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Human Health Risk Assessment for the Former Sunset Fuel and Pacific Pride Fueling Station

DRAFT

21 November 2011

Prepared for

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K/J Project No. 0992025.00

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List of Acronyms

90% UCL	90 percent upper confidence limit on the mean
µg/l	micrograms per liter
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, xylenes
C	chemical concentration (maximum detected)
COI	chemicals of interest
COPC	chemical of potential concern
CSM	conceptual site model
CTE	central tendency exposure
DEQ	Oregon Department of Environmental Quality
ECSI	Environmental Cleanup Site Information
ELCR	estimated lifetime cancer risk
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
FAI	Feige & Associates, Inc.
FS	feasibility study
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
IRIS	Integrated Risk Information System
Kennedy/Jenks	Kennedy/Jenks Consultants
LOF	locality of facility
mg/kg	milligrams per kilogram
OAR	Oregon Administration Rule
PAHs	polycyclic aromatic hydrocarbons
RBC	risk-based concentration
RBDM	risk-based decision making
RfD	reference dose
RI	remedial investigation
RME	reasonable maximum exposure
SF	slope factor
Sunset	Sunset Fuels Company
TPH	total petroleum hydrocarbons
UST	underground storage tank
VOCs	volatile organic compounds

Executive Summary

Kennedy/Jenks Consultants (Kennedy/Jenks) prepared this Human Health Risk Assessment (HHRA) report on behalf of Feige & Associates, Inc. (FAI) for the Former Sunset Fuel, Pacific Pride Fueling Station site (Site) located in Portland, Oregon (Figure A-1 of Attachment A). The Pacific Pride cardlock commercial fueling station (Pacific Pride Site) is located at 6230 SW Macadam Avenue, and the adjacent property (Former Sunset Fuel) is located at 6140 SW Macadam Avenue in Portland, Multnomah County, Oregon.

On behalf of the Sunset Fuel Company (Sunset), FAI is evaluating impacts from separate and co-mingling petroleum product releases at the subject Site, as required by Oregon Administrative Rule (OAR) 340-122. Chemicals of interest (COIs) in groundwater for the Site include total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and lead; COIs for soil include TPH constituents in the form of gasoline range-, diesel range-, and heavy oil range hydrocarbons.

This HHRA considered the potential exposures by human receptors under current and potential future uses within the Locality of Facility (LOF). The LOF for the Site includes the area within the property boundaries of the adjacent parcels, and a groundwater plume extending towards the Willamette River. The area is zoned for commercial land use with limited industrial uses. There is potential for the Site to be developed into a light rail right-of-way or passenger station. Groundwater within the LOF is not currently nor anticipated to be used for drinking water or irrigation.

The problem formulation step of the HHRA evaluated reasonably likely current and future exposure scenarios for the LOF. A conceptual site model (CSM) is provided in Figure 1. Potentially complete and significant exposure pathways include direct contact with subsurface soil and groundwater by a construction or excavation worker. These exposure scenarios were quantitatively evaluated in this HHRA using the risk-based decision making (RBDM) approach described in Oregon Department of Environmental Quality (DEQ) guidance (DEQ 2003, 2010).

Site data were screened against risk based concentrations (RBCs) to select chemicals of potential concern (COPCs). Available historical soil data, which date back to 1994, were used in the screening. Available groundwater data collected since 2006 were used to screen for direct contact with groundwater, in order to better represent current conditions. There were no COIs exceeding RBCs for direct contact with subsurface soil by a construction or excavation worker. Five COIs were selected as COPCs for direct contact with groundwater by a construction or excavation worker: gasoline range hydrocarbons, diesel range hydrocarbons, heavy oil range hydrocarbons, benzene and benzo(a)pyrene. Additionally, COIs were screened for COPC selection based on exposure to multiple media (subsurface soil and groundwater). COPCs selected for multi-media exposure were diesel range hydrocarbons and heavy oil range hydrocarbons.

Exposure point concentrations (EPCs) were calculated for each COPC, for both reasonable maximum exposure (RME) and central tendency exposure (CTE) scenarios. The 13 wells within the Site vicinity were evaluated as one exposure area, because a construction or excavation worker would likely be exposed to groundwater throughout the localized area during construction activities. In addition, the three shoreline wells were evaluated as a separate

exposure area. Soil EPCs were calculated on a site-wide basis for the purpose of the multi-media risk assessment.

Risks were quantified by comparing the appropriate DEQ RBC with the EPC as follows:

- For noncarcinogenic risks: Hazard quotient = EPC/RBC
- For carcinogenic risks: Excess lifetime cancer risk = EPC/RBC x 10-6
- In cases where the RBC exceeds the solubility limit for the COPC, the solubility limit was compared to the RBC (instead of the EPC).

Cancer risks from individual COPCs were compared against a target risk of 1×10^{-6}. Cancer risks from all COPCs were summed for each exposure area and compared to a target cumulative cancer risk of 1×10^{-5}. For noncancer endpoints, hazard quotients (HQ) were summed for each exposure area to yield a hazard index (HI) that was compared to a target level of 1.0 (DEQ 2010a).

The results of the risk characterization are presented in Tables 9 through 11, and summarized as follows:

- For direct contact with groundwater by a construction or excavation worker, both RME and CTE cumulative cancer risks are below the DEQ target risk level of 1 x 10-5. Cancer risks from an individual chemical exceed the target risk level of 1 x 10-6 for benzo(a)pyrene from RME (6 x 10-6) and CTE (2 x 10-6) in the Site vicinity. Cancer risks from shoreline exposure do not exceed 1 x 10-6. Hazard indices for both the Site vicinity and shoreline exposure area do not exceed 1.0 for both RME and CTE scenarios.

- Risks from construction or excavation worker exposure to subsurface soil at the Site are very low, and the CTE and RME risks from exposure to multiple media (direct contact with both soil and groundwater) closely mirror the risks from groundwater alone. The hazard indices for exposure to both soil and groundwater do not exceed 1.0. Because there were no carcinogenic COPCs for multi-media exposure, the cumulative cancer risks from exposure to subsurface soil and groundwater are the same as those for groundwater alone, and there are no exceedances of a target cumulative cancer risk of 1 x 10-5.

- The groundwater EPCs for diesel range hydrocarbons and heavy oil range hydrocarbons in the Site vicinity are greater than the water solubility limits, which indicate the potential presence of free product.

- There were no hot spot levels identified for soil within the LOF. Groundwater hot spots will be evaluated in the feasibility study.

It is important to note that this HHRA incorporated health protective assumptions in the evaluation of risks at the Site. In particular, both construction and excavation workers were evaluated for risks from direct contact with groundwater, even though groundwater is typically more than 15 feet below ground surface at the Site, so ongoing direct contact with groundwater is unlikely. The use of health protective assumptions throughout the HHRA is likely to result in estimated risks that are higher than actual risks that may exist at the Site.

Section 1: Introduction

Kennedy/Jenks Consultants (Kennedy/Jenks) has prepared this Human Health Risk Assessment (HHRA) report on behalf of Feige & Associates, Inc. (FAI) for the Former Sunset Fuel, Pacific Pride Fueling Station site (Site) located in Portland, Oregon (Figure A-1 of Attachment A). The Pacific Pride cardlock commercial fueling station (Pacific Pride Site) is located at 6230 SW Macadam Avenue, and the adjacent property (Former Sunset Fuel Site) is located at 6140 SW Macadam Avenue in Portland, Multnomah County, Oregon. The two properties constitute the subject Site.

Kennedy/Jenks submitted to the Oregon Department of Environmental Quality (DEQ) a letter report presenting *Preliminary Conceptual Site Models for Risk Assessment Screening* on 21 August 2009 (Kennedy/Jenks 2009). DEQ provided comments in a letter dated 7 December 2009, which are incorporated into this HHRA in a manner to also be consistent with Kennedy/Jenks' understanding of subsequent conversations between FAI and DEQ.

DEQ guidance (2010a) presents two approaches for conducting a HHRA: the traditional approach of calculating average daily intake and incorporating toxicity to determine risk (United States Environmental Protection Agency [EPA] 1989), or the risk-based decision making (RBDM) approach which compares exposure point concentrations (EPCs) with route- and receptor-specific risk based concentrations (RBCs) to estimate risk (DEQ 2003). This HHRA uses the RBDM approach, which is the recommended method by DEQ (2010a).

1.1 Objectives

The objective of this HHRA is to evaluate human health risks related to petroleum product releases at the subject Site, including:

- Identification of chemicals of potential concern (COPCs)
- Identification of potential exposure pathways to human receptors who may contact COPCs from the Site, and estimation of the extent of the exposure by human receptors to COPCs at the Site
- Identification of the potential health risks and hazards associated with the COPCs
- Characterize the quantitative noncarcinogenic and carcinogenic risks to human receptors resulting from potential exposure to COPCs from the Site, taking into consideration DEQ-approved exposure assumptions.

The approach and methods used in this HHRA were based on DEQ guidance and were consistent with the Oregon Administration Rule (OAR) for risk assessments. Current regulations and applicable guidance used in this HHRA included the following:

- OAR 340-122-0084: *Risk Assessment*

- *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (DEQ 2003)
- *Human Health Risk Assessment Guidance* (DEQ 2010a)
- *Guidance for the Identification of Hot Spots* (DEQ 1998)
- *Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual (Part A)* (EPA 1989).

1.2 Organization

This HHRA incorporates the following steps of the risk assessment process: problem formulation, exposure assessment, toxicity assessment, risk characterization; and an uncertainty analysis. This HHRA is organized as follows.

- Section 2: *Problem Formulation.* This section presents a description of the Site history, the nature and extent of contamination, defines the locality of facility (LOF), and summarizes land and water uses for the purposes of developing a conceptual site model (CSM).
- Section 3: *Exposure Assessment.* This section evaluates the available data for the Site and identifies the COPCs for further evaluation in the HHRA. It also presents potentially complete routes of exposure and potential receptor populations for further evaluation in the HHRA, which are summarized in the CSM.
- Section 4: *Toxicity Assessment.* This section evaluates the potential hazard and toxicity of the COPCs selected for quantitative evaluation in this HHRA.
- Section 5: *Risk Characterization.* This section describes potential health hazards and cancer risks that are quantified in this HHRA.
- Section 6: *Identification of Hot Spot Locations.* This section describes the locations of hot spots as defined in DEQ's Guidance for the Identification of Hot Spots (DEQ 1998).
- Section 7: *Uncertainty Analysis.* This section discusses the uncertainties that are inherent in performing an HHRA.
- Section 8: *Summary and Conclusions.* This section summarizes the findings of the HHRA.

Section 2: Problem Formulation

2.1 Site Location and History

The Pacific Pride cardlock commercial fueling station (Pacific Pride Site) (ESCI #4772, Tax Lot 200) is currently a commercial petroleum fueling station. The adjacent property (Former Sunset Fuel Site) (ESCI #4723, Tax Lot 100) contains a parking lot and commercial flooring and furniture dealer. The Pacific Pride Site is located at 6230 SW Macadam Avenue, and the Former Sunset Fuel Site is located at 6140 SW Macadam Avenue in Portland, Multnomah County, Oregon. The two properties constitute the subject Site. Nearby development is primarily commercial and is characterized by small businesses.

The following presents a brief history of the Site, based on previous reports by FAI. A detailed history of the Site is presented in the Remedial Investigation Report ([RI Report], FAI 2011). Historical Site uses include bulk fuel storage, auto wrecking, and boat building activities. The Pacific Pride Site is currently used as a vehicle fueling facility, and the Former Sunset Fuel Site is currently used for commercial purposes. The Sunset Fuel Company (Sunset) developed both the Former Sunset Fuel and Pacific Pride parcels in the 1950's to comprise a fuel storage yard with three warehouses for wood, coal, sawdust and fuel oil, a fuel oil filling station, and an office building. Circa 1967, these structures were removed, except for the office building, and the current buildings were constructed, which include a 22,000 square foot office and warehouse. A gasoline and diesel refueling facility was constructed at the southwest corner of the site; this is the location of the current Pacific Pride cardlock refueling facility. Sunset has leased the northeast parcel of the property to Macadam Floor Design since 2005, and the southwest parcel to Pacific Pride. The parcel leased by Macadam Floor Design was sold in 2011 (FAI, 2011).

An underground storage tank (UST) system piping failure in 1994 released gasoline and diesel fuel to the subsurface at the southwestern corner of the Site. No contaminant removal within the UST nest was performed. East and downgradient of the UST nest, in 1996, 33 tons of petroleum contaminated soil was removed from a trench.

There are currently four USTs on the subject Site; a 10,000-gallon capacity premium gasoline tank, a 20,000-gallon unleaded gasoline tank, a 20,000-gallon capacity regular gasoline tank, and a 20,000-gallon capacity diesel fuel tank.

The nearest surface water body is the Willamette River, located approximately 500 feet east of the Site. Previous environmental investigations at the Site indicate subsurface soils consist of various fills and alluvial silts that overlie sandy gravel to approximately 19 feet below ground surface (bgs). Beneath the sandy gravel lies basalt bedrock. (FAI 2009)

2.2 Physical Characteristics

The elevation of the study area is approximately 40 feet above mean sea level. Most of the Site is covered and surrounded by impervious surfaces, including a fueling station and paved parking areas. An Oregon Department of Transportation right-of-way separates the Former

Sunset Fuel Site from the Pacific Pride Site. The depth to groundwater is approximately 13 to 20 feet bgs. The groundwater flow direction is to the east-northeast, towards the Willamette River.

2.3 Previous Investigations

FAI's review of previous environmental investigations at the Site indicated impacted soils were present since at least since 1995 when hydrocarbon impacted soils were discovered during upgrades to the UST nest on Site. Though the tanks were shown not to have leaked themselves, and were since equipped with leak detection equipment, impacted soils led to further environmental investigations (FAI 2006). The Site was under investigation with oversight by DEQ's Leaking Underground Storage Tank program from 1994 until 2006, when it was assigned to DEQ's Cleanup Program.

Primary contaminants of interest (COIs) for groundwater are petroleum constituents, including gasoline range hydrocarbons, diesel range hydrocarbons, and heavy oil range hydrocarbons, benzene, toluene, ethylbenzene, xylenes (BTEX), and polycyclic aromatic hydrocarbons (PAHs). Non-aqueous phase liquid has been observed in three of the monitoring wells. COIs for subsurface soil include gasoline range hydrocarbons, diesel range hydrocarbons, and heavy oil range hydrocarbons.

Both soil and groundwater have been extensively characterized for the Site, and there are currently 16 monitoring wells in and around the Site. Figure A-2 in Attachment 1 shows historic soil sampling locations and monitoring wells. A detailed account of previous site investigations is available in the RI Report (FAI 2011).

Monitoring wells MW-1 through MW-6 were installed at the Site in 1996; monitoring wells MW-7 and MW-8 were installed in 2005; and monitoring MW-9 was installed in 2008. Groundwater contamination was evident, and to further characterize the downgradient extent of the plume MW-10 through MW-12 were installed downgradient of the Site, along the Willamette River, in April of 2010. To better delineate the groundwater contamination under the Site property, MW-13 through MW-16 were installed in March of 2011. All wells have been sampled regularly since the time of installation.

Soil samples were collected from the borings of each monitoring well installation during 1996, 1997, 2008, and 2011. Additional soil samples were collected in 1995, 2001, 2006, and 2011.

2.4 Nature and Extent of Contamination

Soil analytical results for the Site indicate that subsurface soil contamination of total petroleum hydrocarbons is localized, with the highest detected concentrations near former or current rail tracks. Diesel range hydrocarbon concentrations were highest in borings at sample locations MW-14 and SBM-1, which lie on either side of the former rail spur, and near the current rail tracks, at sample locations MW-15 and MW-16 (Figure A-2). Detections of diesel range hydrocarbons in soil samples from the boring at MW-14 during the first quarter of 2011 ranged from 3.5 feet bgs (7,920 milligrams per kilogram [mg/kg]) to 20 feet bgs (138 mg/kg). Detections of diesel range hydrocarbons in samples from the MW-16 boring were limited to deeper soil, at 17 feet bgs (2,090 mg/kg). Gasoline range hydrocarbons were detected in fewer than half of the soil samples collected, with a maximum detected concentration of 75.2 mg/kg in a sample from

18 feet bgs at boring MW-1R in 2008. Heavy oil range hydrocarbons were not detected in any samples with reported concentrations of diesel range- or gasoline range hydrocarbons. The highest detected heavy oil range hydrocarbon concentration was 696 mg/kg, from a sample collected between 5 and 10 feet bgs from GP-5 in 2011. In summary, soil samples collected from most of the Site resulted in low or no detections of petroleum hydrocarbons, and the contamination present is primarily diesel-range hydrocarbons in the subsurface soil.

Groundwater samples have been collected from 13 monitoring wells on or surrounding Site, as well as three monitoring wells downgradient of the Site and along the Willamette River. Groundwater is generally encountered between 12 and 20 feet bgs. The highest concentrations of diesel range hydrocarbons have been detected in MW-3, which is on the Pacific Pride parcel; in MW-7 on the Former Sunset Fuel parcel; and in MW-8 and MW-9, which are on the southeast edge of the Former Sunset Fuel parcel, in the downgradient groundwater flow direction. An iso-concentration map for diesel-range hydrocarbons from the sampling event in the first quarter of 2011 is shown in Figure A-3. A slow downgradient migration is apparent. Figure A-4 shows a similar pattern for benzene, which is at its highest concentration in MW-3 (127 micrograms per liter [ug/l] in March 2011). Although a potential downgradient migration of the groundwater plume is shown on these figures, groundwater samples from MW-10 through MW-12 along the Willamette River resulted in low or no detected concentrations for total petroleum hydrocarbon (TPH), PAHs and volatile organic compounds (VOCs) during the four quarters of sampling since their installation (since April of 2010).

City of Portland storm sewers run adjacent to the Former Sunset Fuel Site, and discharge storm water and combined sewer overflow to the Willamette River at the Carolina Street Outfall (OF-03) located approximately 300 feet east of the Site. A technical letter entitled *Municipal Storm Sewer Analysis* that was prepared at the request of the DEQ by FAI, dated 26 September 2008, assessed the potential for the sewers to serve as a conduit for groundwater flow to the Willamette River, or for offsite contamination to flow onsite. The analysis concluded that neither the storm sewer nor surrounding backfill appeared to be providing a conduit for the movement of contaminants in onsite groundwater. However, the analysis did conclude that a one-time release to the storm sewer upgradient of the Site during a period of high flow could have impacted groundwater within the area of nearby monitoring wells through seepage from the storm pipe (FAI 2008a).

2.5 Locality of Facility

As defined in OAR 340-122-115(35), the LOF is “any point where a human or ecological receptor contacts or is reasonably likely to come into contact with facility-related hazardous substances. The LOF takes into account the likelihood of the contamination migrating over time so is typically larger than the facility.”

The LOF for the Site is defined for the purposes of this HHRA based on available soil and groundwater data. For considerations of human health, contact with facility-related contaminants may occur though exposures to subsurface soil within the Site boundary, as well as exposures to groundwater under the Site, and migrating offsite. Therefore, the LOF includes the area within the Site properties of the Former Sunset Fuel parcel and the Pacific Pride parcel, and the groundwater under the Site and extending to the Willamette River.

2.6 Summary of Land and Water Uses

DEQ mandates land and water use determinations as part of the HHRA process to help identify potentially exposed human receptors (DEQ 2010a). Land and water use information for the Site has been investigated by FAI, and is reported in *Technical Letter—Request to Eliminate Groundwater Inhalation and Ingestion Pathway for Risk Evaluations* (Letter to DEQ from FAI, 2008b) and the RI Report (FAI 2011).

The Site is a part of the Macadam Plan District, and is zoned for general commercial use, allowing for limited industrial uses (FAI 2011). The current and reasonably anticipated future land use of the Site and adjacent properties is primarily commercial. However, there is also potential for future use of the Site as a light rail right-of-way and passenger station.

A well log and water rights query through the Oregon Water Resources Department was conducted for the area within a one half mile radius of the Site, excluding the properties on the east side of the Willamette River (FAI 2008b). The review found one industrial water well, which is located upgradient of the Site. It also found one entity retaining groundwater rights for industrial purposes, and one cancelled groundwater rights application by the City of Portland for irrigation purposes at Willamette Park, which was allowed to expire due to contamination. The review concluded that groundwater is not used for drinking water purposes, and not likely to be used in the future for drinking water (FAI 2008b).

Section 3: Exposure Assessment

This section evaluates the potentially complete exposure pathways identified in the CSM developed for the Site (Figure 1).

The objectives of an exposure assessment are to:

- Identify potentially exposed populations
- Identify potentially complete exposure pathways
- Measure or estimate the magnitude, duration, and frequency of exposure for each receptor (or receptor group).

3.1 Conceptual Site Model

A preliminary CSM was submitted to DEQ on 31 August 2009, and has been modified based on DEQ comments and a further understanding of the Site from additional data since the preliminary CSM was developed. This model is presented in Figure 1, and provides the framework for assessing potential exposure pathways considered in the HHRA for current and reasonably likely future conditions within the LOF.

To be considered potentially complete, an exposure pathway must have: (1) an identified source of COPCs, (2) a release/transport mechanism from the source, and (3) a receptor with whom contact can occur. Within the LOF, likely or potential sources include historical spills and leaks at the Site.

3.2 Identification of Potentially Exposed Human Health Populations

Potentially exposed populations were identified based on consideration of information presented in previous reports completed by FAI (FAI 2006 and 2008b) and in accordance with DEQ human health guidance (DEQ 2010, 2003) regarding CSMs. The potential human receptors identified below represent those receptors that are anticipated to be present within the LOF under current and reasonably foreseeable future conditions.

- Onsite commercial worker
- Onsite and offsite construction or excavation worker
- Offsite resident
- Recreational user at Willamette River
- Fisher at Willamette River
- Future adult and child visitors

3.3 Identification of Exposure Pathways

Exposure pathways are defined as the physical ways in which chemicals may enter the human body (e.g., ingestion, inhalation, dermal absorption). A potentially complete exposure pathway consists of the following four elements:

- A source of chemical release
- A retention or transport medium (or media in cases involving media transfer)
- An exposure point (a point of potential human contact with the contaminated medium)
- An exposure route (e.g., ingestion, dermal contact) at the exposure point.

If any of the above elements is missing, the pathway is considered incomplete and exposure does not occur.

The exposure pathways identified and considered in the CSM include potential exposure to chemicals through: 1) dermal contact with and incidental ingestion of subsurface soils during excavation activities; 2) inhalation of volatile emissions from soil and groundwater; 3) dermal contact with groundwater during specific subsurface activities; 4) direct contact with surface water; and 5) fish ingestion. The last two exposure pathways are based on an assumption that there is a potentially complete transport pathway for Site-related petroleum constituents to the Willamette River. Domestic use of groundwater is not included as a complete exposure pathway based on the rationale outlined by FAI (2008b), which was based on their review of well logs, water rights, and nearby Environmental Cleanup Site Information database (ECSI) sites.

The following summarizes the potential human health exposure scenarios based on current and reasonably foreseeable future conditions within the LOF. Each exposure scenario discusses the rationale for including or eliminating pathways from quantitative evaluation in the HHRA.

3.3.1 Onsite Commercial Worker

Asphalt parking areas surround the majority of the subject Site with the exception of an open area with some grass to the east of the Macadam Floor Design building. In addition, petroleum hydrocarbons are not present in surface soil (i.e., soil from 0 to 3 feet bgs); therefore, exposure through direct contact with surface soil is an incomplete pathway for commercial workers.

Inhalation of volatile emissions from soil and groundwater is considered a potentially complete exposure pathway. In the atmosphere, these volatile emissions are anticipated to rapidly disperse, so the relative exposure would be insignificant. When released into a closed space, such as a building, these volatile emissions may accumulate, resulting in a potentially complete exposure pathway. In September and October of 2010, FAI sampled soil gas from three monitoring points adjacent to the south side of the Macadam Floor Design building, and reported concentrations below the soil gas RBC for occupational exposure from vapor intrusion into buildings (FAI 2010). DEQ subsequently approved of the methods and laboratory results indicating insignificant risks (DEQ 2010b). Therefore, this pathway is considered insignificant for the purposes of this HHRA and is not evaluated further.

The onsite commercial worker does not have direct contact with subsurface soil (i.e., below 3 feet bgs) or groundwater, so any potential exposure pathways requiring direct contact with subsurface soil or groundwater (i.e., dermal contact or ingestion) are considered incomplete.

All potential exposure pathways for the onsite commercial worker are considered incomplete or insignificant. As a result, risks were not quantified for an onsite commercial worker in this HHRA.

3.3.2 Construction and Excavation Workers

The construction worker would be at the Site for a much shorter duration than the commercial worker, and the excavation worker would be at the Site for a shorter duration than the construction worker. However, while at the Site, the construction or excavation worker could have greater contact with soil or groundwater during excavation, trenching, or other subsurface activities than a commercial worker. Consistent with DEQ guidance (2003), a construction worker is assumed to be at the Site during work lasting one year at a large development project. An excavation worker is assumed to be at the Site for nine days during short-term activities. Because the Site may be redeveloped in the future, the longer-term construction worker is evaluated in this HHRA. The evaluation of a construction worker in this HHRA is protective of potential risks to an excavation worker, as the exposure assumptions are the same other than the exposure frequency.

While performing subsurface activities at the Site, onsite construction or excavation workers may have direct contact with subsurface soil to a limited depth (i.e., up to 15 feet bgs). Therefore, dermal contact with and incidental ingestion of subsurface soil between 0 and 15 feet bgs are considered potentially complete exposure pathways for onsite construction and excavation workers. Because airborne particulates can be generated from subsurface soil during subsurface activities, inhalation of airborne particulates is considered a potentially complete and significant pathway for onsite construction and excavation workers. Trenching activities are generally conducted within confined spaces with little mixing of the air in the trench with ambient air, so inhalation of volatile emissions from soil to the air contained within the trench is also a potentially complete and significant pathway for construction and excavation workers. Therefore, risks from ingestion, dermal contact, and inhalation pathways for subsurface soil are quantitatively evaluated for construction and excavation workers in this HHRA.

Historic monitoring data indicate that ground water is generally first encountered at depths ranging between 13 feet bgs and 23 feet bgs. The majority of the groundwater elevation measurements indicated depths greater than 15 feet bgs, which is the reasonably likely maximum depth for an excavation, in the majority of cases, as presented in DEQ guidance (2003). It follows that the likelihood of exposure to groundwater during construction activities is considered minimal based on the groundwater elevation measurements. In order to provide a conservative approach to the HHRA screening, dermal contact with groundwater is considered a potentially complete exposure pathway for onsite construction and excavation workers. Inhalation of volatile emissions from groundwater to the air contained within the trench is also a potentially complete and significant pathway for construction and excavation workers. Recent groundwater monitoring indicates potential offsite migration of petroleum constituents, so direct contact with groundwater by an offsite construction or excavation worker is also evaluated in this HHRA.

Onsite construction workers conducting subsurface activities would not spend time indoors. As a result, inhalation of volatile emissions to indoor air is considered an incomplete pathway for onsite construction and excavation workers.

3.3.3 Offsite Residents

River Pointe Condominiums is located to the east of the Former Sunset Fuel property, which is the inferred groundwater gradient direction based on historic monitoring (FAI 2009). Groundwater data have not been collected at the River Pointe Condominium property, but groundwater has been sampled along the Willamette River east of the River Pointe Condominium property. In DEQ's 7 December 2009 comment letter (DEQ 2009a) on Kennedy/Jenks' preliminary CSM (Kennedy/Jenks 2009), DEQ states:

> DEQ agrees with the findings of the Preliminary Conceptual Site Models for Risk Assessment Screening, namely that there is no unacceptable risk of vapor intrusion to the outside air or indoor air at the River Pointe condominium complex based on groundwater data. This agreement may be reevaluated based on the results of groundwater quality from shoreline monitoring well.

Detected concentrations in shoreline monitoring wells (MW-10 through MW-12) during sampling from 2010 and 2011 are lower than onsite concentrations, indicating that vapor intrusion for offsite residents is less risk than for onsite residents. DEQ approved (DEQ 2010b) of FAI's conclusion (FAI 2010) that risks to onsite occupational workers from vapor intrusion is insignificant based on soil gas sample results. The detected onsite soil gas concentrations were also below the RBCs for residential exposure to vapor intrusion. Therefore, offsite risks from vapor intrusion are considered insignificant.

3.3.4 Recreational User of Willamette River

Based on groundwater data from monitoring wells between the Site and the Willamette River, the transport pathway of Site-related petroleum constituents to the Willamette River is potentially complete for the purposes of this HHRA. There is public access to the portion of the Willamette River bank located to the east of the subject Site. Potential exposures to surface water and sediment at this portion of the Willamette River are anticipated to be very limited in duration. In addition, if contaminant migration through groundwater to the Willamette River occurs, the groundwater contaminant concentrations would be diluted before the contaminant comes in contact with humans. Direct contact with surface water and sediment during recreational activities is considered a potentially complete though insignificant exposure pathway.

3.3.5 Fisher at the Willamette River

As previously noted, the transport pathway of Site-related contaminants to the Willamette River is potentially complete based on groundwater data from the past two years. The COIs for the subject Site are petroleum-related constituents, of which the majority have not been found to bioaccumulate in organisms. Of the bioaccumulative chemicals listed in DEQ (2007) guidance, the PAH compounds fluoranthene and pyrene are Site-related COIs that have been detected in groundwater samples. Lead is also listed by DEQ (2007) and has been sampled for, though has not been detected during groundwater monitoring. In addition, if contaminant migration through

groundwater to the Willamette River occurs, the groundwater contaminant concentrations would be diluted in surface water before contact with fish occurs. Given the limited potential for ingestion of Site-related contaminants in organisms, consumption of fish collected from the Willamette River adjacent to the Site is considered a potentially complete though insignificant exposure pathway.

3.3.6 Future Adult and Child Visitors

There is potential for the Site to be developed as a light rail right-of-way or passenger station in the future. Following this development, adults and children could frequent the Site property as patrons on public transit. Once construction of a passenger station is completed, the Site property would be covered with asphalt, gravel, or new ballast, and exposure pathways to soil (i.e., incidental ingestion of, dermal absorption of, and inhalation of particulates from soil) would be incomplete for future adult and child visitors. Likewise, future adult and child visitors will not be exposed to groundwater because, as discussed in Section 2.6, groundwater is not withdrawn for commercial or domestic uses.

3.4 Available Data

Soil analytical data for the Site include the following:

- Gasoline range hydrocarbon results by method NWTPH-Gx from years 1994, 2008, and 2011.
- Diesel range hydrocarbon results by method NWTPH-Dx from years 1995-1997, 2001, 2006, 2008, 2011.
- Heavy oil range hydrocarbon results by method NWTPH-Dx from years 2001, 2006, 2008, 2011.
- One sample analyzed for lead in 2011.

All available soil analytical data collected between 0 and 15 feet bgs were used in the HHRA, and are presented in Table 1.

Groundwater analytical data for the Site include results from periodic sampling of monitoring wells since the time of each well installation. TPH and BTEX data date back to 1996; additional VOCs were analyzed beginning in 2002; PAHs analysis began in 2006. Dissolved lead was analyzed but never detected in selected wells. Fourteen wells were sampled for TPH, BTEX, VOCs and PAHs in 2011. Groundwater concentrations for some constituents have changed over time. In order to better represent recent/current groundwater conditions, groundwater data from 2006 to 2011 were used in this HHRA. Available groundwater data for the Site are presented in Table 2, with the dataset used for the HHRA indicated in bold.

3.5 Selection of Chemicals of Potential Concern

To focus on those chemicals that may contribute to potential risks to human health, COIs were screened to select COPCs, which were quantitatively evaluated in this HHRA. Chemicals that were analyzed for during previous investigations at the Site but were not detected were not

evaluated further. The following sections describe the criteria that were used to select the COPCs. The COPCs selected for the Site are shown in Tables 3 through 5.

3.5.1 Frequency of Detection

COIs that were detected infrequently may be due to sampling or analysis errors and are unlikely to contribute significantly to overall risks at a site. Consistent with DEQ guidance (DEQ 2010a), analytes detected at a frequency of less than five percent were not selected as COPCs.

3.5.2 Risk-based Screening Levels

In accordance with DEQ guidance (DEQ 2010a), COIs were also screened against RBCs to select the COPCs. If the ratio of the maximum detected concentration of a chemical to the corresponding RBC (C/RBC) was greater than 1, the chemical was selected as a COPC. Additionally, for non-carcinogens, if C/RBC >0.1 for a given COI, and the sum of all non-carcinogenic C/RBC >1, a COI was selected as a COPC, per DEQ guidance (2010a).

RBCs used for screening of groundwater data were retrieved from DEQ's RBC Tables (DEQ 2009b) for construction/excavation worker direct exposure to groundwater (RBC_{WE}).

RBCs used for screening of soil data were retrieved from DEQ's RBC Tables (DEQ 2009b) for construction worker direct exposure to soil (RBCss). The construction worker RBCs are also protective of an excavation worker, so a single screening was performed to select COPCs for both receptors.

When a RBC was not available on DEQ's RBC Tables, an RBC was developed using DEQ's RBC spreadsheet tool and chemical, physical, and toxicological data for the respective analyte. The data for these analytes that were used in developing the RBCs are presented in Table 6. In some cases, toxicological data were not available, and a surrogate analyte was used for the screening:

- N-butyl benzene was used as a surrogate for sec-butyl benzene and tert-butyl benzene
- Propyl benzene was used as a surrogate for n-propyl benzene
- Acenaphthene was used as a surrogate for acenaphthylene
- Pyrene was used as a surrogate for benzo(g,h,i)perylene and phenanthrene.

The results of COPC screening for soil and groundwater are presented in Tables 3 and 4, respectively. None of the four soil COIs were selected as COPCs based on the aforementioned criteria. The following five groundwater COIs were selected as COPCs for direct contact by a construction or excavation worker based on the above criteria: gasoline range hydrocarbons, diesel range hydrocarbons, heavy oil range hydrocarbons, benzene, and benzo(a)pyrene.

3.5.3 Multi-media Screening

In addition to screening individual COIs against RBCs for each exposure medium, COPCs were selected based on potential exposures to COIs within multiple media. Because construction and

excavation workers could be exposed to both soil and groundwater, an evaluation of multiple media was performed. In accordance with DEQ guidance (DEQ 2010a), for each COI, if the sum of C/RBC across all exposure media was greater than 1, the COI was selected as a COPC. Table 5 shows COPCs selected based on potential exposure through multiple media. These COPCs are: diesel range hydrocarbons and heavy oil range hydrocarbons.

3.6 Development of Exposure Point Concentrations

EPCs represent the chemical concentrations in the soil and groundwater that the receptor will potentially come into contact with during the exposure period. Development of EPCs included a data evaluation consistent with DEQ guidance (2010a). Oregon rules require that risk assessments consider plausible upper-bound or high-end exposure (RME), as well as central tendency exposure (CTE). RME EPCs may be calculated as the 90 percent upper confidence limit on the mean (90% UCL), and DEQ recommends the use of EPA's ProUCL tool to calculate this statistic. However, DEQ recommends a minimum of 8 to 10 detected values to compute a reliable 90% UCL, and ProUCL recommends 10-15 distinct values. In the absence of an adequate number of sample results, the maximum detected concentration was used as the RME EPC. The arithmetic mean was used as the CTE EPC. In calculating the CTE EPC, one-half the detection limit was used for non-detect results.

Soil EPCs were developed for the Site in order to evaluate risks from multi-media exposures, and are presented in Table 7 for COPCs selected for multi-media exposure. The only exposures evaluated for groundwater are for construction and excavation workers during subsurface activities, which would likely occur over a wide area if any significant exposure to groundwater were to occur. Therefore, groundwater EPCs were developed for the Site vicinity to evaluate risks from direct exposure to groundwater as well as risks from multi-media exposure, and are presented in Table 8.

In addition to groundwater exposure in the vicinity of the Site, three monitoring wells are installed along the shoreline of the Willamette River, approximately 500 feet east of the Site. The shoreline wells were considered a separate exposure area to evaluate risks for offsite construction or excavation workers. The three wells comprising the shoreline exposure area are MW-10, MW-11, and MW-12.

3.7 Exposure Estimation and Intake Parameters

DEQ provides default RME and CTE values for the parameters needed to calculate intake for the exposure routes and populations that are quantitatively evaluated in this HHRA. The intake parameter values are used in the calculation of RBCs, and are presented in DEQ guidance (2003, 2010), along with the equations to calculate RBCs. Because this HHRA uses the RBDM approach to risk characterization, exposure estimation is incorporated into the development of RBCs.

Section 4: Toxicity Assessment

The toxicity assessment weighed available evidence regarding the potential for particular COPCs to cause adverse health effects and provided, where possible, a quantitative estimate of the relationship between the extent of exposure to a chemical and the increased likelihood of adverse effects. In using the RBDM approach to this HHRA, toxicity values are incorporated into the RBCs. In cases where RBCs were developed, the toxicity values were retrieved from EPA's regional screening levels table (EPA 2011b), the sources of which follow EPA's preferred hierarchy, as follows:

- Integrated Risk Information System (IRIS) database (EPA 2011a)
- EPA Provisional Peer-Reviewed Toxicity Value database
- EPA Health Effects Assessment Summary Tables
- EPA National Center for Environmental Assessment Superfund Health Risk Technical Support Center
- Other EPA documents or databases
- Agency for Toxic Substances and Disease Registry, Toxicological Profiles
- Other referenced technical publications

Toxicity values are developed for both carcinogenic and noncarcinogenic endpoints. As a result, RBCs based on both cancer and non-cancer effects were used in the HHRA to assess risks from carcinogens and noncarcinogens, respectively.

Carcinogens that act by a mutagenic mode of action can have greater toxicity during early-life stages. DEQ requires the consideration of early-life exposure on all human health risk assessments for sites where the relevant exposure scenarios include residential site use or other uses where childhood exposure is likely. The exposure routes and populations quantitatively evaluated in this HHRA include a construction worker and excavation worker. Exposure of both of these populations to subsurface soil and groundwater would occur only as an adult and, therefore, early life exposure was not evaluated in this HHRA.

Section 5: Risk Characterization

This HHRA was conducted using the RBDM approach (DEQ 2010, 2003), and evaluated the following pathways: 1) direct contact with groundwater by a construction or excavation worker; 2) multi-media exposure through direct contact with groundwater and subsurface soil by a construction or excavation worker.

Risk characterization integrates the information from the exposure assessment and toxicity assessment, using a combination of qualitative and quantitative information. With this information, risk characterization estimates the potential health risk based on the intake of a chemical under certain site-specific exposure conditions and the toxicity of that chemical. Consistent with DEQ (2010a) and EPA (1989) guidance, noncarcinogenic and carcinogenic effects were evaluated separately.

The potential for adverse effects resulting from exposure to chemicals with noncarcinogenic effects was addressed by comparing the COPC-specific EPC for each potentially complete exposure pathway to its RBC. This comparison was made by calculating the ratio of the estimated EPC to the corresponding RBC for a given exposure scenario to yield a hazard quotient (HQ):

$$HQ = EPC/RBC$$

This HQ includes all exposure routes for a given receptor scenario (oral, dermal, and/or inhalation). HQs for the individual chemicals were then summed to estimate the total noncarcinogenic hazard. The total noncancer hazard was compared with a target hazard index (HI) of 1.0 (OAR 340-122-115[2] [a]).

Potential cancer risks, which represent the probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen, were assessed by comparing the EPC of a carcinogen for each potentially complete exposure pathway with its RBC as follows:

$$\text{Estimated Lifetime Cancer Risk (ELCR)} = EPC/RBC \times 10^{-6}$$

This risk includes all exposure routes for a given receptor scenario (oral, dermal, and/or inhalation, as appropriate). The potential cancer risk estimates for individual chemicals were then summed to obtain the total-potential-excess lifetime cancer risk for the potentially exposed population. The individual cancer risks were compared with a target risk of 1×10^{-6} (OAR 340-122-115[3] [a]) and the total cancer risks were compared with a target risk of 1×10^{-5} (OAR 340-122-115[4] [a]).

For carcinogens that also have noncancer effects, both an HQ and ELCR were estimated.

For indirect exposure pathways in which the RBC for cancer or non-cancer risks exceeds the water solubility or saturation limit, a hypothetical RBC was developed, assuming no solubility limit. To calculate risks in these cases, the solubility limit, not the EPC, is compared to the hypothetical RBC, since concentrations greater than solubility will not result in any more risk

from exposure to groundwater than the solubility limit concentration (DEQ 2003). However, EPCs greater than the solubility limit indicate the potential presence of free product.

The following subsections discuss the noncancer hazards and cancer risks for each of the exposure scenarios, including both CTE and RME assumptions. The calculated noncancer hazards and cancer risks for each exposure area are presented in Tables 9 through 11.

5.1 Direct Exposure to Groundwater by a Construction or Excavation Worker

Groundwater data from 2006 to 2011 (Table 2) were compared to the DEQ RBCs for groundwater in an excavation (RBC_{WE}) to evaluate the direct contact by an excavation or construction worker. As previously mentioned, groundwater is generally first encountered at depths of around 15 feet bgs, so it follows that there is minimal likelihood of direct contact by an excavation worker. Risk summaries for direct exposure to groundwater by a construction or excavation worker are presented in Table 9.

- For RME through direct contact with groundwater by a construction or excavation worker, benzo(a)pyrene results in theoretical cancer risk of 6 x 10-6 for the Site vicinity, which is greater than the target risk of 1 x 10-6, but the cumulative cancer risk is less than the target level of 1 x 10-5. There are no individual or cumulative cancer risk exceedances for exposure to offsite groundwater at the shoreline. There are no hazard indices greater than 1.0 for either the Site vicinity or shoreline.
- For CTE through direct contact with groundwater by a construction or excavation worker, there were no cumulative cancer risk exceedances of 1 x 10-5. Direct contact with benzo(a)pyrene in groundwater resulted in a risk exceedance of 1 x 10-6 in the Site vicinity (cancer risk = 2 x 10-6). There are no exceedances of an HI of 1.0.
- The EPCs for diesel range hydrocarbons and heavy oil range hydrocarbons in the Site vicinity are greater than the solubility limits, which indicate the potential presence of free product.

5.2 Multi-media Exposure to Groundwater and Subsurface Soil by a Construction or Excavation Worker

The excavation and construction worker scenarios evaluated potential multi-media exposures to soil and groundwater through direct contact. Risk was estimated for exposure to subsurface soil within the LOF for diesel range- and heavy oil range hydrocarbons by both a construction worker and an excavation worker. The cumulative risks from direct contact with subsurface soil (Table 10) were summed with cumulative risks from exposure to groundwater. These multi-media risks are presented in Table 11.

- Risks from construction or excavation worker exposure to subsurface soil at the Site are very low, and the CTE and RME risks from exposure to multiple media closely mirror the risks from groundwater alone. There are no exceedances of a target hazard index of 1.0 due to exposure to both subsurface soil and groundwater. Because there were no carcinogenic COPCs for multi-media exposure, the cumulative cancer risks from

exposure to subsurface soil and groundwater are the same as those for groundwater alone, and there are no exceedances of a target cumulative cancer risk of 1 x 10-5.

Section 6: Hot Spot Assessment

If acceptable risk levels have been exceeded at a Site, or if beneficial uses of water have been impaired, Oregon rules require the identification of potential hot spots as defined in OAR 340-122-0115(32), which should be preliminarily identified in the risk assessment, and a final determination made in the feasibility study (DEQ 2010a).

As stated in DEQ guidance (2010a), contamination in groundwater or surface water is a hot spot if there is or will be a significant adverse effect on the beneficial use of the resource, and treatment is likely to restore or protect the beneficial use. For other media, there is a hot spot if:

1. Chemicals are present in concentrations exceeding risk-based concentrations corresponding to:
    a) 100 times the acceptable risk level for human exposure to each individual carcinogen;
    b) 10 times the acceptable risk level for human exposure to each individual noncarcinogen; or
    c) 10 times the acceptable risk level for exposure of individual ecological receptors or populations of ecological receptors to each individual hazardous substance;
2. Chemicals are reasonably likely to migrate, creating the conditions specified above; or
3. Chemicals are not reliably containable.

Additionally, DEQ Guidance for the Identification of Hot Spots states that if the baseline risk for these exposures exceeds the acceptable risk levels, then the contamination poses a significant adverse effect on the (current or reasonably likely future) beneficial use(s) of the water (DEQ 1998).

Soil concentrations within the LOF do not exceed RBCs for reasonably likely exposures and, therefore, there are no potential hot spots for soil at the Site.

As groundwater hot spots are determined based on beneficial use and treatment as opposed to risk levels, the potential for groundwater hot spots will be evaluated in the Feasibility Study (FS).

Section 7: Uncertainty Analysis

This section identifies issues of variability and uncertainty associated with the parameters used in the risk estimates:

- Variability arises from true heterogeneity in characteristics such as dose-response differences within a population, or differences in chemical concentrations in the environment. The values of some variables used in an assessment change with time and space, or across the population whose exposure is being estimated.

- Uncertainty, on the other hand, represents lack of knowledge about factors such as adverse effects or chemical concentrations. A substantial amount of uncertainty is often inherent in environmental sampling as well as in the scientific models used in risk assessment.

In general, the risk assessment approach and methodology are designed to err on the side of conservatism, i.e., protection of health. Potentially significant sources of uncertainty and variability in this HHRA that may impact the risk estimates are discussed in the following subsections.

7.1 Exposure Point Concentrations

According to EPA guidance (1989), the EPC should represent the arithmetic average of the concentration that is contacted over the exposure period. Due to uncertainty associated with estimating an EPC, the 90 percent upper confidence limit on the arithmetic mean, which, depending on the data distribution and presence of outliers can be much higher than the arithmetic average, was used in the HHRA as the EPC. For both exposure points, the number of results was not sufficient to calculate an EPC for some analytes, in which case the maximum concentration was used in the HHRA. Use of upper confidence limits or maximum concentrations provided a protective approach and likely resulted in overestimates of the actual risks, especially for long-term exposures.

In addition, groundwater samples from MW-10 and MW-11 were analyzed as both total and dissolved fractions for PAHs. Dissolved fraction results show in no detected PAH concentrations, and total fractions resulted in a number of detected concentrations. The total fractions were used in the calculation of EPCs for the risk assessment to provide a conservative estimate of risk, but dissolved concentrations are likely more representative of the concentrations that may migrate in groundwater.

7.2 Exposure Assumptions

Exposure factor values from DEQ guidance (DEQ 2003) were incorporated in the RBCs that were used to estimate risks for the construction worker and excavation worker. These values represent generic exposures that may occur under typical industrial scenarios, and may not reflect actual exposures at the Site if construction or excavation were to occur.

DEQ's recommended exposure assumptions were used in the RBCs to estimate risks to construction and excavation workers resulting from dermal contact with groundwater. The exposure assumptions are conservative and not representative of likely exposures with groundwater that may occur. The exposure assumptions are based on portions of the body being immersed in groundwater for two hours a day every day that trenching activities occur. If excavations were to occur at depths where groundwater is first encountered (i.e., generally 8 to 10 feet bgs), dewatering would minimize the dermal contact with groundwater. Therefore, more likely groundwater exposures include brief contact over a small skin surface area as a result of inadvertent splashes. The use of DEQ's recommended exposure assumptions overestimates the actual risks associated with dermal contact with groundwater.

The dermal absorption factors used to estimate dermal intakes from groundwater were calculated using chemical-specific permeability coefficients. EPA guidance acknowledges that permeability coefficients have been identified as the major parameters contributing to uncertainty in the assessment of dermal exposure for chemicals in aqueous media.

7.3 Toxicity Data

The toxicity factors incorporated in the RBCs that were used in this HHRA, which are established by state and federal policy, are conservative overestimates of the potential dose-response. In addition, the results of animal studies are often used to predict the potential human health effects of a chemical. Extrapolation of toxicological data from animal studies is a large source of uncertainty in toxicity factors (DEQ 2010a). Because of these uncertainties, toxicological data parameters are usually very conservative to be more protective of human health due to safety factors EPA uses when estimating toxicity values. The safety factors used by EPA typically range from two to three orders of magnitude (100 to 1,000 times), depending on various aspects of the animal study. As a result, actual risks are likely to be lower than the potential risk estimates calculated in this HHRA.

7.4 Petroleum Products

The DEQ approach outlined in RBDM guidance (2003) provides a method to evaluate risks from exposure to petroleum products that otherwise would be very difficult to evaluate. However, even with the DEQ approach, there is considerable uncertainty in the evaluation of petroleum products. The DEQ approach divides petroleum hydrocarbons into fractions based on the expected transport properties of individual compounds and then uses a single value to represent the entire fraction. Although the physical, chemical, and toxicological values for different compounds within a single fraction are anticipated to be similar, it is unlikely they are identical for all compounds in that fraction. The toxicity values assigned to fractions are based on the most toxic compounds within those fractions (or even from similar fractions). It is highly unlikely that the fractions consist entirely of the most toxic compound within those fractions. Therefore, applying the toxicity value for the most toxic compound to the entire fraction will overestimate the risks associated with exposure to that fraction.

Because compositional data were not available for the petroleum products at the Site, DEQ's generic weight fraction data was used for diesel and gasoline. However, in the environment, the composition of petroleum products changes due to natural weathering processes such as volatilization, leaching, and biodegradation. The chemical and physical properties used to

estimate volatilization from soil and groundwater are based on fresh fuel products and are not likely to be representative of weathered fuel products in the environment. Some of the more toxic petroleum compounds are volatile, soluble, and degradable, so aged products in the environment are likely to be less toxic than fresh product compositional data suggest.

7.5 Overall Assessment of Uncertainty

The cumulative effect of the conservative assumptions made during the HHRA to address uncertainty result in risk estimates that are likely higher than actual risks that may exist at the Site. The potential overestimate of actual risks at a site should be factored into remedial decisions.

Section 8: Summary and Conclusion

Kennedy/Jenks has prepared this HHRA report on behalf of FAI for the Former Sunset Fuel, Pacific Pride Fueling Station site located in Portland, Oregon. The Pacific Pride cardlock commercial fueling station (Pacific Pride Site) is located at 6230 SW Macadam Avenue, and the adjacent property (Former Sunset Fuel Site) is located at 6140 SW Macadam Avenue in Portland, Multnomah County, Oregon. The two properties constitute the subject Site.

This HHRA considered the potential exposures by human receptors at the LOF under current and reasonably likely future uses. Risk estimates were calculated using the RBDM approach for exposure to groundwater by excavation or construction workers, and multi-media exposure to subsurface soil and groundwater by excavation and construction workers.

Risk estimates were compared with a target HI of 1.0, a target cancer risk of 1×10^{-6} for individual chemicals, and a target total cancer risk of 1×10^{-5}. The following summarizes the risk estimates that exceeded the target risk levels:

- For both RME and CTE scenarios, there are no cumulative risk exceedances of the target cancer risk level of 1×10^{-5} for construction or excavation worker exposures to groundwater within the Site vicinity. Benzo(a)pyrene exceeds the target risk level of 1×10^{-6} for individual chemicals from RME and CTE scenarios for groundwater in the Site vicinity. There are no hazard indices exceeding 1.0 for groundwater in the Site vicinity. Offsite groundwater at the shoreline does not result in exceedances of target cancer or noncancer levels.

- For RME and CTE scenarios for multiple media exposure (direct contact with both soil and groundwater) by a construction or excavation worker, there were no cumulative cancer risk exceedances of 1×10^{-5} and no hazard index exceedances of 1.0.

- The groundwater EPCs for diesel range hydrocarbons and heavy oil range hydrocarbons in the Site vicinity are greater than the water solubility limits, which indicate the potential presence of free product.

- "Highly concentrated" hot spot levels are not present in soil samples. The potential for groundwater hot spots will be evaluated in a feasibility study.

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Tables

Table 1: Soil Analytical Data (Modified from FAI)

Sample ID	Sample Date	Sample Depth (feet)	NWTPH-HCID (Gas, Diesel, Oil)	NWTPH-Gx Gasoline Range (mg/kg)	NWTPH-Dx Diesel Range (mg/kg)	NWTPH-Dx Heavy Oil Range (mg/kg)	EPA 6020 Lead (mg/kg)
BH-1	9/2/1994	**11**	Gas, Diesel	**-**	**-**	**-**	**-**
BH-1	9/2/1994	**13**	-	**2200**	**-**	**-**	**-**
BH-2	9/2/1994	**2**	Gas, Diesel	**-**	**-**	**-**	**-**
BH-3[a]	9/2/1994	**5**	-	190	**-**	**-**	**-**
BH-3[a]	9/2/1994	**10**	-	ND	**-**	**-**	**-**
BH-4	9/2/1994	**6**	-	**ND**	**-**	**-**	**-**
BH-4	9/2/1994	**12**	-	**12**	**-**	**-**	**-**
South Tank East[a]	9/23/1995	**3.5**	Diesel	-	1690	**-**	**-**
South Tank East[a]	9/23/1995	**12**	ND	-	-	**-**	**-**
South Tank SE[a]	9/23/1995	**10**	Diesel	-	101	**-**	**-**
East Farlot Line	9/23/1995	**15**	ND	**-**	**-**	**-**	**-**
Spoil Pile	9/23/1995	**NA**	Diesel	**-**	**445**	**-**	**-**
MW-1	5/28/1996	**7.5**	ND	**-**	**-**	**-**	**-**
MW-1	5/28/1996	**13**	ND	**-**	**-**	**-**	**-**
MW-1	5/28/1996	17.5	Diesel	-	410	-	-
MW-1	5/28/1996	23.5	ND	-	-	-	-
MW-1	5/28/1996	27.5	ND	-	-	-	-
MW-2	5/28/1996	**7.5**	ND	**-**	**-**	**-**	**-**
MW-2	5/28/1996	**12.5**	ND	**-**	**-**	**-**	**-**
MW-2	5/28/1996	17.5	ND	-	-	-	-
MW-3	5/29/1996	**7.5**	ND	**-**	**-**	**-**	**-**
MW-3	5/29/1996	**13**	ND	**-**	**-**	**-**	**-**
MW-3	5/29/1996	17.5	Diesel	-	273	-	-
MW-3	5/29/1996	22	ND	-	-	-	-
MW-4	8/25/1997	**6**	ND	**-**	**-**	**-**	**-**
MW-4	8/25/1997	**11**	ND	**-**	**-**	**-**	**-**
MW-5	8/25/1997	**6**	ND	**-**	**-**	**-**	**-**
MW-5	8/25/1997	**11**	ND	**-**	**-**	**-**	**-**
MW-5	8/25/1997	15.5	Diesel	-	318	-	-
MW-6	8/25/1997	**6**	ND	**-**	**-**	**-**	**-**
MW-6	8/25/1997	**10.5**	ND	**-**	**-**	**-**	**-**
MW-6	8/25/1997	**14**	ND	**-**	**-**	**-**	**-**
B-7	12/18/2001	**15**	-	**-**	**<25**	**<100**	**-**
B-7	12/18/2001	20	-	-	<25	<100	-
B-8	12/18/2001	**15**	-	**-**	**<25**	**<100**	**-**
B-8	12/18/2001	25	-	-	<25	<100	-
B-9	12/18/2001	**15**	-	**-**	**<25**	**<100**	**-**
B-9	12/18/2001	20	-	-	473	<100	-
B-9	12/18/2001	25	-	-	<25	<100	-
B-10	12/18/2001	**10**	-	**-**	**<25**	**<100**	**-**
B-10	12/18/2001	**15**	-	**-**	**<25**	**<100**	**-**
B-10	12/18/2001	20	-	-	<25	<100	-
B-11	12/18/2001	**15**	-	**-**	**<25**	**<100**	**-**
B-11	12/18/2001	20	-	-	<25	<100	-
SBM-1-9	1/15/2006	**9**	-	**-**	**988**	**<33.8**	**-**
SBM-1-14	1/15/2006	**14**	-	**-**	**185**	**<34.4**	**-**
SBM-1-17	1/15/2006	17	-	-	506	<34.8	-
SBM-2-15	1/15/2006	**15**	-	**-**	**<17.7**	**<35.3**	**-**
SBM-2-17	1/15/2006	17	-	-	73.9	<26.5	-
SBM-3-20	1/15/2006	20	-	-	<13.5	<27.0	-
SBM-4-18	1/15/2006	18	-	-	<13.5	<26.9	-

Table 1: Soil Analytical Data (Modified from FAI)

Sample ID	Sample Date	Sample Depth (feet)	NWTPH-HCID (Gas, Diesel, Oil)	NWTPH-Gx Gasoline Range (mg/kg)	NWTPH-Dx Diesel Range (mg/kg)	NWTPH-Dx Heavy Oil Range (mg/kg)	EPA 6020 Lead (mg/kg)
SBM-5-17	1/15/2006	17	-	-	<17.9	<35.9	-
SBM-5-19	1/15/2006	19	-	-	101	<27.0	-
SBM-6-16	1/15/2006	16	-	-	<17.2	<34.4	-
SBM-8-14	1/15/2006	**14**	-	**-**	**<16.9**	**<33.8**	**-**
SBM-10-13	1/15/2006	**13**	-	**-**	**<14.1**	**120**	**-**
SBM-10-15	1/22/2006	**15**	-	**-**	**<14.5**	**124**	**-**
SBM-12-15	1/22/2006	**15**	-	**-**	**<14.3**	**<28.6**	**-**
SBM-15-14	1/22/2006	**14**	-	**-**	**<14.1**	**<28.1**	**-**
SBM-16-14	1/22/2006	**14**	-	**-**	**<14.6**	**<29.2**	**-**
MW-1R	4/23/2008	**12**	-	**<4.22**	**<31.8**	**<63.5**	**-**
MW-1R	4/23/2008	18	-	75.2	270	<62.5	-
MW-2R	4/23/2008	**8**	-	**<5.36**	**<35.4**	**<70.8**	**-**
MW-2R	4/23/2008	**10**	-	**<5.19**	**<32.9**	**<65.8**	**-**
MW13-5'	1/25/2011	**5**	-	**<6.93**	**<37.4**	**<74.7**	**-**
MW14-3.5'	1/25/2011	**3.5**	-	**22.6**	**7,920**	**<5,200**	**-**
MW14-7'	1/25/2011	**7**	-	**<7.42**	**<39.4**	**<78.8**	**-**
MW14-20'	1/25/2011	20	-	11.1	138	<67.0	-
MW14-24'	1/25/2011	24	-	<7.73	<42.9	138	-
MW-15b-3'	4/29/2011	**3**	-	**-**	**39.6**	**<50.8**	**-**
MW-15b-8'	4/29/2011	**8**	-	**-**	**<25.0**	**<50.0**	**-**
MW-15b-13'	4/29/2011	**13**	-	**-**	**<25.0**	**<50.0**	**-**
MW-16-8'	4/29/2011	**8**	-	**-**	**<25.0**	**<50.0**	**-**
MW-16-17'	4/29/2011	17	-	-	2,090	<179	-
BETANK-9.5'	5/17/2011	**9.5**	-	**<7.79**	**<27.7**	**<55.4**	**-**
BWTANK-9.5'	5/17/2011	**9.5**	-	**<7.69**	**<26.3**	**<52.6**	**-**
CBTANK-12'	5/17/2011	**12**	-	**<7.61**	**<28.2**	**<56.4**	**-**
ETANK-12'	5/17/2011	**12**	-	**17.4**	**75.4**	**<55.7**	**12.6**
WTANK-11.5'	5/17/2011	**11.5**	-	**<7.61**	**<25.0**	**<50.0**	**-**
GP-1 5-10'	5/26/2011	**5-10**	ND	**-**	**-**	**-**	**-**
GP-2 5-10'	5/26/2011	**5-10**	ND	**-**	**-**	**-**	**-**
GP-3 5-10'	5/26/2011	**5-10**	ND	**-**	**-**	**-**	**-**
GP-4 5-10'	5/26/2011	**5-10**	Oil	**-**	**-**	**ND**	**-**
GP-5 0-5'	5/26/2011	**0-5**	-	**-**	**-**	**207**	**-**
GP-5 5-10'	5/26/2011	**5-10**	Oil	**-**	**-**	**696**	**-**
GP-5 10-15'	5/26/2011	**10-15**	-	**-**	**-**	**144**	**-**
GP-6 5-10'	5/26/2011	**5-10**	ND	**-**	**-**	**-**	**-**
GP-7 5-10'	5/26/2011	**5-10**	ND	**-**	**-**	**-**	**-**
GP-8 5-10'	5/26/2011	**5-10**	ND	**-**	**-**	**-**	**-**
GP-9 5-10'	5/26/2011	**5-10**	ND	**-**	**-**	**-**	**-**

Notes:

a) Samples "South Tank East", "South Tank SE", and "BH-3" were collected from area that was excavated and are excluded from Human Health Risk Assessment calculations.

Abbreviations:

- = Not analyzed
< = Analyte not detected at the method reporting limit indicated
mg/kg = milligram per kilogram
ND = Analyte not detected above the method reporting limit
BOLD = Analytical result used in Human Health Risk Assessment (sample results collected from 0 to 15 ft below ground surface)

Table 2A: Groundwater Analytical Data, Total Petroleum Hydrocarbons (modified from FAI)

Well ID	Date Sampled	HCID (mg/l)	NW-TPH-Gx (ug/l)	NW-TPH-Dx (ug/l)	NW-TPH-O (ug/l)
MW-1	09/18/96	NA	NA	NA	NA
	06/27/97	NA	NA	NA	NA
	09/26/97	NA	NA	NA	NA
	01/15/98	NA	NA	NA	NA
	05/18/98	NA	NA	NA	NA
	09/29/98	NA	NA	NA	NA
	01/06/99	NA	NA	NA	NA
	01/07/99	NA	NA	NA	NA
	03/30/99	NA	NA	NA	NA
	06/30/99	NA	NA	NA	NA
	09/17/99	NA	NA	NA	NA
	04/13/00	NA	NA	NA	NA
	08/01/00	NA	NA	NA	NA
	09/15/00	NA	NA	NA	NA
	12/15/00	NA	NA	NA	NA
	03/07/01	NA	NA	NA	NA
	09/16/01	ND	NA	NA	NA
	12/27/01	ND	NA	NA	NA
	03/15/02	NA	NA	NA	NA
	06/21/02	NA	NA	NA	NA
	09/17/02	NA	NA	NA	NA
	12/18/02	NA	NA	NA	NA
	03/24/03	NA	NA	NA	NA
	06/18/03	NA	NA	NA	NA
	12/29/03	NA	508	1,400	<0.50
	12/22/04	NA	NA	NA	NA
	03/25/05	NA	NA	NA	NA
	07/14/05	NA	NA	NA	NA
	10/06/05	NA	NA	NA	NA
	02/08/06	**NA**	**96.4**	**2,460**	**<495**
	09/10/06	**NA**	**195**	**3,650**	**<490**
	12/17/06	**NA**	**95.2**	**2,700**	**<500**
	04/15/07	**NA**	**<80**	**1,840**	**<476**
	11/04/07	**NA**	**160**	**1,540**	**955**
MW-1R	08/03/08	**NA**	**206**	**2,910**	**569**
	11/16/08	**NA**	**273**	**2,780**	**<515**
	08/06/10	**NA**	**NA**	**2,140**	**<500**
	03/24/11	**NA**	**<1,000**	**3,070**	**<495**
MW-2	09/18/96	NA	NA	NA	NA
	06/27/97	NA	NA	NA	NA
	09/26/97	NA	NA	NA	NA
	01/15/98	NA	NA	NA	NA
	05/18/98	NA	NA	NA	NA
	09/29/98	NA	NA	NA	NA
	01/06/99	NA	NA	NA	NA
	01/07/99	NA	NA	NA	NA
	03/30/99	NA	NA	NA	NA
	06/30/99	NA	NA	NA	NA
	09/17/99	NA	NA	NA	NA
	04/13/00	NA	NA	NA	NA
	08/01/00	NA	NA	NA	NA
	09/15/00	NA	NA	NA	NA
	12/15/00	NA	NA	NA	NA
	03/07/01	NA	NA	NA	NA
	09/16/01	ND	NA	NA	NA
	12/27/01	Gasoline	NA	NA	NA
	03/15/02	NA	NA	NA	NA
	06/21/02	NA	NA	NA	NA
	09/17/02	NA	NA	NA	NA
	12/18/02	NA	NA	NA	NA
	03/24/03	NA	NA	NA	NA
	06/18/03	NA	NA	NA	NA
	12/29/03	NA	6,600	<0.25	<0.50
	12/22/04	NA	NA	NA	NA
	03/25/05	NA	NA	NA	NA
	07/14/05	NA	NA	NA	NA
	10/06/05	NA	NA	NA	NA
	02/08/06	**NA**	**7,780**	**1,560**	**<495**
	09/10/06	**NA**	**3,550**	**741**	**<500**
	12/17/06	**NA**	**3,540**	**204**	**<500**
	04/15/07	**NA**	**3,200**	**5,480**	**946**
	11/04/07	**NA**	**3,890**	**1,150**	**<490**
MW-2R	08/03/08	**NA**	**<80.0**	**<272**	**<543**
	11/16/08	**NA**	**200**	**<275**	**<549**
	08/06/10	**NA**	**<1,000**	**NA**	**NA**
	03/24/11	**NA**	**<1,000**	**<258**	**<515**
	09/18/96	NA	NA	NA	NA
	06/27/97	NA	NA	NA	NA
	09/26/97	NA	NA	NA	NA
	01/15/98	NA	NA	NA	NA
	05/18/98	NA	NA	NA	NA
	09/29/98	NA	NA	NA	NA
	01/06/99	NA	NA	NA	NA
	01/07/99	NA	NA	NA	NA
	03/30/99	NA	NA	NA	NA
	06/30/99	NA	NA	NA	NA
	09/17/99	NA	NA	NA	NA
	04/13/00	NA	NA	NA	NA
	08/01/00	NA	NA	NA	NA
	09/15/00	NA	NA	NA	NA
	12/15/00	NA	NA	NA	NA
	03/07/01	NA	NA	NA	NA
	09/16/01	ND	NA	NA	NA

Table 2A: Groundwater Analytical Data, Total Petroleum Hydrocarbons (modified from FAI)

Well ID	Date Sampled	HCID (mg/l)	NW-TPH-Gx (ug/l)	NW-TPH-Dx (ug/l)	NW-TPH-O (ug/l)
MW-3	12/27/01	NA	NA	NA	NA
	03/15/02	NA	NA	NA	NA
	06/21/02	NA	NA	NA	NA
	09/17/02	NA	NA	NA	NA
	12/18/02	NA	NA	NA	NA
	03/24/03	NA	NA	NA	NA
	06/18/03	NA	NA	NA	NA
	12/29/03	NA	15,400	936,000	<0.50
	12/22/04	NA	NA	NA	NA
	03/25/05	NA	NA	NA	NA
	07/14/05	NA	NA	NA	NA
	10/06/05	NA	NA	NA	NA
	02/08/06	**NA**	**777**	**35,500**	**<5000**
	09/10/06	**NA**	**1,110**	**258,000**	**10,300**
	12/17/06	**NA**	**901**	**13,500**	**1,120**
	04/15/07	**NA**	**857**	**28,800**	**2,590**
	11/04/07	**NA**	**690**	**24,300**	**3,740**
	08/03/08	**NA**	**1,080**	**412,000**	**38,000**
	11/16/08	**NA**	**1,010**	**273,000**	**18,300**
	10/23/09	**NA**	**NA**	**560,000**	**<50,000**
	04/23/10	**NA**	**NA**	**360,000**	**19,900**
	08/06/10	**NA**	**NA**	**306,000**	**14,900**
	11/23/10	**NA**	**NA**	**617,000**	**38,200**
	03/24/11	**NA**	**1,330**	**1,810,000**	**<200**
MW-4	09/18/96	NA	NA	NA	NA
	09/26/97	NA	NA	NA	NA
	01/15/98	NA	NA	NA	NA
	05/18/98	NA	NA	NA	NA
	09/29/98	NA	NA	NA	NA
	01/06/99	NA	NA	NA	NA
	01/07/99	NA	NA	NA	NA
	03/30/99	NA	NA	NA	NA
	06/30/99	NA	NA	NA	NA
	09/17/99	NA	NA	NA	NA
	04/13/00	NA	NA	NA	NA
	08/01/00	NA	NA	NA	NA
	09/15/00	NA	NA	NA	NA
	12/15/00	NA	NA	NA	NA
	03/07/01	NA	NA	NA	NA
	09/16/01	ND	NA	NA	NA
	12/27/01	ND	NA	NA	NA
	03/15/02	NA	NA	NA	NA
	06/21/02	NA	NA	NA	NA
	09/17/02	NA	NA	NA	NA
	12/18/02	NA	NA	NA	NA
	03/24/03	NA	NA	NA	NA
	06/18/03	NA	NA	NA	NA
	12/29/03	NA	<250	1,700	<0.50
	12/14/04	NA	NA	NA	NA
	03/25/05	NA	NA	NA	NA
	07/14/05	NA	NA	NA	NA
	10/06/05	NA	NA	NA	NA
	02/08/06	**NA**	**102**	**992**	**<495**
	09/10/06	**NA**	**<80.0**	**1,630**	**<526**
	12/17/06	**NA**	**<80.0**	**1,010**	**<526**
	04/15/07	**NA**	**<80.0**	**1,190**	**<476**
	11/04/07	**NA**	**<80.0**	**6,760**	**1,260**
	08/03/08	**NA**	**<80.0**	**1,020**	**<500**
	11/16/08	**NA**	**<80.0**	**1,790**	**<510**
MW-5	09/18/96	NA	NA	NA	NA
	09/26/97	NA	NA	NA	NA
	01/15/98	NA	NA	NA	NA
	05/18/98	NA	NA	NA	NA
	09/29/98	NA	NA	NA	NA
	01/06/99	NA	NA	NA	NA
	01/07/99	NA	NA	NA	NA
	03/30/99	NA	NA	NA	NA
	06/30/99	NA	NA	NA	NA
	09/17/99	NA	NA	NA	NA
	04/13/00	NA	NA	NA	NA
	08/01/00	NA	NA	NA	NA
	09/15/00	NA	NA	NA	NA
	12/15/00	NA	NA	NA	NA
	03/07/01	NA	NA	NA	NA
	09/16/01	ND	NA	NA	NA
	12/27/01	Diesel	NA	NA	NA
	03/15/02	NA	NA	NA	NA
	06/21/02	NA	NA	NA	NA
	09/17/02	NA	NA	NA	NA
	12/18/02	NA	NA	NA	NA
	03/24/03	NA	NA	NA	NA
	06/18/03	NA	NA	NA	NA
	12/29/03	NA	<250	1,200	<0.50
	12/14/04	NA	NA	NA	NA
	03/25/05	NA	NA	NA	NA
	07/14/05	NA	NA	NA	NA
	10/06/05	NA	NA	NA	NA
	02/08/06	**NA**	**99.3**	**2,280**	**<500**
	09/10/06	**NA**	**<80.0**	**1,430**	**<500**
	12/17/06	**NA**	**284**	**10,800**	**<476**
	04/15/07	**NA**	**95.7**	**26,700**	**687**
	11/04/07	**NA**	**122**	**7,660**	**1,160**
	08/03/08	**NA**	**<80.0**	**12,600**	**1,120**

Table 2A: Groundwater Analytical Data, Total Petroleum Hydrocarbons (modified from FAI)

Well ID	Date Sampled	HCID (mg/l)	NW-TPH-Gx (ug/l)	NW-TPH-Dx (ug/l)	NW-TPH-O (ug/l)
	11/16/08	**NA**	**89.0**	**9,840**	**727**
MW-6	09/18/96	NA	NA	NA	NA
	09/26/97	NA	NA	NA	NA
	01/15/98	NA	NA	NA	NA
	05/18/98	NA	NA	NA	NA
	09/29/98	NA	NA	NA	NA
	01/06/99	NA	NA	NA	NA
	01/07/99	NA	NA	NA	NA
	03/30/99	NA	NA	NA	NA
	06/30/99	NA	NA	NA	NA
	09/17/99	NA	NA	NA	NA
	04/13/00	NA	NA	NA	NA
	08/01/00	NA	NA	NA	NA
	09/15/00	NA	NA	NA	NA
	12/15/00	NA	NA	NA	NA
	03/07/01	NA	NA	NA	NA
	09/16/01	ND	NA	NA	NA
	12/27/01	ND	NA	NA	NA
	03/15/02	NA	NA	NA	NA
	06/21/02	NA	NA	NA	NA
	09/17/02	NA	NA	NA	NA
	12/18/02	NA	NA	NA	NA
	03/24/03	NA	NA	NA	NA
	06/18/03	NA	NA	NA	NA
	12/29/03	NA	<250	<0.25	<0.50
	12/14/04	NA	NA	NA	NA
	03/25/05	NA	NA	NA	NA
	07/14/05	NA	NA	NA	NA
	10/06/05	NA	NA	NA	NA
	02/08/06	**NA**	**<80.0**	**480**	**<500**
	09/10/06	**NA**	**98.5**	**3,830**	**<490**
	12/17/06	**NA**	**141**	**36,600**	**<500**
	04/15/07	**NA**	**86.5**	**4,070**	**<476**
	11/04/07	**NA**	**<80.0**	**26,700**	**<2,480**
	08/03/08	**NA**	**<80.0**	**7,740**	**<505**
	11/16/08	**NA**	**<80.0**	**7,400**	**<521**
	03/24/11	**NA**	**<100**	**6,590**	**522**
MW-7	07/26/05	Diesel	NA	807,000,000*	<500
	10/06/05	NA	NA	NA	NA
	02/08/06	**NA**	**694**	207,000*	**<4,850**
	09/10/06	**NA**	**NA**	NA*	**NA**
	12/17/06	**NA**	**1,200**	**972,000**	**<49,500**
	04/15/07	**NA**	**1,030**	**122,000**	**<9,520**
	11/04/07	**NA**	**1,540**	**438,000**	**29,100**
	08/03/08	**NA**	**1,270**	**481,000**	**23,600**
	11/16/08	**NA**	**1,310**	**651,000**	**<51,500**
	10/23/09	**NA**	**NA**	**627,000**	**<50,000**
	04/23/10	**NA**	**NA**	**1,100,000**	**<100,000**
	08/06/10	**NA**	**NA**	**502,000**	**<50,000**
	11/23/10	**NA**	**NA**	**903,000**	**45,700**
	03/24/11	**NA**	**1,200**	**882,000**	**49,300**
MW-8	07/14/05	NA	NA	NA	NA
	10/06/05	NA	NA	NA	NA
	02/08/06	**NA**	**455**	**100,000**	**<5,000**
	09/10/06	**NA**	**865**	**134,000**	**<5,000**
	12/17/06	**NA**	**693**	**127,000**	**10,500**
	04/15/07	**NA**	**522**	**93,000**	**6,260**
	11/04/07	**NA**	**538**	**41,100**	**<4,950**
	08/03/08	**NA**	**758**	**137,000**	**<10,200**
	11/16/08	**NA**	**983**	**123,000**	**<10,000**
	10/23/09	**NA**	**NA**	**242,000**	**11,900**
	04/23/10	**NA**	**NA**	**110,000**	**5,850**
	08/06/10	**NA**	**NA**	**198,000**	**<50,000**
	11/23/10	**NA**	**NA**	**129,000**	**<9,900**
	03/24/11	**NA**	**590**	**177,000**	**11,400**
MW-9	11/16/08	**NA**	**410**	**143,000**	**<10,400**
	10/23/09	**NA**	**NA**	**202,000**	**7,670**
	04/23/10	**NA**	**695**	**20,400**	**918**
	08/06/10	**NA**	**571**	**88,200**	**<9,850**
	11/23/10	**NA**	**501**	**144,000**	**<9,950**
	03/24/11	**NA**	**763**	**173,000**	**<10,200**
MW-10	04/23/10	**NA**	**225**	**477**	**<469**
	08/06/10	**NA**	**<100**	**<250**	**<500**
	11/23/10	**NA**	**<100**	**<272**	**<543**
	03/24/11	**NA**	**<100**	**374**	**863**
MW-11	04/23/10	**NA**	**<100**	**<236**	**<472**
	08/06/10	**NA**	**<100**	**<275**	**<549**
	11/23/10	**NA**	**<100**	**<250**	**<500**
	03/24/11	**NA**	**<100**	**<250**	**<500**

Table 2A: Groundwater Analytical Data, Total Petroleum Hydrocarbons (modified from FAI)

Well ID	Date Sampled	HCID (mg/l)	NW-TPH-Gx (ug/l)	NW-TPH-Dx (ug/l)	NW-TPH-O (ug/l)
MW-12	04/23/10	**NA**	**<100**	**<234**	**<467**
	08/06/10	**NA**	**<100**	**<255**	**<510**
	11/23/10	**NA**	**<100**	**<249**	**<498**
	03/24/11	**NA**	**<100**	**<248**	**<495**
MW-13	03/24/11	**NA**	**<100**	**<272**	**<543**
MW-14	03/24/11	**NA**	**749**	**3,900**	**<694**
MW-15	05/05/11	**NA**	**<100**	**264**	**<374**
MW-16	5/5/2011	**NA**	**1,150**	**12,500**	**659**

Notes:

* = Free-product present in sample

< = Not detected at the reporting limit indicated

µg/l=micrograms per liter (parts per billion (ppb))

mg/l=milligrams per liter (parts per million (ppm))

NA = sample was not analyzed for this constituent

ND = HCID analysis on this sample indicated no detection of hydrocarbons

NWTPH-Dx = Total Petroleum Hydrocarbons as Diesel Range Hydrocarbons by Method NWTPH-Dx

NWTPH-Gx = Total Petroleum Hydrocarbons as Gasoline Range Hydrocarbons by Method NWTPH-Gx

NWTPH-O = Total Petroleum Hydrocarbons as Heavy-Oil Range Hydrocarbons by Method NWTPH-Dx

BOLD = Analytical result used in Human Health Risk Assessment (sample results from 2006 through 2011)

Table 2B: Groundwater Analytical Data, Volatile Organic Compounds (modified from FAI)

Well ID	Date Sampled	Acetone (ug/l)	Benzene (ug/l)	2-Butanone (MEK) (ug/l)	n-Butyl benzene (ug/l)	sec-Butyl benzene (ug/l)	tert-Butyl benzene (ug/l)	Chloro ethane (ug/l)	1,2-Dichloro ethane (ug/l)	cis-1,2-Dichloro ethene (ug/l)	trans-1,2-Dichloroeth ene (ug/l)	Ethylbenzene (ug/l)	Isopropyl benzene (ug/l)	Methyl tert-butyl ether (ug/l)	Methylene chloride (ug/l)	Naphthalene (ug/l)	n-Propyl benzene (ug/l)	Tetrachloro ethene (ug/l)	Toluene (ug/l)	Trichloro ethene (ug/l)	1,2,4-Trimethyl benzene (ug/l)	1,3,5-Trimethyl benzene (ug/l)	Total Xylenes (m.p and o) (ug/l)
MW-1	9/18/1996	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	6/27/1997	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/26/1997	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/15/1998	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	5/18/1998	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	2	NA	NA	NA	NA	NA	NA	2	NA	NA	NA	10
	9/29/1998	NA	2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/6/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/7/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	3/30/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	6/30/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	71	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/17/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	4/13/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	8/1/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/15/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	12/15/2000	NA	6	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	3/7/2001	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	1,020	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/17/2001	NA	2	NA	NA	NA	NA	NA	NA	NA	NA	1	NA	1,700	NA	<10	NA	NA	<1	NA	NA	NA	1
	12/27/2001	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	1,190	NA	NA	NA	NA	<1	NA	NA	NA	<1
	3/15/2002	NA	96	NA	NA	NA	NA	NA	NA	NA	NA	1	NA	692	NA	NA	NA	NA	<1	NA	NA	NA	<1
	6/21/2002	<50.0	24.9	<10.0	<1.00	<1.00	<1.00	<1.00	2.10	<1.00	<1.00	<1.00	<1.00	648	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	9/17/2002	<50.0	27.5	<10.0	<1.00	<1.00	<1.00	<1.00	2.07	<1.00	<1.00	<1.00	<1.00	870	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	12/18/2002	<50.0	10.8	<10.0	<1.00	<1.00	<1.00	<1.00	1.72	<1.00	<1.00	<1.00	<1.00	978	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	3/24/2003	<50.0	10.6	<10.0	<1.00	<1.00	<1.00	<1.00	2.53	<1.00	<1.00	<1.00	<1.00	898	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00
	6/18/2003	NA	12	NA	NA	NA	NA	NA	<1	NA	NA	<1	<1	1,147	NA	<2	<2	NA	<2	NA	<2	<2	<2
	12/29/2003	NA	9	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	1,163	NA	3	<2	NA	<2	NA	<2	<2	<2
	12/22/2004	NA	4	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	868	NA	<2	<2	NA	<2	NA	<2	<2	<2
	3/25/2005	<20	48.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	1,310	<10	2	<3	<2	<1	<2	<2	<2	<2
	7/14/2005	<20	20.2	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	1,260	<2	<2	<3	<2	<1	<2	<2	<2	<2
	10/6/2005	<20	51	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	1,331	<10	5	<3	<2	<1	<2	<2	<2	<2
	2/8/2006	<250	<10.0	<100	<50.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<20.0	1,260	<50.0	<20.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<30.0
	9/10/2006	<250	50.0	<100	<50.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<20.0	1,200	<50.0	<20.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<30.0
	12/17/2006	<250	13.0	<100	<50.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<20.0	895	<50.0	<20.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<30.0
	4/15/2007	<250	50	<100	<50.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<20.0	1,200	<50.0	<20.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<30.0
	11/4/2007	<20.0	44.9	<10.0	<0.500	0.89	<0.500	<10.0	0.86	<0.500	<0.500	<0.500	0.650	784	<10.0	<5.00	<0.500	<0.500	<2.00	<0.500	<0.500	<0.500	<1.5
MW-1R	8/3/2008	<20.0	98.6	<10.0	<1.00	<10.0	<0.500	<2.00	2.55	<0.500	<0.500	<0.500	2.29	747	<5.00	<5.00	5.55	<0.500	<1.00	<0.500	<2.00	<1.00	<1.5
	11/16/2008	<20.0	88.6	<10.0	<1.00	<10.0	<0.500	<2.00	0.680	<0.500	<0.500	<0.500	2.10	721	<5.00	<5.00	2.43	<0.500	<1.00	<0.500	<1.00	<1.00	<1.5
	3/24/2011	<200	12.9	<100	<10.0	<10.0	<10.0	<50.0	<5.00	<5.00	<5.00	<5.00	<10.0	629	<50.0	<20.0	<5.00	<5.00	<10.0	<5.00	<10.0	<10.0	<15.0
MW-2	9/18/1996	NA	626	NA	NA	NA	NA	NA	NA	NA	NA	33	NA	NA	NA	NA	NA	NA	32	NA	NA	NA	359
	6/27/1997	NA	234	NA	NA	NA	NA	NA	NA	NA	NA	16	NA	NA	NA	NA	NA	NA	23	NA	NA	NA	11
	9/26/1997	NA	508	NA	NA	NA	NA	NA	NA	NA	NA	18	NA	NA	NA	NA	NA	NA	17	NA	NA	NA	23
	1/15/1998	NA	614	NA	NA	NA	NA	NA	NA	NA	NA	44	NA	NA	NA	NA	NA	NA	57	NA	NA	NA	66
	5/18/1998	NA	216	NA	NA	NA	NA	NA	NA	NA	NA	53	NA	NA	NA	NA	NA	NA	24	NA	NA	NA	82
	9/29/1998	NA	279	NA	NA	NA	NA	NA	NA	NA	NA	8	NA	NA	NA	NA	NA	NA	13	NA	NA	NA	8
	1/6/1999	NA	1,620	NA	NA	NA	NA	NA	NA	NA	NA	53	NA	NA	NA	NA	NA	NA	305	NA	NA	NA	88
	1/7/1999	NA	1,270	NA	NA	NA	NA	NA	NA	NA	NA	3	NA	4,220	NA	NA	NA	NA	86	NA	NA	NA	22
	3/30/1999	NA	775	NA	NA	NA	NA	NA	NA	NA	NA	23	NA	2,280	NA	NA	NA	NA	96	NA	NA	NA	38
	6/30/1999	NA	398	NA	NA	NA	NA	NA	NA	NA	NA	6	NA	4,220	NA	NA	NA	NA	26	NA	NA	NA	10
	9/17/1999	NA	502	NA	NA	NA	NA	NA	NA	NA	NA	6	NA	1,160	NA	NA	NA	NA	21	NA	NA	NA	5
	4/13/2000	NA	1,010	NA	NA	NA	NA	NA	NA	NA	NA	6	NA	3,290	NA	NA	NA	NA	52	NA	NA	NA	29
	8/1/2000	NA	628	NA	NA	NA	NA	NA	NA	NA	NA	10	NA	4,650	NA	NA	NA	NA	44	NA	NA	NA	12
	9/15/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	12/15/2000	NA	1,860	NA	NA	NA	NA	NA	NA	NA	NA	16	NA	6,950	NA	NA	NA	NA	69	NA	NA	NA	16
	3/7/2001	NA	904	NA	NA	NA	NA	NA	NA	NA	NA	7	NA	4,190	NA	NA	NA	NA	18	NA	NA	NA	4
	9/17/2001	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	1	NA	122	NA	<10	NA	NA	1	NA	NA	NA	1
	12/27/2001	NA	1,190	NA	NA	NA	NA	NA	NA	NA	NA	17	NA	2,810	NA	1.4#	NA	NA	510	NA	NA	NA	115
	3/15/2002	NA	1,140	NA	NA	NA	NA	NA	NA	NA	NA	12	NA	3,180	NA	NA	NA	NA	206	NA	NA	NA	97

Table 2B: Groundwater Analytical Data, Volatile Organic Compounds (modified from FAI)

Well ID	Date Sampled	Acetone (ug/l)	Benzene (ug/l)	2-Butanone (MEK) (ug/l)	n-Butyl benzene (ug/l)	sec-Butyl benzene (ug/l)	tert-Butyl benzene (ug/l)	Chloro ethane (ug/l)	1,2-Dichloro ethane (ug/l)	cis-1,2-Dichloro ethene (ug/l)	trans-1,2-Dichloroeth ene (ug/l)	Ethylbenzene (ug/l)	Isopropyl benzene (ug/l)	Methyl tert-butyl ether (ug/l)	Methylene chloride (ug/l)	Naphthalene (ug/l)	n-Propyl benzene (ug/l)	Tetrachloro ethene (ug/l)	Toluene (ug/l)	Trichloro ethene (ug/l)	1,2,4-Trimethyl benzene (ug/l)	1,3,5-Trimethyl benzene (ug/l)	Total Xylenes (m.p and o) (ug/l)
	6/21/2002	<50.0	446	23.8	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1,850	<20.0	<1.00	<1.00	<1.00	26.5	<1.00	<1.00	<1.00	14.84
	9/17/2002	<50.0	830	<10.0	1.03	2.48	<1.00	<1.00	<1.00	<1.00	<1.00	3.26	2.29	2,910	<20.0	<1.00	3.59	<1.00	23.6	<1.00	<1.00	<1.00	4.63
	12/18/2002	61.5	1,150	74.2	1.33	2.68	1.22	<1.00	<1.00	<1.00	<1.00	15.3	3.31	4,740	<20.0	14.5	6.72	<1.00	89.6	<1.00	6.64	1.48	50.1
	3/24/2003	<50.0	1,400	50.8	2.66	3.65	<1.00	<1.00	<1.00	<1.00	<1.00	16.6	4.29	1,700	<20.0	7.53	14.2	<1.00	268	<1.00	14.9	2.31	114.1
	6/18/2003	NA	623	NA	NA	NA	NA	NA	<100	NA	NA	<100	<100	1,653	NA	<100	<100	NA	125	NA	<100	<100	158
	12/29/2003	NA	379	NA	NA	NA	NA	NA	<2	NA	NA	10	3	947	NA	<2	10	NA	59	NA	8	<2	55
	12/22/2004	NA	248	NA	NA	NA	NA	NA	<2	NA	NA	5	2	626	NA	2	7	NA	41	NA	2	<2	23
	3/25/2005	<20	81.3	59	<2	<2	<2	<6	<2	<3	<2	<1	<2	1,130	<10	<2	<3	2	5	<2	<2	<2	3
	7/14/2005	<20	191	<10	<2	3	<2	<6	<2	<3	<2	4	3	975	<2	<2	8	<2	30	<2	<2	<2	25
	10/6/2005	<20	548	<10	<2	3	<2	<6	<2	<3	<2	7	4	558	<10	3	11	<2	110	<2	<2	<2	39
	2/8/2006	<500	2,810	<200	<100	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<40.0	339	<100	<40.0	<20.0	<20.0	1,250	<20.0	<20.0	<20.0	161.8
	9/10/2006	<500	2,140	<200	<100	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<40.0	884	<100	<40.0	<20.0	<20.0	473	<20.0	<20.0	<20.0	105.6
	12/17/2006	<250	1,850	<200	<100	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<40.0	364	<100	<40.0	<20.0	<20.0	343	<20.0	12.7	10.1	176.0
	4/15/2007	<500	2,140	<200	<100	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<40.0	884	<100	<40.0	<20.0	<20.0	473	<20.0	<20.0	<20.0	105.6
	11/4/2007	<20.0	1,090	<10.0	3.77	4.65	<0.500	<2.00	<0.500	<0.500	<0.500	5.93	3.82	456	<10.0	<5.00	12.4	<0.500	197	<0.500	5.21	3.12	81.0
MW-2R	8/3/2008	26.9	80.4	31.5	<1.00	<10.0	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	<0.500	353	<5.00	<5.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.5
	11/16/2008	<20.0	134	<10.0	<1.00	<10.0	<0.500	<2.00	<0.500	<0.500	<0.500	0.770	<0.500	1,140	<5.00	<5.00	0.620	<0.500	4.35	<0.500	<1.00	<1.00	4.51
	8/6/2010	<200	<2.50	<100	<10.0	<10.0	<10.0	<50.0	<5.00	<5.00	<5.00	<5.00	<10.0	658	<50.0	<20.0	<5.00	<5.00	<10.0	<5.00	<10.0	<10.0	<15.0
	3/24/2011	<200	15.7	<100	<10.0	<10.0	<10.0	<50.0	<5.00	<5.00	<5.00	<5.00	<10.0	406	<50.0	<20.0	<5.00	<5.00	<10.0	<5.00	<10.0	<10.0	<15.0
MW-3	9/18/1996	NA	2,550	NA	NA	NA	NA	NA	NA	NA	NA	6	NA	NA	NA	NA	NA	NA	6	NA	NA	NA	8
	6/27/1997	NA	796	NA	NA	NA	NA	NA	NA	NA	NA	6	NA	NA	NA	NA	NA	NA	3	NA	NA	NA	6
	9/26/1997	NA	1,800	NA	NA	NA	NA	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	32
	1/15/1998	NA	1,130	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	5/18/1998	NA	216	NA	NA	NA	NA	NA	NA	NA	NA	53	NA	NA	NA	NA	NA	NA	24	NA	NA	NA	82
	9/29/1998	NA	601	NA	NA	NA	NA	NA	NA	NA	NA	6	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	9
	1/6/1999	NA	385	NA	NA	NA	NA	NA	NA	NA	NA	7	NA	NA	NA	NA	NA	NA	7	NA	NA	NA	21
	1/7/1999	NA	162	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	<10	NA	NA	NA	NA	3	NA	NA	NA	7
	3/30/1999	NA	717	NA	NA	NA	NA	NA	NA	NA	NA	12	NA	<10	NA	NA	NA	NA	5	NA	NA	NA	15
	6/30/1999	NA	465	NA	NA	NA	NA	NA	NA	NA	NA	9	NA	<10	NA	NA	NA	NA	5	NA	NA	NA	12
	9/17/1999	NA	419	NA	NA	NA	NA	NA	NA	NA	NA	6	NA	1,160	NA	NA	NA	NA	21	NA	NA	NA	5
	4/13/2000	NA	197	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	<10	NA	NA	NA	NA	3	NA	NA	NA	7
	8/1/2000	NA	378	NA	NA	NA	NA	NA	NA	NA	NA	3	NA	<10	NA	NA	NA	NA	2	NA	NA	NA	4
	9/15/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	12/15/2000	NA	167	NA	NA	NA	NA	NA	NA	NA	NA	50	NA	<125	NA	NA	NA	NA	3	NA	NA	NA	51
	3/7/2001	NA	158	NA	NA	NA	NA	NA	NA	NA	NA	2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	5
	9/18/2001	NA	17	NA	NA	NA	NA	NA	NA	NA	NA	6	NA	17	NA	NA	NA	NA	3	NA	NA	NA	7
	12/27/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/15/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/21/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	NA	40	NA	NA	NA	NA	5	NA	NA	NA	16
	12/18/2002	<50.0	226	<10.0	3.08	2.79	1.19	<1.00	<1.00	<1.00	<1.00	5.05	5.03	1.37	<20.0	1.53	11.3	<1.00	4.15	<1.00	2.33	<1.00	14.72
	3/24/2003	<50.0	436	<10.0	8.15	7.63	<1.00	<1.00	<1.00	<1.00	<1.00	8.44	12.9	<1.00	<20.0	<1.00	29.4	<1.00	6.10	<1.00	5.92	3.13	25.27
	6/18/2003	NA	223	NA	NA	NA	NA	NA	<2	NA	NA	3	6	<5	NA	<2	7	NA	4	NA	10	5	23
	12/29/2003	NA	207	NA	NA	NA	NA	NA	<100	NA	NA	<100	<100	<250	NA	<100	<100	NA	<100	NA	<100	<100	101
	12/22/2004	NA	80	NA	NA	NA	NA	NA	<2	NA	NA	<2	5	<5	NA	<2	11	-	3	NA	<2	<2	7
	3/25/2005	<20	151	<10	5	4	<2	<6	<2	<3	<2	2	7	<4	<10	<2	16	<2	2	<2	<2	<2	7
	7/14/2005	<20	92.0	<10	<2	<2	<2	<6	<2	<3	<2	<1	3	<4	<3	<2	6	<2	1	<2	<2	<2	3
	10/6/2005	<20	187	<10	<2	3	<2	<6	<2	<3	<2	1	7	<4	<10	<2	16	<2	3	<2	<2	<2	5
	2/8/2006	<25.0	159	<10.00	<5.00	1.28	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	1.32	<5.00	<2.00	3.33	<1.00	1.14	<1.00	<1.00	<1.00	<3.00
	9/10/2006	<25.0	19.3	<10.00	<5.00	1.79	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2.05	1.42	<5.00	<2.00	3.66	<1.00	<1.00	<1.00	1.79	<1.00	5.39
	12/17/2006	<25.0	150	<10.00	<5.00	1.21	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	1.75	<5.00	<2.00	2.42	<1.00	1.99	<1.00	<1.00	<1.00	1.55
	4/15/2007	<25.0	19	<10.00	<5.00	1.79	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2.05	1	<5.00	<2.00	3.66	<1.00	<1.00	<1.00	1.79	<1.00	5.39
	11/4/2007	<100	197	<50.0	<2.50	<2.50	<2.50	<50.0	<2.50	<2.50	<2.50	<2.50	2.85	<2.50	<50.0	<25.0	4.80	<2.50	<10.0	<2.50	<2.50	<2.50	<7.50
	8/3/2008	<20.0	148	<10.0	1.60	<10.0	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	1.52	1.37	<5.00	<5.00	3.17	<5.00	1.12	<0.500	<1.00	<1.00	<1.5
	11/16/2008	<20.0	98.6	<10.0	2.34	<10.0	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	2.69	1.17	<5.00	<5.00	6.29	<5.00	1.50	<0.500	<1.00	<1.00	1.40
	3/24/2011	<20.0	127	<10.0	1.71	1.25	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	1.70	1.90	<5.00	<2.00	5.10	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50

Table 2B: Groundwater Analytical Data, Volatile Organic Compounds (modified from FAI)

Well ID	Date Sampled	Acetone (ug/l)	Benzene (ug/l)	2-Butanone (MEK) (ug/l)	n-Butyl benzene (ug/l)	sec-Butyl benzene (ug/l)	tert-Butyl benzene (ug/l)	Chloro ethane (ug/l)	1,2-Dichloro ethane (ug/l)	cis-1,2-Dichloro ethene (ug/l)	trans-1,2-Dichloroeth ene (ug/l)	Ethylbenzene (ug/l)	Isopropyl benzene (ug/l)	Methyl tert-butyl ether (ug/l)	Methylene chloride (ug/l)	Naphthalene (ug/l)	n-Propyl benzene (ug/l)	Tetrachloro ethene (ug/l)	Toluene (ug/l)	Trichloro ethene (ug/l)	1,2,4-Trimethyl benzene (ug/l)	1,3,5-Trimethyl benzene (ug/l)	Total Xylenes (m.p and o) (ug/l)
MW-4	9/18/1996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/1997	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/15/1998	NA	14	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	5/18/1998	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/29/1998	NA	10	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/6/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/7/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	3/30/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	6/30/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/17/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	4/13/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	8/1/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/15/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	12/15/2000	NA	2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	3/7/2001	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/17/2001	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<10	NA	<10	NA	NA	<1	NA	NA	NA	<1
	12/27/2001	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<10	NA	NA	NA	NA	<1	NA	NA	NA	<1
	3/15/2002	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<10	NA	NA	NA	NA	<1	NA	NA	NA	1
	6/21/2002	<50.0	<0.400	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2.40	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	9/17/2002	<50.0	<0.400	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2.66	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	12/18/2002	<50.0	<0.400	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	3.41	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	3/24/2003	<50.0	<0.400	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	3.90	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	6/18/2003	NA	<0.50	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	<5	NA	<2	<2	NA	<2	NA	<2	<2	<2
	12/29/2003	NA	1	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	6	NA	<2	<2	NA	3	NA	<2	<2	<2
	12/14/2004	NA	1.4	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	3.3	NA	<2	<2	NA	<2	NA	<2	<2	<2
	3/25/2005	<20	<0.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	<4	<2	<2	<3	18	<1	1.8	<2	<2	<2
	7/14/2005	<20	<0.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	<4	<2	<2	<3	28	<1	5	<2	<2	<2
	10/6/2005	<20	<0.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	<4	<2	<2	<3	24	<1	9	<2	<2	<2
	2/8/2006	<25.0	1.23	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	2.29	<5.00	<2.00	<1.00	10.2	<1.00	17.0	<1.00	<1.00	<3.00
	9/10/2006	<25.0	<1.00	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	3.04	<5.00	<2.00	<1.00	5.34	<1.00	3.14	<1.00	<1.00	<3.00
	12/17/2006	<25.0	<1.00	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	2.88	<5.00	<2.00	<1.00	2.13	<1.00	3.76	<1.00	<1.00	<3.00
	4/15/2007	<25.0	<1.00	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	3.04	<5.00	<2.00	<1.00	5.34	<1.00	3.14	<1.00	<1.00	<3.00
	11/4/2007	<20.0	1.02	<10.0	<0.500	<0.500	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	<0.500	3.31	<5.00	<5.00	<0.500	<0.500	<2.00	0.51	<1.00	<1.00	<1.5
	8/3/2008	<20.0	<0.250	<10.0	<1.00	<10.0	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	<0.500	2.92	<5.00	<5.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.5
	11/16/2008	<20.0	<0.250	<10.0	<1.00	<10.0	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	<0.500	2.06	<5.00	<5.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.5
MW-5	9/18/1996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/1997	NA	2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/15/1998	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	3	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	3
	5/18/1998	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	2
	9/29/1998	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/6/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/7/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	3/30/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	6/30/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/17/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	4/13/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	8/1/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/15/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	12/15/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	3/7/2001	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/17/2001	NA	13	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<10	NA	<10	NA	NA	1	NA	NA	NA	<1
	12/27/2001	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<10	NA	NA	NA	NA	<1	NA	NA	NA	<1
	3/15/2002	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<10	NA	NA	NA	NA	<1	NA	NA	NA	<1
	6/21/2002	<50.0	0.560	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	9/17/2002	<50.0	<0.400	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	12/18/2002	<50.0	<0.400	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00

Table 2B: Groundwater Analytical Data, Volatile Organic Compounds (modified from FAI)

Well ID	Date Sampled	Acetone (ug/l)	Benzene (ug/l)	2-Butanone (MEK) (ug/l)	n-Butyl benzene (ug/l)	sec-Butyl benzene (ug/l)	tert-Butyl benzene (ug/l)	Chloro ethane (ug/l)	1,2-Dichloro ethane (ug/l)	cis-1,2-Dichloro ethene (ug/l)	trans-1,2-Dichloroeth ene (ug/l)	Ethylbenzene (ug/l)	Isopropyl benzene (ug/l)	Methyl tert-butyl ether (ug/l)	Methylene chloride (ug/l)	Naphthalene (ug/l)	n-Propyl benzene (ug/l)	Tetrachloro ethene (ug/l)	Toluene (ug/l)	Trichloro ethene (ug/l)	1,2,4-Trimethyl benzene (ug/l)	1,3,5-Trimethyl benzene (ug/l)	Total Xylenes (m.p and o) (ug/l)
	3/24/2003	<50.0	<0.400	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	6/18/2003	NA	<0.5	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	<5	NA	<2	<2	NA	<2	NA	<2	<2	<2
	12/29/2003	NA	<0.5	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	<5	NA	<2	<2	NA	<2	NA	<2	<2	<2
	12/14/2004	NA	<0.50	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	<5	NA	<2	<2	-	<2	NA	<2	<2	<2
	3/25/2005	<20	<0.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	<4	<2	<2	<3	132	<1	3	<2	<2	<2
	7/14/2005	<20	<0.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	<4	<2	<2	<3	149	<1	4	<2	<2	<2
	10/6/2005	<20	<0.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	<4	<2	<2	<3	135	<1	9	<2	<2	<2
	2/8/2006	<25.0	<1.00	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.39	<1.00	<2.00	<1.00	<5.00	<2.00	<1.00	117	<1.00	24.3	<1.00	<1.00	<3.00
	9/10/2006	<25.0	<1.00	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	1.44	2.44	<1.00	<2.00	<1.00	<5.00	<2.00	<1.00	42.6	<1.00	26.2	<1.00	<1.00	<3.00
	12/17/2006	<25.0	<1.00	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	1.39	3.14	<1.00	<2.00	<1.00	<5.00	<2.00	<1.00	29.2	<1.00	29.4	<1.00	<1.00	<3.00
	4/15/2007	<25.0	<1.00	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	1.44	2.44	<1.00	<2.00	<1.00	<5.00	<2.00	<1.00	42.60	<1.00	26.20	<1.00	<1.00	<3.00
	11/4/2007	<20.0	<0.500	<10.00	<0.500	<0.500	<0.500	<2.00	<0.500	2.19	6.83	<0.500	<0.500	<0.500	<5.00	<5.00	<0.500	5.80	<2.00	33.20	<1.00	<1.00	<1.5
	8/3/2008	<20.0	<0.250	<10.0	<1.00	<10.0	<0.500	<2.00	<0.500	2.93	2.37	<0.500	<0.500	<1.00	<5.00	<5.00	<0.500	2.80	<1.00	13.60	<1.00	<1.00	<1.5
	11/16/2008	<20.0	<0.250	<10.0	<1.00	<10.0	<0.500	<2.00	<0.500	2.16	2.06	<0.500	<0.500	<1.00	<5.00	<5.00	<0.500	2.70	<1.00	14.6	<1.00	<1.00	<1.5
	9/18/1996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/1997	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/15/1998	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	5/18/1998	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/29/1998	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/6/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	1/7/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	3/30/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	6/30/1999	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/17/1999	NA	3	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	4/13/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	8/1/2000	NA	2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/15/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	12/15/2000	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	3/7/2001	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	<2
	9/17/2001	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	70	NA	<10	NA	NA	<1	NA	NA	NA	<1
	12/27/2001	NA	9	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	76	NA	NA	NA	NA	<1	NA	NA	NA	<1
	3/15/2002	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	56	NA	NA	NA	NA	<1	NA	NA	NA	<1
MW-6	6/21/2002	<50.0	3.96	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	49.8	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	9/17/2002	<50.0	1.31	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	51.4	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	12/18/2002	<50.0	<0.400	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	59.3	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	3/24/2003	<50.0	10.8	<10.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	54.8	<20.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	6/18/2003	NA	7	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	36	NA	<2	<2	NA	<2	NA	<2	<2	<2
	12/29/2003	NA	1	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	35	NA	<2	<2	NA	<2	NA	<2	<2	<2
	12/14/2004	NA	<0.50	NA	NA	NA	NA	NA	<2	NA	NA	<2	<2	46	NA	<2	<2	-	<2	NA	<2	<2	<2
	3/25/2005	<20	<0.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	45	<2	4	<3	4	<1	<2	3	<2	4
	7/14/2005	<20	<0.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	48	<2	<2	<3	<2	<1	<2	<2	<2	<2
	10/6/2005	<20	<0.5	<10	<2	<2	<2	<6	<2	<3	<2	<1	<2	52	<2	<3	<3	<2	<1	<2	<2	<2	<2
	1/22/2006	<25.0	6.19	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	75.8	<5.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	9/10/2006	<25.0	5.67	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	58.5	<5.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	12/17/2006	<25.0	2.24	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	74.2	<5.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	4/15/2007	<25.0	5.67	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	58.5	<5.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	11/4/2007	<20.0	3.80	<10.00	1.14	0.58	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	0.53	71.3	<5.00	<5.00	1.64	<0.500	<2.00	<0.500	<1.00	<1.00	<1.5
	8/3/2008	<20.0	0.27	<10.0	<1.00	<10.0	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	<0.500	52.7	<5.00	<5.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.5
	11/16/2008	<20.0	<0.250	<10.0	<1.00	<10.0	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	<0.500	53.7	<5.00	<5.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.5
	3/24/2011	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	37.8	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	7/26/2005	51	31.2	13	8	6	<2	<6	<2	<3	<2	1	22	86	<2	4	72	<2	2	<2	3	<2	7
	10/6/2005	<20	46	<10	14	9	<2	<6	<2	<3	<2	<1	24	156	<2	<3	75	<2	<1	<2	<2	<2	<2
	2/8/2006	<25.0	2.07	<10.00	6.03	4.07	1.15	1.05	<1.00	<1.00	<1.00	<1.00	10.4	15.5	<5.00	<2.00	33.0	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	9/10/2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/17/2006	<25.0	25.2	<10.00	10.0	6.46	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	20.0	24.9	<5.00	<2.00	65.9	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
MW-7	4/15/2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2B: Groundwater Analytical Data, Volatile Organic Compounds (modified from FAI)

Well ID	Date Sampled	Acetone (ug/l)	Benzene (ug/l)	2-Butanone (MEK) (ug/l)	n-Butyl benzene (ug/l)	sec-Butyl benzene (ug/l)	tert-Butyl benzene (ug/l)	Chloro ethane (ug/l)	1,2-Dichloro ethane (ug/l)	cis-1,2-Dichloro ethene (ug/l)	trans-1,2-Dichloroeth ene (ug/l)	Ethylbenzene (ug/l)	Isopropyl benzene (ug/l)	Methyl tert-butyl ether (ug/l)	Methylene chloride (ug/l)	Naphthalene (ug/l)	n-Propyl benzene (ug/l)	Tetrachloro ethene (ug/l)	Toluene (ug/l)	Trichloro ethene (ug/l)	1,2,4-Trimethyl benzene (ug/l)	1,3,5-Trimethyl benzene (ug/l)	Total Xylenes (m.p and o) (ug/l)
	11/4/2007	<20.0	53.1	<10.0	10.9	8.19	0.83	<2.00	<0.500	<0.500	<0.500	0.55	20.7	89.7	<5.00	<5.00	67.4	<0.500	<2.00	<0.500	<1.00	<1.00	<1.5
	8/3/2008	<100	11.0	<50.0	12.8	<50.0	<2.50	<10.0	<2.50	<2.50	<2.50	<2.50	16.2	24.0	<25.0	<25.0	58.9	<2.50	<5.00	<2.50	<5.00	<5.00	<7.5
	11/16/2008	52.3	69.9	<20.0	9.61	<10.0	0.59	<2.00	<0.500	<0.500	<0.500	<0.500	19	66.5	<5.00	<5.00	66	<0.500	<1.00	<0.500	<1.00	<1.00	<1.5
	8/6/2010	<20.0	5.20	<27.0	16.5	9.99	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	20.0	18.5	<5.00	<2.00	66.7	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	3/24/2011	<20.0	0.310	<10.0	5.26	4.15	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	6.42	1.58	<5.00	<2.00	23.5	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
MW-8	7/14/2005	<20	0.7	<10	<2	3	<2	<6	<2	<3	<2	<1	13	<2	<2	<2	36	<2	<1	<2	2	<2	<2
	10/6/2005	<20	<0.5	<10	3	4	<2	<6	<2	<3	<2	<1	15	<2	9	<3	39	<2	<1	<2	2	<2	<2
	2/8/2006	<25.0	8.00	<10.00	<5.00	3.27	1.12	1.42	<1.00	<1.00	<1.00	<1.00	14.9	35.6	<5.00	<2.00	34.7	<1.00	<1.00	<1.00	4.02	<1.00	<3.00
	9/10/2006	<25.0	21.20	<10.00	<5.00	3.22	<1.00	1.32	<1.00	<1.00	<1.00	<1.00	17.2	58.7	<5.00	<2.00	38.0	<1.00	<1.00	<1.00	<1.00	<1.00	4.30
	12/17/2006	<25.0	19.90	<10.00	<5.00	3.65	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	15.7	76.3	<5.00	<2.00	39.9	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	4/15/2007	<25.0	21.20	<10.00	<5.00	3.22	<1.00	1.32	<1.00	<1.00	<1.00	<1.00	17.2	58.7	<5.00	<2.00	38	<1.00	<1.00	<1.00	<1.00	<1.00	<3.00
	11/4/2007	<20.0	2.12	<10.0	5.48	4.48	0.55	<2.00	<0.500	<0.500	<0.500	<0.500	16.6	4.61	<5.00	<5.00	47.3	<0.500	<2.00	<0.500	<1.00	<1.00	<1.5
	8/3/2008	<100	53.00	<50.0	5.2	<50.0	<2.50	<10.0	<2.50	<5.00	<2.50	<2.50	15.0	55.10	<25.0	<25.0	39.7	<2.50	<5.00	<2.50	<5.00	<5.00	<7.5
	11/16/2008	<20.0	0.85	<10.0	4.89	<10.0	<0.500	2.54	<0.500	<0.500	<0.500	<0.500	12.8	2.05	<5.00	<5.00	37	<0.500	<1.00	<0.500	<1.00	<1.00	<1.5
	8/6/2010	<20.0	21.3	<10.0	3.37	3.18	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	12.8	38.40	<5.00	<2.00	31.6	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	3/24/2011	<20.0	3.04	<10.0	2.48	2.13	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	7.88	7.87	<5.00	<2.00	22.5	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
MW-9	11/16/2008	<20.0	3.33	<10.0	2.52	<10.0	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500	4.36	7.34	<5.00	<5.00	10.7	<0.500	<1.00	<0.500	<1.00	<1.00	<1.5
	4/23/2010	<20.0	0.82	<10.0	2.76	3.19	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	7.23	27.80	<5.00	<2.00	16.8	<0.500	<0.500	<0.500	<1.00	<1.00	<1.5
	8/6/2010	<20.0	3.49	<10.0	3.10	3.48	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	8.43	52.00	<5.00	<2.00	18.9	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	11/23/2010	<20.0	<0.250	<10.0	2.56	2.77	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	6.64	7.19	<5.00	<2.00	16.3	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	3/24/2011	<20.0	0.300	<10.0	1.99	2.50	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	5.05	14.2	<5.00	<2.00	11.8	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
MW-10	4/23/2010	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<5.00	<2.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<1.5
	8/6/2010	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	11/23/2010	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	3/24/2011	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
MW-11	4/23/2010	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<5.00	<2.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<1.5
	8/6/2010	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	11/23/2010	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	3/24/2011	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
MW-12	4/23/2010	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	6.99	<5.00	<2.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<1.5
	8/6/2010	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	5.34	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	11/23/2010	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	2.10	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
	3/24/2011	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	2.14	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
MW-13	3/24/2011	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
MW-14	3/24/2011	<20.0	<0.250	<10.0	6.22	5.46	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	4.87	1.81	<5.00	<2.00	21.4	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
MW-15	5/5/2011	<20.0	<0.250	<10.0	<1.00	<1.00	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	<1.00	2.34	<5.00	<2.00	<0.500	<0.500	<1.00	<0.500	<1.00	<1.00	<1.50
MW-16	5/5/2011	<20.0	4.31	<10.0	4.55	5.09	<1.00	<5.00	<0.500	<0.500	<0.500	<0.500	24.2	19.00	<5.00	<2.00	74.8	<0.500	1.08	<0.500	<1.00	<1.00	<1.50

Notes:

BOLD = Analytical result used in Human Health Risk Assessment (sample results from 2006 through 2011)

Abbreviations:

NA = sample was not analyzed for this constituent

< =Not Detected at the Reporting Limit indicated

MEK = Methyl Ethyl Ketone

ug/ l= micrograms per liter (parts per billion (ppb))

Table 2C: Groundwater Analytical Data, Polycyclic Aromatic Hydrocarbons and Lead (modified from FAI)

Well ID	Date Sampled	Acenaphthene (ug/l)	Acenaphthylene (ug/l)	Anthracene (ug/l)	Benzo (a) anthracene (ug/l)	Benzo (a) pyrene (ug/l)	Benzo (b) fluoroanthene (ug/l)	Benzo (ghi) perylene (ug/l)	Benzo (k) fluoranthene (ug/l)	Chrysene (ug/l)	Dibenzo (a,h) anthracene (ug/l)	Fluoroanthene (ug/l)	Fluorene (ug/l)	Indeno (1,2,3-cd) pyrene (ug/l)	Naphthalene (ug/l)	Phenanthrene (ug/l)	Pyrene (ug/l)	Dissolved Lead (ug/l)
MW-1	9/18/1996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/27/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/15/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/18/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/29/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/6/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/7/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/13/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/7/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/27/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/15/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/21/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/18/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/24/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/18/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/29/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/25/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/14/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/6/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/8/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	9/10/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	12/17/2006	**<0.104**	**<0.104**	**<0.104**	**<0.104**	**<0.104**	**<0.104**	**<0.104**	**<0.104**	**<0.104**	**<0.104**	**<0.104**	**0.371**	**<0.104**	**<0.156**	**0.109**	**<0.104**	**<1.00**
	4/15/2007	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.190**	**<0.0952**	**<0.190**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<1.00**
	11/4/2007	**0.0828**	**<0.0500**	**<0.0500**	**<0.100**	**<0.0500**	**<0.0500**	**<0.0500**	**<0.0500**	**<0.0500**	**<0.0500**	**<0.0500**	**0.162**	**<0.100**	**0.184**	**<0.0500**	**<0.0500**	**<1.00**
MW-1R	8/6/2010	**0.0950**	**<0.0494**	**<0.0988**	**<0.0494**	**<0.0494**	**<0.0494**	**<0.0494**	**<0.0494**	**<0.0494**	**<0.0494**	**<0.0494**	**0.243**	**<0.0494**	**0.159**	**0.0938**	**<0.0494**	**NA**
	3/24/2011	**<0.147**	**<0.0784**	**<0.0490**	**<0.0392**	**<0.0392**	**<0.0392**	**<0.0392**	**<0.0392**	**<0.0392**	**<0.0392**	**<0.0392**	**0.251**	**<0.0392**	**<0.137**	**0.126**	**0.0644**	**NA**
MW-2	9/18/1996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/27/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/15/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/18/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/29/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/6/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/7/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/13/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/7/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/27/2001	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	1.4	0.3	<0.1	<0.1
	3/15/2002	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	6/21/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/18/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2C: Groundwater Analytical Data, Polycyclic Aromatic Hydrocarbons and Lead (modified from FAI)

Well ID	Date Sampled	Acenaphthene (ug/l)	Acenaphthylene (ug/l)	Anthracene (ug/l)	Benzo (a) anthracene (ug/l)	Benzo (a) pyrene (ug/l)	Benzo (b) fluoroanthene (ug/l)	Benzo (ghi) perylene (ug/l)	Benzo (k) fluoranthene (ug/l)	Chrysene (ug/l)	Dibenzo (a,h) anthracene (ug/l)	Fluoroanthene (ug/l)	Fluorene (ug/l)	Indeno (1,2,3-cd) pyrene (ug/l)	Naphthalene (ug/l)	Phenanthrene (ug/l)	Pyrene (ug/l)	Dissolved Lead (ug/l)
	3/24/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/18/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/29/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/25/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/14/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/6/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/8/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	9/10/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	12/17/2006	**0.208**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.200**	**<0.100**	**0.592**	**<0.100**	**<1.20**	**0.447**	**<0.100**	**<1.00**
	4/15/2007	**0.222**	**<0.190**	**<0.190**	**<0.190**	**<0.190**	**<0.190**	**<0.190**	**<0.190**	**<0.190**	**<0.381**	**<0.190**	**0.847**	**<0.190**	**<1.14**	**0.896**	**<0.190**	**<1.00**
	11/4/2007	**0.114**	**<0.0500**	**<0.0500**	**<0.100**	**<0.0500**	**<0.0500**	**<0.0500**	**<0.0500**	**<0.0500**	**<0.0500**	**<0.0500**	**0.232**	**<0.100**	**1.53**	**0.101**	**<0.0500**	**<1.00**
MW-2R	3/24/2011	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.158**	**<0.0421**	**<0.0421**	**NA**
	9/18/1996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/27/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/15/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/18/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/29/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/6/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/7/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/13/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/7/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/18/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/27/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/15/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	6/21/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/18/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/24/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/18/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/29/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/25/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/14/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/6/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/8/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	9/10/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	12/17/2006	**21.0**	**<10.0**	**8.05**	**<2.00**	**<2.00**	**<2.00**	**<2.00**	**<2.00**	**2.00**	**<2.00**	**3.12**	**67.2**	**<2.00**	**<16.0**	**77.1**	**5.61**	**<1.00**
	4/15/2007	**1.53**	**<0.952**	**<0.952**	**<0.952**	**<0.952**	**<0.952**	**<0.952**	**<0.952**	**<0.952**	**<0.190**	**<0.952**	**4.87**	**<0.952**	**<1.90**	**4.28**	**<0.952**	**<1.00**
	11/4/2007	**3.12**	**<0.500**	**<0.500**	**<1.00**	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**8.28**	**<1.00**	**2.39**	**7.37**	**<0.500**	**<1.00**
	10/23/2009	**<60.0**	**<40.0**	**25.7**	**1.71**	**0.942**	**1.79**	**<0.800**	**1.79**	**3.88**	**<0.800**	**7.73**	**152**	**<0.800**	**56.7**	**255**	**9.65**	**NA**
	4/23/2010	**<35.0**	**<23.4**	**12.4**	**<1.87**	**<1.87**	**<3.74**	**<1.87**	**<3.74**	**2.56**	**<1.87**	**6.79**	**106**	**<1.87**	**6.87**	**166**	**6.94**	**NA**
	8/6/2010	**<32.3**	**<16.2**	**31.8**	**<2.02**	**<2.02**	**<8.08**	**<2.02**	**<8.08**	**<3.03**	**<2.02**	**6.34**	**113**	**<2.02**	**12**	**170**	**8.46**	**NA**
	11/23/2010	**<68.8**	**<18.8**	**16.4**	**<5.00**	**<5.00**	**<5.00**	**<5.00**	**<5.00**	**<5.00**	**<5.00**	**8**	**177**	**<5.00**	**<40.0**	**257**	**9.8**	**NA**
	3/24/2011	**<52.5**	**<22.5**	**17.1**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**129**	**<10.0**	**<20.0**	**184**	**<10.0**	**NA**
	9/18/1996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/15/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/18/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/29/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/6/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2C: Groundwater Analytical Data, Polycyclic Aromatic Hydrocarbons and Lead (modified from FAI)

Well ID	Date Sampled	Acenaphthene (ug/l)	Acenaphthylene (ug/l)	Anthracene (ug/l)	Benzo (a) anthracene (ug/l)	Benzo (a) pyrene (ug/l)	Benzo (b) fluoroanthene (ug/l)	Benzo (ghi) perylene (ug/l)	Benzo (k) fluoranthene (ug/l)	Chrysene (ug/l)	Dibenzo (a,h) anthracene (ug/l)	Fluoroanthene (ug/l)	Fluorene (ug/l)	Indeno (1,2,3-cd) pyrene (ug/l)	Naphthalene (ug/l)	Phenanthrene (ug/l)	Pyrene (ug/l)	Dissolved Lead (ug/l)
MW-4	1/7/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/13/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/7/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/27/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/15/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/21/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/18/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/24/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/18/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/29/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/14/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/25/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/14/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/6/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/8/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	9/10/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	12/17/2006	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.200**	**<0.100**	**0.358**	**<0.100**	**<0.100**	**0.156**	**<0.100**	**<1.00**
	4/15/2007	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.190**	**<0.0952**	**0.185**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<1.00**
	11/4/2007	**0.48**	**<0.100**	**0.103**	**<0.200**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**1.51**	**<0.200**	**0.172**	**0.139**	**<0.100**	**<1.00**
MW-5	9/18/1996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/15/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/18/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/29/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/6/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/7/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/13/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/7/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/27/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/15/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/21/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/18/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/24/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/18/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/29/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/14/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/25/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/14/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/6/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/8/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	9/10/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	12/17/2006	**<0.789**	**<0.789**	**<1.05**	**<0.526**	**<0.526**	**<0.526**	**<0.526**	**<0.526**	**<0.526**	**<1.05**	**<0.526**	**3.42**	**<0.526**	**<0.526**	**<0.526**	**<0.526**	**<1.00**

Table 2C: Groundwater Analytical Data, Polycyclic Aromatic Hydrocarbons and Lead (modified from FAI)

Well ID	Date Sampled	Acenaphthene (ug/l)	Acenaphthylene (ug/l)	Anthracene (ug/l)	Benzo (a) anthracene (ug/l)	Benzo (a) pyrene (ug/l)	Benzo (b) fluoroanthene (ug/l)	Benzo (ghi) perylene (ug/l)	Benzo (k) fluoranthene (ug/l)	Chrysene (ug/l)	Dibenzo (a,h) anthracene (ug/l)	Fluoroanthene (ug/l)	Fluorene (ug/l)	Indeno (1,2,3-cd) pyrene (ug/l)	Naphthalene (ug/l)	Phenanthrene (ug/l)	Pyrene (ug/l)	Dissolved Lead (ug/l)
	4/15/2007	**<0.962**	**<0.962**	**<0.962**	**<0.962**	**<0.962**	**<0.962**	**<0.962**	**<0.962**	**<0.962**	**<1.92**	**<0.962**	**2.10**	**<0.962**	**<0.962**	**<0.962**	**<0.962**	**<1.00**
	11/4/2007	**0.471**	**<0.0939**	**0.222**	**<0.188**	**<0.0939**	**<0.0939**	**<0.0939**	**<0.0939**	**<0.0939**	**<0.0939**	**<0.0939**	**1.88**	**<0.188**	**0.477**	**1.00**	**0.241**	**<1.00**
MW-6	9/18/1996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/15/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/18/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/29/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/6/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/7/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/30/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/13/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/1/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/7/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/27/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/15/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/21/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/18/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/24/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/18/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/29/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/14/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/25/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/14/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/6/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/8/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	9/10/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	12/17/2006	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.100**	**<0.200**	**<0.100**	**0.282**	**<0.100**	**<0.150**	**0.186**	**<0.100**	**<1.00**
	4/15/2007	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.190**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<0.0952**	**<1.00**
	11/4/2007	**0.502**	**<0.486**	**<0.486**	**<0.973**	**<0.486**	**<0.486**	**<0.486**	**<0.486**	**<0.486**	**<0.486**	**<0.486**	**1.42**	**<0.973**	**<0.486**	**0.886**	**<0.486**	**<1.00**
	3/24/2011	**<0.160**	**<0.0700**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**0.0445**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**0.0416**	**<0.0400**	**0.0641**	**<0.0400**	**NA**
MW-7	7/26/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/6/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/8/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	9/10/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	12/17/2006	**<155**	**<103**	**<103**	**<103**	**<103**	**<103**	**<103**	**<103**	**<103**	**<206**	**<103**	**501**	**<103**	**<155**	**456**	**<103**	**<1.00**
	4/15/2007	**<19.0**	**<19.0**	**<9.52**	**<9.52**	**<9.52**	**<9.52**	**<9.52**	**<9.52**	**<9.52**	**<19.0**	**<9.52**	**71.4**	**<9.52**	**<28.6**	**70.2**	**10.2**	**<1.00**
	11/4/2007	**53.9**	**<9.59**	**27.4**	**<9.59**	**<4.79**	**<4.79**	**<4.79**	**<4.79**	**5.50**	**<4.79**	**<9.59**	**152**	**<9.59**	**49.0**	**122**	**19.9**	**<1.00**
	8/3/2008	**<48.1**	**<28.8**	**<19.2**	**<3.85**	**<3.85**	**<3.85**	**<3.85**	**<3.85**	**<3.85**	**<3.85**	**7.19**	**106**	**<3.85**	**<19.2**	**108**	**9.48**	**NA**
	11/16/2008	**49.4**	**<34.7**	**32.2**	**2.13**	**2.27**	**<4.08**	**<2.04**	**<4.08**	**3.91**	**<2.04**	**7.52**	**127**	**<2.04**	**64.5**	**140**	**21.5**	**NA**
	10/23/2009	**44.2**	**153.0**	**36.4**	**4.37**	**3**	**4.91**	**2.95**	**4.91**	**10.4**	**<0.800**	**20.6**	**1220**	**2.49**	**112.0**	**329**	**33.1**	**NA**
	4/23/2010	**<34**	**<30.2**	**10.2**	**<7.55**	**<7.55**	**<7.55**	**<7.55**	**<7.55**	**<7.55**	**<7.55**	**8.86**	**105**	**<7.55**	**<15.1**	**107**	**10.2**	**NA**
	8/6/2010	**<40.8**	**<28.6**	**<12.2**	**<4.08**	**<4.08**	**<16.3**	**<4.08**	**<16.3**	**<4.08**	**<4.08**	**9.41**	**127**	**<4.08**	**<26.1**	**117**	**13.4**	**NA**
	11/23/2010	**<51.2**	**<33.5**	**18.5**	**<7.88**	**<7.88**	**<7.88**	**<7.88**	**<7.88**	**<7.88**	**<7.88**	**13.7**	**195**	**<7.88**	**<7.88**	**149**	**24.4**	**NA**
	3/24/2011	**<42.0**	**<21.3**	**12.9**	**<2.13**	**<2.13**	**<4.26**	**<2.13**	**<4.26**	**<2.13**	**<2.13**	**<5.85**	**77.2**	**<2.13**	**<39.4**	**57.9**	**10.9**	**NA**
MW-8	7/14/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/6/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/8/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	9/10/2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	12./17/06	**18.9**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**<10.0**	**<20.0**	**<10.0**	**59.9**	**<10.0**	**<15.0**	**38.2**	**<10.0**	**<1.00**
	4/15/2007	**7.46**	**<7.14**	**<4.76**	**<4.76**	**<4.76**	**<4.76**	**<4.76**	**<4.76**	**<4.76**	**<9.52**	**<4.76**	**27.2**	**<4.76**	**<4.76**	**16.6**	**<4.76**	**<1.00**
	11/4/2007	**7.69**	**<1.17**	**1.95**	**<0.936**	**<0.468**	**<0.468**	**<0.468**	**<0.468**	**<0.468**	**<0.468**	**<1.17**	**19.5**	**<0.936**	**4.95**	**8.55**	**1.26**	**<1.00**
	8/3/2008	**<16.5**	**<7.08**	**<3.77**	**<0.943**	**<0.943**	**<0.943**	**<0.943**	**<0.943**	**<0.943**	**<0.943**	**1.24**	**28.1**	**<0.943**	**<4.72**	**17.1**	**1.27**	**NA**

Table 2C: Groundwater Analytical Data, Polycyclic Aromatic Hydrocarbons and Lead (modified from FAI)

Well ID	Date Sampled	Acenaphthene (ug/l)	Acenaphthylene (ug/l)	Anthracene (ug/l)	Benzo (a) anthracene (ug/l)	Benzo (a) pyrene (ug/l)	Benzo (b) fluoroanthene (ug/l)	Benzo (ghi) perylene (ug/l)	Benzo (k) fluoranthene (ug/l)	Chrysene (ug/l)	Dibenzo (a,h) anthracene (ug/l)	Fluoroanthene (ug/l)	Fluorene (ug/l)	Indeno (1,2,3-cd) pyrene (ug/l)	Naphthalene (ug/l)	Phenanthrene (ug/l)	Pyrene (ug/l)	Dissolved Lead (ug/l)
	11/16/2008	**19.6**	**<629**	**5.68**	**<2.04**	**<2.04**	**<2.04**	**<2.04**	**<2.04**	**<2.04**	**<2.04**	**2.29**	**50.4**	**<2.04**	**18.6**	**32.6**	**4.29**	**NA**
	10/23/2009	**<8.00**	**<6.00**	**2.08**	**<0.800**	**<0.800**	**<0.800**	**<0.800**	**<0.800**	**<0.800**	**<0.800**	**0.800**	**22.2**	**<0.800**	**4.16**	**13.2**	**0.816**	**NA**
	4/23/2010	**<12.5**	**<8.97**	**3.62**	**<0.748**	**<0.748**	**<0.748**	**<0.748**	**<0.748**	**0.873**	**<0.748**	**2.040**	**35.4**	**<0.748**	**3.02**	**23.5**	**1.92**	**NA**
	8/6/2010	**<16.0**	**<10.0**	**<3.00**	**<2.00**	**<2.00**	**<4.00**	**<2.00**	**<4.00**	**<2.00**	**<2.00**	**3.380**	**55.1**	**<2.00**	**8.66**	**33.4**	**3.4**	**NA**
	11/23/2010	**<12.9**	**<8.82**	**3.45**	**<0.784**	**<0.784**	**<0.784**	**<0.784**	**<0.784**	**0.991**	**<0.784**	**2.49**	**46.1**	**<0.784**	**<10.8**	**21.6**	**2.19**	**NA**
	3/24/2011	**<6.67**	**<3.23**	**<2.37**	**<0.860**	**<0.860**	**<0.860**	**<0.860**	**<0.860**	**<0.860**	**<0.860**	**<0.860**	**15.4**	**<0.860**	**<3.87**	**8.44**	**<0.860**	**NA**
MW-9	11/16/2008	**5.71**	**<5.00**	**2.18**	**<0.408**	**<0.408**	**<0.408**	**<0.408**	**<0.408**	**<0.408**	**<0.408**	**0.869**	**18.3**	**<0.408**	**7.18**	**9.62**	**1.06**	**NA**
	10/23/2009	**<14.0**	**<12.0**	**4.09**	**<0.800**	**<0.800**	**<0.800**	**<0.800**	**<0.800**	**<0.800**	**<0.800**	**1.79**	**35.9**	**<0.800**	**9.61**	**21.1**	**1.72**	**NA**
	4/23/2010	**<5.37**	**<3.50**	**1.25**	**<0.187**	**<0.187**	**<0.374**	**<0.187**	**<0.374**	**0.217**	**<0.187**	**0.661**	**13.6**	**<0.187**	**2.89**	**6.03**	**0.707**	**NA**
	8/6/2010	**24**	**<14.4**	**<6.40**	**<0.800**	**<0.800**	**<1.60**	**<0.800**	**<1.60**	**<1.60**	**<0.800**	**6.09**	**78.2**	**<0.800**	**45.2**	**46.6**	**6.23**	**NA**
	11/23/2010	**4.73**	**<14.9**	**4.73**	**0.319**	**0.332**	**0.411**	**0.235**	**0.411**	**0.861**	**<0.196**	**3.11**	**47.0**	**0.204**	**<13.7**	**20.1**	**3.68**	**NA**
	3/24/2011	**<12.9**	**<6.14**	**4.03**	**<0.792**	**<0.792**	**<0.792**	**<0.792**	**<0.792**	**<0.792**	**<0.792**	**1.17**	**28.6**	**<0.792**	**<13.9**	**13.2**	**1.36**	**NA**
	4/23/2010	**0.0431**	**0.0578**	**0.043**	**0.237**	**0.458**	**0.681**	**0.441**	**0.681**	**0.305**	**0.0737**	**0.386**	**<0.0377**	**0.374**	**<0.0755**	**0.171**	**0.494**	**NA**
MW-10 Total	8/6/2010	**0.0396**	**0.0428**	**<0.0386**	**0.147**	**0.248**	**0.352**	**0.244**	**0.352**	**0.18**	**<0.0386**	**0.266**	**<0.0386**	**0.198**	**<0.0773**	**0.111**	**0.344**	**NA**
	11/23/2010	**0.0460**	**0.100**	**0.136**	**0.340**	**0.664**	**0.799**	**0.513**	**0.799**	**0.407**	**0.0863**	**0.626**	**<0.0400**	**0.433**	**<0.0800**	**0.185**	**0.796**	**NA**
	3/24/2011	**<0.0400**	**<0.0400**	**<0.0400**	**0.0514**	**0.0787**	**0.121**	**0.0764**	**0.121**	**0.0674**	**<0.0400**	**0.0922**	**<0.0400**	**0.0735**	**<0.0800**	**0.0588**	**0.108**	**NA**
	5/18/2010	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0381**	**<0.0762**	**<0.0381**	**<0.0381**	**NA**
MW-10 Dissolved	8/6/2010	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**<0.0435**	**NA**
	11/23/2010	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0889**	**<0.0444**	**<0.0444**	**NA**
	3/24/2011	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**<0.0444**	**0.0999**	**<0.0444**	**<0.0444**	**NA**
	4/23/2010	**<0.0392**	**0.0671**	**0.0483**	**0.26**	**0.501**	**0.715**	**0.462**	**0.715**	**0.315**	**0.0767**	**0.433**	**<0.0392**	**0.405**	**<0.0784**	**0.167**	**0.545**	**NA**
MW-11 Total	8/6/2010	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**0.0549**	**0.0943**	**0.0627**	**0.0943**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**0.0596**	**NA**
	11/23/2010	**<0.0396**	**0.0884**	**0.0806**	**0.284**	**0.574**	**0.684**	**0.438**	**0.684**	**0.342**	**0.0733**	**0.518**	**<0.0396**	**0.376**	**<0.0792**	**0.147**	**0.651**	**NA**
	3/24/2011	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0825**	**<0.0412**	**<0.0825**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**<0.0412**	**NA**
	5/18/2010	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0748**	**<0.0374**	**<0.0374**	**NA**
MW-11 Dissolved	8/6/2010	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**<0.0667**	**NA**
	11/23/2010	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0941**	**<0.0471**	**<0.0471**	**NA**
	3/24/2011	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0471**	**<0.0941**	**<0.0471**	**<0.0471**	**NA**
	4/23/2010	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**0.0498**	**<0.0748**	**<0.0374**	**<0.0748**	**<0.0374**	**<0.0374**	**0.0389**	**<0.0374**	**<0.0374**	**<0.0748**	**0.0531**	**0.0591**	**NA**
MW-12 Total	8/6/2010	**<0.0430**	**<0.0430**	**<0.0430**	**<0.0430**	**<0.0430**	**<0.0430**	**<0.0430**	**<0.0430**	**<0.0430**	**<0.0430**	**0.0456**	**<0.0430**	**<0.0430**	**<0.0430**	**0.0715**	**0.0669**	**NA**
	11/23/2010	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**0.0411**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**<0.0400**	**0.0446**	**NA**
	3/24/2011	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0423**	**<0.0847**	**<0.0423**	**<0.0423**	**NA**
MW-13	3/24/2011	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0406**	**<0.0812**	**<0.0406**	**<0.0406**	**NA**
MW-14	3/24/2011	**<1.58**	**<0.474**	**<0.147**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**<0.0421**	**4.22**	**<0.0421**	**<0.526**	**1.95**	**0.0585**	**NA**
MW-15	5/5/2011	**0.327**	**<0.0374**	**<0.0467**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**0.583**	**<0.0374**	**<0.187**	**<0.0374**	**<0.0374**	**NA**
MW-16	5/5/2011	**<2.52**	**<0.794**	**<0.243**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**<0.0374**	**0.0428**	**<0.0374**	**0.0940**	**5.34**	**<0.0374**	**<1.40**	**1.20**	**0.116**	**NA**

Notes:

BOLD = Analytical result used in Human Health Risk Assessment (sample results from 2006 through 2011)

Abbreviations:

NA = sample was not analyzed for this constituent

< =Not Detected at the Reporting Limit indicated

ug/l=micrograms per liter (parts per billion (ppb))

Table 3: Selection of Chemicals of Potential Concern in Subsurface Soil

Chemical	Total Number of Samples[a]	Frequency of Detection	Maximum Detected Conc. (mg/kg)	RBC[b] (mg/kg)	ca/nc	C/RBC	>0.1? (nc)	COPC?	Rationale
Gasoline Range Hydrocarbons	14	29%	2200	13,000	nc	0.17	Y	N	Sum C/RBC is less than 1 for non-carcinogens
Diesel Range Hydrocarbons	31	19%	7920	23,000	nc	0.34	Y	N	Sum C/RBC is less than 1 for non-carcinogens
Heavy Oil Range Hydrocarbons[c]	34	15%	696	23,000	nc	0.03	N	N	Maximum detected concentration does not exceed 0.1 x RBC
Lead	1	100%	12.6	800	NA	0.02	N	N	Maximum detected concentration does not exceed 0.1 x RBC
					Sum C/RBC (nc):	0.5	**Sum nc < 1**		

Notes:

(a) Data set includes soil samples from 0 to 15 feet below ground surface. Samples collected within 1995 excavation area were excluded from dataset.

(b) Generic RBC for construction worker with direct exposure to soil (Table of Risk Based Concentrations, DEQ rev. September 2009). Values listed are also protective of an excavation worker.

(c) RBC listed is for generic diesel/heating oil.

Abbreviations:

C = Concentration used for Screening
ca/nc = cancer/noncancer
COPC = Chemical of potential concern.
DEQ = Oregon Department of Environmental Quality
mg/kg = milligrams per kilogram.
N = no
NA = not applicable
nc = non-carcinogen
RBC = Risk Based Concentration
Y = yes

Table 4: Selection of Chemicals of Potential Concern in Groundwater

Chemical	Notes	Total Number of Samples[a]	Frequency of Detection	Maximum Detected Conc. (ug/l)	RBC[b] (ug/l)		ca/nc?	C/RBC (non-carcinogens)	>0.1?	C/RBC (carcinogens)	>1?	COPC?	Rationale
Total Petroleum Hydrocarbons (NW-TPH)													
Gasoline Range Hydrocarbons		83	63%	7,780	13,000		nc	0.6	Y	--	--	Y	non-carcinogen where C/RBC>0.1
Diesel Range Hydrocarbons	c	96	84%	1,810,000	10,000	>S	nc	181.0	Y	--	--	Y	non-carcinogen where C/RBC>0.1
Heavy Oil Range Hydrocarbons	d	96	32%	49,300	10,000	>S	nc	4.9	Y	--	--	Y	non-carcinogen where C/RBC>0.1
Volatile Organic Hydrocarbons													
Acetone	e	84	2%	52.3	7,200,000		nc	7E-06	N	--	--	N	detection frequency < 5%
Benzene		84	62%	2810	1,700 / 5,700		ca/nc	0.49	Y	1.65	Y	Y	non-carcinogen where C/RBC>0.1
2-Butanone (MEK)	e	84	1%	31.5	1,200,000		nc	3E-05	N	--	--	N	detection frequency < 5%
n-Butyl benzene	e	84	29%	16.5	1.80E+04	>S	nc	9E-04	N	--	--	N	non-carcinogen where C/RBC < 0.1
sec-Butyl benzene	f	84	31%	9.99	1.80E+04	>S	nc	6E-04	N	--	--	N	non-carcinogen where C/RBC < 0.1
tert-Butyl benzene	f	84	6%	1.15	1.80E+04	>S	nc	6E-05	N	--	--	N	non-carcinogen where C/RBC < 0.1
Chloroethane		84	6%	2.54	2,400,000		nc	1E-06	N	--	--	N	non-carcinogen where C/RBC < 0.1
1,2-Dichloroethane		84	4%	2.55	630		ca	--	--	0.004	N	N	detection frequency < 5%
cis-1,2-Dichloroethene		84	7%	2.93	120,000		nc	2E-05	N	--	--	N	non-carcinogen where C/RBC < 0.1
trans-1,2-Dichloroethene		84	8%	6.83	14,000		nc	0.0005	N	--	--	N	non-carcinogen where C/RBC < 0.1
Ethylbenzene		84	4%	5.93	4,400		ca	--	--	0.001	N	N	carcinogen where C/RBC < 1
Isopropyl benzene		84	40%	24.2	54,000	>S	nc	0.0004	N	--	--	N	non-carcinogen where C/RBC < 0.1
Methyl tert-butyl ether		84	80%	1260	62,000		ca	--	--	0.02	N	N	carcinogen where C/RBC < 1
n-Propyl benzene	g	84	43%	74.8	68,000	>S	nc	0.0011	N	--	--	N	non-carcinogen where C/RBC < 0.1
Tetrachloroethene		84	13%	117	240		ca	--	--	0.49	N	N	carcinogen where C/RBC < 1
Toluene		84	13%	1250	210,000		nc	0.01	N	--	--	N	non-carcinogen where C/RBC < 0.1
Trichloroethene		84	14%	33.2	160		ca	--	--	0.21	N	N	carcinogen where C/RBC < 1
1,2,4-Trimethyl benzene		84	6%	12.7	1,700		nc	0.01	N	--	--	N	non-carcinogen where C/RBC < 0.1
1,3,5-Trimethyl benzene		84	2%	10.1	1,400		nc	0.01	N	--	--	N	detection frequency < 5%
Total Xylenes (m.p and o)		84	13%	176	23,000		nc	0.01	N	--	--	N	non-carcinogen where C/RBC < 0.1
Polycyclic Aromatic Hydrocarbons													
Acenaphthene		77	32%	53.9	50,000	>S	nc	0.001	N	--	--	N	non-carcinogen where C/RBC < 0.1
Acenaphthylene	h	77	8%	153	50,000	>S	nc	0.0031	N	--	--	N	non-carcinogen where C/RBC < 0.1
Anthracene		77	36%	36.4	120,000	>S	nc	0.0003	N	--	--	N	non-carcinogen where C/RBC < 0.1
Benzo (a) anthracene		77	13%	4.37	9.1		ca	--	--	0.48	N	N	carcinogen where C/RBC < 1
Benzo (a) pyrene		77	17%	3.0	0.5		ca	--	--	5.66	Y	Y	carcinogen where C/RBC>1
Benzo (b) fluoroanthene		77	13%	4.91	5.2	>S	ca	--	--	0.94	N	N	carcinogen where C/RBC < 1
Benzo (ghi) perylene	i	77	13%	2.95	5,800	>S	nc	0.0005	N	--	--	N	non-carcinogen where C/RBC < 0.1
Benzo (k) fluoranthene		77	13%	4.91	49	>S	ca	--	--	0.10	N	N	carcinogen where C/RBC < 1
Chrysene		77	22%	10.4	910	>S	ca	--	--	0.01	N	N	carcinogen where C/RBC < 1
Dibenzo (a,h) anthracene		77	5%	0.0863	0.21		ca	--	--	0.41	N	N	carcinogen where C/RBC < 1
Fluoroanthene		77	42%	20.6	9,600	>S	nc	0.0021	N	--	--	N	non-carcinogen where C/RBC < 0.1
Fluorene		77	68%	1220	24,000	>S	nc	0.0508	N	--	--	N	non-carcinogen where C/RBC < 0.1
Indeno (1,2,3-cd) pyrene		77	12%	2.49	2.9	>S	ca	--	--	0.86	N	N	carcinogen where C/RBC < 1
Naphthalene		77	29%	112	500		ca	--	--	0.22	N	N	carcinogen where C/RBC < 1
Phenanthrene	i	77	73%	456	5,800	>S	nc	0.0786	N	--	--	N	non-carcinogen where C/RBC < 0.1
Pyrene		77	53%	33.1	5,800	>S	nc	0.01	N	--	--	N	non-carcinogen where C/RBC < 0.1
							sum C/RBC (noncancer):	**187.2**					

Notes:

(a) Data set includes groundwater samples collected from 2006 to 2011.
(b) DEQ Risk-Based Concentration for direct contact with groundwater by a construction/excavation worker. RBC Table Rev. Sept 15, 2009.
(c) Maximum detected concentration excludes results for which free product was observed in the sample.
(d) RBC listed is for generic diesel/heating oil.
(e) RBC developed using DEQ RBDM spreadsheet, Rev. Sept 15, 2009.
(f) RBC does not exist and one could not be developed due to lack of toxicity information abou the analyte. N-Butyl benzene RBC used as surrogate.
(g) RBC developed using DEQ RBDM spreadsheet, Rev. Sept 15, 2009. Chemical properties for propylbenzene used in calculations.
(h) RBC does not exist and one could not be developed due to lack of toxicity information abou the analyte. Acenaphthene RBC used as surrogate.
(i) RBC does not exist and one could not be developed due to lack of toxicity information abou the analyte. Pyrene RBC used as surrogate.

Abbreviations:

>S = RBC exceeds water solubility limit. Hypothetical RBC is listed, assuming the absence of a water solubility limit.
C = concentration used for screening
ca = carcinogen
COPC = Chemical of potential concern.
DEQ = Oregon Department of Environmental Quality
N = no
nc = non-carcinogen
RBC = Risk Based Concentration
ug/l = micrograms per liter
Y = yes

Table 5: Selection of Chemicals of Potential Concern for Multi-Media Exposure

	C/RBC			
Medium	**Gasoline Range Hydrocarbons**	**Diesel Range Hydrocarbons**	**Heavy Oil Range Hydrocarbons**	**Lead**
Subsurface Soil	0.2	0.3	0.03	0.02
Groundwater	0.6	181	4.9	--
SUM (C/RBC)	**0.8**	**181**	**5.0**	**0.02**
COPC for multi-media exposure?	No	Yes	Yes	No

Notes:
Analyte selected as COPC for multi-media exposure if the sum of C/RBC across media is greater than 1.

Abbreviations:
C = Concentration used for Screening
COPC = Chemical of potential concern.
RBC = Risk Based Concentration
-- = Analyte not detected in groundwater data set.

Table 6: Parameter Values Used in the Development of Risk Based Concentrations

Abbreviation	Parameter Description	Units	Acetone	ref	n-Butyl benzene	ref	2-Butanone (MEK)	ref	n-Propyl benzene	ref
RfDo	oral reference dose	mg/kg-d	9.0E-01	1	5.0E-02	2	6.0E-01	1	1.0E-01	3
RfCi	inhalation reference concentration	mg/m3	3.1E+01	4	NA		5.0E+00	1	1.0E+00	3
Csat	saturation concentration	mg/kg	1.1E+05	5	1.1E+02	5	2.8E+04	5	2.6E+02	5
S (mg/L)	solubility	mg/L	1.0E+06	6	1.2E+01	7	2.2E+05	7	5.2E+01	7
HLC	Henry's Law Constant	atm-m3/mol	3.9E-05	6	1.6E-02	7	5.7E-05	7	1.1E-02	7
H'	Henry's Law Constant	dimensionless	1.6E-03	6	6.5E-01	7	2.3E-03	7	4.3E-01	7
Di,a	diffusivity in air	cm^2/s	1.2E-01	6	5.3E-02	8	9.1E-02	8	6.0E-02	8
Di,w	diffusivity in water	cm^2/s	1.1E-05	6	7.3E-06	8	1.0E-05	8	7.8E-06	8
Koc (calc'd)	organic-water partition coefficient	L/kg	5.8E-01	6	1.5E+03	7	4.5E+00	7	8.1E+02	7
MW	molecular weight	g/mol	58.08	7	1.3E+02	7	7.2E+01	7	1.2E+02	7
P	density	g/cm3	0.7845	9	8.6E-01	9	8.0E-01	9	8.6E-01	9
RAFd	relative dermal absorption factor	unitless	0	10	0	10	0	10	0	10
Kp	dermal permeability coefficient of compound in water	cm/hr	5.1E-04	11	2.3E-01	11	3.8E-05	11	9.4E-02	11
t	lag time per event	hr/event	2.3E-01	11	6.0E-01	11	2.7E-01	11	5.0E-01	11
t*	time to reach steady-state	hr	5.4E-01	11	2.3E+00	11	6.5E-01	11	1.2E+00	11
B	ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	dimensionless	1.5E-03	11	1.0E+00	11	3.1E-03	11	4.0E-01	11

Notes

1. IRIS, as presented in EPA Regional Screening Levels Tables, June 2011.
2. PPRTV, as presented in EPA Regional Screening Levels Tables, June 2011.
3. PPRTV Appendix, as presented in EPA Regional Screening Levels Tables, June 2011.
4. ATSDR, as presented in EPA Regional Screening Levels Tables, June 2011.
5. HSDB, U.S. National Institute of Health, accessed October 2011.
6. Soil Screening Guidance: Technical Background Document. EPA/540/R-95/128. EPA 1996.
7. EPI, as presented in EPA Regional Screening Levels Tables, June 2011.
8. WATER9 , as presented in EPA Regional Screening Levels Tables, June 2011.
9. CRC89, as presented in EPA Regional Screening Levels Tables, June 2011.
10. Risk Assessment Guidance for Superfund, Part E:Supplemental Guidance for Dermal Risk Assessment. EPA 2001.
11. Calculated from equations in Appendix A of Risk Assessment Guidance for Superfund, Part E:Supplemental Guidance for Dermal Risk Assessment. EPA 2001.

Abbreviations

atm-m3/mol = atmosphere cubic meters per mole
cm/hr = centimeters per hour
cm^2/s = square centimeters per second
CRC89 = Handbook of Chemistry and Physics, various editions.
EPA = U.S. Environmental Protection Agency
EPI = Estimation Programs Interaface. U.S. EPA and Syracuse Research Corporation (SRC).
g/cm3 = gram per cubic centimeter
g/mol = grams per mole
hr = hour
hr/event = hour per event
HSDB = U.S. Environmental Protection Agency
IRIS = Integrated Risk Information System
L/kg = liter per kilogram
MEK = Methyl Ethyl Ketone
mg/kg = milligrams per kilogram
mg/L = miligrams per liter
mg/m3 = milligrams per cubic meter
NA = not application
PPRTV = Provisional Peer Reviewed Toxicity Value
WATER9 = WATER9 model, U.S. EPA

Table 7: Exposure Point Concentrations for Direct Contact with Subsurface Soil to Assess Multi-Media Exposure

Chemical of Potential Concern	Units	Total Samples[a]	Detects	Maximum Detect	Mean[b]	90% UCL	data distribution	UCL method	RME EPC	CTE EPC
Diesel Range Hydrocarbons	mg/kg	31	6	7920	321	703	gamma	90% KM (t) UCL	703	321
Heavy Oil Range Hydrocarbons	mg/kg	34	5	696	143	168	approx. gamma	90% KM (t) UCL	168	143

Notes:

(a) Data set includes soil samples from 0 to 15 feet below ground surface. Samples collected within 1995 excavation area were excluded from dataset.

(b) Arithmetic mean calculated using non-detected concentrations at one half the detection limit. The heavy oil range hydrocarbon result for soil sample GP-4 5-10' was excluded from the calculation because it was not detected in the sample and the detection limit is unknown.

Abbreviations:

90% UCL = 90 percent upper confidence limit on the mean, as calculated by EPA's ProUCL software (v. 4.0).
CTE = central tendency exposure.
EPC = Exposure point concentration.
KM = Kaplan-Meier method
mg/kg = milligrams per kilogram
RME = reasonable maximum exposure.

Table 8: Exposure Point Concentrations for Direct Contact with Groundwater

Chemical of Potential Concern	Units	Total Samples[a]	Detects	Maximum Detect	Mean[b]	90% UCL	data distribution	UCL method	RME EPC	CTE EPC
Site Vicinity Wells[c]										
Gasoline Range Hydrocarbons	µg/l	71	51	7,780	743	1,170	non-parametric	90%KM(Chebyshev)UCL	1,170	743
Diesel Range Hydrocarbons	µg/l	83	79	1,810,000	166,504	269,946	non-parametric	90%KM(Chebyshev)UCL	269,946	166,504
Heavy Oil Range Hydrocarbons	µg/l	84	30	49,300	7,383	8,698	non-parametric	90%KM(Chebyshev)UCL	8,698	7,383
Benzene	µg/l	72	52	2,810	165	246	lognormal	90%KM(t)UCL	246	165
Benzo(a)pyrene	µg/l	57	4	3.0	1.8	NC	NC	NC	3	1.8
Shoreline Wells[d]										
Gasoline Range Hydrocarbons	µg/l	12	1	225	65	NC	NC	NC	225	65
Diesel Range Hydrocarbons	µg/l	12	2	477	176	NC	NC	NC	477	176
Heavy Oil Range Hydrocarbons	µg/l	12	1	863	301	NC	NC	NC	863	301
Benzene	µg/l	12	0	NA	NA	NC	NC	NC	NA	NA
Benzo(a)pyrene[e]	µg/l	12	9	0.66	0.23	NC	NC	NC	0.66	0.23

Notes:

(a) Data set includes samples collected from 2006 - 2011. Results for which free product was noted in groundwater sample were excluded from EPC calculations. This includes samples collected from MW-7 on 8 February 2006 and 10 September 2006.

(b) Mean was calculated with nondetects at half their detection limit.

(c) Site vicinity wells represent site-wide exposure, and EPCs were calculated with data collected from MW-1 through MW-9, and MW-13 through MW-16.

(d) Shoreline wells represent exposure downgradient of the Site, along the shoreline of the Willamette River. EPCs were calculated with data collected from MW-10, MW-11, and MW-12.

(f) Dissolved fraction was not detected. Results for total Benzo(a)pyrene analysis were used for EPC calculation.

Abbreviations:

90% UCL = 90 percent upper confidence limit on the mean, as calculated by EPA's ProUCL software (v. 4.0).

CTE = central tendency exposure

EPC = Exposure point concentration.

KM = Kaplan-Meier method

NA = Not applicable. Analyte not detected in groundwater data set for given exposure area.

NC = not calculable. Consistent with EPA recommendations, DEQ recommends a minimum of 8 to10 samples to calculate reliable UCL estimates (DEQ 2010). ProUCL recommends 10-15 or more distinct observations for accurate and meaningful results. UCLs not calculated for analytes with less than 10 detected results.

RME = reasonable maximum exposure

ug/l = Micrograms per liter.

Table 9: Risks From Exposure to Groundwater in Excavation

Chemical of Potential Concern	RME EPC (µg/l)	CTE EPC (µg/l)	Water Solubility Limit (ug/l)	RME RBC for carcinogens (µg/l)	RME RBC for non-cancer effects (µg/l)		CTE RBC for carcinogens (µg/l)	CTE RBC for non-cancer effects (µg/l)		RME ELCR[a]	RME HQ[b]	CTE ELCR[a]	CTE HQ[b]
Site Vicinity													
Gasoline Range Hydrocarbons	1.2E+03	7.4E+02	1.6E+05	--	13,000		--	13,000		--	0.1	--	0.1
Diesel Range Hydrocarbons	2.7E+05	1.7E+05	6.8E+03	--	10,000	>S	--	10,000	>S	--	0.7	--	0.7
Heavy Oil Range Hydrocarbons[c]	8.7E+03	7.4E+03	3.1E+02	--	10,000	>S	--	10,000	>S	--	0.0	--	0.0
Benzene	2.5E+02	1.7E+02	1.8E+03	1,700	5,700		3,500	5,700		1E-07	0.0	5E-08	0.0
Benzo(a)pyrene	3.0E+00	1.8E+00	1.6E-03	0.5	--		1.1	--		6E-06	--	2E-06	--
Total Cancer Risk/HI										**6E-06**	**0.8**	**2E-06**	**0.8**
Shoreline													
Gasoline Range Hydrocarbons	2.3E+02	6.5E+01	1.6E+05	--	13,000		--	13,000		--	0.0	--	0.0
Diesel Range Hydrocarbons	4.8E+02	1.8E+02	6.8E+03	--	10,000	>S	--	10,000	>S	--	0.7	--	0.7
Heavy Oil Range Hydrocarbons[c]	8.6E+02	3.0E+02	3.1E+02	--	10,000	>S	--	10,000	>S	--	0.0	--	0.0
Benzene	NA	NA	1.8E+03	1,700	5,700		3,500	5,700		NA	NA	NA	NA
Benzo(a)pyrene	6.6E-01	2.3E-01	1.6E-03	0.5	--		1.1	--		1E-06	--	2E-07	--
Total Cancer Risk/HI										**1E-06**	**0.7**	**2E-07**	**0.7**

Notes:

(a) Cancer risks are calculated as follows: ELCR = EPC/RBC x 10^{-6}.

(b) Hazard Quotients are calculated as follows: HQ = EPC/RBC. In cases where the RBC exceeds the solubility limit, the solubility limit is compared to the RBC instead of the EPC (DEQ 2003).

(c) RBC listed is for generic diesel/heating oil.

Abbreviations:

-- = analyte not assessed for specified endpoint (cancer/noncancer)
>S = RBC exceeds solubility limit for compound
CTE = central tendency exposure
ECLR = estimated lifetime cancer risk
EPC = exposure point concentration
HI = hazard index
HQ = hazard quotient
NA = not applicable. Analyte not detected in given exposure area.
ND = analyte not detected in specified exposure area
RBC = risk-based concentration
RME = reasonable maximum exposure
ug/l = micrograms per liter

Table 10: Risks From Exposure to Subsurface Soil in Excavation to Assess Multi-Media Exposure

Chemical of Potential Concern	RME EPC (mg/kg)	CTE EPC (mg/kg)	RME RBC for carcinogens (mg/kg)	RME RBC for non-cancer effects (mg/kg)	CTE RBC for carcinogens (mg/kg)	CTE RBC for non-cancer effects (mg/kg)	RME ELCR[a]	RME HQ[b]	CTE ELCR[a]	CTE HQ[b]
Diesel Range Hydrocarbons	703	321	--	23,000	--	23,000	--	0.03	--	0.01
Heavy Oil Range Hydrocarbons[c]	168	143	--	23,000	--	23,000	--	0.01	--	0.01
Total Cancer Risk/HI							--	**0.04**	**--**	**0.02**

Notes:

(a) Cancer risks are calculated as follows: ELCR = EPC/RBC x 10^{-6}.

(b) Hazard Quotients are calculated as follows: HQ = EPC/RBC.

(c) RBC listed is for generic diesel/heating oil.

Abbreviations:

-- = analyte not assessed for cancer risks
CTE = central tendency exposure
ECLR = estimated lifetime cancer risk
EPC = exposure point concentration
HI = hazard index
HQ = hazard quotient
RBC = risk-based concentration
RME = reasonable maximum exposure
mg/kg = milligrams per kilogram

Table 11: Risks From Multi-Media Exposure In Excavation

Exposure Area/Medium	RME		CTE	
	ELCR	**HI**	**ELCR**	**HI**
Site Vicinity				
Risks from exposure to groundwater (site vicinity)	6E-06	0.8	2E-06	0.8
Risks from exposure to subsurface soil (site vicinity)	--	0.04	--	0.02
Total Cancer Risk/HI	**6E-06**	**0.9**	**2E-06**	**0.8**
Shoreline				
Risks from exposure to groundwater (shoreline)	1E-06	0.7	2E-07	0.7
Risks from exposure to subsurface soil (site vicinity)	--	0.04	--	0.02
Total Cancer Risk/HI	**1E-06**	**0.8**	**2E-07**	**0.7**

Abbreviations:

-- = not applicable

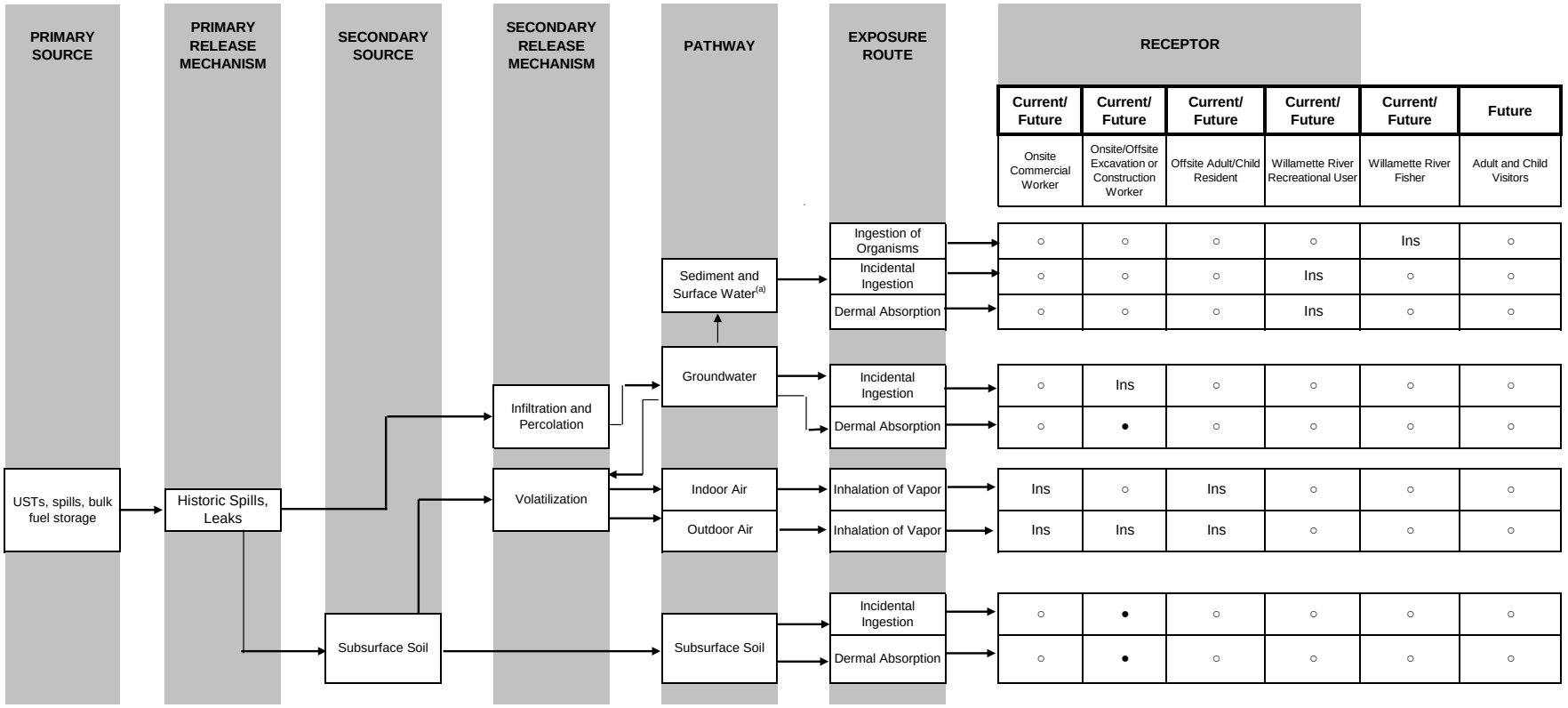
CTE = central tendency exposure

ECLR = estimated lifetime cancer risk

HI = hazard index

RME = reasonable maximum exposure

Figures



•	Potentially complete and significant exposure pathway.
Ins	Potentially complete though insignificant exposure pathway.
○	Incomplete exposure pathway.

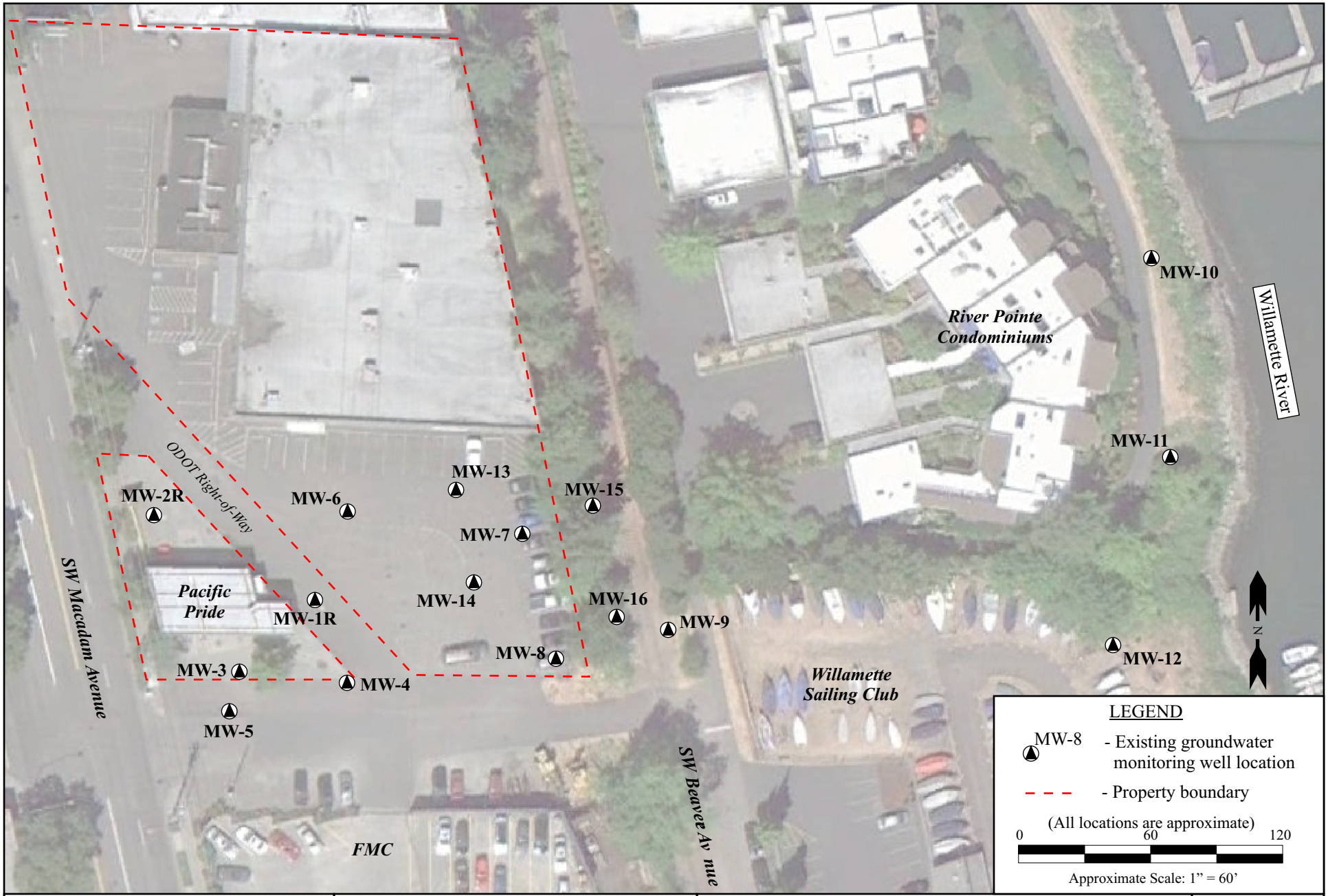
MACADAM FLOOR DESIGN, PACIFIC PRIDE FUELING STATION
PORTLAND, OREGON

HUMAN HEALTH CONCEPTUAL SITE MODEL

K/J 0992025.00
October 2011
FIGURE 1

Attachment A

Feige & Associates, Inc. Figures

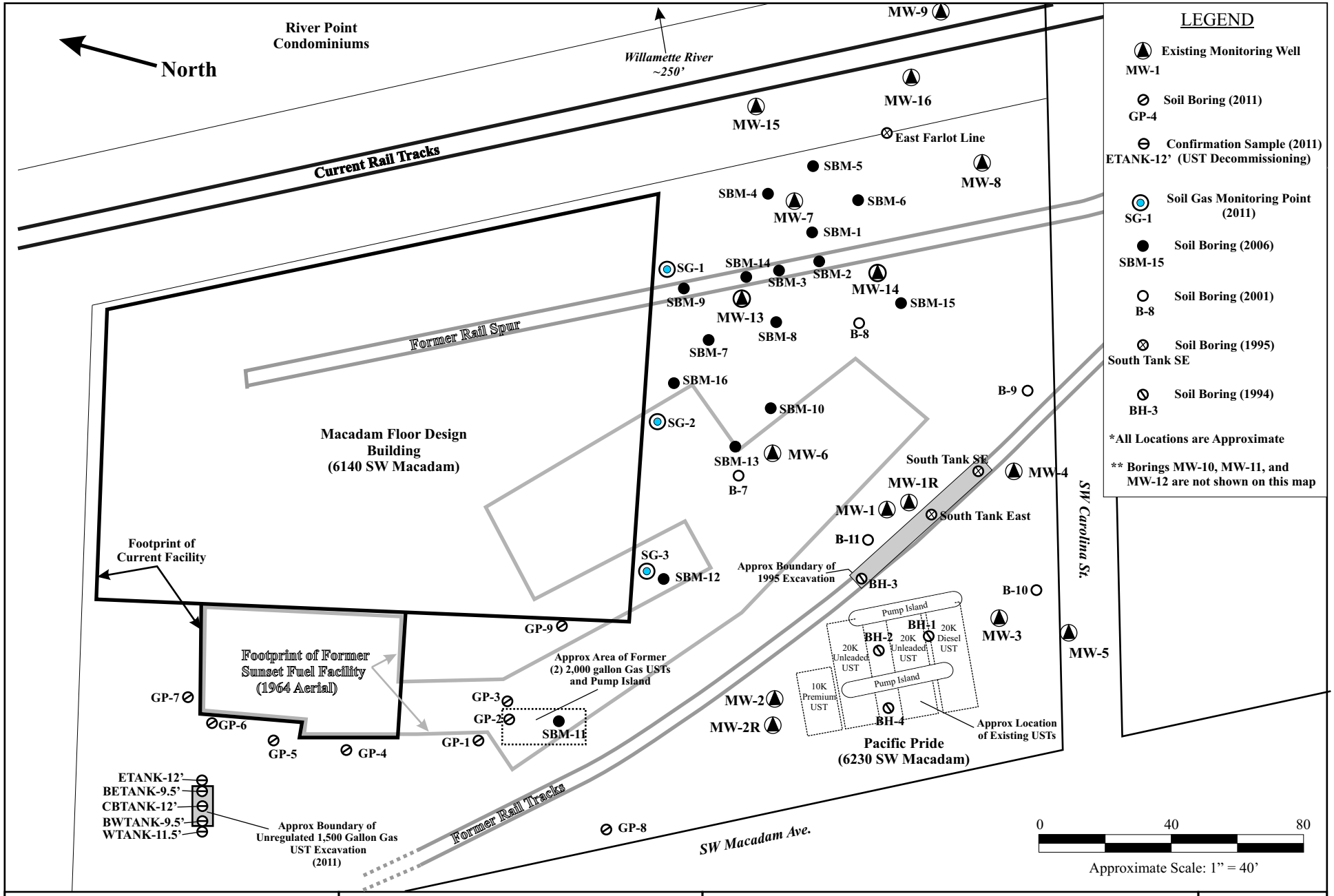


Feige & Associates, Inc.
27001 NW St. Helens Rd.
Scappoose, Oregon 97056
Phone: (503) 543-9700
Fax: (503) 543-8757

Former Sunset Fuel/Pacific Pride
6140 and 6230 SW Macadam Ave.
Portland, Oregon

Site Location

Figure
A-1



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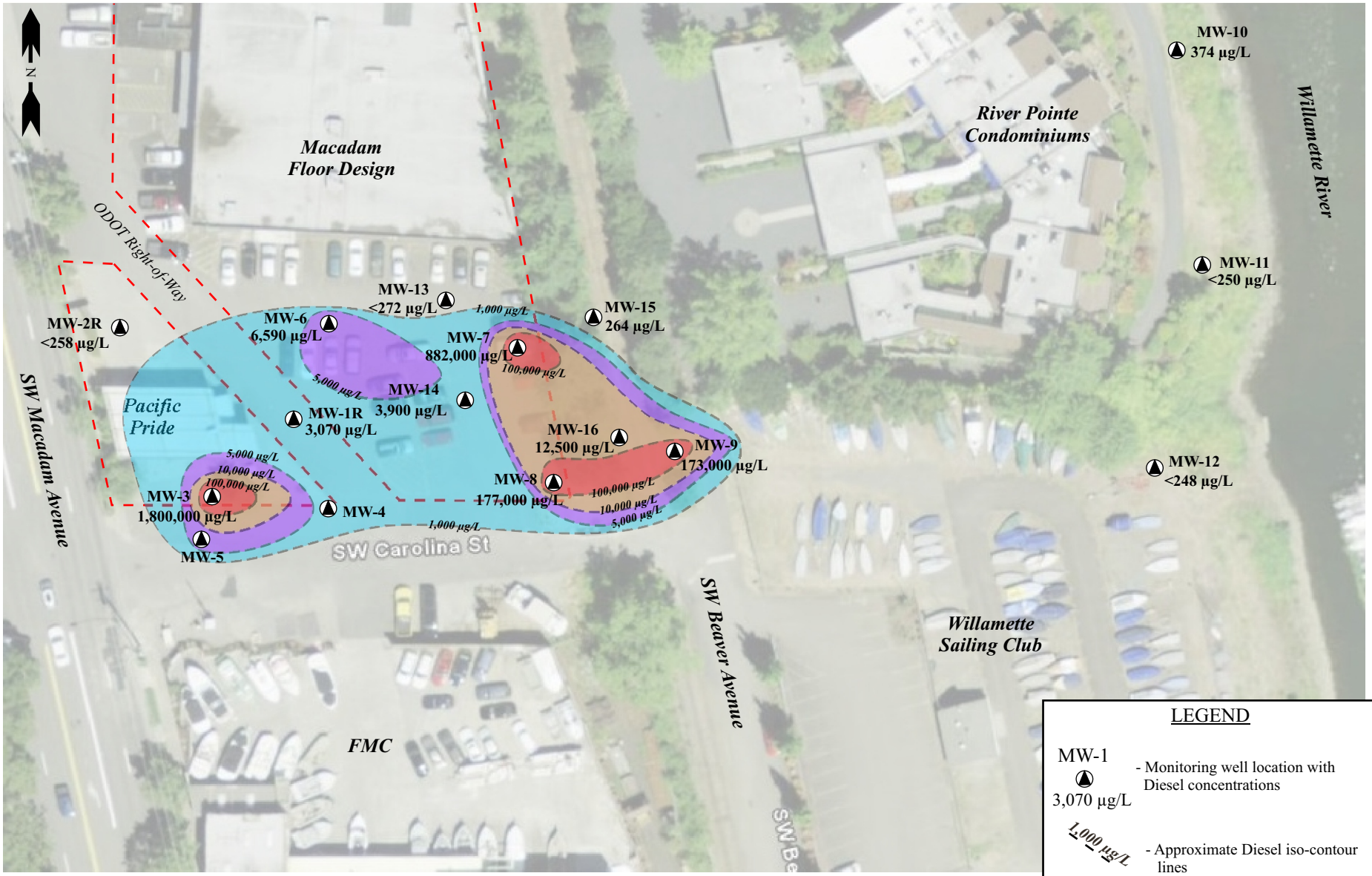
Historic Sampling Locations and Monitoring Wells

Figure
A-2



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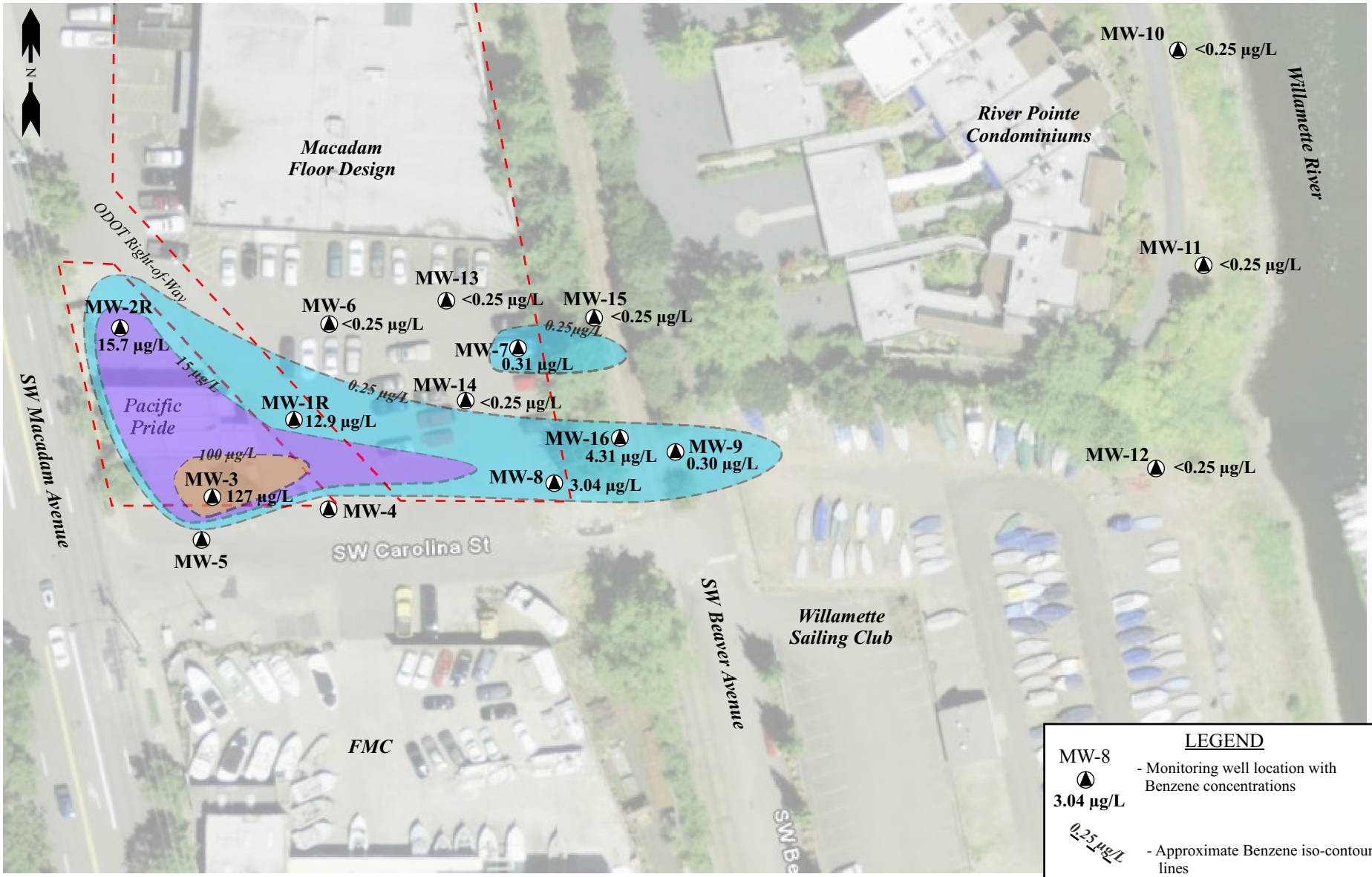
Diesel Range Hydrocarbon Iso-Contour Map for Groundwater

Figure
A-3



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Benzene Iso-Contour Map for Groundwater

Figure
A-4