	NV	NV
SB-319-D-14.0	8/19/2002	NV	NV	NV	NV	NV
SB-900(TW)	8/26/2002	NV	NV	NV	NV	NV
SB-901(TW)	8/26/2002	NV	32.4	NV	NV	NV
SB-902(TW)	8/26/2002	NV	NV	NV	NV	NV
SB-903(TW)	8/26/2002	NV	7.85	NV	NV	NV
SB-904(TW)	8/26/2002	NV	0.27	NV	NV	NV
SB-905(TW)	8/26/2002	NV	1.86	NV	NV	NV
SB-906(TW)	8/27/2002	NV	2.04	NV	NV	NV
SB-908(TW)	8/27/2002	NV	0.25 U	NV	NV	NV
SB-909(TW)	8/27/2002	NV	NV	NV	NV	NV
SB-910(TW)	8/26/2002	NV	NV	NV	NV	NV
SB-911(TW)	8/27/2002	NV	0.8	NV	NV	NV
TW-313-D-22.0	8/20/2002	NV	NV	NV	NV	NV
TW-314-D-22.0	8/20/2002	NV	NV	NV	NV	NV
TW-318-D-22.0	8/20/2002	NV	0.14	NV	NV	NV
TW-400(F)	8/22/2002	NV	NV	NV	NV	NV
TW-401(F)	8/23/2002	NV	NV	NV	NV	NV
TW-402(F)	8/23/2002	NV	NV	NV	NV	NV
TW-405(F)	8/22/2002	NV	NV	NV	NV	NV
TW-406(F)	8/22/2002	NV	NV	NV	NV	NV

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Sample ID	Sample Date	N-Butylbenzene	N-Propylbenzene	O-Xylene	Sec-Butylbenzene	Tert-Butylbenzene
TW-407(F)	8/22/2002	NV	NV	NV	NV	NV
TW-408(F)	8/22/2002	NV	NV	NV	NV	NV
TW-409(F)	8/22/2002	NV	NV	NV	NV	NV
TW-600(N)	9/13/2002	NV	89.2	NV	NV	NV
TW-601(N)	9/13/2002	NV	49.3	NV	NV	NV
TW-602(N)	9/13/2002	NV	0.25 U	NV	NV	NV
TW-603(N)	9/13/2002	NV	1.19	NV	NV	NV
TW-608 (N)	9/13/2002	NV	0.25 U	NV	NV	NV
TW-612(N)	9/12/2002	NV	98	NV	NV	NV
TW-616(N)	9/12/2002	NV	0.25 U	NV	NV	NV
TW-619(N)	9/12/2002	NV	17.6	NV	NV	NV
TW-623(N)	9/12/2002	NV	23.2	NV	NV	NV
TW-624(N)	9/12/2002	10.5	60.7	11.2	6.25	0.65
TW-625(N)	9/12/2002	NV	NV	NV	NV	NV
TW-700(P)	8/21/2002	18.2	131	172	1.25 U	1.25 U
TW-701(P)	8/20/2002	2.8	81.9	27.8	2.5 U	2.5 U
TW-702(P)	8/21/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
TW-703(P)	8/21/2002	8.38	58	29.9	5.74	0.5 U
TW-704(P)	8/21/2002	1.64	23.8	3.69	2.37	0.25 U
TW-706(P)	8/21/2002	0.95	26.6	91.6	1.25 U	1.25 U
TW-707(P)	8/21/2002	0.25 U	0.25 U	0.27	0.25 U	0.25 U
TW-708(P)	8/20/2002	NV	73.2	NV	NV	NV
TW-709(P)	8/21/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
TW-710(P)	8/21/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
TW-711(P)	8/21/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
TW-712(P)	8/21/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
TW-714(P)	8/21/2002	NV	277	NV	NV	NV
TW-716(P)	8/20/2002	0.25 U	0.25 U	0.2 U	0.25 U	0.25 U
TW-717(P)	8/20/2002	0.25 U	0.14	0.49	0.25 U	0.25 U
TW-718(P)	8/21/2002	NV	0.25 U	NV	NV	NV
TW-719(P)	8/23/2002	NV	0.35	NV	NV	NV
TW-720(P)	8/23/2002	NV	188	NV	NV	NV
TW-800(Q)-10.5	8/27/2002	NV	NV	NV	NV	NV
TW801(Q)-10	8/26/2002	NV	NV	NV	NV	NV
TW-803(Q)-9	8/26/2002	NV	NV	NV	NV	NV

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Sample ID	Sample Date	N-Butylbenzene	N-Propylbenzene	O-Xylene	Sec-Butylbenzene	Tert-Butylbenzene					
TW-805(Q)-10	8/26/2002	NV	NV	NV	NV	NV					
TW-806 (Q)-11	8/28/2002	NV	NV	NV	NV	NV					
TW-810 (Q)-8	8/28/2002	NV	NV	NV	NV	NV					
TW814(Q)9	8/27/2002	NV	NV	NV	NV	NV					
TW-816(Q)-12	8/27/2002	NV	NV	NV	NV	NV					
TW-818 (Q)-11	8/28/2002	NV	NV	NV	NV	NV					
TW-819 (Q)-9.5	8/28/2002	NV	NV	NV	NV	NV					
TW-819 (Q)-9.5C	8/28/2002	NV	NV	NV	NV	NV					
TW-820 (Q)-10	8/29/2002	NV	NV	NV	NV	NV					
TW-822 (Q)-9	8/29/2002	NV	NV	NV	NV	NV					
TW-824(Q)-9	8/28/2002	NV	NV	NV	NV	NV					
TW-825(Q)-8.5	8/27/2002	NV	NV	NV	NV	NV					
TW-826 (Q)-8.5	8/29/2002	NV	NV	NV	NV	NV					
TW-826(Q)-9	8/27/2002	NV	NV	NV	NV	NV					
TW-828 (Q)-8.5	8/29/2002	NV	NV	NV	NV	NV					
TW-833 (Q)-10.5	8/28/2002	NV	NV	NV	NV	NV					
Number of Samples		24	7	220	135	24	8	24	4	24	1
Average Concentration		2.0		47		14		1.0		0.45	
Median Concentration		0.25		0.73		0.2		0.25		0.25	
Frequency of Detection		29.2		61.4		33.3		16.7		4.2	
Minimum Value		0.25		0.14		0.2		0.25		0.25	
Maximum Detection		18.2		676		172		6.25		0.65	

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Volatile Organic Compounds in Groundwater (ug/L)
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Sample ID	Sample Date	Tetrachloroethene	Toluene	Xylene, Isomers m& p	Xylenes, total
BM-17 (A)	7/22/2004	NV	1.09	NV	1.12
BM-17(A)	1/19/2004	NV	1.04	NV	18.9
BM-19 (A)	7/20/2004	NV	0.25	NV	0.73
BM-19(A)	10/20/2003	NV	0.25 U	NV	0.5 U
BM-21 (A)	1/13/2004	NV	0.25 U	NV	0.45
BM-23(A)	4/15/2004	NV	0.94	NV	10.9
BM-31 (A)	10/16/2003	NV	41.6	NV	143
BM-31 (A)	4/13/2004	NV	29.2	NV	121
BM-7(M)	6/19/2003	NV	0.25 U	NV	0.5 U
BT-602(N)	9/13/2002	NV	0.25 U	NV	1.19
BT-625(N)	9/12/2002	NV	0.25 U	NV	0.5 U
BT-708(P)	8/20/2002	NV	43.6	NV	69.9
BT-711(P)	8/21/2002	0.25 U	0.2 U	0.4 U	0.6 U
BT-719(P)	8/23/2002	NV	0.25 U	NV	0.5 U
MW-1 (F)	1/15/2004	NV	0.25 U	NV	0.5 U
MW-1 (F)	7/20/2004	NV	0.32	NV	2
MW-1(F)	10/22/2003	NV	7.08	NV	16.3
MW-1(F)	4/15/2004	NV	0.25 U	NV	0.92
MW-10 (M)	10/15/2003	NV	19.3	NV	49.6
MW-10 (M)	1/13/2004	NV	15.3	NV	46.9
MW-10 (M)	4/13/2004	NV	10.5	NV	55
MW-10 (M)	7/19/2004	NV	6.09	NV	31.2
MW-10(M)	6/19/2003	NV	5.55	NV	49
MW-1-082302	8/23/2002	NV	0.25 U	NV	0.5 U
MW-11 (M)	10/15/2003	NV	0.96	NV	8.39
MW-11 (M)	1/13/2004	NV	0.25 U	NV	0.5 U
MW-11 (M)	4/13/2004	NV	0.25 U	NV	0.5 U
MW-11 (M)	7/21/2004	NV	0.25 U	NV	0.5 U
MW-11(M)	6/19/2003	NV	0.25 U	NV	0.5 U
MW-12 (A)	1/15/2004	NV	0.25 U	NV	0.5 U
MW-12 (A)	7/22/2004	NV	0.25 U	NV	0.5 U
MW-12(A)	10/22/2003	NV	2.77	NV	3.77
MW-12(A)	4/16/2004	NV	0.25 U	NV	0.5 U
MW-13 (A)	1/15/2004	NV	82.4	NV	578
MW-13 (A)	7/22/2004	NV	30	NV	50.4

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Tetrachloroethene	Toluene	Xylene, Isomers m& p	Xylenes, total
MW-13(A)	10/22/2003	NV	26.6	NV	94.6
MW-13(A)	4/16/2004	NV	58	NV	110
MW-14 (A)	1/15/2004	NV	0.25 U	NV	0.47
MW-14 (A)	7/23/2004	NV	0.25 U	NV	0.5 U
MW-14(A)	10/21/2003	NV	5.91	NV	6.82
MW-14(A)	4/16/2004	NV	0.25 U	NV	0.5 U
MW-15(A)	10/20/2003	NV	13.5	NV	40.7
MW-16 (A)	7/22/2004	NV	2.15	NV	2.83
MW-16(A)	10/20/2003	NV	1.43	NV	9.74
MW-16(A)	1/19/2004	NV	0.25 U	NV	0.5 U
MW-16(A)	4/15/2004	NV	0.71	NV	0.34
MW-17 (A)	10/17/2003	NV	25.5	NV	35.3
MW-17 (A)	7/22/2004	NV	1.46	NV	1.83
MW-17(A)	1/19/2004	NV	1.05	NV	20.1
MW-17(A)	4/15/2004	NV	0.67	NV	8.65
MW-18 (A)	7/21/2004	NV	3.18	NV	1.68
MW-18(A)	10/21/2003	NV	21.1	NV	22.4
MW-18(A)	1/19/2004	NV	13.9	NV	18.9
MW-18(A)	4/15/2004	NV	0.68	NV	0.82
MW-19 (A)	1/13/2004	NV	0.25 U	NV	0.5 U
MW-19 (A)	7/20/2004	NV	0.19	NV	0.61
MW-19(A)	10/20/2003	NV	0.25 U	NV	0.5 U
MW-19(A)	4/15/2004	NV	0.25 U	NV	0.5 U
MW-2 (M)	10/15/2003	NV	8.5	NV	21.3
MW-2 (M)	1/12/2004	NV	0.51	NV	0.86
MW-2 (M)	7/22/2004	NV	7.35	NV	29.4
MW-2(M)	6/19/2003	NV	15.5	NV	369
MW-2(M)	4/14/2004	NV	13.4	NV	342
MW-20 (A)	1/13/2004	NV	0.88	NV	46.2
MW-20 (A)	7/20/2004	NV	1.18	NV	63.3
MW-20(A)	10/20/2003	NV	1.29	NV	121
MW-20(A)	4/15/2004	NV	0.25 U	NV	1.08
MW-21 (A)	1/13/2004	NV	0.25 U	NV	0.46
MW-21 (A)	7/20/2004	NV	0.17	NV	0.88
MW-21(A)	10/20/2003	NV	0.25 U	NV	1.73

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Tetrachloroethene	Toluene	Xylene, Isomers m& p	Xylenes, total
MW-21(A)	4/16/2004	NV	0.52	NV	5.41
MW-22 (A)	10/16/2003	NV	2.96	NV	7.82
MW-22 (A)	7/20/2004	NV	0.25 U	NV	0.46
MW-22(A)	1/19/2004	NV	0.25 U	NV	0.5 U
MW-22(A)	4/15/2004	NV	0.25 U	NV	0.5 U
MW-23 (A)	1/15/2004	NV	0.25 U	NV	0.38
MW-23 (A)	7/20/2004	NV	0.25 U	NV	0.5 U
MW-23(A)	10/20/2003	NV	0.25 U	NV	0.5 U
MW-23(A)	4/15/2004	NV	1.13	NV	14.5
MW-24 (A)	1/15/2004	NV	2.5 U	NV	116
MW-24 (A)	7/22/2004	NV	0.98	NV	15.6
MW-24(A)	10/21/2003	NV	1.17	NV	10.5
MW-24(A)	4/14/2004	NV	0.25 U	NV	30.7
MW-26 (A)	10/17/2003	NV	18.4	NV	1040
MW-26 (A)	1/15/2004	NV	24.2	NV	5500
MW-26 (A)	7/22/2004	NV	17.2	NV	3430
MW-26(A)	4/14/2004	NV	14.8	NV	3060
MW-27 (A)	1/14/2004	NV	0.25 U	NV	0.5 U
MW-27 (A)	4/14/2004	NV	0.25 U	NV	0.5 U
MW-27 (A)	7/22/2004	NV	0.25 U	NV	0.5 U
MW-27(A)	10/21/2003	NV	0.25 U	NV	0.5 U
MW-28 (A)	10/17/2003	NV	201	NV	1070
MW-28 (A)	7/23/2004	NV	15.8	NV	412
MW-28(A)	1/19/2004	NV	696	NV	4000
MW-28(A)	4/14/2004	NV	88.9	NV	874
MW-29 (A)	7/22/2004	NV	5520	NV	8130
MW-29(A)	10/21/2003	NV	5160	NV	13300
MW-29(A)	1/19/2004	NV	8170	NV	13500
MW-29(A)	4/16/2004	NV	3780	NV	8920
MW-30 (A)	10/16/2003	NV	110	NV	663
MW-30 (A)	1/16/2004	NV	127	NV	378
MW-30 (A)	4/13/2004	NV	243	NV	2140
MW-30 (A)	7/20/2004	NV	128	NV	1330
MW-31 (A)	10/16/2003	NV	38.4	NV	138
MW-31 (A)	1/12/2004	NV	109	NV	189

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Tetrachloroethene	Toluene	Xylene, Isomers m& p	Xylenes, total
MW-31 (A)	4/13/2004	NV	35.9	NV	127
MW-31 (A)	7/20/2004	NV	67.9	NV	356
MW-32 (A)	1/12/2004	NV	0.25 U	NV	0.5 U
MW-32 (A)	4/13/2004	NV	0.25 U	NV	0.5 U
MW-32 (A)	7/19/2004	NV	0.25 U	NV	0.5 U
MW-32(A)	10/14/2003	NV	0.25 U	NV	0.5 U
MW-33 (A)	1/12/2004	NV	2.16	NV	4.16
MW-33 (A)	4/13/2004	NV	0.83	NV	2.13
MW-33 (A)	7/19/2004	NV	0.62	NV	0.65
MW-33(A)	10/14/2003	NV	0.25 U	NV	0.28
MW-34 (A)	1/13/2004	NV	0.25 U	NV	0.5 U
MW-34 (A)	4/14/2004	NV	0.25 U	NV	0.5 U
MW-34 (A)	7/20/2004	NV	0.25 U	NV	0.5 U
MW-34(A)	10/14/2003	NV	0.25 U	NV	0.5 U
MW-35 (A)	10/16/2003	NV	0.25 U	NV	0.5 U
MW-35 (A)	1/16/2004	NV	0.25 U	NV	0.5 U
MW-35 (A)	4/13/2004	NV	0.25 U	NV	0.5 U
MW-35 (A)	7/20/2004	NV	0.25 U	NV	0.5 U
MW-36 (A)	1/14/2004	NV	0.25 U	NV	0.5 U
MW-36 (A)	4/14/2004	NV	0.25 U	NV	0.5 U
MW-36 (A)	7/22/2004	NV	0.25 U	NV	0.5 U
MW-36(A)	10/21/2003	NV	0.25 U	NV	0.28
MW-37 (A)	10/17/2003	NV	0.72	NV	30.6
MW-38 (A)	1/14/2004	NV	0.25 U	NV	0.5 U
MW-38 (A)	4/14/2004	NV	0.25 U	NV	0.5 U
MW-38 (A)	7/22/2004	NV	0.25 U	NV	0.5 U
MW-38(A)	10/21/2003	NV	0.25 U	NV	0.5 U
MW-39 (A)	10/16/2003	NV	0.25 U	NV	21.6
MW-39 (A)	1/16/2004	NV	0.25 U	NV	28.8
MW-39 (A)	4/14/2004	NV	0.6	NV	11.7
MW-39 (A)	7/21/2004	NV	0.26	NV	13.2
MW-40 (A)	10/17/2003	NV	57.6	NV	367
MW-40(A)	1/20/2004	NV	833	NV	6460
MW-40(A)	4/16/2004	NV	1530	NV	8150
MW-41(A)	10/14/2003	NV	103	NV	192

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Tetrachloroethene	Toluene	Xylene, Isomers m& p	Xylenes, total
MW-42 (A)	10/15/2003	NV	163	NV	370
MW-43 (A)	1/12/2004	NV	0.25 U	NV	0.5 U
MW-43 (A)	4/13/2004	NV	0.25 U	NV	0.5 U
MW-43 (A)	7/21/2004	NV	0.25 U	NV	0.5 U
MW-43(A)	10/13/2003	NV	0.25 U	NV	0.5 U
MW-44 (A)	10/17/2003	NV	5320	NV	14900
MW-45 (A)	10/16/2003	NV	0.25 U	NV	0.5 U
MW-45 (A)	1/16/2004	NV	0.25 U	NV	0.5 U
MW-45 (A)	4/14/2004	NV	0.25 U	NV	0.5 U
MW-45 (A)	7/21/2004	NV	0.25 U	NV	0.5 U
MW-46 (A)	4/12/2004	NV	0.25 U	NV	0.5 U
MW-46 (A)	7/21/2004	NV	0.25 U	NV	0.5 U
MW-46(A)	10/14/2003	NV	0.25 U	NV	0.5 U
MW-46(A)	1/14/2004	NV	0.25 U	NV	0.5 U
MW-47 (A)	1/14/2004	NV	0.25 U	NV	0.5 U
MW-47 (A)	4/12/2004	NV	0.25 U	NV	0.5 U
MW-47 (A)	7/21/2004	NV	0.25 U	NV	0.5 U
MW-47(A)	10/13/2003	NV	0.25 U	NV	0.5 U
MW-48 (A)	1/14/2004	NV	0.25 U	NV	0.5 U
MW-48 (A)	4/12/2004	NV	0.25 U	NV	0.5 U
MW-48 (A)	7/21/2004	NV	0.25 U	NV	0.5 U
MW-48(A)	10/14/2003	NV	0.25 U	NV	0.5 U
MW-6 (M)	1/12/2004	NV	0.25 U	NV	0.5 U
MW-6 (M)	4/13/2004	NV	0.25 U	NV	0.5 U
MW-6 (M)	7/19/2004	NV	0.25 U	NV	0.5 U
MW-6(M)	6/19/2003	NV	0.25 U	NV	0.5 U
MW-6(M)	10/22/2003	NV	0.25 U	NV	0.5 U
MW-7 (M)	1/12/2004	NV	0.25 U	NV	0.5 U
MW-7 (M)	4/12/2004	NV	0.25 U	NV	0.5 U
MW-7 (M)	7/19/2004	NV	0.25 U	NV	0.5 U
MW-7(M)	6/19/2003	NV	0.25 U	NV	0.5 U
MW-7(M)	10/13/2003	NV	0.25 U	NV	0.5 U
R-1(M)	10/22/2003	NV	0.25 U	NV	0.5 U
SB100(C)W	8/22/2002	0.25 U	0.2 U	0.4 U	0.6 U
SB103(C)W	8/22/2002	0.25 U	0.2 U	0.4 U	0.6 U

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Tetrachloroethene	Toluene	Xylene, Isomers m& p	Xylenes, total
SB104(C)W	8/22/2002	0.25 U	0.2 U	0.4 U	0.6 U
SB200(C)W	8/22/2002	0.25 U	0.2 U	0.4 U	0.6 U
SB201(C)W	8/22/2002	0.25 U	0.2 U	0.4 U	0.6 U
SB202(C)W	8/22/2002	0.25 U	0.2 U	0.4 U	0.6 U
SB203(C)W	8/22/2002	0.25 U	0.2 U	0.4 U	0.6 U
SB204(C)W	8/22/2002	0.41	0.2 U	0.4 U	0.6 U
SB204(C)W2	8/22/2002	0.41	0.2 U	0.4 U	0.6 U
SB-304-D-9.0	8/19/2002	NV	10.9	NV	73.1
SB-304-D-9.0 DUP	8/19/2002	NV	10.2	NV	56.1
SB-305-D-9.0	8/19/2002	NV	186	NV	3870
SB-306-D-9.0	8/19/2002	NV	83.3	NV	106
SB-307-D-9.0	8/19/2002	NV	76	NV	135
SB-309-D-9.0	8/19/2002	NV	2.09	NV	5.13
SB-311-D-10.0	8/19/2002	NV	1.6	NV	1.585 U
SB-312-D-10.0	8/19/2002	NV	0.25 U	NV	0.5 U
SB-319-D-14.0	8/19/2002	NV	0.25 U	NV	0.362 U
SB-900(TW)	8/26/2002	NV	0.701	NV	0.5 U
SB-901(TW)	8/26/2002	NV	1.03	NV	64.1
SB-902(TW)	8/26/2002	NV	0.907	NV	137
SB-903(TW)	8/26/2002	NV	4.32	NV	146
SB-904(TW)	8/26/2002	NV	0.25 U	NV	0.5 U
SB-905(TW)	8/26/2002	NV	0.81	NV	193
SB-906(TW)	8/27/2002	NV	0.25	NV	8.89
SB-908(TW)	8/27/2002	NV	0.25 U	NV	0.5 U
SB-909(TW)	8/27/2002	NV	0.25 U	NV	0.5 U
SB-910(TW)	8/26/2002	NV	0.25 U	NV	1.43
SB-911(TW)	8/27/2002	NV	1.1	NV	5.65
TW-313-D-22.0	8/20/2002	NV	40.6	NV	316
TW-314-D-22.0	8/20/2002	NV	9.8	NV	81.3
TW-318-D-22.0	8/20/2002	NV	0.25 U	NV	2.03
TW-400(F)	8/22/2002	NV	0.25 U	NV	0.5 U
TW-401(F)	8/23/2002	NV	0.25 U	NV	0.5 U
TW-402(F)	8/23/2002	NV	0.25 U	NV	0.5 U
TW-405(F)	8/22/2002	NV	0.86	NV	62.7
TW-406(F)	8/22/2002	NV	7.59	NV	474

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Tetrachloroethene	Toluene	Xylene, Isomers m& p	Xylenes, total
TW-407(F)	8/22/2002	NV	1.63	NV	17.3
TW-408(F)	8/22/2002	NV	0.25 U	NV	1.47
TW-409(F)	8/22/2002	NV	0.25 U	NV	0.5 U
TW-600(N)	9/13/2002	NV	28	NV	840
TW-601(N)	9/13/2002	NV	1.1	NV	107
TW-602(N)	9/13/2002	NV	0.25 U	NV	1.39
TW-603(N)	9/13/2002	NV	0.25 U	NV	3.65
TW-608 (N)	9/13/2002	NV	0.25 U	NV	0.5 U
TW-612(N)	9/12/2002	NV	102	NV	250
TW-616(N)	9/12/2002	NV	0.25 U	NV	0.5 U
TW-619(N)	9/12/2002	NV	7.85	NV	61.8
TW-623(N)	9/12/2002	NV	0.68	NV	27.9
TW-624(N)	9/12/2002	0.25 U	1.65	47.1	58.3
TW-625(N)	9/12/2002	NV	0.25 U	NV	0.5 U
TW-700(P)	8/21/2002	1.25 U	5.35	898	1070
TW-701(P)	8/20/2002	2.5 U	85.7	1350	1377.8
TW-702(P)	8/21/2002	0.25 U	0.2 U	0.4 U	0.6 U
TW-703(P)	8/21/2002	0.5 U	30.9	229	258.9
TW-704(P)	8/21/2002	0.25 U	1.07	5.98	9.67
TW-706(P)	8/21/2002	1.25 U	19	540	631.6
TW-707(P)	8/21/2002	0.25 U	0.41	1.14	1.41
TW-708(P)	8/20/2002	NV	31.9	NV	57.4
TW-709(P)	8/21/2002	0.25 U	0.2 U	0.4 U	0.6 U
TW-710(P)	8/21/2002	0.25 U	0.2 U	0.4 U	0.6 U
TW-711(P)	8/21/2002	0.25 U	0.2 U	0.4 U	0.6 U
TW-712(P)	8/21/2002	0.25 U	0.2 U	0.4 U	0.6 U
TW-714(P)	8/21/2002	NV	33.6	NV	1450
TW-716(P)	8/20/2002	0.25 U	0.2 U	0.4 U	0.6 U
TW-717(P)	8/20/2002	0.25 U	0.38	0.4 U	0.89
TW-718(P)	8/21/2002	NV	0.25 U	NV	0.5 U
TW-719(P)	8/23/2002	NV	0.25 U	NV	0.5 U
TW-720(P)	8/23/2002	NV	192	NV	2650
TW-800(Q)-10.5	8/27/2002	NV	0.25 U	NV	0.5 U
TW801(Q)-10	8/26/2002	NV	0.25 U	NV	0.5 U
TW-803(Q)-9	8/26/2002	NV	0.25 U	NV	0.5 U

Table A-7
Volatile Organic Compounds in Groundwater (ug/L)
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Sample ID	Sample Date	Tetrachloroethene	Toluene	Xylene, Isomers m& p	Xylenes, total
TW-805(Q)-10	8/26/2002	NV	0.25 U	NV	6.87
TW-806 (Q)-11	8/28/2002	NV	1.13	NV	0.5 U
TW-810 (Q)-8	8/28/2002	NV	0.25 U	NV	0.5 U
TW814(Q)9	8/27/2002	NV	0.25 U	NV	0.5 U
TW-816(Q)-12	8/27/2002	NV	0.25 U	NV	0.5 U
TW-818 (Q)-11	8/28/2002	NV	0.25 U	NV	0.5 U
TW-819 (Q)-9.5	8/28/2002	NV	0.581	NV	7.93
TW-819 (Q)-9.5C	8/28/2002	NV	3.17	NV	6.49
TW-820 (Q)-10	8/29/2002	NV	1.05	NV	11.6
TW-822 (Q)-9	8/29/2002	NV	2.89	NV	336
TW-824(Q)-9	8/28/2002	NV	0.25 U	NV	0.5 U
TW-825(Q)-8.5	8/27/2002	NV	0.25 U	NV	0.5 U
TW-826 (Q)-8.5	8/29/2002	NV	0.25 U	NV	0.5 U
TW-826(Q)-9	8/27/2002	NV	0.25 U	NV	0.5 U
TW-828 (Q)-8.5	8/29/2002	NV	0.25 U	NV	0.5 U
TW-833 (Q)-10.5	8/28/2002	NV	0.25 U	NV	0.5 U
Number of Samples		24 2	261 120	24 7	261 138
Average Concentration		0.45	131	128	448
Median Concentration		0.25	0.25	0.4	0.61
Frequency of Detection		8.3	46.0	29.2	52.9
Minimum Value		0.25	0.17	0.4	0.28
Maximum Detection		0.41	8170	1350	14900

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Arsenic	Barium	Cadmium	Calcium	Chromium
TW-714(P)	8/21/2002	Total	NV	NV	NV	NV	NV
SB-900(TW)	8/26/2002	Total	NV	NV	0.0005 U	NV	0.00609
SB-901(TW)	8/26/2002	Total	NV	NV	0.0005 U	NV	0.00308
SB-902(TW)	8/26/2002	Total	NV	NV	0.0005 U	NV	0.0141
SB-903(TW)	8/26/2002	Total	NV	NV	0.0005 U	NV	0.0005 U
SB-904(TW)	8/26/2002	Total	NV	NV	0.0005 U	NV	0.0133
SB-905(TW)	8/26/2002	Total	NV	NV	0.0005 U	NV	0.156
SB-910(TW)	8/26/2002	Total	NV	NV	0.0005 U	NV	0.00265
SB-906(TW)	8/27/2002	Total	NV	NV	0.0005 U	NV	0.0055
SB-908(TW)	8/27/2002	Total	NV	NV	0.0005 U	NV	0.022
SB-909(TW)	8/27/2002	Total	NV	NV	0.0005 U	NV	0.00184
SB-911(TW)	8/27/2002	Total	NV	NV	0.0005 U	NV	0.0028
SB 232 (C)-8	8/30/2002	Total	NV	NV	0.05 U	NV	0.05 U
SB 233 (C)-3	8/30/2002	Total	NV	NV	0.05 U	NV	0.05 U
SB 234 (C)-8	8/30/2002	Total	NV	NV	0.05 U	NV	0.05 U
SB 235 (C)-6	8/30/2002	Total	NV	NV	0.05 U	NV	0.05 U
SB 236 (C)-6	8/30/2002	Total	NV	NV	0.05 U	NV	0.05 U
SB 237 (C)-6	8/30/2002	Total	NV	NV	0.05 U	NV	0.05 U
SB 238 (C)-3	8/30/2002	Total	NV	NV	0.05 U	NV	0.05 U
SB-618 (N)-7	9/12/2002	Total	NV	NV	0.125 U	NV	0.125 U
SB-624 (N)-7	9/12/2002	Total	NV	NV	0.125 U	NV	0.125 U
BM-7(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-10(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-11(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-2(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-6(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-7(M)	6/19/2003	Total	NV	NV	NV	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Arsenic	Barium	Cadmium	Calcium	Chromium
MW-43(A)	10/13/2003	Total	0.00752	0.0227	0.0005 U	25.9	0.00085
MW-47(A)	10/13/2003	Total	0.0005 U	0.0195	0.0005 U	7.89	0.00165
MW-7(M)	10/13/2003	Total	0.0126	0.0323	0.0005 U	41.8	0.00354
MW-32(A)	10/14/2003	Total	0.0014	0.0279	0.0005 U	12.4	0.00141
MW-33(A)	10/14/2003	Total	0.0216	0.0182	0.0005 U	24.1	0.00094
MW-34(A)	10/14/2003	Total	0.00142	0.0367	0.0005 U	31.6	0.00305
MW-41(A)	10/14/2003	Total	0.0144	0.0235	0.0005 U	40.6	0.0005 U
MW-46(A)	10/14/2003	Total	0.00125	0.0156	0.0005 U	10.1	0.0606
MW-48(A)	10/14/2003	Total	0.0005 U	0.0435	0.0005 U	18	0.0025
MW-10 (M)	10/15/2003	Total	0.0257	0.111	0.0007	46.5	0.0133
MW-11 (M)	10/15/2003	Total	0.0139	0.0103	0.0005 U	13.8	0.0005 U
MW-2 (M)	10/15/2003	Total	0.0216	0.032	0.0005 U	23.4	0.00498
MW-42 (A)	10/15/2003	Total	0.0372	0.0436	0.0005 U	48.3	0.00466
BM-31 (A)	10/16/2003	Total	0.0139	0.0271	0.0005 U	33.9	0.00096
MW-22 (A)	10/16/2003	Total	0.00147	0.0241	0.0005 U	NV	0.00145
MW-30 (A)	10/16/2003	Total	0.00795	0.0654	0.0005 U	28	0.00653
MW-31 (A)	10/16/2003	Total	0.0133	0.0265	0.0005 U	33.5	0.00091
MW-35 (A)	10/16/2003	Total	0.00102	0.0136	0.0005 U	9.06	0.0015
MW-39 (A)	10/16/2003	Total	0.00165	0.00754	0.0005 U	NV	0.0005 U
MW-45 (A)	10/16/2003	Total	0.00655	0.00855	0.0005 U	NV	0.00111
MW-17 (A)	10/17/2003	Total	0.0005 U	0.0493	0.0005 U	102	0.00258
MW-26 (A)	10/17/2003	Total	0.00104	0.0593	0.0005 U	NV	0.00137
MW-28 (A)	10/17/2003	Total	0.00345	0.112	0.0005 U	NV	0.0128
MW-37 (A)	10/17/2003	Total	0.0005 U	0.0275	0.0005 U	NV	0.00093
MW-40 (A)	10/17/2003	Total	0.00381	0.0462	0.0005 U	28.4	0.00542
MW-44 (A)	10/17/2003	Total	0.0122	0.0147	0.0005 U	17.1	0.00085
BM-19(A)	10/20/2003	Total	0.00169	0.029	0.0005 U	NV	0.0005 U

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Arsenic	Barium	Cadmium	Calcium	Chromium
MW-15(A)	10/20/2003	Total	0.0005 U	0.0336	0.0005 U	NV	0.0005 U
MW-16(A)	10/20/2003	Total	0.00213	0.0396	0.0005 U	NV	0.00109
MW-19(A)	10/20/2003	Total	0.00132	0.0299	0.0005 U	NV	0.0005 U
MW-20(A)	10/20/2003	Total	0.00129	0.0237	0.0005 U	17.8	0.00142
MW-21(A)	10/20/2003	Total	0.00121	0.0306	0.0005 U	NV	0.00193
MW-23(A)	10/20/2003	Total	0.0005 U	0.0257	0.0005 U	37.8	0.0005 U
MW-14(A)	10/21/2003	Total	0.0005 U	0.0283	0.0005 U	110	0.0005 U
MW-18(A)	10/21/2003	Total	0.0005 U	0.0556	0.0005 U	NV	0.00182
MW-24(A)	10/21/2003	Total	0.00215	0.0579	0.0005 U	12.1	0.00089
MW-27(A)	10/21/2003	Total	0.001	0.0112	0.0005 U	NV	0.0005 U
MW-29(A)	10/21/2003	Total	0.00573	0.0336	0.0005 U	NV	0.0025
MW-36(A)	10/21/2003	Total	0.00227	0.169	0.0005 U	NV	0.00474
MW-38(A)	10/21/2003	Total	0.0005 U	0.0209	0.0005 U	32.4	0.0005 U
MW-1(F)	10/22/2003	Total	0.00953	0.254	0.00024	119	0.0237
MW-12(A)	10/22/2003	Total	0.0005 U	0.038	0.0005 U	NV	0.0005 U
MW-13(A)	10/22/2003	Total	0.0005 U	0.015	0.0005 U	136	0.0005 U
MW-6(M)	10/22/2003	Total	0.0133	0.02	0.0005 U	NV	0.00207
R-1(M)	10/22/2003	Total	0.00356	0.012	0.0005 U	NV	0.00099
MW-2 (M)	1/12/2004	Total	0.0172	0.0138	0.0005 U	NV	0.0005 U
MW-31 (A)	1/12/2004	Total	0.013	0.046	0.0005 U	NV	0.00285
MW-32 (A)	1/12/2004	Total	0.00229	0.0119	0.0005 U	NV	0.0005 U
MW-33 (A)	1/12/2004	Total	0.0307	0.0321	0.0005 U	NV	0.00157
MW-43 (A)	1/12/2004	Total	0.0116	0.0312	0.0005 U	NV	0.00189
MW-6 (M)	1/12/2004	Total	0.0104	0.016	0.00025	15.7	0.00185
MW-7 (M)	1/12/2004	Total	0.00804	0.0331	0.0005 U	NV	0.00226
BM-21 (A)	1/13/2004	Total	0.0005 U	0.0136	0.0005 U	20.8	0.0005 U
MW-10 (M)	1/13/2004	Total	0.0253	0.0426	0.0005 U	NV	0.0005 U

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Arsenic	Barium	Cadmium	Calcium	Chromium
MW-11 (M)	1/13/2004	Total	0.024	0.0301	0.0005 U	NV	0.00363
MW-19 (A)	1/13/2004	Total	0.00097	0.0141	0.0005 U	19.7	0.0005 U
MW-20 (A)	1/13/2004	Total	0.00215	0.0358	0.0005 U	NV	0.0024
MW-21 (A)	1/13/2004	Total	0.0005 U	0.0134	0.0005 U	20.4	0.0005 U
MW-34 (A)	1/13/2004	Total	0.00326	0.0333	0.00019	NV	0.00253
MW-27 (A)	1/14/2004	Total	0.0165	0.0133	0.0005 U	12.5	0.0005 U
MW-36 (A)	1/14/2004	Total	0.0005 U	0.0384	0.0005 U	17.9	0.00142
MW-38 (A)	1/14/2004	Total	0.0005 U	0.0123	0.0005 U	NV	0.0005 U
MW-46(A)	1/14/2004	Total	0.00311	0.026	0.0005 U	NV	0.0165
MW-47 (A)	1/14/2004	Total	0.00414	0.0266	0.0005 U	NV	0.00234
MW-48 (A)	1/14/2004	Total	0.00114	0.0195	0.0005 U	NV	0.0005 U
MW-1 (F)	1/15/2004	Total	0.00234	0.0649	0.0005 U	NV	0.0005 U
MW-12 (A)	1/15/2004	Total	0.0005 U	0.0391	0.0005 U	131	0.0005 U
MW-13 (A)	1/15/2004	Total	0.00288	0.0385	0.0005 U	NV	0.0005 U
MW-14 (A)	1/15/2004	Total	0.0005 U	0.0267	0.0005 U	NV	0.0005 U
MW-23 (A)	1/15/2004	Total	0.0005 U	0.0114	0.0005 U	NV	0.0005 U
MW-24 (A)	1/15/2004	Total	0.00574	0.0238	0.0005 U	NV	0.00101
MW-26 (A)	1/15/2004	Total	0.00861	0.0229	0.0005 U	21	0.00157
MW-30 (A)	1/16/2004	Total	0.0109	0.0515	0.0005 U	NV	0.00479
MW-35 (A)	1/16/2004	Total	0.0018	0.0221	0.0005 U	NV	0.0019
MW-39 (A)	1/16/2004	Total	0.00229	0.0112	0.0005 U	11.8	0.00088
MW-45 (A)	1/16/2004	Total	0.0005 U	0.00837	0.0005 U	24.1	0.0005 U
BM-17(A)	1/19/2004	Total	0.00122	0.0332	0.0005 U	NV	0.0005 U
MW-16(A)	1/19/2004	Total	0.0026	0.0425	0.0005 U	92.2	0.00139
MW-17(A)	1/19/2004	Total	0.00177	0.0326	0.0005 U	NV	0.0005 U
MW-18(A)	1/19/2004	Total	0.0005 U	0.067	0.0005 U	67	0.00406
MW-22(A)	1/19/2004	Total	0.00169	0.026	0.0005 U	26.6	0.00203

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Arsenic	Barium	Cadmium	Calcium	Chromium
MW-28(A)	1/19/2004	Total	0.00311	0.0608	0.0005 U	46.9	0.00618
MW-29(A)	1/19/2004	Total	0.00682	0.0285	0.0005 U	26.4	0.00225
MW-40(A)	1/20/2004	Total	0.0128	0.0331	0.0005 U	NV	0.0005 U
MW-46 (A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-46(A)	4/12/2004	Total	NV	NV	NV	NV	0.0349
MW-47 (A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-47(A)	4/12/2004	Total	NV	NV	NV	NV	0.00581
MW-48 (A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-48(A)	4/12/2004	Total	NV	NV	NV	NV	0.00345
MW-7 (M)	4/12/2004	Total	NV	NV	NV	NV	NV
BM-31 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-10 (M)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-11 (M)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-30 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-31 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-32 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-33 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-35 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-43 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-6 (M)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-2(M)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-24(A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-26(A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-27 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-28(A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-34 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-36 (A)	4/14/2004	Total	NV	NV	NV	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Arsenic	Barium	Cadmium	Calcium	Chromium
MW-38 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-39 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-45 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
BM-23(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-1(F)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-16(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-17(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-18(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-19(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-20(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-22(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-23(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-12(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-13(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-14(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-21(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-29(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-40(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-10 (M)	7/19/2004	Total	NV	NV	NV	NV	NV
MW-32 (A)	7/19/2004	Total	NV	NV	NV	NV	NV
MW-33 (A)	7/19/2004	Total	NV	NV	NV	NV	NV
MW-6 (M)	7/19/2004	Total	NV	NV	NV	NV	NV
MW-7 (M)	7/19/2004	Total	NV	NV	NV	NV	NV
BM-19 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-1 (F)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-19 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-20 (A)	7/20/2004	Total	NV	NV	NV	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Arsenic	Barium	Cadmium	Calcium	Chromium
MW-21 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-22 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-23 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-30 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-31 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-34 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-35 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-11 (M)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-18 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-39 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-43 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-45 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-46 (A)	7/21/2004	Total	NV	NV	NV	NV	0.0217
MW-47 (A)	7/21/2004	Total	NV	NV	NV	NV	0.00097
MW-48 (A)	7/21/2004	Total	NV	NV	NV	NV	0.0005 U
BM-17 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-12 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-13 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-16 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-17 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-2 (M)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-24 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-26 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-27 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-29 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-36 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-38 (A)	7/22/2004	Total	NV	NV	NV	NV	NV

**Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon**

Sample ID	Sample Date	Fraction	Arsenic	Barium	Cadmium	Calcium	Chromium
MW-14 (A)	7/23/2004	Total	NV	NV	NV	NV	NV
MW-28 (A)	7/23/2004	Total	NV	NV	NV	NV	NV
Number of Samples			84 64	84 84	104 4	42 42	110 69
Average Concentration			0.01	0.04	0.01	38.46	0.01
Median Concentration			0.00228	0.0284	0.0005	26.15	0.001735
Frequency of Detection			76	100	4	100	63
Minimum Value			0.0005	0.00754	0.00019	7.89	0.0005
Maximum Detection			0.0372	0.254	0.0007	136	0.156

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Chromium, Hexavalent	Iron	Lead	Magnesium	Manganese
TW-714(P)	8/21/2002	Total	NV	NV	0.0005 U	NV	NV
SB-900(TW)	8/26/2002	Total	NV	NV	0.00242	NV	NV
SB-901(TW)	8/26/2002	Total	NV	NV	0.00519	NV	NV
SB-902(TW)	8/26/2002	Total	NV	NV	0.0166	NV	NV
SB-903(TW)	8/26/2002	Total	NV	NV	0.0005 U	NV	NV
SB-904(TW)	8/26/2002	Total	NV	NV	0.00376	NV	NV
SB-905(TW)	8/26/2002	Total	NV	NV	0.0508	NV	NV
SB-910(TW)	8/26/2002	Total	NV	NV	0.00157	NV	NV
SB-906(TW)	8/27/2002	Total	NV	NV	0.00209	NV	NV
SB-908(TW)	8/27/2002	Total	NV	NV	0.00492	NV	NV
SB-909(TW)	8/27/2002	Total	NV	NV	0.0005 U	NV	NV
SB-911(TW)	8/27/2002	Total	NV	NV	0.00105	NV	NV
SB 232 (C)-8	8/30/2002	Total	NV	NV	NV	NV	NV
SB 233 (C)-3	8/30/2002	Total	NV	NV	NV	NV	NV
SB 234 (C)-8	8/30/2002	Total	NV	NV	NV	NV	NV
SB 235 (C)-6	8/30/2002	Total	NV	NV	NV	NV	NV
SB 236 (C)-6	8/30/2002	Total	NV	NV	NV	NV	NV
SB 237 (C)-6	8/30/2002	Total	NV	NV	NV	NV	NV
SB 238 (C)-3	8/30/2002	Total	NV	NV	NV	NV	NV
SB-618 (N)-7	9/12/2002	Total	NV	NV	0.125 U	NV	NV
SB-624 (N)-7	9/12/2002	Total	NV	NV	NV	NV	NV
BM-7(M)	6/19/2003	Total	NV	12.2	NV	NV	NV
MW-10(M)	6/19/2003	Total	NV	47	0.005 U	NV	NV
MW-11(M)	6/19/2003	Total	NV	25.7	NV	NV	NV
MW-2(M)	6/19/2003	Total	NV	28.1	0.005 U	NV	NV
MW-6(M)	6/19/2003	Total	NV	11.8	NV	NV	NV
MW-7(M)	6/19/2003	Total	NV	13	NV	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Chromium, Hexavalent	Iron	Lead	Magnesium	Manganese
MW-43(A)	10/13/2003	Total	NV	6.25	0.00023	5.58	0.598
MW-47(A)	10/13/2003	Total	NV	0.49	0.00057	8.34	0.0476
MW-7(M)	10/13/2003	Total	NV	19.6	0.0084	19.5	1.06
MW-32(A)	10/14/2003	Total	NV	3.24	0.00058	24.4	0.11
MW-33(A)	10/14/2003	Total	NV	16.7	0.00041	14.1	0.575
MW-34(A)	10/14/2003	Total	NV	5.5	0.00132	26	0.324
MW-41(A)	10/14/2003	Total	NV	35	0.00013	13.6	2.29
MW-46(A)	10/14/2003	Total	NV	15.4	0.00141	6.32	0.722
MW-48(A)	10/14/2003	Total	NV	25.7	0.0216	10.4	0.872
MW-10 (M)	10/15/2003	Total	NV	68.3	0.0115	32.6	1.32
MW-11 (M)	10/15/2003	Total	NV	27.8	0.0005 U	17.6	0.473
MW-2 (M)	10/15/2003	Total	NV	39.3	0.00872	11.1	1.69
MW-42 (A)	10/15/2003	Total	NV	48.2	0.00275	18.1	2.62
BM-31 (A)	10/16/2003	Total	NV	29.5	0.00026	23.3	1.75
MW-22 (A)	10/16/2003	Total	NV	18.6	0.00069	NV	NV
MW-30 (A)	10/16/2003	Total	NV	38.2	0.0037	16.6	1.47
MW-31 (A)	10/16/2003	Total	NV	29.1	0.00056	23.5	1.7
MW-35 (A)	10/16/2003	Total	NV	5.93	0.00024	6.62	0.206
MW-39 (A)	10/16/2003	Total	NV	6.09	0.00019	NV	NV
MW-45 (A)	10/16/2003	Total	NV	10.4	0.00054	NV	NV
MW-17 (A)	10/17/2003	Total	NV	18.4	0.00165	22.4	0.991
MW-26 (A)	10/17/2003	Total	NV	13.9	0.00197	NV	NV
MW-28 (A)	10/17/2003	Total	NV	58.5	0.0464	NV	NV
MW-37 (A)	10/17/2003	Total	NV	27.1	0.00058	NV	NV
MW-40 (A)	10/17/2003	Total	NV	42.5	0.00295	24.9	1.44
MW-44 (A)	10/17/2003	Total	NV	36.8	0.00086	5.1	0.54
BM-19(A)	10/20/2003	Total	NV	12.8	0.00057	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Chromium, Hexavalent	Iron	Lead	Magnesium	Manganese
MW-15(A)	10/20/2003	Total	NV	7.81	0.00047	NV	NV
MW-16(A)	10/20/2003	Total	NV	13.3	0.00097	NV	NV
MW-19(A)	10/20/2003	Total	NV	12.7	0.0005	NV	NV
MW-20(A)	10/20/2003	Total	NV	15.7	0.00145	15	0.581
MW-21(A)	10/20/2003	Total	NV	25	0.0018	NV	NV
MW-23(A)	10/20/2003	Total	NV	6.21	0.00061	11.2	0.293
MW-14(A)	10/21/2003	Total	NV	0.348	0.0005 U	18.3	0.245
MW-18(A)	10/21/2003	Total	NV	20	0.00457	NV	NV
MW-24(A)	10/21/2003	Total	NV	1.2	0.00093	7.62	0.225
MW-27(A)	10/21/2003	Total	NV	0.996	0.00033	NV	NV
MW-29(A)	10/21/2003	Total	NV	37.6	0.00504	NV	NV
MW-36(A)	10/21/2003	Total	NV	15	0.0126	NV	NV
MW-38(A)	10/21/2003	Total	NV	1.48	0.00048	13	0.209
MW-1(F)	10/22/2003	Total	NV	46.6	0.0255	46.8	10.5
MW-12(A)	10/22/2003	Total	NV	0.87	0.0005 U	NV	NV
MW-13(A)	10/22/2003	Total	NV	1.27	0.00083	20.5	0.131
MW-6(M)	10/22/2003	Total	NV	NV	0.00757	NV	NV
R-1(M)	10/22/2003	Total	NV	NV	0.00401	NV	NV
MW-2 (M)	1/12/2004	Total	NV	NV	0.00177	NV	NV
MW-31 (A)	1/12/2004	Total	NV	NV	0.00302	NV	NV
MW-32 (A)	1/12/2004	Total	NV	NV	0.0005 U	NV	NV
MW-33 (A)	1/12/2004	Total	NV	NV	0.00151	NV	NV
MW-43 (A)	1/12/2004	Total	NV	NV	0.00218	NV	NV
MW-6 (M)	1/12/2004	Total	NV	29	0.00379	11.1	2.32
MW-7 (M)	1/12/2004	Total	NV	NV	0.00807	NV	NV
BM-21 (A)	1/13/2004	Total	NV	15.3	0.0005 U	9.32	0.576
MW-10 (M)	1/13/2004	Total	NV	NV	0.0005 U	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Chromium, Hexavalent	Iron	Lead	Magnesium	Manganese
MW-11 (M)	1/13/2004	Total	NV	NV	0.00496	NV	NV
MW-19 (A)	1/13/2004	Total	NV	3.01	0.0005 U	10.4	0.162
MW-20 (A)	1/13/2004	Total	NV	NV	0.00388	NV	NV
MW-21 (A)	1/13/2004	Total	NV	14.1	0.0005 U	9.33	0.581
MW-34 (A)	1/13/2004	Total	NV	NV	0.00162	NV	NV
MW-27 (A)	1/14/2004	Total	NV	33.3	0.0005 U	5.72	0.294
MW-36 (A)	1/14/2004	Total	NV	0.41	0.00306	5.45	0.059
MW-38 (A)	1/14/2004	Total	NV	NV	0.0012	NV	NV
MW-46(A)	1/14/2004	Total	0.00542	NV	0.00217	NV	NV
MW-47 (A)	1/14/2004	Total	NV	NV	0.00314	NV	NV
MW-48 (A)	1/14/2004	Total	NV	NV	0.0005 U	NV	NV
MW-1 (F)	1/15/2004	Total	NV	NV	0.0005 U	NV	NV
MW-12 (A)	1/15/2004	Total	NV	0.133	0.0005 U	18.3	0.0127
MW-13 (A)	1/15/2004	Total	NV	NV	0.0026	NV	NV
MW-14 (A)	1/15/2004	Total	NV	NV	0.0005 U	NV	NV
MW-23 (A)	1/15/2004	Total	NV	NV	0.00327	NV	NV
MW-24 (A)	1/15/2004	Total	NV	NV	0.00575	NV	NV
MW-26 (A)	1/15/2004	Total	NV	34.6	0.00598	7.66	1.39
MW-30 (A)	1/16/2004	Total	NV	NV	0.00317	NV	NV
MW-35 (A)	1/16/2004	Total	NV	NV	0.00144	NV	NV
MW-39 (A)	1/16/2004	Total	NV	12.8	0.0005 U	5.05	0.146
MW-45 (A)	1/16/2004	Total	NV	0.798	0.0005 U	7.53	0.0577
BM-17(A)	1/19/2004	Total	NV	NV	0.00197	NV	NV
MW-16(A)	1/19/2004	Total	NV	12	0.148	22	0.458
MW-17(A)	1/19/2004	Total	NV	NV	0.00203	NV	NV
MW-18(A)	1/19/2004	Total	NV	28.6	0.00781	28.1	1.53
MW-22(A)	1/19/2004	Total	NV	14.3	0.00135	10	0.337

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Chromium, Hexavalent	Iron	Lead	Magnesium	Manganese
MW-28(A)	1/19/2004	Total	NV	48.3	0.0198	14.5	1.61
MW-29(A)	1/19/2004	Total	NV	41.4	0.00774	13.1	1.78
MW-40(A)	1/20/2004	Total	NV	NV	0.00519	NV	NV
MW-46 (A)	4/12/2004	Total	NV	NV	0.00495	NV	NV
MW-46(A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-47 (A)	4/12/2004	Total	NV	NV	0.00881	NV	NV
MW-47(A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-48 (A)	4/12/2004	Total	NV	NV	0.0335	NV	NV
MW-48(A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-7 (M)	4/12/2004	Total	NV	NV	0.0203	NV	NV
BM-31 (A)	4/13/2004	Total	NV	NV	0.0153	NV	NV
MW-10 (M)	4/13/2004	Total	NV	NV	0.00958	NV	NV
MW-11 (M)	4/13/2004	Total	NV	NV	0.00223	NV	NV
MW-30 (A)	4/13/2004	Total	NV	NV	0.0173	NV	NV
MW-31 (A)	4/13/2004	Total	NV	NV	0.0111	NV	NV
MW-32 (A)	4/13/2004	Total	NV	NV	0.00302	NV	NV
MW-33 (A)	4/13/2004	Total	NV	NV	0.0118	NV	NV
MW-35 (A)	4/13/2004	Total	NV	NV	0.00511	NV	NV
MW-43 (A)	4/13/2004	Total	NV	NV	0.00051	NV	NV
MW-6 (M)	4/13/2004	Total	NV	NV	0.00232	NV	NV
MW-2(M)	4/14/2004	Total	NV	NV	0.0605	NV	NV
MW-24(A)	4/14/2004	Total	NV	NV	0.00454	NV	NV
MW-26(A)	4/14/2004	Total	NV	NV	0.00403	NV	NV
MW-27 (A)	4/14/2004	Total	NV	NV	0.0005 U	NV	NV
MW-28(A)	4/14/2004	Total	NV	NV	0.101	NV	NV
MW-34 (A)	4/14/2004	Total	NV	NV	0.0075	NV	NV
MW-36 (A)	4/14/2004	Total	NV	NV	0.0268	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Chromium, Hexavalent	Iron	Lead	Magnesium	Manganese
MW-38 (A)	4/14/2004	Total	NV	NV	0.00828	NV	NV
MW-39 (A)	4/14/2004	Total	NV	NV	0.00112	NV	NV
MW-45 (A)	4/14/2004	Total	NV	NV	0.00149	NV	NV
BM-23(A)	4/15/2004	Total	NV	NV	0.0237	NV	NV
MW-1(F)	4/15/2004	Total	NV	NV	0.00189	NV	NV
MW-16(A)	4/15/2004	Total	NV	NV	0.00504	NV	NV
MW-17(A)	4/15/2004	Total	NV	NV	0.00322	NV	NV
MW-18(A)	4/15/2004	Total	NV	NV	0.0142	NV	NV
MW-19(A)	4/15/2004	Total	NV	NV	0.0123	NV	NV
MW-20(A)	4/15/2004	Total	NV	NV	0.00924	NV	NV
MW-22(A)	4/15/2004	Total	NV	NV	0.00473	NV	NV
MW-23(A)	4/15/2004	Total	NV	NV	0.0233	NV	NV
MW-12(A)	4/16/2004	Total	NV	NV	0.00208	NV	NV
MW-13(A)	4/16/2004	Total	NV	NV	0.00671	NV	NV
MW-14(A)	4/16/2004	Total	NV	NV	0.00118	NV	NV
MW-21(A)	4/16/2004	Total	NV	NV	0.00216	NV	NV
MW-29(A)	4/16/2004	Total	NV	NV	0.0127	NV	NV
MW-40(A)	4/16/2004	Total	NV	NV	0.0567	NV	NV
MW-10 (M)	7/19/2004	Total	NV	NV	0.00353	NV	NV
MW-32 (A)	7/19/2004	Total	NV	NV	0.00092	NV	NV
MW-33 (A)	7/19/2004	Total	NV	NV	0.00062	NV	NV
MW-6 (M)	7/19/2004	Total	NV	NV	0.00067	NV	NV
MW-7 (M)	7/19/2004	Total	NV	NV	0.00663	NV	NV
BM-19 (A)	7/20/2004	Total	NV	NV	0.00818	NV	NV
MW-1 (F)	7/20/2004	Total	NV	NV	0.00039	NV	NV
MW-19 (A)	7/20/2004	Total	NV	NV	0.00802	NV	NV
MW-20 (A)	7/20/2004	Total	NV	NV	0.00382	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Chromium, Hexavalent	Iron	Lead	Magnesium	Manganese
MW-21 (A)	7/20/2004	Total	NV	NV	0.00062	NV	NV
MW-22 (A)	7/20/2004	Total	NV	NV	0.00058	NV	NV
MW-23 (A)	7/20/2004	Total	NV	NV	0.00156	NV	NV
MW-30 (A)	7/20/2004	Total	NV	NV	0.00479	NV	NV
MW-31 (A)	7/20/2004	Total	NV	NV	0.00182	NV	NV
MW-34 (A)	7/20/2004	Total	NV	NV	0.0005 U	NV	NV
MW-35 (A)	7/20/2004	Total	NV	NV	0.00103	NV	NV
MW-11 (M)	7/21/2004	Total	NV	NV	0.00045	NV	NV
MW-18 (A)	7/21/2004	Total	NV	NV	0.00549	NV	NV
MW-39 (A)	7/21/2004	Total	NV	NV	0.00057	NV	NV
MW-43 (A)	7/21/2004	Total	NV	NV	0.00029	NV	NV
MW-45 (A)	7/21/2004	Total	NV	NV	0.0008	NV	NV
MW-46 (A)	7/21/2004	Total	0.0148	NV	0.00118	NV	NV
MW-47 (A)	7/21/2004	Total	0.005 U	NV	0.015	NV	NV
MW-48 (A)	7/21/2004	Total	0.005 U	NV	0.0587	NV	NV
BM-17 (A)	7/22/2004	Total	NV	NV	0.0005 U	NV	NV
MW-12 (A)	7/22/2004	Total	NV	NV	0.0005	NV	NV
MW-13 (A)	7/22/2004	Total	NV	NV	0.00318	NV	NV
MW-16 (A)	7/22/2004	Total	NV	NV	0.00131	NV	NV
MW-17 (A)	7/22/2004	Total	NV	NV	0.0005 U	NV	NV
MW-2 (M)	7/22/2004	Total	NV	NV	0.0217	NV	NV
MW-24 (A)	7/22/2004	Total	NV	NV	0.00109	NV	NV
MW-26 (A)	7/22/2004	Total	NV	NV	0.00422	NV	NV
MW-27 (A)	7/22/2004	Total	NV	NV	0.00024	NV	NV
MW-29 (A)	7/22/2004	Total	NV	NV	0.00745	NV	NV
MW-36 (A)	7/22/2004	Total	NV	NV	0.00468	NV	NV
MW-38 (A)	7/22/2004	Total	NV	NV	0.00062	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Chromium, Hexavalent	Iron	Lead	Magnesium	Manganese
MW-14 (A)	7/23/2004	Total	NV	NV	0.0005 U	NV	NV
MW-28 (A)	7/23/2004	Total	NV	NV	0.0152	NV	NV
Number of Samples			4 2	64 64	176 150	42 42	42 42
Average Concentration			0.01	20.18	0.01	15.24	1.05
Median Concentration			0.00521	15.35	0.002165	13.35	0.5785
Frequency of Detection			50	100	85	100	100
Minimum Value			0.005	0.133	0.00013	5.05	0.0127
Maximum Detection			0.0148	68.3	0.148	46.8	10.5

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Mercury	Potassium	Selenium	Silver	Sodium
TW-714(P)	8/21/2002	Total	NV	NV	NV	NV	NV
SB-900(TW)	8/26/2002	Total	NV	NV	NV	NV	NV
SB-901(TW)	8/26/2002	Total	NV	NV	NV	NV	NV
SB-902(TW)	8/26/2002	Total	NV	NV	NV	NV	NV
SB-903(TW)	8/26/2002	Total	NV	NV	NV	NV	NV
SB-904(TW)	8/26/2002	Total	NV	NV	NV	NV	NV
SB-905(TW)	8/26/2002	Total	NV	NV	NV	NV	NV
SB-910(TW)	8/26/2002	Total	NV	NV	NV	NV	NV
SB-906(TW)	8/27/2002	Total	NV	NV	NV	NV	NV
SB-908(TW)	8/27/2002	Total	NV	NV	NV	NV	NV
SB-909(TW)	8/27/2002	Total	NV	NV	NV	NV	NV
SB-911(TW)	8/27/2002	Total	NV	NV	NV	NV	NV
SB 232 (C)-8	8/30/2002	Total	NV	NV	NV	NV	NV
SB 233 (C)-3	8/30/2002	Total	NV	NV	NV	NV	NV
SB 234 (C)-8	8/30/2002	Total	NV	NV	NV	NV	NV
SB 235 (C)-6	8/30/2002	Total	NV	NV	NV	NV	NV
SB 236 (C)-6	8/30/2002	Total	NV	NV	NV	NV	NV
SB 237 (C)-6	8/30/2002	Total	NV	NV	NV	NV	NV
SB 238 (C)-3	8/30/2002	Total	NV	NV	NV	NV	NV
SB-618 (N)-7	9/12/2002	Total	NV	NV	NV	NV	NV
SB-624 (N)-7	9/12/2002	Total	NV	NV	NV	NV	NV
BM-7(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-10(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-11(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-2(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-6(M)	6/19/2003	Total	NV	NV	NV	NV	NV
MW-7(M)	6/19/2003	Total	NV	NV	NV	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Mercury	Potassium	Selenium	Silver	Sodium
MW-43(A)	10/13/2003	Total	0.0001 U	4.32	0.001 U	0.0005 U	6.42
MW-47(A)	10/13/2003	Total	0.0001 U	7.26	0.001 U	0.0005 U	8.79
MW-7(M)	10/13/2003	Total	0.0001 U	6.69	0.001 U	0.00011	14.3
MW-32(A)	10/14/2003	Total	0.0001 U	12	0.001 U	0.0005 U	48.2
MW-33(A)	10/14/2003	Total	0.0001 U	9.21	0.001 U	0.0005 U	39.6
MW-34(A)	10/14/2003	Total	0.0001 U	12.4	0.001 U	0.0005 U	14.8
MW-41(A)	10/14/2003	Total	0.0001 U	5.33	0.001 U	0.0005 U	8.68
MW-46(A)	10/14/2003	Total	0.0001 U	5.74	0.001 U	0.0005 U	5.77
MW-48(A)	10/14/2003	Total	0.0001 U	8.76	0.001 U	0.0005 U	10.6
MW-10 (M)	10/15/2003	Total	0.000262	11.3	0.0005 U	0.0005 U	11.6
MW-11 (M)	10/15/2003	Total	0.0001 U	8.13	0.0005 U	0.0005 U	8.56
MW-2 (M)	10/15/2003	Total	0.0001 U	6.03	0.0005 U	0.0005 U	12.6
MW-42 (A)	10/15/2003	Total	0.0001 U	6.49	0.00071	0.0005 U	9.19
BM-31 (A)	10/16/2003	Total	0.0001 U	9.03	0.0005 U	0.0005 U	11.4
MW-22 (A)	10/16/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-30 (A)	10/16/2003	Total	0.000248	7.18	0.0005 U	0.0005 U	7.49
MW-31 (A)	10/16/2003	Total	0.0001 U	8.92	0.0005 U	0.0005 U	11.6
MW-35 (A)	10/16/2003	Total	0.0001 U	4.94	0.0005 U	0.0005 U	8.04
MW-39 (A)	10/16/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-45 (A)	10/16/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-17 (A)	10/17/2003	Total	0.0001 U	11.8	0.0005 U	0.0005 U	56.4
MW-26 (A)	10/17/2003	Total	0.000223	NV	0.0005 U	0.0005 U	NV
MW-28 (A)	10/17/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-37 (A)	10/17/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-40 (A)	10/17/2003	Total	0.0001 U	12.4	0.0005 U	0.0005 U	10
MW-44 (A)	10/17/2003	Total	0.0001 U	3.42	0.0005 U	0.0005 U	10.3
BM-19(A)	10/20/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Mercury	Potassium	Selenium	Silver	Sodium
MW-15(A)	10/20/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-16(A)	10/20/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-19(A)	10/20/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-20(A)	10/20/2003	Total	0.0001 U	7.17	0.0005 U	0.0005 U	18
MW-21(A)	10/20/2003	Total	0.0001 U	NV	0.00087	0.0005 U	NV
MW-23(A)	10/20/2003	Total	0.0001 U	4.71	0.0005 U	0.0005 U	20.9
MW-14(A)	10/21/2003	Total	0.0001 U	7.41	0.0005 U	0.0005 U	51.4
MW-18(A)	10/21/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-24(A)	10/21/2003	Total	0.0001 U	7.9	0.0006	0.0005 U	92.4
MW-27(A)	10/21/2003	Total	0.0001 U	NV	0.00105	0.0005 U	NV
MW-29(A)	10/21/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-36(A)	10/21/2003	Total	0.0001 U	NV	0.00216	0.0005 U	NV
MW-38(A)	10/21/2003	Total	0.0001 U	6.6	0.0005 U	0.0005 U	29.4
MW-1(F)	10/22/2003	Total	0.0001 U	8.54	0.00222	0.00018	96.3
MW-12(A)	10/22/2003	Total	0.0001 U	NV	0.00277	0.0005 U	NV
MW-13(A)	10/22/2003	Total	0.0001 U	7.71	0.0005 U	0.0005 U	62.6
MW-6(M)	10/22/2003	Total	0.0001 U	NV	0.00098	0.0005 U	NV
R-1(M)	10/22/2003	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-2 (M)	1/12/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-31 (A)	1/12/2004	Total	0.000115	NV	0.0005 U	0.0005 U	NV
MW-32 (A)	1/12/2004	Total	0.00019	NV	0.0005 U	0.0005 U	NV
MW-33 (A)	1/12/2004	Total	0.0000747	NV	0.0005 U	0.0005 U	NV
MW-43 (A)	1/12/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-6 (M)	1/12/2004	Total	0.000288	4	0.00111	0.00008	21.9
MW-7 (M)	1/12/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
BM-21 (A)	1/13/2004	Total	0.000157	5.52	0.0005 U	0.00007	13.9
MW-10 (M)	1/13/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Mercury	Potassium	Selenium	Silver	Sodium
MW-11 (M)	1/13/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-19 (A)	1/13/2004	Total	0.00033	5.05	0.0005 U	0.0005 U	24.5
MW-20 (A)	1/13/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-21 (A)	1/13/2004	Total	0.0000836	5.21	0.0005 U	0.0005 U	14.1
MW-34 (A)	1/13/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-27 (A)	1/14/2004	Total	0.0001 U	3.07	0.0005 U	0.0005 U	14.4
MW-36 (A)	1/14/2004	Total	0.0001 U	3.86	0.0005 U	0.0005 U	19
MW-38 (A)	1/14/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-46(A)	1/14/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-47 (A)	1/14/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-48 (A)	1/14/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-1 (F)	1/15/2004	Total	0.0001 U	NV	0.00129	0.0005 U	NV
MW-12 (A)	1/15/2004	Total	0.0001 U	7.11	0.00441	0.0005 U	64
MW-13 (A)	1/15/2004	Total	0.0001 U	NV	0.00096	0.0005 U	NV
MW-14 (A)	1/15/2004	Total	0.0001 U	NV	0.00105	0.0005 U	NV
MW-23 (A)	1/15/2004	Total	0.0001 U	NV	0.00123	0.0005 U	NV
MW-24 (A)	1/15/2004	Total	0.0001 U	NV	0.0005 U	0.0005 U	NV
MW-26 (A)	1/15/2004	Total	0.0001 U	3.98	0.0005 U	0.0005 U	9.58
MW-30 (A)	1/16/2004	Total	0.0001 U	NV	0.00106	0.0005 U	NV
MW-35 (A)	1/16/2004	Total	0.0001 U	NV	0.00149	0.0005 U	NV
MW-39 (A)	1/16/2004	Total	0.00031	2.82	0.0009	0.0005 U	10.2
MW-45 (A)	1/16/2004	Total	0.0001 U	4.38	0.00145	0.0005 U	13.2
BM-17(A)	1/19/2004	Total	0.0001 U	NV	0.00127	0.0005 U	NV
MW-16(A)	1/19/2004	Total	0.0001 U	7.99	0.00135	0.0005 U	43.5
MW-17(A)	1/19/2004	Total	0.0001 U	NV	0.00107	0.0005 U	NV
MW-18(A)	1/19/2004	Total	0.0001 U	11.1	0.00128	0.0005 U	45.4
MW-22(A)	1/19/2004	Total	0.0001 U	5.28	0.00117	0.0005 U	12

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Mercury	Potassium	Selenium	Silver	Sodium
MW-28(A)	1/19/2004	Total	0.0001 U	4.23	0.0013	0.0005 U	16.8
MW-29(A)	1/19/2004	Total	0.0001 U	5.53	0.00123	0.0005 U	7.11
MW-40(A)	1/20/2004	Total	0.0001 U	NV	0.00114	0.0005 U	NV
MW-46 (A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-46(A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-47 (A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-47(A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-48 (A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-48(A)	4/12/2004	Total	NV	NV	NV	NV	NV
MW-7 (M)	4/12/2004	Total	NV	NV	NV	NV	NV
BM-31 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-10 (M)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-11 (M)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-30 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-31 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-32 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-33 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-35 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-43 (A)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-6 (M)	4/13/2004	Total	NV	NV	NV	NV	NV
MW-2(M)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-24(A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-26(A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-27 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-28(A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-34 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-36 (A)	4/14/2004	Total	NV	NV	NV	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Mercury	Potassium	Selenium	Silver	Sodium
MW-38 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-39 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
MW-45 (A)	4/14/2004	Total	NV	NV	NV	NV	NV
BM-23(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-1(F)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-16(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-17(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-18(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-19(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-20(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-22(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-23(A)	4/15/2004	Total	NV	NV	NV	NV	NV
MW-12(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-13(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-14(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-21(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-29(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-40(A)	4/16/2004	Total	NV	NV	NV	NV	NV
MW-10 (M)	7/19/2004	Total	NV	NV	NV	NV	NV
MW-32 (A)	7/19/2004	Total	NV	NV	NV	NV	NV
MW-33 (A)	7/19/2004	Total	NV	NV	NV	NV	NV
MW-6 (M)	7/19/2004	Total	NV	NV	NV	NV	NV
MW-7 (M)	7/19/2004	Total	NV	NV	NV	NV	NV
BM-19 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-1 (F)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-19 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-20 (A)	7/20/2004	Total	NV	NV	NV	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Mercury	Potassium	Selenium	Silver	Sodium
MW-21 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-22 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-23 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-30 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-31 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-34 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-35 (A)	7/20/2004	Total	NV	NV	NV	NV	NV
MW-11 (M)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-18 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-39 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-43 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-45 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-46 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-47 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
MW-48 (A)	7/21/2004	Total	NV	NV	NV	NV	NV
BM-17 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-12 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-13 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-16 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-17 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-2 (M)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-24 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-26 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-27 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-29 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-36 (A)	7/22/2004	Total	NV	NV	NV	NV	NV
MW-38 (A)	7/22/2004	Total	NV	NV	NV	NV	NV

Table A-8
Astoria Area-Wide Petroleum Site
Metals in Groundwater (mg/L)
Astoria, Oregon

Sample ID	Sample Date	Fraction	Mercury	Potassium	Selenium	Silver	Sodium
MW-14 (A)	7/23/2004	Total	NV	NV	NV	NV	NV
MW-28 (A)	7/23/2004	Total	NV	NV	NV	NV	NV
Number of Samples			84 11	42 42	84 26	84 4	42 42
Average Concentration			0.00011	6.92	0.00	0.00048	24.17
Median Concentration			0.0001	6.645	0.0005	0.0005	14
Frequency of Detection			13	100	31	5	100
Minimum Value			0.0000747	2.82	0.0005	0.00007	5.77
Maximum Detection			0.00033	12.4	0.00441	0.00018	96.3

**Appendix A
Table Notes
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

All non-detect values are 1/2 the method reporting limit.
bgs = below ground surface.
mg/kg = milligrams per kilogram.
mg/L = milligrams per liter.
NV = no value.
R = datum rejected.
U = not detected at the method reporting limit.
ug/L = micrograms per liter.

APPENDIX B
SOIL MOISTURE DATA

APPENDIX B TABLES

Tables

- B-1 Soil Moisture Content
- B-2 Soil Moisture for Samples Collected 0–6 feet bgs in Summer

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
EX-1(S)	3/30/2004	0	9.3
EX-2(S)	3/30/2004	0	8.2
EX-2(S)	4/1/2004	0	10.5
EX-3(S)	3/31/2004	0	7.7
EX-4(S)	3/29/2004	0	21.4
SB-001(A)	8/27/2003	7.5	16.1
SB-002(A)	8/27/2003	2.5	4.7
SB-002(A)	8/27/2003	7.5	9.3
SB-003(A)	9/4/2003	5	3.5
SB-005(A)	9/5/2003	2.5	5.7
SB-005(A)	9/5/2003	7	10.3
SB-006(A)	3/31/2004	7	18.2
SB-007(A)	8/26/2003	7.5	7.5
SB-008(A)	8/26/2003	2	3.7
SB-008(A)	8/26/2003	7.5	17.2
SB-009(A)	8/27/2003	2	8.7
SB-009(A)	8/27/2003	7.5	6.0
SB-010(A)	8/27/2003	2	5.2
SB-010(A)	8/27/2003	7.5	6.5
SB-011(A)	9/3/2003	7.5	9.3
SB-013(A)	9/3/2003	7.5	7.3
SB-015(A)	9/10/2003	7	18.3
SB-016(A)	9/4/2003	7	20.4
SB-017(A)	9/8/2003	7.5	12.5
SB-019(A)	8/27/2003	2.5	5.3
SB-019(A)	8/27/2003	7.5	7.6
SB-020(A)	3/31/2004	4	26.5
SB-020(A)	3/31/2004	9	29.6
SB-100(C)	8/22/2002	3	10.0
SB-100(C)	8/22/2002	20	23.5
SB-101(C)	8/22/2002	3	12.8
SB-101(C)	8/22/2002	18	24.3
SB-102(C)	8/22/2002	2	17.6
SB-102(C)	8/22/2002	18	12.7
SB-103(C)	8/22/2002	3	19.2
SB-103(C)	8/22/2002	18	27.7
SB-104(C)	8/22/2002	4	19.6
SB-104(C)	8/22/2002	20	16.9
SB-200(C)	8/22/2002	3	7.0
SB-200(C)	8/22/2002	3	7.0
SB-200(C)	8/22/2002	6	13.5
SB-201(C)	8/22/2002	3	6.4
SB-201(C)	8/22/2002	6	8.2
SB-202(C)	8/22/2002	2	9.5
SB-202(C)	8/22/2002	3	6.6
SB-202(C)	8/22/2002	7	6.8
SB-203(C)	8/22/2002	3	7.4
SB-203(C)	8/22/2002	7	5.9

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
SB-204(C)	8/22/2002	3	5.9
SB-204(C)	8/22/2002	8	11.9
SB-205(C)	8/27/2002	4.5	13.9
SB-206(C)	8/27/2002	6	11.9
SB-207(C)	8/27/2002	4.5	16.5
SB-208(C)	8/27/2002	3.5	6.3
SB-209(C)	8/27/2002	3	4.9
SB-210(C)	8/27/2002	3.5	5.4
SB-211(C)	8/27/2002	3	2.0
SB-212(C)	8/27/2002	2.5	5.6
SB-213(C)	8/27/2002	4	4.5
SB-214(C)	8/27/2002	5	4.4
SB-215(C)	8/27/2002	5	11.5
SB-216(C)	8/27/2002	3	5.0
SB-217(C)	8/28/2002	3	3.5
SB-218(C)	8/28/2002	2.5	6.0
SB-219(C)	8/28/2002	4	6.2
SB-220(C)	8/28/2002	5	8.3
SB-221(C)	8/28/2002	4.5	6.2
SB-222(C)	8/28/2002	4.5	8.9
SB-223(C)	8/29/2002	6	5.8
SB-224(C)	8/29/2002	2	5.6
SB-225(C)	8/29/2002	3	8.6
SB-226(C)	8/29/2002	3	6.4
SB-227(C)	8/29/2002	8	15.6
SB-228(C)	8/29/2002	4	6.9
SB-229(C)	8/29/2002	8	13.9
SB-230(C)	8/29/2002	8	23.3
SB-231(C)	8/29/2002	2	6.3
SB-232(C)	8/30/2002	8	13.1
SB-233(C)	8/30/2002	3	5.7
SB-234(C)	8/30/2002	8	10.5
SB-235(C)	8/30/2002	6	18.6
SB-236(C)	8/30/2002	6	15.0
SB-237(C)	8/30/2002	6	27.5
SB-238(C)	8/30/2002	3	7.7
SB-239(C)	9/3/2002	4	4.6
SB-240(C)	9/3/2002	6	9.6
SB-241(C)	9/3/2002	5	18.5
SB-242(C)	9/3/2002	4	10.3
SB-243(C)	9/3/2002	4	7.1
SB-244(C)	9/3/2002	3	5.6
SB-245(C)	9/3/2002	5	10.6
SB-246(C)	9/3/2002	5	7.2
SB-247(C)	9/3/2002	6	7.3
SB-250(C)	9/9/2002	4	4.0
SB-251(C)	9/9/2002	4	5.1
SB-252(C)	9/9/2002	5	4.8
SB-253(C)	9/4/2003	2	5.1

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
SB-253(C)	9/4/2003	7.5	21.0
SB-254(C)	9/4/2003	2	10.0
SB-254(C)	9/4/2003	7	11.4
SB-255(C)	9/4/2003	2.5	11.6
SB-255(C)	9/4/2003	7	10.0
SB256(C)	3/31/2004	6	23.6
SB257(C)	3/31/2004	8	23.3
SB258(C)	3/31/2004	8.5	22.2
SB259(C)	3/31/2004	8.5	21.9
SB-300(D)	8/20/2002	2	22.4
SB-300(D)	8/20/2002	2	24.0
SB-301(D)	8/20/2002	3.5	19.6
SB-304(D)	8/19/2002	2	7.6
SB-304(D)	8/19/2002	2	8.9
SB-304(D)	8/19/2002	5	9.3
SB-305(D)	8/19/2002	2	7.9
SB-305(D)	8/19/2002	4.5	19.1
SB-306(D)	8/19/2002	2	8.9
SB-306(D)	8/19/2002	4.5	10.9
SB-307(D)	8/19/2002	2	6.5
SB-307(D)	8/19/2002	4.5	15.1
SB-308(D)	8/19/2002	5	11.1
SB-309(D)	8/19/2002	2	6.9
SB-309(D)	8/19/2002	5	11.8
SB-310(D)	8/19/2002	2	7.3
SB-310(D)	8/19/2002	5	9.4
SB-311(D)	8/19/2002	5	7.3
SB-312(D)	8/19/2002	5	6.9
SB-313(D)	8/20/2002	5	25.5
SB-313(D)	8/20/2002	18	11.0
SB-314(D)	8/20/2002	2	13.6
SB-314(D)	8/20/2002	10	16.0
SB-314(D)	8/20/2002	15	20.7
SB-315(D)	8/20/2002	2	24.5
SB-315(D)	8/20/2002	5	31.9
SB-315(D)	8/20/2002	15	8.9
SB-316(D)	8/20/2002	2	20.1
SB-316(D)	8/20/2002	5	21.1
SB-316(D)	8/20/2002	5	24.0
SB-316(D)	8/20/2002	10	27.2
SB-316(D)	8/20/2002	14.5	20.3
SB-317(D)	8/20/2002	10	25.0
SB-318(D)	8/20/2002	10	6.4
SB-318(D)	8/20/2002	15	21.4
SB-320(D)	9/10/2003	2	31.2
SB-320(D)	9/10/2003	5	28.3
SB-321(D)	9/9/2003	2	5.7
SB-321(D)	9/9/2003	5	17.5

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
SB-322(D)	9/10/2003	2	8.4
SB-322(D)	9/10/2003	5	23.0
SB-323(D)	9/10/2003	7	27.0
SB-324(D)	9/10/2003	2	22.1
SB-324(D)	9/10/2003	5	19.9
SB-324(D)	9/10/2003	10	23.4
SB-324(D)	9/10/2003	15	16.9
SB-324(D)	9/10/2003	15	20.8
SB-325(D)	9/10/2003	2	18.6
SB-325(D)	9/10/2003	2	19.4
SB-325(D)	9/10/2003	5	22.3
SB-325(D)	9/10/2003	10	15.1
SB-325(D)	9/10/2003	15	20.1
SB-326(D)	9/9/2003	2	27.4
SB-326(D)	9/9/2003	5	36.6
SB-326(D)	9/9/2003	10	33.5
SB-327(D)	9/10/2003	2	21.1
SB-327(D)	9/10/2003	5	17.2
SB-327(D)	9/10/2003	10	21.5
SB-327(D)	9/10/2003	15	14.2
SB-328(D)	9/10/2003	2	6.4
SB-328(D)	9/10/2003	5	19.0
SB-328(D)	9/10/2003	10	19.5
SB-328(D)	9/10/2003	15	20.4
SB-400(F)	8/22/2002	2.5	8.4
SB-400(F)	8/22/2002	5	25.7
SB-401(F)	8/23/2002	2.5	27.7
SB-401(F)	8/23/2002	20	15.1
SB-402(F)	8/23/2002	2.5	34.5
SB-402(F)	8/23/2002	20	23.9
SB-404(F)	8/22/2002	2.5	4.8
SB-404(F)	8/22/2002	20	15.3
SB-405(F)	8/22/2002	2.5	12.3
SB-405(F)	8/22/2002	7.5	15.0
SB-406(F)	8/22/2002	2.5	15.1
SB-406(F)	8/22/2002	8	20.9
SB-407(F)	8/22/2002	2.5	4.7
SB-407(F)	8/22/2002	7	8.1
SB-407(F)	8/22/2002	7.5	8.1
SB-408(F)	8/22/2002	2.5	8.5
SB-408(F)	8/22/2002	6.5	23.3
SB-408(F)	8/22/2002	7.5	18.9
SB-409(F)	8/22/2002	2.5	8.6
SB-409(F)	8/22/2002	5	27.2
SB-410(F)	3/31/2004	2	8.8
SB-410(F)	3/31/2004	4	19.6
SB-410(F)	3/31/2004	9	26.4
SB-500(M)	8/29/2002	10	23.1

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
SB-501(M)	8/29/2002	6	6.8
SB-501(M)	8/29/2002	10	17.7
SB-502(M)	8/29/2002	10	16.1
SB-503(M)	8/29/2002	10	14.0
SB-504(M)	8/29/2002	11	18.6
SB-505(M)	8/29/2002	10	19.6
SB-506(M)	8/29/2002	10	18.3
SB-507(M)	8/29/2002	10	11.4
SB-508(M)	8/29/2002	10	17.8
SB-509(M)	8/29/2002	10	38.5
SB-510(M)	8/29/2002	10	15.0
SB-600(N)	9/13/2002	7	7.4
SB-600(N)	9/13/2002	11	22.5
SB-601(N)	9/13/2002	3	11.6
SB-601(N)	9/13/2002	7	12.5
SB-602(N)	9/13/2002	3	8.1
SB-602(N)	9/13/2002	7	8.0
SB-602(N)	9/13/2002	7	11.3
SB-603(N)	9/13/2002	7	9.1
SB-604(N)	9/13/2002	3	19.8
SB-604(N)	9/13/2002	7	15.9
SB-605(N)	9/13/2002	3	9.6
SB-605(N)	9/13/2002	7	9.8
SB-606(N)	9/13/2002	3	22.1
SB-606(N)	9/13/2002	7	9.9
SB-607(N)	9/13/2002	11	22.3
SB-608(N)	9/13/2002	3	6.6
SB-608(N)	9/13/2002	6	37.1
SB-609(N)	9/13/2002	3	5.8
SB-609(N)	9/13/2002	7	14.7
SB-612(N)	9/12/2002	7	10.3
SB-612(N)	9/12/2002	7	10.4
SB-613(N)	9/12/2002	5.5	7.7
SB-614(N)	9/12/2002	7	7.1
SB-615(N)	9/12/2002	7	10.6
SB-616(N)	9/12/2002	7	6.9
SB-617(N)	9/12/2002	3	5.9
SB-617(N)	9/12/2002	3	6.2
SB-617(N)	9/12/2002	5.5	6.4
SB-618(N)	9/12/2002	1.5	8.6
SB-618(N)	9/12/2002	7	9.7
SB-619(N)	9/12/2002	7	7.3
SB-619(N)	9/12/2002	7	8.1
SB-619(N)	9/12/2002	11	19.0
SB-619(N)	9/12/2002	11	30.1
SB-620(N)	9/12/2002	3	8.0
SB-620(N)	9/12/2002	7	7.2
SB-620(N)	9/12/2002	7	8.0
SB-621(N)	9/12/2002	7	7.7

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
SB-622(N)	9/12/2002	2	6.1
SB-622(N)	9/12/2002	7	6.1
SB-623(N)	9/12/2002	7	7.0
SB-624(N)	9/12/2002	2	5.4
SB-624(N)	9/12/2002	7	7.5
SB-625(N)	9/12/2002	2	5.9
SB-625(N)	9/12/2002	7	6.9
SB-625(N)	9/12/2002	7	8.0
SB-625(N)	9/12/2002	10	26.8
SB-626(N)	9/12/2002	7	8.0
SB-626(N)	9/12/2002	7	8.2
SB-627(N)	8/28/2003	2	7.4
SB-629(N)	8/28/2003	7.5	8.4
SB-632(N)	9/8/2003	7.5	26.6
SB-700(P)	8/21/2002	3	7.6
SB-700(P)	8/21/2002	10.5	15.1
SB-701(P)	8/20/2002	2	4.7
SB-701(P)	8/20/2002	11	22.4
SB-701(P)	8/20/2002	12	21.0
SB-702(P)	8/21/2002	2	22.1
SB-702(P)	8/21/2002	11	22.9
SB-703(P)	8/21/2002	2	11.4
SB-703(P)	8/21/2002	10	14.2
SB-704(P)	8/21/2002	2	6.6
SB-704(P)	8/21/2002	11	18.2
SB-705(P)	8/20/2002	3	9.3
SB-705(P)	8/20/2002	5.5	28.8
SB-705(P)	8/20/2002	9.5	14.0
SB-705(P)	8/20/2002	12	21.3
SB-706(P)	8/21/2002	2.5	5.9
SB-706(P)	8/21/2002	5.5	29.7
SB-706(P)	8/21/2002	9.5	10.5
SB-706(P)	8/21/2002	12	22.0
SB-707(P)	8/21/2002	2	12.7
SB-707(P)	8/21/2002	10	8.5
SB-708(P)	8/20/2002	3	6.5
SB-708(P)	8/20/2002	10	16.6
SB-709(P)	8/21/2002	3	5.4
SB-709(P)	8/21/2002	10	16.9
SB-710(P)	8/21/2002	3	7.0
SB-710(P)	8/21/2002	5.5	30.3
SB-711(P)	8/21/2002	3	4.9
SB-711(P)	8/21/2002	10	18.2
SB-712(P)	8/21/2002	2	8.1
SB-712(P)	8/21/2002	10	5.7
SB-713(P)	8/21/2002	2	4.9
SB-713(P)	8/21/2002	10	17.1
SB-714(P)	8/21/2002	2	9.1
SB-714(P)	8/21/2002	7.5	17.8

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
SB-714(P)	8/21/2002	10	14.6
SB-715(P)	8/21/2002	3	8.1
SB-715(P)	8/21/2002	7	36.0
SB-715(P)	8/21/2002	11	18.2
SB-716(P)	8/20/2002	3	5.8
SB-716(P)	8/20/2002	10	11.5
SB-717(P)	8/20/2002	3	5.7
SB-717(P)	8/20/2002	10	20.2
SB-718(P)	8/21/2002	2	6.6
SB-718(P)	8/21/2002	10	12.6
SB-719(P)	8/23/2002	5	18.8
SB-719(P)	8/23/2002	12	21.2
SB-720(P)	8/23/2002	2	5.6
SB-720(P)	8/23/2002	8.5	11.1
SB-720(P)	8/23/2002	11.5	20.0
SB-721(P)	3/31/2004	3	10.3
SB-721(P)	3/31/2004	7	27.0
SB-800(Q)	8/27/2002	0	5.5
SB-800(Q)	8/27/2002	2	7.4
SB-800(Q)	8/27/2002	10.5	32.1
SB-801(Q)	8/26/2002	0	6.5
SB-801(Q)	8/26/2002	2	3.7
SB-801(Q)	8/26/2002	9.5	25.3
SB-802(Q)	8/26/2002	0	5.4
SB-802(Q)	8/26/2002	2	1.5
SB-802(Q)	8/26/2002	9	17.1
SB-803(Q)	8/26/2002	0	4.1
SB-803(Q)	8/26/2002	2	7.0
SB-803(Q)	8/26/2002	9	10.9
SB-804(Q)	8/26/2002	0	6.8
SB-804(Q)	8/26/2002	2	31.4
SB-804(Q)	8/26/2002	8.5	20.2
SB-805(Q)	8/26/2002	0	7.5
SB-805(Q)	8/26/2002	2	27.8
SB-805(Q)	8/26/2002	10	25.3
SB-806(Q)	8/28/2002	0	4.5
SB-806(Q)	8/28/2002	2	6.6
SB-806(Q)	8/28/2002	8	10.3
SB-806(Q)	8/28/2002	11	22.0
SB-807(Q)	8/28/2002	0	15.8
SB-807(Q)	8/28/2002	7	8.3
SB-807(Q)	8/28/2002	9	21.9
SB-809(Q)	8/28/2002	0	6.9
SB-809(Q)	8/28/2002	2	5.3
SB-809(Q)	8/28/2002	8.5	29.8
SB-810(Q)	8/28/2002	0	4.9
SB-810(Q)	8/28/2002	2	5.4
SB-810(Q)	8/28/2002	8	28.9

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
SB-811(Q)	8/27/2002	0	6.7
SB-811(Q)	8/27/2002	5	22.2
SB-811(Q)	8/27/2002	9	38.0
SB-811(Q)	8/27/2002	9	42.4
SB-812(Q)	8/27/2002	0	4.7
SB-812(Q)	8/27/2002	4.5	31.6
SB-812(Q)	8/27/2002	9	33.3
SB-813(Q)	8/27/2002	0	13.8
SB-813(Q)	8/27/2002	5	28.7
SB-813(Q)	8/27/2002	9.5	27.3
SB-814(Q)	8/27/2002	0	22.3
SB-814(Q)	8/27/2002	4.5	27.5
SB-814(Q)	8/27/2002	9	22.0
SB-815(Q)	8/27/2002	0	20.4
SB-815(Q)	8/27/2002	4.5	52.4
SB-815(Q)	8/27/2002	9.5	33.7
SB-816(Q)	8/27/2002	0	21.9
SB-816(Q)	8/27/2002	2	10.3
SB-816(Q)	8/27/2002	9.5	22.6
SB-817(Q)	8/28/2002	0	8.6
SB-817(Q)	8/28/2002	2	24.4
SB-817(Q)	8/28/2002	9	18.7
SB-818(Q)	8/28/2002	0	9.5
SB-818(Q)	8/28/2002	4	34.8
SB-818(Q)	8/28/2002	9	23.6
SB-819(Q)	8/28/2002	0	10.0
SB-819(Q)	8/28/2002	5	35.3
SB-819(Q)	8/28/2002	11	22.4
SB-820(Q)	8/29/2002	0	10.0
SB-820(Q)	8/29/2002	0	10.6
SB-820(Q)	8/29/2002	2	25.6
SB-820(Q)	8/29/2002	9	22.3
SB-820(Q)	8/29/2002	9	24.7
SB-821(Q)	8/29/2002	0	9.7
SB-821(Q)	8/29/2002	5	16.8
SB-821(Q)	8/29/2002	5	19.8
SB-821(Q)	8/29/2002	9	24.0
SB-822(Q)	8/29/2002	0	4.0
SB-822(Q)	8/29/2002	2	6.3
SB-822(Q)	8/29/2002	2	7.5
SB-822(Q)	8/29/2002	8	12.2
SB-822(Q)	8/29/2002	10	21.9
SB-823(Q)	8/27/2002	0	17.1
SB-823(Q)	8/27/2002	2	5.6
SB-823(Q)	8/27/2002	9	20.0
SB-824(Q)	8/27/2002	0	7.8
SB-824(Q)	8/27/2002	3	6.0
SB-824(Q)	8/27/2002	9	26.0

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
SB-825(Q)	8/27/2002	0	6.4
SB-825(Q)	8/27/2002	2	9.1
SB-825(Q)	8/27/2002	9	28.1
SB-826(Q)	8/27/2002	0	5.2
SB-826(Q)	8/27/2002	3	8.5
SB-826(Q)	8/27/2002	9	25.8
SB-827(Q)	8/29/2002	0	4.4
SB-827(Q)	8/29/2002	2	23.9
SB-827(Q)	8/29/2002	6.5	31.1
SB-828(Q)	8/28/2002	0	9.9
SB-828(Q)	8/28/2002	2	6.9
SB-828(Q)	8/28/2002	8.5	26.4
SB-829(Q)	8/28/2002	0	29.8
SB-829(Q)	8/28/2002	2	7.5
SB-829(Q)	8/28/2002	2	8.1
SB-829(Q)	8/28/2002	9	20.1
SB-830(Q)	8/28/2002	0	26.7
SB-830(Q)	8/28/2002	2	15.9
SB-830(Q)	8/28/2002	8.5	12.8
SB-831(Q)	8/28/2002	0	9.0
SB-831(Q)	8/28/2002	4	8.0
SB-831(Q)	8/28/2002	9	36.3
SB-832(Q)	8/28/2002	0	8.8
SB-832(Q)	8/28/2002	2	10.1
SB-832(Q)	8/28/2002	9	25.9
SB-833(Q)	8/28/2002	0	12.4
SB-833(Q)	8/28/2002	2	25.2
SB-833(Q)	8/28/2002	10.5	26.3
SB-834(Q)	9/5/2003	2	7.2
SB-834(Q)	9/5/2003	7.5	21.9
SB-835(Q)	9/5/2003	2	25.2
SB-835(Q)	9/5/2003	7	11.8
SB-900(S)	8/26/2002	4	9.8
SB-900(S)	8/26/2002	12	21.0
SB-901(S)	8/26/2002	8	6.0
SB-901(S)	8/26/2002	10	10.9
SB-902(S)	8/26/2002	8	8.6
SB-902(S)	8/26/2002	12	20.0
SB-903(S)	8/26/2002	8	7.9
SB-903(S)	8/26/2002	10	8.1
SB-904(S)	8/26/2002	4	10.1
SB-904(S)	8/26/2002	12	16.0
SB-905(S)	8/26/2002	4	8.8
SB-905(S)	8/26/2002	12	18.4
SB-906(S)	8/27/2002	4	12.7
SB-906(S)	8/27/2002	12	10.3
SB-908(S)	8/27/2002	4	9.4
SB-908(S)	8/27/2002	8	7.0
SB-908(S)	8/27/2002	10	8.3

Table B-1
Soil Moisture Content
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (ft bgs)	Percent Moisture Content
SB-909(S)	8/27/2002	4	11.2
SB-909(S)	8/27/2002	10	10.0
SB-910(S)	8/27/2002	4	6.7
SB-910(S)	8/27/2002	10	16.1
SB-911(S)	8/27/2002	8	8.5
SB-911(S)	8/27/2002	10	14.1
SB-912(S)	9/3/2003	2	7.1
SB-912(S)	9/3/2003	7	7.2
SB-913(S)	9/3/2003	2	9.4
SB-913(S)	9/3/2003	7	8.6
SB-914(S)	9/3/2003	2	5.1
SB-914(S)	9/3/2003	7.5	7.1
SB-915(S)	3/31/2004	5	14.1
SB-916(S)	3/31/2004	5	17.9
SB-917(S)	3/31/2004	5	17.9
SB-918(S)	3/31/2004	5	12.6
SB-919(S)	3/31/2004	5	14.1
SD-700(P)	6/19/2003	0.25	58.2
SD-701(P)	6/19/2003	0.25	41.3
TP-201(C)	8/27/2002	0	7.8
TP-202(C)	8/27/2002	0	6.8

Table B-2
Soil Moisture for Samples Collected 0-6 Feet bgs in Summer
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (feet bgs)	Percent Moisture Content	Gravimetric Moisture Content ¹
SB-800(Q)	8/27/2002	0	5.5	0.06
SB-801(Q)	8/26/2002	0	6.5	0.07
SB-802(Q)	8/26/2002	0	5.4	0.06
SB-803(Q)	8/26/2002	0	4.1	0.04
SB-804(Q)	8/26/2002	0	6.8	0.07
SB-805(Q)	8/26/2002	0	7.5	0.08
SB-806(Q)	8/28/2002	0	4.5	0.05
SB-807(Q)	8/28/2002	0	15.8	0.19
SB-809(Q)	8/28/2002	0	6.9	0.07
SB-810(Q)	8/28/2002	0	4.9	0.05
SB-811(Q)	8/27/2002	0	6.7	0.07
SB-812(Q)	8/27/2002	0	4.7	0.05
SB-813(Q)	8/27/2002	0	13.8	0.16
SB-814(Q)	8/27/2002	0	22.3	0.29
SB-815(Q)	8/27/2002	0	20.4	0.26
SB-816(Q)	8/27/2002	0	21.9	0.28
SB-817(Q)	8/28/2002	0	8.6	0.09
SB-818(Q)	8/28/2002	0	9.5	0.10
SB-819(Q)	8/28/2002	0	10.0	0.11
SB-820(Q)	8/29/2002	0	10.0	0.11
SB-820(Q)	8/29/2002	0	10.6	0.12
SB-821(Q)	8/29/2002	0	9.7	0.11
SB-822(Q)	8/29/2002	0	4.0	0.04
SB-823(Q)	8/27/2002	0	17.1	0.21
SB-824(Q)	8/27/2002	0	7.8	0.08
SB-825(Q)	8/27/2002	0	6.4	0.07
SB-826(Q)	8/27/2002	0	5.2	0.05
SB-827(Q)	8/29/2002	0	4.4	0.05
SB-828(Q)	8/28/2002	0	9.9	0.11
SB-829(Q)	8/28/2002	0	29.8	0.42
SB-830(Q)	8/28/2002	0	26.7	0.36
SB-831(Q)	8/28/2002	0	9.0	0.10
SB-832(Q)	8/28/2002	0	8.8	0.10
SB-833(Q)	8/28/2002	0	12.4	0.14
TP-201(C)	8/27/2002	0	7.8	0.08
TP-202(C)	8/27/2002	0	6.8	0.07
SD-700(P)	6/19/2003	0.25	58.2	1.39
SD-701(P)	6/19/2003	0.25	41.3	0.70
SB-618(N)	9/12/2002	1.5	8.6	0.09
SB-008(A)	8/26/2003	2	3.7	0.04
SB-009(A)	8/27/2003	2	8.7	0.10
SB-010(A)	8/27/2003	2	5.2	0.05
SB-102(C)	8/22/2002	2	17.6	0.21
SB-202(C)	8/22/2002	2	9.5	0.11
SB-224(C)	8/29/2002	2	5.6	0.06
SB-231(C)	8/29/2002	2	6.3	0.07
SB-253(C)	9/4/2003	2	5.1	0.05
SB-254(C)	9/4/2003	2	10.0	0.11

Table B-2
Soil Moisture for Samples Collected 0-6 Feet bgs in Summer
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (feet bgs)	Percent Moisture Content	Gravimetric Moisture Content ¹
SB-300(D)	8/20/2002	2	22.4	0.29
SB-300(D)	8/20/2002	2	24.0	0.32
SB-304(D)	8/19/2002	2	7.6	0.08
SB-304(D)	8/19/2002	2	8.9	0.10
SB-305(D)	8/19/2002	2	7.9	0.09
SB-306(D)	8/19/2002	2	8.9	0.10
SB-307(D)	8/19/2002	2	6.5	0.07
SB-309(D)	8/19/2002	2	6.9	0.07
SB-310(D)	8/19/2002	2	7.3	0.08
SB-314(D)	8/20/2002	2	13.6	0.16
SB-315(D)	8/20/2002	2	24.5	0.32
SB-316(D)	8/20/2002	2	20.1	0.25
SB-320(D)	9/10/2003	2	31.2	0.45
SB-321(D)	9/9/2003	2	5.7	0.06
SB-322(D)	9/10/2003	2	8.4	0.09
SB-324(D)	9/10/2003	2	22.1	0.28
SB-325(D)	9/10/2003	2	18.6	0.23
SB-325(D)	9/10/2003	2	19.4	0.24
SB-326(D)	9/9/2003	2	27.4	0.38
SB-327(D)	9/10/2003	2	21.1	0.27
SB-328(D)	9/10/2003	2	6.4	0.07
SB-622(N)	9/12/2002	2	6.1	0.06
SB-624(N)	9/12/2002	2	5.4	0.06
SB-625(N)	9/12/2002	2	5.9	0.06
SB-627(N)	8/28/2003	2	7.4	0.08
SB-701(P)	8/20/2002	2	4.7	0.05
SB-702(P)	8/21/2002	2	22.1	0.28
SB-703(P)	8/21/2002	2	11.4	0.13
SB-704(P)	8/21/2002	2	6.6	0.07
SB-707(P)	8/21/2002	2	12.7	0.15
SB-712(P)	8/21/2002	2	8.1	0.09
SB-713(P)	8/21/2002	2	4.9	0.05
SB-714(P)	8/21/2002	2	9.1	0.10
SB-718(P)	8/21/2002	2	6.6	0.07
SB-720(P)	8/23/2002	2	5.6	0.06
SB-800(Q)	8/27/2002	2	7.4	0.08
SB-801(Q)	8/26/2002	2	3.7	0.04
SB-802(Q)	8/26/2002	2	1.5	0.02
SB-803(Q)	8/26/2002	2	7.0	0.08
SB-804(Q)	8/26/2002	2	31.4	0.46
SB-805(Q)	8/26/2002	2	27.8	0.38
SB-806(Q)	8/28/2002	2	6.6	0.07
SB-809(Q)	8/28/2002	2	5.3	0.06
SB-810(Q)	8/28/2002	2	5.4	0.06
SB-816(Q)	8/27/2002	2	10.3	0.11
SB-817(Q)	8/28/2002	2	24.4	0.32
SB-820(Q)	8/29/2002	2	25.6	0.34

Table B-2
Soil Moisture for Samples Collected 0-6 Feet bgs in Summer
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (feet bgs)	Percent Moisture Content	Gravimetric Moisture Content ¹
SB-822(Q)	8/29/2002	2	6.3	0.07
SB-822(Q)	8/29/2002	2	7.5	0.08
SB-823(Q)	8/27/2002	2	5.6	0.06
SB-825(Q)	8/27/2002	2	9.1	0.10
SB-827(Q)	8/29/2002	2	23.9	0.31
SB-828(Q)	8/28/2002	2	6.9	0.07
SB-829(Q)	8/28/2002	2	7.5	0.08
SB-829(Q)	8/28/2002	2	8.1	0.09
SB-830(Q)	8/28/2002	2	15.9	0.19
SB-832(Q)	8/28/2002	2	10.1	0.11
SB-833(Q)	8/28/2002	2	25.2	0.34
SB-834(Q)	9/5/2003	2	7.2	0.08
SB-835(Q)	9/5/2003	2	25.2	0.34
SB-912(S)	9/3/2003	2	7.1	0.08
SB-913(S)	9/3/2003	2	9.4	0.10
SB-914(S)	9/3/2003	2	5.1	0.05
SB-002(A)	8/27/2003	2.5	4.7	0.05
SB-005(A)	9/5/2003	2.5	5.7	0.06
SB-019(A)	8/27/2003	2.5	5.3	0.06
SB-212(C)	8/27/2002	2.5	5.6	0.06
SB-218(C)	8/28/2002	2.5	6.0	0.06
SB-255(C)	9/4/2003	2.5	11.6	0.13
SB-400(F)	8/22/2002	2.5	8.4	0.09
SB-401(F)	8/23/2002	2.5	27.7	0.38
SB-402(F)	8/23/2002	2.5	34.5	0.53
SB-404(F)	8/22/2002	2.5	4.8	0.05
SB-405(F)	8/22/2002	2.5	12.3	0.14
SB-406(F)	8/22/2002	2.5	15.1	0.18
SB-407(F)	8/22/2002	2.5	4.7	0.05
SB-408(F)	8/22/2002	2.5	8.5	0.09
SB-409(F)	8/22/2002	2.5	8.6	0.09
SB-706(P)	8/21/2002	2.5	5.9	0.06
SB-100(C)	8/22/2002	3	10.0	0.11
SB-101(C)	8/22/2002	3	12.8	0.15
SB-103(C)	8/22/2002	3	19.2	0.24
SB-200(C)	8/22/2002	3	7.0	0.08
SB-200(C)	8/22/2002	3	7.0	0.08
SB-201(C)	8/22/2002	3	6.4	0.07
SB-202(C)	8/22/2002	3	6.6	0.07
SB-203(C)	8/22/2002	3	7.4	0.08
SB-204(C)	8/22/2002	3	5.9	0.06
SB-209(C)	8/27/2002	3	4.9	0.05
SB-211(C)	8/27/2002	3	2.0	0.02
SB-216(C)	8/27/2002	3	5.0	0.05
SB-217(C)	8/28/2002	3	3.5	0.04
SB-225(C)	8/29/2002	3	8.6	0.09
SB-226(C)	8/29/2002	3	6.4	0.07

Table B-2
Soil Moisture for Samples Collected 0-6 Feet bgs in Summer
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (feet bgs)	Percent Moisture Content	Gravimetric Moisture Content ¹
SB-233(C)	8/30/2002	3	5.7	0.06
SB-238(C)	8/30/2002	3	7.7	0.08
SB-244(C)	9/3/2002	3	5.6	0.06
SB-601(N)	9/13/2002	3	11.6	0.13
SB-602(N)	9/13/2002	3	8.1	0.09
SB-604(N)	9/13/2002	3	19.8	0.25
SB-605(N)	9/13/2002	3	9.6	0.11
SB-606(N)	9/13/2002	3	22.1	0.28
SB-608(N)	9/13/2002	3	6.6	0.07
SB-609(N)	9/13/2002	3	5.8	0.06
SB-617(N)	9/12/2002	3	5.9	0.06
SB-617(N)	9/12/2002	3	6.2	0.07
SB-620(N)	9/12/2002	3	8.0	0.09
SB-700(P)	8/21/2002	3	7.6	0.08
SB-705(P)	8/20/2002	3	9.3	0.10
SB-708(P)	8/20/2002	3	6.5	0.07
SB-709(P)	8/21/2002	3	5.4	0.06
SB-710(P)	8/21/2002	3	7.0	0.08
SB-711(P)	8/21/2002	3	4.9	0.05
SB-715(P)	8/21/2002	3	8.1	0.09
SB-716(P)	8/20/2002	3	5.8	0.06
SB-717(P)	8/20/2002	3	5.7	0.06
SB-824(Q)	8/27/2002	3	6.0	0.06
SB-826(Q)	8/27/2002	3	8.5	0.09
SB-208(C)	8/27/2002	3.5	6.3	0.07
SB-210(C)	8/27/2002	3.5	5.4	0.06
SB-301(D)	8/20/2002	3.5	19.6	0.24
SB-104(C)	8/22/2002	4	19.6	0.24
SB-213(C)	8/27/2002	4	4.5	0.05
SB-219(C)	8/28/2002	4	6.2	0.07
SB-228(C)	8/29/2002	4	6.9	0.07
SB-239(C)	9/3/2002	4	4.6	0.05
SB-242(C)	9/3/2002	4	10.3	0.11
SB-243(C)	9/3/2002	4	7.1	0.08
SB-250(C)	9/9/2002	4	4.0	0.04
SB-251(C)	9/9/2002	4	5.1	0.05
SB-818(Q)	8/28/2002	4	34.8	0.53
SB-831(Q)	8/28/2002	4	8.0	0.09
SB-900(S)	8/26/2002	4	9.8	0.11
SB-904(S)	8/26/2002	4	10.1	0.11
SB-905(S)	8/26/2002	4	8.8	0.10
SB-906(S)	8/27/2002	4	12.7	0.15
SB-908(S)	8/27/2002	4	9.4	0.10
SB-909(S)	8/27/2002	4	11.2	0.13
SB-910(S)	8/27/2002	4	6.7	0.07
SB-205(C)	8/27/2002	4.5	13.9	0.16
SB-207(C)	8/27/2002	4.5	16.5	0.20

Table B-2
Soil Moisture for Samples Collected 0-6 Feet bgs in Summer
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (feet bgs)	Percent Moisture Content	Gravimetric Moisture Content ¹
SB-221(C)	8/28/2002	4.5	6.2	0.07
SB-222(C)	8/28/2002	4.5	8.9	0.10
SB-305(D)	8/19/2002	4.5	19.1	0.24
SB-306(D)	8/19/2002	4.5	10.9	0.12
SB-307(D)	8/19/2002	4.5	15.1	0.18
SB-812(Q)	8/27/2002	4.5	31.6	0.46
SB-814(Q)	8/27/2002	4.5	27.5	0.38
SB-815(Q)	8/27/2002	4.5	52.4	1.10
SB-003(A)	9/4/2003	5	3.5	0.04
SB-214(C)	8/27/2002	5	4.4	0.05
SB-215(C)	8/27/2002	5	11.5	0.13
SB-220(C)	8/28/2002	5	8.3	0.09
SB-241(C)	9/3/2002	5	18.5	0.23
SB-245(C)	9/3/2002	5	10.6	0.12
SB-246(C)	9/3/2002	5	7.2	0.08
SB-252(C)	9/9/2002	5	4.8	0.05
SB-304(D)	8/19/2002	5	9.3	0.10
SB-308(D)	8/19/2002	5	11.1	0.12
SB-309(D)	8/19/2002	5	11.8	0.13
SB-310(D)	8/19/2002	5	9.4	0.10
SB-311(D)	8/19/2002	5	7.3	0.08
SB-312(D)	8/19/2002	5	6.9	0.07
SB-313(D)	8/20/2002	5	25.5	0.34
SB-315(D)	8/20/2002	5	31.9	0.47
SB-316(D)	8/20/2002	5	21.1	0.27
SB-316(D)	8/20/2002	5	24.0	0.32
SB-320(D)	9/10/2003	5	28.3	0.39
SB-321(D)	9/9/2003	5	17.5	0.21
SB-322(D)	9/10/2003	5	23.0	0.30
SB-324(D)	9/10/2003	5	19.9	0.25
SB-325(D)	9/10/2003	5	22.3	0.29
SB-326(D)	9/9/2003	5	36.6	0.58
SB-327(D)	9/10/2003	5	17.2	0.21
SB-328(D)	9/10/2003	5	19.0	0.23
SB-400(F)	8/22/2002	5	25.7	0.35
SB-409(F)	8/22/2002	5	27.2	0.37
SB-719(P)	8/23/2002	5	18.8	0.23
SB-811(Q)	8/27/2002	5	22.2	0.28
SB-813(Q)	8/27/2002	5	28.7	0.40
SB-819(Q)	8/28/2002	5	35.3	0.55
SB-821(Q)	8/29/2002	5	16.8	0.20
SB-821(Q)	8/29/2002	5	19.8	0.25
SB-613(N)	9/12/2002	5.5	7.7	0.08
SB-617(N)	9/12/2002	5.5	6.4	0.07
SB-705(P)	8/20/2002	5.5	28.8	0.41
SB-706(P)	8/21/2002	5.5	29.7	0.42
SB-710(P)	8/21/2002	5.5	30.3	0.43

Table B-2
Soil Moisture for Samples Collected 0-6 Feet bgs in Summer
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Location	Sample Date	Depth (feet bgs)	Percent Moisture Content	Gravimetric Moisture Content ¹
SB-200(C)	8/22/2002	6	13.5	0.16
SB-201(C)	8/22/2002	6	8.2	0.09
SB-206(C)	8/27/2002	6	11.9	0.13
SB-223(C)	8/29/2002	6	5.8	0.06
SB-235(C)	8/30/2002	6	18.6	0.23
SB-236(C)	8/30/2002	6	15.0	0.18
SB-237(C)	8/30/2002	6	27.5	0.38
SB-240(C)	9/3/2002	6	9.6	0.11
SB-247(C)	9/3/2002	6	7.3	0.08
SB-501(M)	8/29/2002	6	6.8	0.07
SB-608(N)	9/13/2002	6	37.1	0.59
Sample size			247	247
Mean			12.49	0.16
Median			8.60	0.09
NOTES:				
bgs = below ground surface.				
¹ Gravimetric water content = percent moisture content / (100 - percent moisture content)				