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Chevron Environmental Management Company

PROGRESS REPORT NO. 120
FIRST SEMI-ANNUAL 2016

Former Unocal Seattle

Marketing Terminal 0724

3001 Elliott Avenue

Seattle, Washington

September 23, 2016

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FIRST SEMI-ANNUAL 2016

Former Unocal Seattle Marketing Terminal 0724

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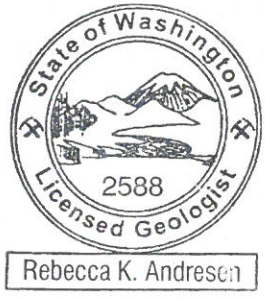

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1 INTRODUCTION

On behalf of Chevron Environmental Management Company (Chevron), Arcadis U.S., Inc. (Arcadis) has prepared this report to document the first semi-annual 2016 groundwater sampling results for the former Seattle Marketing Terminal (Unocal 0724) located at 3001 Elliott Avenue in Seattle, Washington. The site and surrounding area are shown in **Figure 1**. This report summarizes the results of the groundwater gauging and sampling events conducted on February 16, 2016 and June 13-15, 2016 by Arcadis.

2 BACKGROUND

2.1 Site Description

The site was operated by the Union Oil Company of California (Unocal) as a bulk fuel distribution facility from the early 1900s to approximately 1975. Leaded and unleaded gasoline, diesel, lube oil, motor oils and petroleum-based solvents (non-chlorinated) were stored at the site. In the 1980s, the above-ground site structures were demolished. The site is defined in Order on Consent DE88-N223 and is divided into four contiguous areas: Upper Yard, Elliott Avenue, Lower Yard and the Offsite Area. The Upper Yard consists of the approximate area between Elliott Avenue and Western Avenue to the east and west, and Bay Street and Broad Street to the north and south. The Elliott Avenue area includes the length of Elliott Avenue between Bay Street and Broad Street. The Lower Yard consists of the area between Elliott Avenue and the Burlington Northern Santa Fe (BNSF) railroad tracks to the east and west, and Bay Street and Broad Street to the north and south. The Offsite Area generally comprises the BNSF railroad tracks right-of-way and Alaskan Way between Bay Street and Broad Street. A site map is included as **Figure 2.**

2.2 Site History

Chevron, on behalf of Unocal, is conducting cleanup of the site as required by Order on Consent DE88-N223 and Amendments 1 through 5. The initial Order on Consent was signed by Unocal and the Washington State Department of Ecology (Ecology) in December 1988. In July 1995, Amendment No. 4 was signed and contains cleanup targets and remedial action levels (RALs) for groundwater in the Upper Yard, Elliott Avenue, Lower Yard, and Offsite Area. Cleanup activities conducted by Unocal at the site included: an excavation with onsite treatment and offsite disposal of approximately 50,000 tons of soil from the Upper Yard; light non-aqueous phase liquid (LNAPL) recovery; and groundwater remediation (pump and treat) and excavation and disposal of approximately 45,000 tons of soil from Elliott Avenue and the Offsite Area.

In addition, Unocal excavated approximately 60,000 tons of soil exceeding the total petroleum hydrocarbon (TPH) RAL and removed and treated petroleum-containing groundwater (GeoEngineers, 1998). Petroleum-containing soils were typically excavated to depths of 15 to 20 feet below ground surface. The Lower Yard excavation was backfilled with clean fill material and moderately impacted petroleum-containing soils from the Upper and Lower Yards. The upper 95 percent confidence level of the mean for TPH concentrations remaining in these impacted Lower Yard soils used for backfill was below

the RAL of 7,500 milligrams per kilogram (mg/kg) (GeoEngineers, 1998). Several feet of imported rock were placed at the base of the excavation. According to Unocal, the average TPH concentration in these backfill soils was approximately 1,000 mg/kg (SAM, 1999).

The Upper Yard and Lower Yard properties of the site were sold by Unocal to the Trust for Public Land for the Seattle Art Museum (SAM) in 1999. In 2004, SAM began construction for redevelopment of the property, including the Offsite Area (which is owned by the City of Seattle Parks and Recreation), as the Olympic Sculpture Park (OSP). SAM entered a Pre-Purchaser Agreement with Ecology prior to their purchase of the property. As part of the agreement, SAM submitted remediation design reports to Ecology for the OSP. As provided in a January 17, 2008, letter, Ecology indicated that the terms of the Pre-Purchaser Agreement were satisfied. A Stipulation and Order of Dismissal (No. 99-2-50226-4SEA) was issued on October 31, 2008.

In conjunction with the OSP construction in the Offsite Area, Unocal conducted a “hot spot” excavation from July to October of 2005. The goal of this remedial action was to remove a source area of petroleum hydrocarbons and LNAPL in soil. Approximately 4,435 tons of petroleum-impacted soils were removed during the “hot spot” excavation (GeoEngineers, January 2006). Following the soil removal, the excavation was backfilled and the surface was restored with asphalt pavement.

On October 4, 2009, Arcadis submitted the *Work Plan for LNAPL Mobility Assessment, Natural Attenuation Monitoring and Surfactant Application Pilot Testing* to Ecology (October 2009 Work Plan). The October 2009 Work Plan was prepared in response to a letter from Ecology to Chevron dated June 8, 2009, requesting that Chevron assess the monitoring well network, address options for active remediation in the Offsite Area, conduct several short-term multiphase extraction (MPE) events on monitoring well MW-204 and on wells where LNAPL is observed in the Elliott Avenue Area and the Offsite Area and to further evaluate unfiltered/filtered samples of carcinogenic polycyclic aromatic hydrocarbons (cPAHs). This work plan outlined proposed activities to evaluate the monitoring well network, evaluate remedial alternatives for the site, and discussed the potential risk of cPAH concentrations remaining in groundwater in the Offsite Area. Specific areas addressed included LNAPL located in the Elliott Avenue Area, LNAPL along the railroad tracks and dissolved-phase concentrations in the Offsite Area.

Ecology approved the October 2009 Work Plan, with specific comments, on November 16, 2009. Following meetings with stakeholders and Ecology, Arcadis submitted the *Revised Work Plan for LNAPL Mobility Assessment, Natural Attenuation Monitoring and Surfactant Application Pilot Testing* (January 2010 Revised Work Plan) to Ecology on January 19, 2010, in order to address comments on the October 2009 Work Plan.

On December 8, 2009, Ecology submitted a letter to Chevron approving the cancellation of fourth quarter 2009 groundwater compliance monitoring. In addition, Ecology recommended conducting semi-annual groundwater compliance monitoring for 2010 and quarterly monitoring for visual inspection, measurement and removal (if applicable) at monitoring wells MW-30 and MW-61A-R and recovery wells RW-1 through RW-3 and RW-21. Monitoring well MW-61A-R is a replacement for well MW-61A, which was originally an Upper Yard monitoring well. However, MW-61A-R is located in the Elliott Avenue right-of-way (ROW) and is currently referred to as an Elliott Avenue Area monitoring well.

On March 19, 2010, Ecology approved the January 2010 Revised Work Plan with additional specific comments. Following additional meetings, Arcadis submitted the *Addendum to the Revised Work Plan for*

LNAPL Mobility Assessment, Natural Attenuation Monitoring and Surfactant Application Pilot Testing (May 2010 Addendum to the Revised Work Plan) on May 3, 2010, in order to address the additional stakeholder and Ecology comments on the January 2010 Revised Work Plan. On May 18, 2010, Ecology approved the May 2010 Addendum to the Revised Work Plan via electronic mail. Field work to implement the May 2010 Addendum to the Revised Work Plan began in the summer of 2010.

Arcadis submitted the *2010 Summary Report and Risk Evaluation* on February 1, 2011 with the following recommendations and corresponding comments:

- Continue quarterly gauging and semi-annual groundwater monitoring of wells MW-30, MW-61A-R, RW-3 and RW-21. Ecology concurred; both gauging and groundwater monitoring are ongoing for monitoring wells MW-30 and MW-61A-R. Recovery wells RW-3 and RW-21 were decommissioned with Ecology approval in June 2014 (discussed below).

- Continue semi-annual groundwater monitoring of wells MW-200 through MW-207. Ecology concurred: semi-annual groundwater monitoring is ongoing.

- Remove dissolved lead from the list of site constituents of concern. Dissolved lead has not been detected at the site since November 2007 and monitoring wells in the Offsite Area have at least 12 consecutive monitoring events without a dissolved-lead concentration exceedance. The few concentrations that were detected remained more than two orders of magnitude below the site RAL. Ecology concurred: effective second semi-annual 2011 monitoring event, lead is no longer a constituent of concern.

- Abandon piezometers PZ-61A-R, PZ-203, and PZ-204 in place. Ecology recommended maintaining and gauging piezometers through quarterly gauging during next two semi-annual monitoring events, then to re-evaluate. Piezometers PZ-61A-R, PZ-203, and PZ-204 were decommissioned in June 2014 with the approval of Ecology (discussed below).

- Abandon Trench D extraction wells RW-1, RW-2, RW-5 through RW-13 and RW-15 in place. Ecology recommended maintaining and gauging Trench D extraction wells through quarterly gauging during the next two semi-annual monitoring events, then to re-evaluate. Quarterly gauging of extraction wells RW-1, RW-2, RW-5 through RW-13 and RW-15 for two additional semi-annual monitoring events was fulfilled. The Trench D extraction wells were decommissioned in June 2014, as discussed below.

- The LNAPL occasionally observed in wells RW-3, RW-21 or MW-30 is not mobile. Arcadis does not recommend further remedial operations on these wells unless quarterly gauging activities indicates a change in the volume or type of LNAPL present in the wells compared to historical observations. Ecology concurred and recommended continuing quarterly gauging through two semi-annual monitoring events and then to re-evaluate. Quarterly gauging of RW-3, RW-21 and MW-30 for two semi-annual monitoring events was fulfilled. Recovery wells RW-3 and RW-21 were decommissioned in June 2014 with the approval of Ecology (discussed below).

- Add monitoring well MW-205 to the quarterly gauging program. Ecology concurred: MW-205 was gauged quarterly through 2013.

- If LNAPL is observed and is recoverable, submit a sample for chemical testing and possible mobility parameter analysis. Ecology concurred. Recoverable thicknesses of LNAPL were observed in Trench D wells PZ-4.5, PZ-6, PZ-10.5, PZ-11.5, and PZ-13 in February 2014. Samples of the LNAPL were submitted for chemical analysis and in some cases, mobility parameter analysis. The results of these analyses were submitted in the Trench D Recovery System Decommissioning Summary and Recommendation for Replacement Well Installation" (Arcadis July, 2014).

In December 2012, Chevron submitted a revised Draft Amendment to the Order to Ecology. The proposed Amendment, which was prepared with the input of the City of Seattle and the SAM, recommended abandonment of the Trench D recovery wells and piezometers, installation of up to five replacement wells along the Trench D area, and additional groundwater monitoring. At the request of Ecology, Arcadis submitted the "Work Plan for Decommissioning Trench D Recovery System and Three Piezometers Installed in 2010" (Arcadis, May 2013). This work plan describes a scope of work to decommission remaining wells and equipment associated with Trench D, as well as the piezometers installed as part of the 2010 site assessment activities. This work plan was approved by Ecology in email correspondence dated July 29, 2013.

The decommissioning work was conducted in two phases. Phase I was conducted from February 21 to 25, 2014 and included the following activities:

- Prepared the site to allow access for equipment and vehicles.
- Removed the remediation system compound and equipment.
- Attempted to locate missing piezometers and recovery wells.
- Gauged recovery wells and piezometers.
- Received variance approval for well abandonment.

Separate LNAPL sampling events were completed between the two phases of decommissioning work on February 26 and May 5, 2014.

Phase II was conducted from June 9 to 13, 2014 and included the following activities:

- Gauged recovery wells and piezometers.
- Vacuum extraction of fluids from each recovery well and piezometer located along Trench D.
- Decommissioning of recovery wells, piezometers, 2-inch lateral remediation system piping, and a 6-foot long by 4-foot wide recovery vault where the piping entered the former remediation system.

- Decommissioning of piezometers installed in 2010 (PZ-61A-R, PZ-203, and PZ-204).
- Waste management.

A report of the Trench D decommissioning activities, LNAPL summary and work plan for the installation of the replacement monitoring wells was submitted under separate cover "Trench D Recovery System Decommissioning Summary and Recommendation for Replacement Well Installation" (Arcadis July, 2014).

At the request of Ecology, Arcadis submitted a work plan for the installation of up to six additional monitoring wells in the Offsite Area. The work plan was approved by Ecology in correspondence dated May 29, 2015. The work plan was implemented in January 2016. A report documenting installation activities was submitted to Ecology ion April 29, 2016.

3 GROUNDWATER COMPLIANCE MONITORING

3.1 Historical LNAPL Monitoring Program

During a comprehensive gauging event in September 2007, prior to well abandonment, LNAPL was observed in recovery well RW-21, located on the eastern side of the BNSF railroad tracks. Recovery well RW-21 was part of the Trench C remediation system and does not serve as a compliance well for the Lower Yard. Due to the presence of LNAPL, recovery well RW-21 was gauged on a bi-monthly basis between October 2007 and November 2009. Less than one-tenth of an inch of LNAPL was present in RW-21 in each of the gauging events prior to well redevelopment in December 2007. Due to the viscous nature of the LNAPL, the LNAPL thickness could not be accurately measured using an oil/water interface probe and a disposable bailer was used to confirm the presence of LNAPL. Observations of the interior casing of recovery well RW-21 indicated that a tar-like substance was present inside the well casing. Recovery well RW-21 was re-developed in January 2008 with a surge block and vacuum truck and in October 2008, the polyvinyl chloride (PVC) casing of recovery well RW-21 was cleaned with absorbent pads and re-developed using a vacuum truck.

Recovery wells RW-1 through RW-3 and RW-21 were added to a bi-monthly gauging program in 2007 as discussed with Ecology (November 2, 2007 phone conversation) to monitor for the presence of LNAPL from recovery well RW-21. Following Ecology's approval in November 2009, recovery wells RW-1 through RW-3 and RW-21 were reduced to quarterly gauging. Recovery wells RW-5 through RW-13 and RW-15 were also included in the gauging program during compliance monitoring events. However, recovery wells RW-12 and RW-15 could not be located between 2010 and Trench D abandonment activities in 2015, and are suspected to have been destroyed during maintenance activities along the BNSF ROW.

Field crews had been unable to locate five of the recovery wells, so a site visit was conducted on January 9th, 2013 with the intention of locating the missing wells. RW-6 was rediscovered, but RW-4, RW-12, RW-14 and RW-15 were not located during this visit. Accordingly, these recovery wells were not included in quarterly gauging events.

Recovery wells and associated piezometers in Trench D were decommissioned with the approval of Ecology in June 2014. During the Trench D decommissioning activities, a soil vacuum truck was used to

try to locate RW-4 and RW-12, but they could not be found. The locations of RW-14 and RW-15 were surrounded by utilities so the soil vacuum locating activities could not be conducted in that area. The recovery wells and piezometers that were located along Trench D were decommissioned in the first half of 2014.

Quarterly gauging was conducted on February 16 and June 13-15, 2016. During both events, monitoring wells MW-30, MW-61A-R, MW-70R, MW-200 through MW-207, MW-209, MW-210, and MW-211 were gauged to determine the presence of LNAPL. Globules of LNAPL were found in MW-30 during both gauging events. No LNAPL was observed in any of the remaining wells during both gauging events. Gauging activities were conducted at low tide to ensure that groundwater levels were within the monitoring well screen intervals. Monitoring well history is summarized in **Table 1** and gauging is summarized in **Table 2**.

3.2 First Semi-Annual 2016 Groundwater Monitoring

3.2.1 First Quarter 2016 Groundwater Monitoring

On February 16, 2016, Arcadis conducted a comprehensive groundwater gauging and sampling event at the site. During the comprehensive gauging event, monitoring wells MW-30, MW-61A-R, MW-70R, MW-200 through MW-207, MW-209, MW-210, and MW-211 were gauged with an oil/water interface probe to determine depth to water and LNAPL thickness. Gauging is summarized in **Table 2.**

Monitoring wells MW-70R, MW-209, MW-210, and MW-211 were purged and sampled with a peristaltic pump in general accordance with the procedures outlined in *Low-Flow Groundwater Purging and Sampling Procedures for Monitoring Wells* (Arcadis, 2009). This standard operating procedure (SOP) is included in **Appendix A.** Note that at the request of site stakeholders, tubing placement deviated from specifications in the SOP; tubing was placed within 6-inches of the groundwater surface in each monitoring well. Groundwater levels were conducted from each well prior to purging to assure the tubing was placed correctly. New, disposable Teflon-lined polyethylene tubing was used for sampling. Water quality parameters including temperature, pH, electrical conductivity, dissolved oxygen and oxidation/reduction potential were measured approximately every three minutes using an In-Situ® Troll 9500 low-flow groundwater sampling system and were recorded on the field data sheets included in **Appendix B**.

Samples were collected in clean, laboratory-supplied containers with appropriate preservatives and were stored in iced coolers. Samples were then delivered via UPS, under chain-of-custody procedures, to Eurofins Lancaster Laboratories in Lancaster, Pennsylvania. Groundwater samples from the February 2016 event were analyzed for the following:

- Total petroleum hydrocarbons as gasoline (TPH-G) by Northwest Method NWTPH-Gx extended range;
- Total petroleum hydrocarbons as diesel and heavy oil (TPH-D and TPH-O) by Northwest Method NWTPH-Dx extended range with silica gel cleanup;

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8021B; and

- Benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-c,d)pyrene collectively referred to as carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by USEPA Method 8270C SIM.

3.2.2 Second Quarter 2016 Groundwater Monitoring

From June 13-15, 2016, Arcadis conducted a comprehensive groundwater gauging and sampling event at the site. During the comprehensive gauging event, monitoring wells MW-30, MW-61A-R, MW-70R, MW-200 through MW-207, MW-209, MW-210, and MW-211 were gauged with an oil/water interface probe to determine depth to water and LNAPL thickness. LNAPL was observed on the interface probe after gauging MW-30 during the June event. Although LNAPL was not present at a measurable thickness, this well was not sampled during this event. Gauging is summarized in **Table 2.**

Monitoring wells MW-61A-R, MW-70R, MW-200 through MW-207, MW-209, MW-210, and MW-211 were purged and sampled with a peristaltic pump in general accordance with the procedures outlined in *Low-Flow Groundwater Purging and Sampling Procedures for Monitoring Wells* (Arcadis, 2009). The SOP is included in **Appendix A.** Tubing intake was placed within 6-inches of the groundwater surface in each monitoring well. Groundwater levels were conducted from each well prior to purging to assure the tubing was placed correctly. New, disposable Teflon-lined polyethylene tubing was used for sampling. Water quality parameters including temperature, pH, electrical conductivity, dissolved oxygen and oxidation/reduction potential were measured approximately every three minutes using an In-Situ® Troll 9500 low-flow groundwater sampling system and were recorded on the field data sheets included in **Appendix B**. Monitoring well MW-30 was not sampled due to the presence of LNAPL.

Samples were collected in clean, laboratory-supplied containers with appropriate preservatives and were stored in iced coolers. Samples were then delivered via UPS, under chain-of-custody procedures, to Eurofins Lancaster Laboratories in Lancaster, Pennsylvania. Groundwater samples from the June 2016 event were analyzed for the following:

- Total petroleum hydrocarbons as gasoline (TPH-G) by Northwest Method NWTPH-Gx extended range;

- Total petroleum hydrocarbons as diesel and heavy oil (TPH-D and TPH-O) by Northwest Method NWTPH-Dx extended range with silica gel cleanup;

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8021B; and

- Benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-c,d)pyrene collectively referred to as carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by USEPA Method 8270C SIM (MW-61A-R was not analyzed for cPAHs).

3.2.3 Groundwater Monitoring Results

Depths to groundwater measured during the first quarter 2016 groundwater monitoring event ranged from 7.52 feet below top of casing (btoc) in monitoring well MW-210 to 21.28 feet btoc in monitoring well MW-205. Groundwater elevations ranged from 5.95 feet above mean sea level in monitoring well MW-201 to 11.36 feet above mean sea level in monitoring well MW-61A-R. Depths to groundwater measured during the second quarter 2016 groundwater monitoring event ranged from 9.59 feet btoc in monitoring well MW-210 to 23.37 feet btoc in monitoring well MW-205. Groundwater elevations ranged from 2.69 feet above sea level in monitoring well MW-206 to 8.04 feet above sea level in monitoring well MW-61A-R. These measurements indicate groundwater is flowing in a southwesterly direction, towards Elliott Bay, and are consistent with historical data. Groundwater gauging was conducted during low tide. Current groundwater elevations are included in **Table 2** and historical groundwater elevations are presented in **Appendix C**. Groundwater elevations and contours from the first quarter sampling event are shown on **Figure 3a** and groundwater elevations and contours from the second quarter sampling event are shown on **Figure 3b.**

During the first quarter 2016 event, groundwater analytical results indicate that no exceedances of the applicable BTEX, TPH-G, TPH-D, TPH-O or cPAH RALs were detected in the samples collected from monitoring wells MW-61A-R, MW-70R, MW-200, MW-202, MW-203, MW-204, MW-205, MW-206, and MW-211. TPH-G was detected at 1.6 milligrams per liter (mg/L) in the sample collected from monitoring well MW-209 (vs. RAL of 1.0 mg/L). TPH-G was detected at 2.5 mg/L in the sample collected from monitoring well MW-210 (vs. RAL of 1.0 mg/L). The sample collected from monitoring well MW-210 also had the following cPAH exceedances,

- Benzo (a) anthracene was detected at 0.100 micrograms per liter (µg/L) (vs. RAL of 0.03 µg/L).
- Benzo (a) pyrene was detected at 0.042 µg/L (vs. RAL of 0.03 µg/L).
- Benzo (b) fluoranthene was detected at 0.050 µg/L (vs. RAL of 0.03 µg/L).
- Chrysene was detected at 0.170 µg/L (vs. RAL of 0.03 µg/L).

During the second quarter 2016 groundwater sampling event, analytical results indicate that no exceedances of the applicable BTEX, TPH-G, TPH-D, TPH-O or cPAH RALs were detected in the samples collected from monitoring wells MW-61A-R, MW-70R, MW-200, MW-202, MW-203, MW-204, MW-205, MW-206, and MW-211. Chrysene was detected at 0.032 (µg/L) in the sample collected from MW-201 (vs. RAL of 0.03 µg/L). TPH-G was detected at 2.100 mg/L in the sample collected from monitoring well MW-210 (vs. RAL of 1 mg/L). The sample collected from monitoring well MW-207 had the following cPAH exceedances,

- Benzo (a) anthracene was detected at 1.0 µg/L (vs. RAL of 0.03 µg/L).
- Benzo (a) pyrene was detected at 0.98 µg/L (vs. RAL of 0.03 µg/L).
- Benzo (b) fluoranthene was detected at 1.0 µg/L (vs. RAL of 0.03 µg/L).

- Benzo (k) fluoranthene was detected at 0.84 µg/L (vs. RAL of 0.03 µg/L).
- Chrysene was detected at 0.85 µg/L (vs. RAL of 0.03 µg/L).
- Dibenzo (a,h) anthracene was detected at 0.95 µg/L (vs. RAL of 0.03 µg/L).
- Indeno (1,2,3-cd)pyrene was detected at 0.93 µg/L (vs. RAL of 0.03 µg/L)

Monitoring well MW-210 had the following cPAH exceedances,

- Benzo (a) anthracene was detected at 0.11 µg/L (vs. RAL of 0.03 µg/L).
- Benzo (a) pyrene was detected at 0.056 µg/L (vs. RAL of 0.03 µg/L).
- Benzo (b) fluoranthene was detected at 0.073 µg/L (vs. RAL of 0.03 µg/L).
- Chrysene was detected at 0.21 µg/L (vs. RAL of 0.03 µg/L).

Historical trends graphs for MW-30, MW-70R, MW-200 through MW-207, and MW-209 through MW-211 are provided in **Appendix D**. Analytical results for TPH-G, TPH-D, TPH-O, and BTEX, are summarized in **Table 3** and **on Figure 4**; results for cPAHs are summarized in **Table 3** and **on Figure 5**. Historical analytical results are presented in **Appendix C**. The cPAH concentrations in the sample collected from MW-207 are anomalous; cPAH concentrations in this well have not been above the applicable RALs since 2008, and have never been detected in this well, or in any of the existing Offsite wells, at similar concentration levels. This well is installed proximate to the seawall, which is presumably constructed of creosote-coated timbers. cPAH monitoring will continue at this location to confirm that the June results are not representative of actual site conditions.

As of the second quarter 2016 event, five monitoring wells (MW-200, MW-202, MW-203, MW-205, and MW-206) have met a minimum of ten consecutive sampling events in compliance with the RALs established for the site. A summary of groundwater compliance as of the June 2016 event is included in **Table 4.**

3.2.4 Laboratory Data Verification Results

A trip blank sample was submitted with the groundwater samples for the first and second quarter 2016 sampling events for BTEX and GRO analysis. Analyte concentrations did not exceed their respective method detection limits (MDLs) in the trip blanks.

A duplicate sample was collected during the February 2016 sampling event and in the June 2016 sampling event in the field and submitted to the laboratory for quality assurance purposes. The duplicate samples were collected from monitoring wells MW-70R for the February event and MW-203 for the June 2016 event, both were labeled DUP-1. The samples were submitted for the same analyses as the parent samples. The duplicate analytical results were comparable to those of the primary sample.

All coolers were received in good condition within temperature requirements. The laboratory report case narrative reported no issues of note. The laboratory report and chain of custodies are provided in **Appendix D**. A data validation report for the June sampling data is presented in **Appendix E**.

4 REMEDIAL ACTIVITIES

4.1 Upper Yard and Elliott Avenue LNAPL Removal

Monitoring well MW-61A-R was re-developed on September 3, 2008 using a disposable bailer and a vacuum truck to remove sediment and LNAPL which may have accumulated in the well and/or sand pack. Approximately ten well volumes of groundwater and residual LNAPL were removed. The re-development water and recovered LNAPL were collected in the vacuum truck and transported to an approved facility for recycling. The amount of LNAPL recovered was not quantified. Mobile multi-phase extraction (MPE) was initiated in August 2009 in monitoring wells MW-30 and MW-61A-R. Observations made during MPE operations indicate that short term MPE does not influence the groundwater table and subsurface vapor flow. MPE was determined to be an ineffective method to address the remaining LNAPL and dissolved-phase impacts at the site due to the minimal remaining hydrocarbon impacts at the site and associated low MPE mass removal rate.

To assess persistent measureable LNAPL observed during groundwater monitoring, a surfactant-enhanced LNAPL recovery pilot test was performed on monitoring well MW-61A-R in July 2010. Approximately 200 gallons of surfactant were injected into MW-61-A-R. The surfactant solution was allowed to remain in the formation for approximately 24 hours and then approximately 900 gallons of fluids were extracted. Monitoring was completed weekly for the first month after extraction. After weekly monitoring was completed, monthly monitoring was initiated and quarterly monitoring is ongoing. A complete summary of the surfactant-enhanced LNAPL recovery pilot test was submitted in the *2010 Summary Report and Risk Evaluation* on February 1, 2011.

Monitoring wells MW-61A-R and MW-30 were gauged during the February 2016 and 2016 gauging and sampling events with an oil/water interface probe to determine if LNAPL was present. LNAPL was found on the probe in monitoring well MW-30 during the June 2016 gauging and sampling event. Although the LNAPL was not present at a measurable thickness, the monitoring well was not sampled during the June event.

4.2 Lower Yard LNAPL Recovery

LNAPL was observed in recovery well RW-21 during the September 2013 groundwater monitoring event (visually observed on oil/water interface probe, a measurable thickness was not present). This recovery well, as well as the downgradient Trench D recovery wells (RW-1 through RW-3), were included in the quarterly gauging program. Manual LNAPL recovery from RW-21 had been unsuccessful due to the highly-viscous nature of the LNAPL. LNAPL has not been observed in recovery wells RW-1 and RW-2 since the gauging program was implemented, and has not been observed in RW-3 since the first semi-annual groundwater monitoring event of 2013. Wells RW-1, RW-2 and RW-21 were decommissioned in 2014 during the Trench D decommissioning activities.

4.3 Offsite Area Remediation System

A groundwater extraction system was installed in the offsite area in 1989. The system included 24 extraction wells located along the BNSF right-of-way. In November and December 2006, the underground piping was severely damaged during the construction of the OSP, rendering the system inoperable.

From 1989 to November 2006, approximately 29,244,966 gallons of water and 4,809 gallons of LNAPL were recovered and treated by the groundwater extraction system. The extraction system last recovered LNAPL in fourth quarter 2004; no LNAPL was recovered during the last two years of operation. The associated Trench D recovery wells were gauged semi-annually until they were decommissioned in June 2014. The oil water separator was rehabilitated in May 2010 for use in disposal of purge water generated from routine groundwater sampling events and for well redevelopment and hydraulic conductivity testing approved by Ecology. The oil water separator was decommissioned during the June 2014 Trench D decommissioning activities and the King County Major Discharge Authorization Number 529-04 was discontinued.

Throughout the third and fourth quarter of 2011, monitoring well MW-205 was gauged on a bi-weekly (every other week) basis. During these events no LNAPL or sheen was observed. Gauging was reduced to quarterly as of the first semi-annual 2012 reporting period at this location and continued on a quarterly basis through 2013. No LNAPL was observed in MW-205 during February 2016 and June 2016 gauging and groundwater monitoring activities.

5 CONCLUSIONS

Gauging and groundwater monitoring was conducted on February 16, 2016 and June 13-16, 2016. During the first quarter sampling event, there were no exceedances of BTEX, TPH-D, TPH-O, or cPAH RALs in samples MW-70R, and MW-211. There were exceedances of the TPH-G RAL in the samples collected from monitoring wells MW-209 and MW-210 in the first quarter 2016 sampling event. There was one exceedance of the cPAH RAL in the sample collected from monitoring well MW-210. During the second quarter 2016 sampling event, there were no exceedances of BTEX, TPH-G, TPH-D, TPH-O, or cPAH RALs in samples collected from MW-61A-R, MW-70R, MW-200, MW-202, MW-203, MW-204, MW-205, MW-206, and MW-211. There was one exceedance of the TPH-G RAL in the sample collected from monitoring well MW-210. There were exceedances of the cPAH RALs in the samples collected from monitoring wells MW-201, MW-207, and MW-210. The cPAH concentrations in the sample collected from MW-207 are anomalous; cPAH concentrations in this well have not been above the applicable RALs since 2008, and have never been detected in this well, or in any of the existing Offsite wells, at similar concentration levels. cPAH monitoring will continue at this location to confirm that the June results are not representative of actual site conditions. Analytical results are summarized in **Table 3**, **Figure 4**, and **Figure 5**. Historical analytical results are presented in **Appendix C**. LNAPL was found in monitoring well MW-30 during June 2016 gauging and groundwater monitoring event.

As of the June 2016 event, six monitoring wells (MW-200, MW-202, MW-203, MW-205, and MW-206,) have met a minimum of ten consecutive sampling events in compliance with the RALs established for the site. Monitoring well MW-201 has met twelve consecutive sampling events in compliance with the petroleum hydrocarbon constituent RALs. MW-70R and MW-211 have met two consecutive sampling events in

compliance with the RALs established for the site. A summary of groundwater compliance as of the June 2016 event is included in **Table 4**.

6 REFERENCES

Arcadis. 2009. Low-Flow Groundwater Purging and Sampling Procedures for Monitoring Wells. March 9.

Arcadis. 2013. Work Plan for Decommissioning Trench D Recovery System and Three Piezometers Installed in 2010. May 31.

Arcadis. 2014. Trench D Recovery System Decommissioning Summary and Recommendation for Replacement Well Installation. July.

Arcadis. 2015. Work Plan for Additional Well Installation in Former Trench D Area and Offsite Area, Former Unocal Seattle Marketing Terminal. May.

GeoEngineers, 1998. Final Cleanup Report – Lower Yard, Unocal Former Seattle Marketing Terminal Property. September 23.

Seattle Art Museum (SAM). 1999. Draft Cleanup Action Plan, Former Unocal Seattle Marketing Property. October 6.Numbered Heading Level 2

TABLES

Table 1

Monitoring Well History
Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well ID	Installation Date	Compliance Parameters	Compliance/Removal Date
Upper Yard			
MW-37	06/1990	**LNAPL-TPH - BTEX (MW-61A-R)**	12/1995
MW-38	06/1990		1992
MW-39	06/1990		1992
MW-40	06/1990		1992
MW-58	09/1995		01/2004
MW-61	1995		1997
MW-61A	01/1998		01/2004
MW-61A-R	**03/2006**		**sampled**
MW-62	1995		1997
MW-62A	01/1998		01/2004
MW-63	1995		1997
MW-63A	01/1998		01/2004
MW-64	1995		01/2004
Elliott Avenue			
MW-30	**1989**	**LNAPL - TPH - BTEX (MW-30)**	**LNAPL**
MW-31	1989		12/2003
MW-32	1989		04/1991
MW-59	03/1998		*no data*
MW-65	03/1998		ABANDONED 12/07
MW-66	03/1998		ABANDONED 12/07
MW-69	*no data*		*no data*
Lower Yard			
MW-1	*no data*	**No wells in Lower Yard currently sampled for compliance parameters**	1998
MW-2	*no data*		1998
MW-18	*no data*		1998
MW-22	*no data*		1998
MW-23	*no data*		1998
MW-33	*no data*		1998
MW-34	*no data*		1998
MW-35	*no data*		1998
MW-49	*no data*		1998
MW-50	*no data*		1998
MW-51	*no data*		1998
MW-53	*no data*		1998
MW-54	*no data*		1998
MW-55	*no data*		1998
MW-56	*no data*		1998

Table 1

Monitoring Well History
Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well ID	Installation Date	Compliance Parameters	Compliance/Removal Date
Lower Yard (continued)			
MW-57	*no data*	**No wells in Lower Yard currently sampled for compliance parameters**	1998
MW-60	*no data*		1998
MW-81	09/1998		06/2002
MW-82	09/1998		06/2002
MW-83	09/1998		06/2002
MW-84	09/1998		06/2002
MW-85	09/1998		06/2002
MW-86	09/1998		06/2002
Offsite Area			
MW-8	01/1989	**LNAPL - TPH - BTEX - PAHs Dissolved Lead (MW-70R)**	10/2005
MW-9	*no data*		07/2005
MW-10	01/1989		10/2005
MW-20	01/1989		10/2005
MW-25	01/1989		10/2005
MW-26	01/1989		10/2005
MW-27	01/1989		damaged 2006
MW-27R	12/2006		ABANDONED 12/07
MW-34	10/1989		*no data*
MW-35	10/1989		*no data*
MW-36	10/1989		07/2005
MW-41	10/1990		12/2002
MW-42	10/1990		12/1991
MW-43	10/1990		12/1991
MW-44	*no data*		*no data*
MW-52	06/1998		10/2005
MW-67	03/1998		10/2005
MW-68	03/1998		07/2005
MW-69	03/1998		*no data*
MW-70	03/1998		10/2005
MW-70R	**1/2016**		**sampled**
MW-71	03/1998		10/2005
MW-72	03/1998		07/2005
MW-76	03/1998		10/2005

Table 1

Monitoring Well History
Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well ID	Installation Date	Compliance Parameters	Compliance/Removal Date
Offsite Area- Amendment No. 4 Point of Compliance monitoring wells			
MW-200	**10/2006**	**LNAPL - TPH - BTEX PAHs (MW-200 to MW-207, MW-209 to MW-211)**	**sampled**
MW-201	**10/2006**		**sampled**
MW-202	**10/2006**		**sampled**
MW-203	**10/2006**		**sampled**
MW-204	**10/2006**		**sampled**
MW-205	**10/2006**		**sampled**
MW-206	**10/2006**		**sampled**
MW-207	**10/2006**		**sampled**
MW-209	**1/2016**		**sampled**
MW-210	**1/2016**		**sampled**
MW-211	**1/2016**		**sampled**

Notes:

LNAPL = Light non-aqueous phase liquid
TPH = Total petroleum hydrocarbons
BTEX = Benzene, Toluene, Ethylbenzene and Xylenes (Total)
PAHs = Polycyclic Aromatic Hydrocarbons
Items in bold represent compliance wells sampled in the most recent sampling event.

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-30	02/16/16	9:20	10.89	--	--	9.96	--
	06/13/16	8:40	13.79	LNAPL[6]	--	7.06	--
MW-61A-R	02/16/16	9:15	11.08	--	--	11.36	
	06/13/16	8:30	14.40	--	--	8.04	--
MW-200	02/16/16	8:40	8.25	--	--	6.11	--
	06/13/16	9:10	9.75	--	--	4.61	--
MW-201	02/16/16	8:35	8.91	--	--	5.95	--
	06/13/16	9:15	10.39	--	--	4.47	--
MW-202	02/16/16	8:45	8.37	--	--	6.21	--
	06/13/16	9:05	10.65	--	--	3.93	--
MW-203	02/16/16	8:30	11.48	--	--	6.07	--
	06/13/16	9:20	13.62	--	--	3.93	--
MW-204	02/16/16	8:20	17.31	--	--	6.62	--
	06/13/16	9:25	19.42	--	--	4.51	--
MW-205	02/16/16	8:10	21.28	--	--	6.61	--
	06/13/16	9:30	23.37	--	--	4.52	--
MW-206	02/16/16	8:50	8.51	--	--	6.64	--
	06/13/16	9:00	12.46	--	--	2.69	--
MW-207	02/16/16	8:55	8.94	--	--	6.46	--
	06/13/16	8:55	12.48	--	--	2.92	--
MW-209	02/16/16	9:45	8.26	--	--	7.27	--
	06/13/16	9:50	10.31	--	--	5.22	--
MW-210	02/16/16	9:50	7.52	--	--	7.61	--
	06/13/16	9:45	9.59	--	--	5.54	--
MW-211	02/16/16	9:55	7.91	--	--	7.11	--
	06/13/16	9:40	9.79	--	--	5.23	--
MW-70R	02/16/16	9:05	9.14	--	--	6.47	--
	06/13/16	8:50	12.41	--	--	3.20	--

Notes:

[1]Well casing elevations listed in feet above mean sea level. Approximate monitoring well locations are shown in Figure 2.

"--" = not measured or not obtainable

[2]Below top of casing.

[3]Light non-aqueous phase liquid

[4]Elevation referenced to city of Seattle datum.

[5]Top of well screen elevation data from historic records.

[6] LNAPL indicated in field notes, measurement not taken

[11] TOC elevations for wells PZ-61A-R, PZ-203, and PZ-204 unknown.

NR = Not reported.

UK = TOC elevations unknown.

Bolded data are for the current reporting period.

Table 3
First and Second Quarter Groundwater Analytical Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

		Polynuclear Aromatic Hydrocarbons										NWTPH-Gx	NWTPH-D Extended		BTEX			
		1-Methyl-naphthlalene	2-Methyl-Naphthlalene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)Pyrene	Naphthalene	Gasoline (C7-C12 Petroleum Hydrocarbons)	Diesel (C12-C24 DRO w/Si Gel)	Heavy Oil (C24-C40 w/Si Gel)	Benzene	Ethylbenzene	Toluene	Xylene (total)
Location	Sample Date	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
MW-200	06/14/2016	**1.9**	**0.96**	**0.011**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**5.5**	**290**	**150**	<67	<0.5	**0.6**	<0.5	<1.5
MW-201	06/14/2016	**0.36**	**0.083**	**0.030**	<0.010	**0.014**	<0.010	**0.032**	<0.010	<0.010	**0.42**	**160**	**72**	<68	<0.5	<0.5	<0.5	<1.5
MW-202	06/14/2016	**0.27**	**0.21**	**0.014**	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	**0.50**	<50	<29	<68	<0.5	<0.5	<0.5	<1.5
MW-203	06/15/2016	**0.013**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**0.11**	<50	**47**	<67	<0.5	<0.5	<0.5	<1.5
DUP	06/15/2016	**0.012**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**0.082**	<50	**35**	<67	<0.5	<0.5	<0.5	<1.5
MW-204	06/13/2016	**0.15**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.031	**890**	**210**	<67	<0.5	**1.4**	**1.6**	**2.9**
MW-205	06/13/2016	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.031	<50	**53**	<68	<0.5	<0.5	<0.5	<1.5
MW-206	06/14/2016	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.031	<50	<28	<66	<0.5	<0.5	<0.5	<1.5
MW-207	06/14/2016	**1.1**	**0.89**	**1.0**	**0.98**	**1.0**	**0.84**	**0.85**	**0.95**	**0.93**	**1.5**	<50	<29	<68	<0.5	<0.5	<0.5	<1.5
MW-209	02/16/2016	**--**	**--**	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	**--**	**1,600**	**150**	<67	**1.4**	**1.3**	**1.2**	**4.2**
	06/13/2016	**0.21**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.030	**930**	**200**	<66	**1.5**	**1.6**	**1.3**	**3.7**
MW-210	02/16/2016	**--**	**--**	**0.10**	**0.042**	**0.050**	**0.016**	**0.17**	**0.012**	**0.021**	**--**	**2,500**	**8,600**	**1,600**	<0.5	**1.4**	**1.1**	**4.7**
	06/13/2016	<0.010	<0.010	**0.11**	**0.056**	**0.073**	**0.027**	**0.21**	**0.015**	**0.024**	<0.031	**2,100**	**3,200**	**510**	<0.5	<0.5	**1.6**	**5.1**
MW-211	02/16/2016	**--**	**--**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**--**	**210**	**69**	<67	<0.5	<0.5	<0.5	<1.5
	06/13/2016	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.031	<50	**84**	<68	<0.5	<0.5	<0.5	<1.5
MW-61A-R	06/15/2016	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**220**	**120**	<67	<0.5	<0.5	<0.5	<1.5
MW-70-R	02/16/2016	**--**	**--**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**--**	<50	<29	<67	<0.5	<0.5	<0.5	<1.5
DUP	02/16/2016	**--**	**--**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**--**	<50	<29	<67	<0.5	<0.5	<0.5	<1.5
	06/14/2016	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.030	<50	<28	<66	<0.5	<0.5	<0.5	<1.5

Notes:
Bold = Value exceeds laboratory reporting limits
-- = Not analyzed
<0.50 = Not detected at or above the stated limit
µg/L = Micrograms per liter
DUP = duplicate
Benzene, toluene, ethylbenzene and total xylenes (collectively BTEX)
TPH-g = Total petroleum hydrocarbons, gasoline range
TPH-d = Total petroleum hydrocarbons, diesel range

Table 4
Summary of Groundwater Compliance as of First Semi-Annual 2016

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well	Petroleum Constituents and Sheen (BTEX, Gasoline-range, Diesel-range)		cPAHs		Lead	
	Current Sampling Interval	Consecutive Sampling Events in Compliance[1]	Current Sampling Interval	Consecutive Sampling Events in Compliance[1]	Current Sampling Interval	Consecutive Sampling Events in Compliance[1]
Upper Yard						
MW-61A-R	semi-annually	1	none	N/A	none	N/A
Elliott Avenue						
MW-30	semi-annually	0	none	2 [11]	none	N/A
Offsite Area- Amendment No. 4 Point of Compliance monitoring wells						
MW-70R	quarterly	2	quarterly	2	none	N/A
MW-200	semi-annually	13 [7]	semi-annually[2]	24 [4,5,8]	none	13
MW-201	semi-annually	12 [7]	semi-annually[2]	0	none	13
MW-202	semi-annually	24	semi-annually[2]	20 [3, 4, 10]	none	13
MW-203	semi-annually	24	semi-annually[2]	24 [4,8]	none	13
MW-204	semi-annually	1	semi-annually[2]	24 [4,8,10]	none	13
MW-205	semi-annually	10	semi-annually2	10 [4,8]	none	13
MW-206	semi-annually	24	semi-annually2	24 [4,6,8]	none	13
MW-207	semi-annually	24	semi-annually2	0	none	13
MW-209	quarterly	1	quarterly	2	none	N/A
MW-210	quarterly	0	quarterly	0	none	N/A
MW-211	quarterly	2	quarterly	2	none	N/A

Notes:

[1] "Consecutive events" are number of consecutive sampling events prior to and including the current reporting period that are in compliance with the groundwater remediation action levels. Events prior to 3/97 are not counted. Refer to progress reports for results.

[2]Quarterly sampling beginning June 2007. Semi-annual sampling beginning 2010.

[3]Field-Filtered sample below RAL.

[4]Field-Filtered and Un-Filtered samples below RAL

[5]9/3/08 laboratory reporting limit above RAL

[6]Confirmation samples indicate erroneous 9/4/08 field-filtered data

[7]Sheen noted on groundwater during well redevelopment in August 2010

[8]First Semi-Annual 2011 laboratory reporting limit above RAL

[9]First Semi-Annual 2012 laboratory reporting limit above RAL

[10]Second Semi-Annual 2012 laboratory reporting limit above RAL

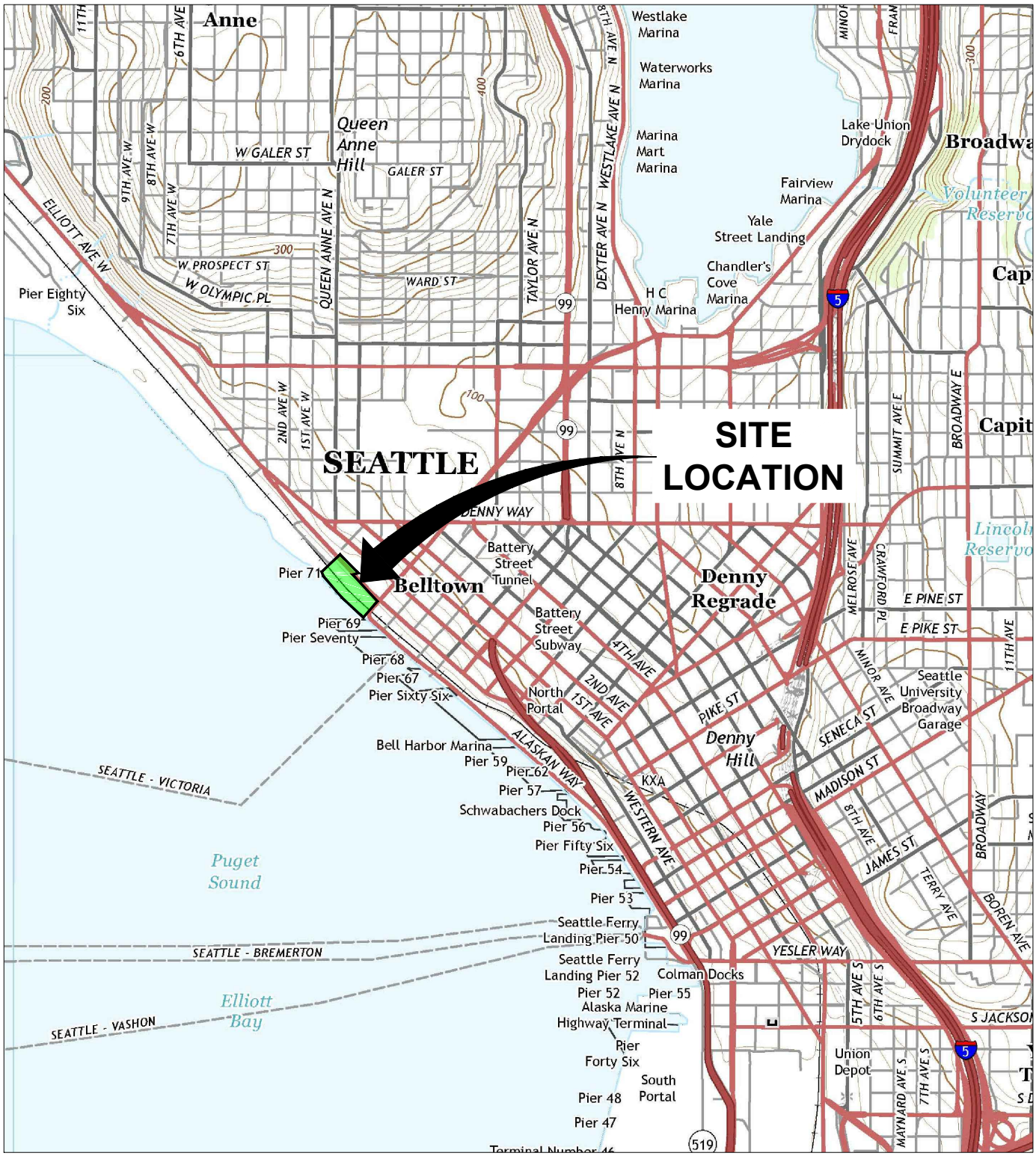
[11]MW-30 analyzed for cPAHs only during the First Semi-Annual 2013 sampling event

BTEX = benzene, toluene, ethylbenzene, xylenes

cPAHs = carcinogenic polycyclic aromatic hydrocarbons

N/A = not applicable

FIGURES



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. □UAD., SEATTLE SOUTH AND SEATTLE NORTH, WASHINGTON, 2014.

0 2000' 4000'

A□□r□□mate S□ale: 1 □n. = 2000 ft.

FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON

GROUNDWATER MONITORING REPORT
FIRST SEMI-ANNUAL 2016

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

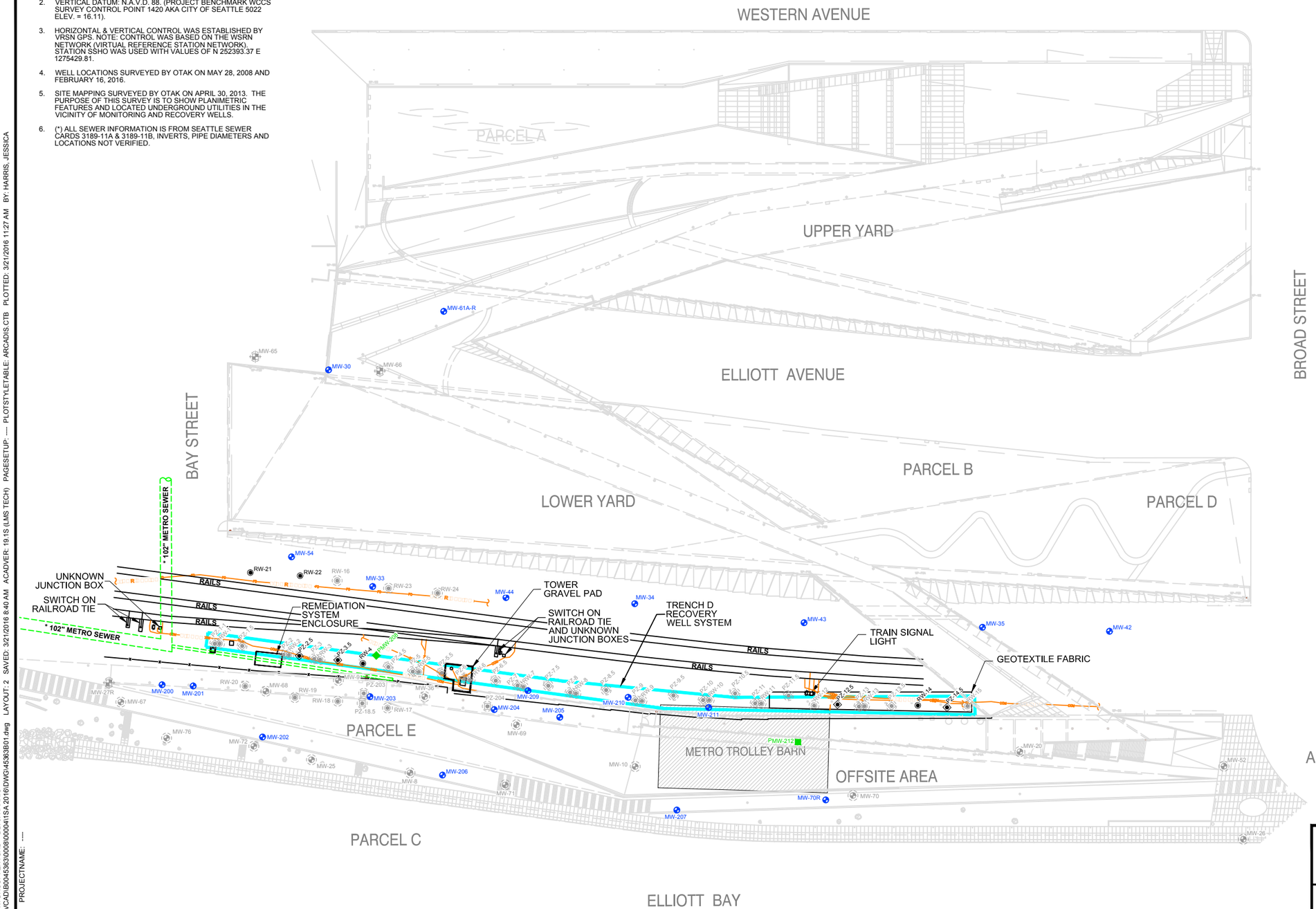
FIGURE
1

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\□arris\Des.1□□ENVCAD\B0045363\0008\0000411SA 2016\DWG\45363N01.dwg LAYOUT: 1 SAVED: 3/21/2016 11:23 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 3/21/2016 11:55 AM BY: HARRIS, JESSICA

XREFS: IMAGES: PROJECTNAME: ---
Seattle N□rt□ 2014.□g
Seattle S□□t□ 2014.□g

NOTES:

1. HORIZONTAL DATUM: WASHINGTON COORDINATE SYSTEM NORTH ZONE (NAD 83/98).
2. VERTICAL DATUM: N.A.V.D. 88. (PROJECT BENCHMARK WCCS SURVEY CONTROL POINT 1420 AKA CITY OF SEATTLE 5022 ELEV. = 16.11).
3. HORIZONTAL & VERTICAL CONTROL WAS ESTABLISHED BY VRSN GPS. NOTE: CONTROL WAS BASED ON THE WSRN NETWORK (VIRTUAL REFERENCE STATION NETWORK). STATION SSHO WAS USED WITH VALUES OF N 252393.37 E 1275429.81.
4. WELL LOCATIONS SURVEYED BY OTAK ON MAY 28, 2008 AND FEBRUARY 16, 2016.
5. SITE MAPPING SURVEYED BY OTAK ON APRIL 30, 2013. THE PURPOSE OF THIS SURVEY IS TO SHOW PLANIMETRIC FEATURES AND LOCATED UNDERGROUND UTILITIES IN THE VICINITY OF MONITORING AND RECOVERY WELLS.
6. (*) ALL SEWER INFORMATION IS FROM SEATTLE SEWER CARDS 3189-11A & 3189-11B, INVERTS, PIPE DIAMETERS AND LOCATIONS NOT VERIFIED.



LEGEND

- MONITORING WELL
- RECOVERY WELL
- PIEZOMETER
- PROPOSED WELL LOCATION
- WELL DECOMMISSIONED
- TRENCH D RECOVERY WELL SYSTEM
- RAILROAD SIGNAL LINE
- FIBER OPTIC LINE
- UTILITY CONTINUES BUT WAS NOT SURVEYED
- SEWER LINE

0 80' 160'

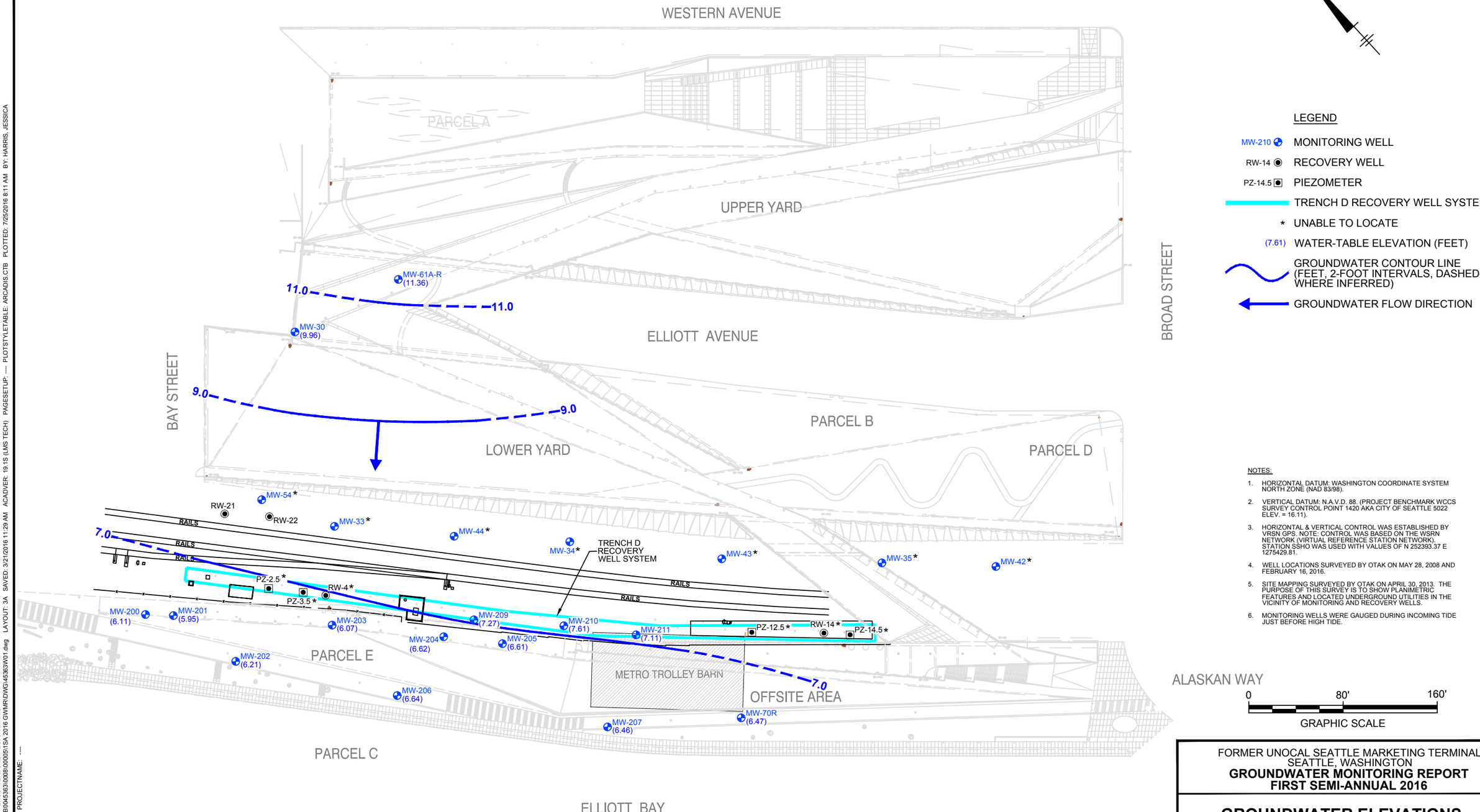
GRAPHIC SCALE

FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
GROUNDWATER MONITORING REPORT
FIRST SEMI-ANNUAL 2016

SITE MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2



LEGEND

- MW-210 — MONITORING WELL
- RW-14 — RECOVERY WELL
- PZ-14.5 — PIEZOMETER
- TRENCH D RECOVERY WELL SYSTEM
- * — UNABLE TO LOCATE
- (7.61) — WATER-TABLE ELEVATION (FEET)
- GROUNDWATER CONTOUR LINE (FEET, 2-FOOT INTERVALS, DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION

NOTES:

1. HORIZONTAL DATUM: WASHINGTON COORDINATE SYSTEM NORTH ZONE (NAD 83/98).
2. VERTICAL DATUM: N.A.V.D. 88. (PROJECT BENCHMARK WCCS SURVEY CONTROL POINT 1420 AKA CITY OF SEATTLE 5022 ELEV. = 16.11).
3. HORIZONTAL & VERTICAL CONTROL WAS ESTABLISHED BY VRSN GPS. NOTE: CONTROL WAS BASED ON THE WSRN NETWORK (VIRTUAL REFERENCE STATION NETWORK). STATION SSHO WAS USED WITH VALUES OF N 252393.37 E 1275429.81.
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5. SITE MAPPING SURVEYED BY OTAK ON APRIL 30, 2013. THE PURPOSE OF THIS SURVEY IS TO SHOW PLANIMETRIC FEATURES AND LOCATED UNDERGROUND UTILITIES IN THE VICINITY OF MONITORING AND RECOVERY WELLS.
6. MONITORING WELLS WERE GAUGED DURING INCOMING TIDE JUST BEFORE HIGH TIDE.

0 80' 160'

GRAPHIC SCALE

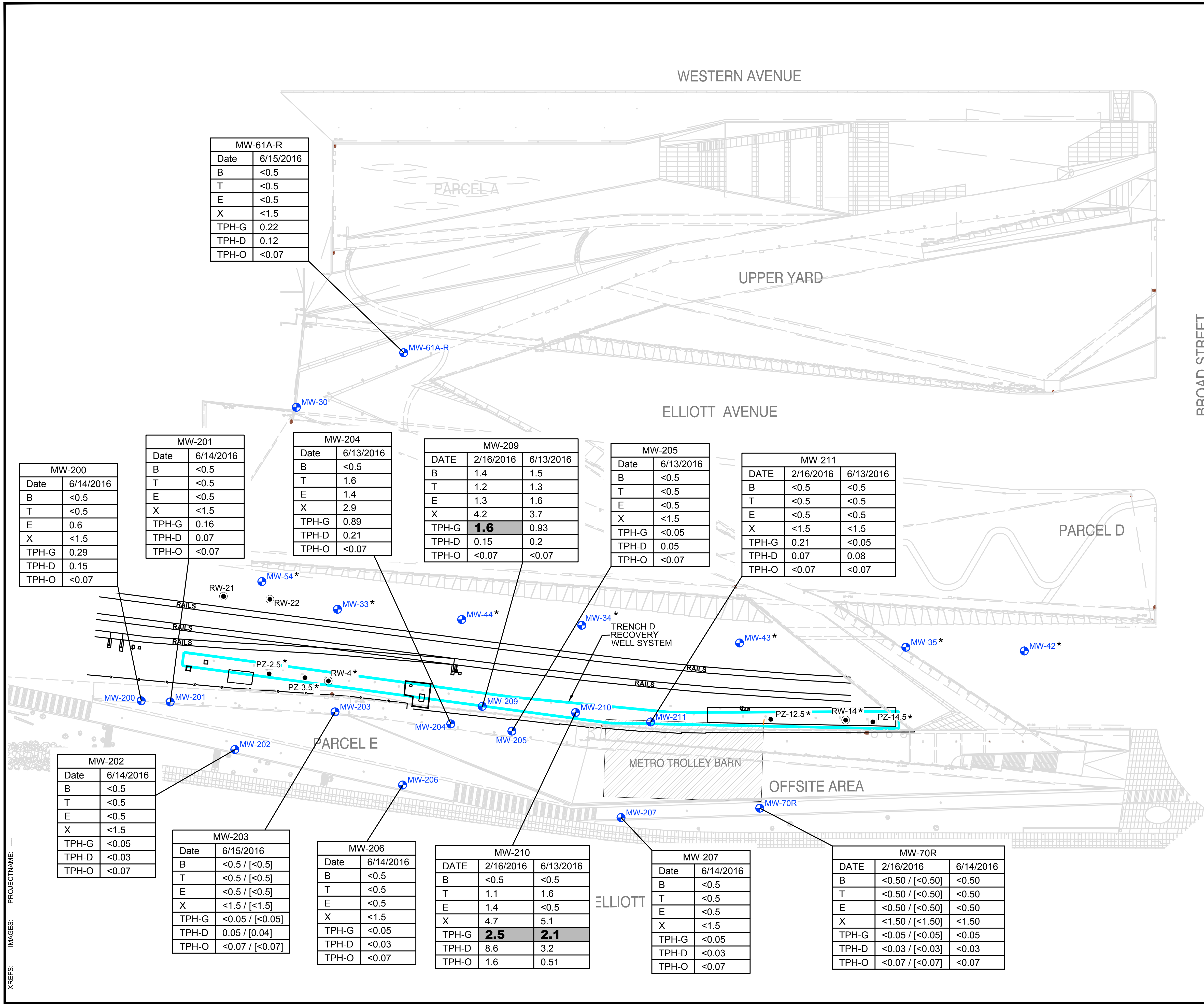
FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
GROUNDWATER MONITORING REPORT
FIRST SEMI-ANNUAL 2016

GROUNDWATER ELEVATIONS FEBRUARY 16, 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE **3a**

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
G:\ENVCAD\San Rafael\ACTIVE\004583\0008\0005\TSA 2016 GWMR\DWG\45383W01.dwg LAYOUT: 3A SAVED: 3/21/2016 11:29 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ----
XREFS: IMAGES: PROJECTNAME: ----
PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 7/25/2016 8:11 AM BY: HARRIS, JESSICA



MW-61A-R	
Date	6/15/2016
B	<0.5
T	<0.5
E	<0.5
X	<1.5
TPH-G	0.22
TPH-D	0.12
TPH-O	<0.07

MW-200	
Date	6/14/2016
B	<0.5
T	<0.5
E	0.6
X	<1.5
TPH-G	0.29
TPH-D	0.15
TPH-O	<0.07

MW-201	
Date	6/14/2016
B	<0.5
T	<0.5
E	<0.5
X	<1.5
TPH-G	0.16
TPH-D	0.07
TPH-O	<0.07

MW-204	
Date	6/13/2016
B	<0.5
T	1.6
E	1.4
X	2.9
TPH-G	0.89
TPH-D	0.21
TPH-O	<0.07

MW-209		
DATE	2/16/2016	6/13/2016
B	1.4	1.5
T	1.2	1.3
E	1.3	1.6
X	4.2	3.7
TPH-G	**1.6**	0.93
TPH-D	0.15	0.2
TPH-O	<0.07	<0.07

MW-205	
Date	6/13/2016
B	<0.5
T	<0.5
E	<0.5
X	<1.5
TPH-G	<0.05
TPH-D	0.05
TPH-O	<0.07

MW-211		
DATE	2/16/2016	6/13/2016
B	<0.5	<0.5
T	<0.5	<0.5
E	<0.5	<0.5
X	<1.5	<1.5
TPH-G	0.21	<0.05
TPH-D	0.07	0.08
TPH-O	<0.07	<0.07

MW-202	
Date	6/14/2016
B	<0.5
T	<0.5
E	<0.5
X	<1.5
TPH-G	<0.05
TPH-D	<0.03
TPH-O	<0.07

MW-203	
Date	6/15/2016
B	<0.5 / [<0.5]
T	<0.5 / [<0.5]
E	<0.5 / [<0.5]
X	<1.5 / [<1.5]
TPH-G	<0.05 / [<0.05]
TPH-D	0.05 / [0.04]
TPH-O	<0.07 / [<0.07]

MW-206	
Date	6/14/2016
B	<0.5
T	<0.5
E	<0.5
X	<1.5
TPH-G	<0.05
TPH-D	<0.03
TPH-O	<0.07

MW-210		
DATE	2/16/2016	6/13/2016
B	<0.5	<0.5
T	1.1	1.6
E	1.4	<0.5
X	4.7	5.1
TPH-G	**2.5**	**2.1**
TPH-D	8.6	3.2
TPH-O	1.6	0.51

MW-207	
Date	6/14/2016
B	<0.5
T	<0.5
E	<0.5
X	<1.5
TPH-G	<0.05
TPH-D	<0.03
TPH-O	<0.07

MW-70R		
DATE	2/16/2016	6/14/2016
B	<0.50 / [<0.50]	<0.50
T	<0.50 / [<0.50]	<0.50
E	<0.50 / [<0.50]	<0.50
X	<1.50 / [<1.50]	<1.50
TPH-G	<0.05 / [<0.05]	<0.05
TPH-D	<0.03 / [<0.03]	<0.03
TPH-O	<0.07 / [<0.07]	<0.07

LEGEND

- MW-210 MONITORING WELL
- RW-14 RECOVERY WELL
- PZ-14.5 PIEZOMETER
- TRENCH D RECOVERY WELL SYSTEM
- * UNABLE TO LOCATE

SAMPLE LOCATION	
DATE	SAMPLE DATE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
TPH-G	TPH GASOLINE
TPH-D	TPH DIESEL
TPH-O	TPH HEAVY OIL

BTEX RESULTS REPORTED IN MICROGRAMS PER LITER (µg/L). TPH-G, TPH-D, AND TPH-O RESULTS REPORTED IN MILLIGRAMS PER LITER (mg/L).

BOLDED RESULTS ARE GREATER THAN SITE REMEDIAL ACTION LEVELS (RALs)

TPH = TOTAL PETROLEUM HYDROCARBON

<1.50 / [<1.50] = DUPLICATE SAMPLE

< = NOT DETECTED AT OR ABOVE LABORATORY METHOD DETECTION LIMIT (MDL) FOR THE GIVEN ANALYSIS, VALUE SHOWN IS MDL

NOTES:

1. HORIZONTAL DATUM: WASHINGTON COORDINATE SYSTEM NORTH ZONE (NAD 83/98).
2. VERTICAL DATUM: N.A.V.D. 88. (PROJECT BENCHMARK WCCS SURVEY CONTROL POINT 1420 AKA CITY OF SEATTLE 5022 ELEV. = 16.11).
3. HORIZONTAL & VERTICAL CONTROL WAS ESTABLISHED BY VRSN GPS. NOTE: CONTROL WAS BASED ON THE WSRN NETWORK (VIRTUAL REFERENCE STATION NETWORK). STATION SSHO WAS USED WITH VALUES OF N 252393.37 E 1275429.81.
4. WELL LOCATIONS SURVEYED BY OTAK ON MAY 28, 2008 AND FEBRUARY 16, 2016.
5. SITE MAPPING SURVEYED BY OTAK ON APRIL 30, 2013. THE PURPOSE OF THIS SURVEY IS TO SHOW PLANIMETRIC FEATURES AND LOCATED UNDERGROUND UTILITIES IN THE VICINITY OF MONITORING AND RECOVERY WELLS.

0 80' 160'
GRAPHIC SCALE

FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
GROUNDWATER MONITORING REPORT
FIRST SEMI-ANNUAL 2016

GROUNDWATER ANALYTICAL SUMMARY MAP
FEBRUARY 16, 2016 AND JUNE 13-15, 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
LAYOUT: 4 SAVED: 8/16/2016 11:14 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 8/16/2016 12:18 PM BY: HARRIS, JESSICA
PROJECTNAME: ----
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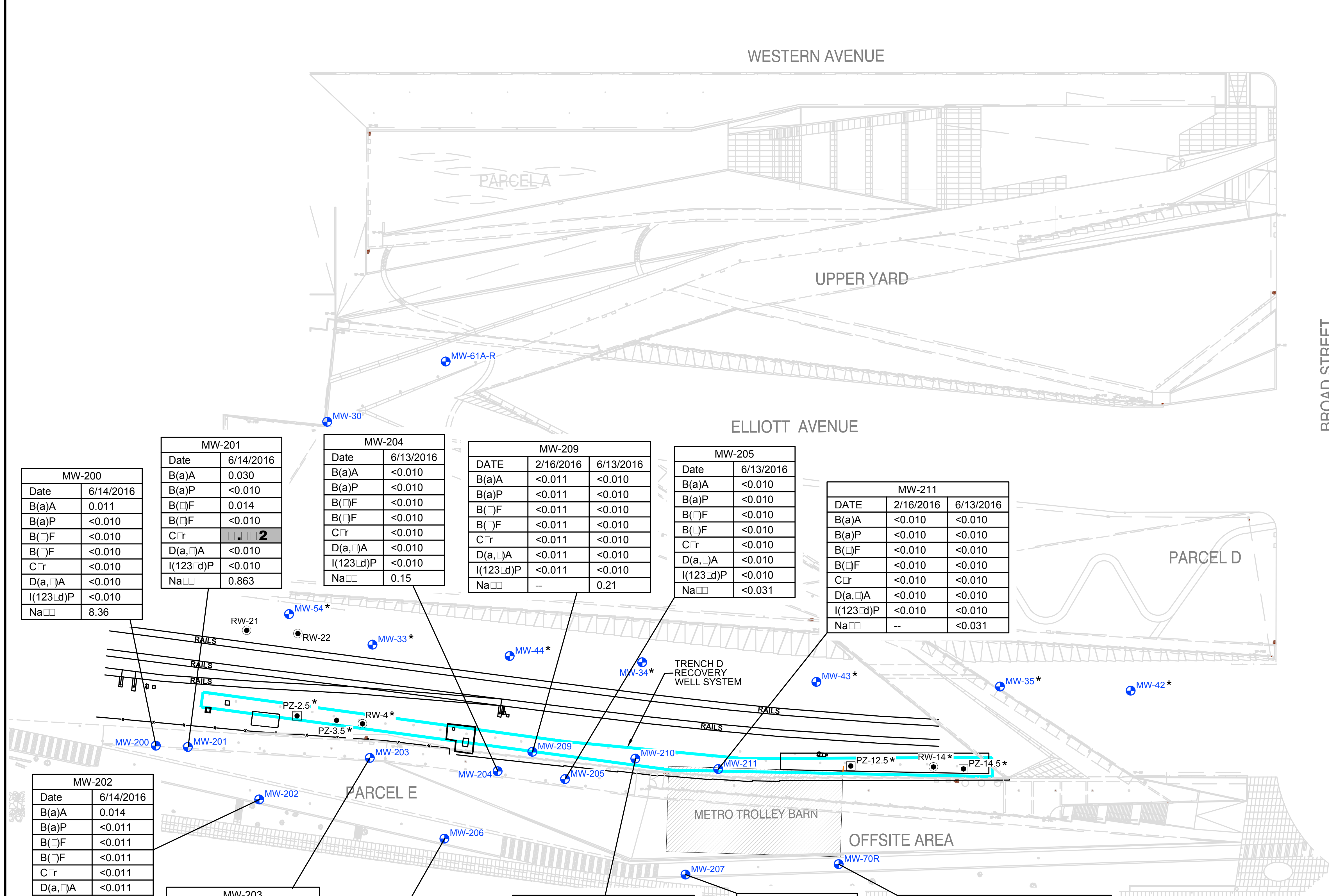
XREFS:



MW-200	
Date	6/14/2016
B(a)A	0.011
B(a)P	<0.010
B(□)F	<0.010
B(□)F	<0.010
C□r	<0.010
D(a,□)A	<0.010
I(123□d)P	<0.010
Na□□	8.36

MW-201	
Date	6/14/2016
B(a)A	0.030
B(a)P	<0.010
B(□)F	0.014
B(□)F	<0.010
C□r	**□.□□2**
D(a,□)A	<0.010
I(123□d)P	<0.010
Na□□	0.863

MW-204	
Date	6/13/2016
B(a)A	<0.010
B(a)P	<0.010
B(□)F	<0.010
B(□)F	<0.010
C□r	<0.010
D(a,□)A	<0.010
I(123□d)P	<0.010
Na□□	0.15

MW-209		
DATE	2/16/2016	6/13/2016
B(a)A	<0.011	<0.010
B(a)P	<0.011	<0.010
B(□)F	<0.011	<0.010
B(□)F	<0.011	<0.010
C□r	<0.011	<0.010
D(a,□)A	<0.011	<0.010
I(123□d)P	<0.011	<0.010
Na□□	--	0.21

MW-205	
Date	6/13/2016
B(a)A	<0.010
B(a)P	<0.010
B(□)F	<0.010
B(□)F	<0.010
C□r	<0.010
D(a,□)A	<0.010
I(123□d)P	<0.010
Na□□	<0.031

MW-211		
DATE	2/16/2016	6/13/2016
B(a)A	<0.010	<0.010
B(a)P	<0.010	<0.010
B(□)F	<0.010	<0.010
B(□)F	<0.010	<0.010
C□r	<0.010	<0.010
D(a,□)A	<0.010	<0.010
I(123□d)P	<0.010	<0.010
Na□□	--	<0.031

MW-202	
Date	6/14/2016
B(a)A	0.014
B(a)P	<0.011
B(□)F	<0.011
B(□)F	<0.011
C□r	<0.011
D(a,□)A	<0.011
I(123□d)P	<0.011
Na□□	0.98

MW-203	
Date	6/15/2016
B(a)A	<0.010 / [<0.010]
B(a)P	<0.010 / [<0.010]
B(□)F	<0.010 / [<0.010]
B(□)F	<0.010 / [<0.010]
C□r	<0.010 / [<0.010]
D(a,□)A	<0.010 / [<0.010]
I(123□d)P	<0.010 / [<0.010]
Na□□	0.128 / [0.099]

MW-206	
Date	6/14/2016
B(a)A	<0.010
B(a)P	<0.010
B(□)F	<0.010
B(□)F	<0.010
C□r	<0.010
D(a,□)A	<0.010
I(123□d)P	<0.010
Na□□	<0.031

MW-210		
DATE	2/16/2016	6/13/2016
B(a)A	**□.1□□**	**□.11**
B(a)P	**□.□□2**	**□.□56**
B(□)F	**□.□5□**	**□.□□□**
B(□)F	0.016	0.027
C□r	**□.1□□**	**□.21**
D(a,□)A	0.012	0.015
I(123□d)P	0.021	0.024
Na□□	--	<0.031

MW-207	
Date	6/14/2016
B(a)A	**1.□**
B(a)P	**□.□□**
B(□)F	**1.□**
B(□)F	**□.□□**
C□r	**□.□5**
D(a,□)A	**□.□5**
I(123□d)P	**□.□□**
Na□□	3.49

MW-70R		
DATE	2/16/2016	6/14/2016
B(a)A	<0.010 / [<0.010]	<0.010
B(a)P	<0.010 / [<0.010]	<0.010
B(□)F	<0.010 / [<0.010]	<0.010
B(□)F	<0.010 / [<0.010]	<0.010
C□r	<0.010 / [<0.010]	<0.010
D(a,□)A	<0.010 / [<0.010]	<0.010
I(123□d)P	<0.010 / [<0.010]	<0.010
Na□□	--	<0.030

LEGEND

- MW-210 MONITORING WELL
- RW-14 RECOVERY WELL
- PZ-14.5 PIEZOMETER
- TRENCH D RECOVERY WELL SYSTEM
- * UNABLE TO LOCATE

SAMPLE LOCATION	
DATE	SAMPLE DATE
B(a)A	Ben□□(a)ant□ra□ene
B(a)P	Ben□□(a)□□rene
B(□)F	Ben□□(□)fl□□rant□ene
B(□)F	Ben□□(□)fl□□rant□ene
C□r	C□r□sene
D(a,□)A	D□□en□□(a,□)ant□ra□ene
I(123□d)P	Inden□(1,2,3-□d)□□rene
Na□□	T□tal Na□□t□alene

RESULTS REPORTED IN MICROGRAMS PER LITER (μg/L)

BOLDED RESULTS ARE GREATER THAN SITE REMEDIAL ACTION LEVELS (RALs)

<0.010 / [<0.010] = DUPLICATE SAMPLE

□PAH = CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

-- = NOT SAMPLED FOR NAPHTHALENE THIS EVENT

< = NOT DETECTED AT OR ABOVE LABORATORY METHOD DETECTION LIMIT (MDL) FOR THE GIVEN ANALYSIS, VALUE SHOWN IS MDL

NOTES:

1. HORIZONTAL DATUM: WASHINGTON COORDINATE SYSTEM NORTH ZONE (NAD 83/98).
2. VERTICAL DATUM: N.A.V.D. 88. (PROJECT BENCHMARK WCCS SURVEY CONTROL POINT 1420 AKA CITY OF SEATTLE 5022 ELEV. = 16.11).
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4. WELL LOCATIONS SURVEYED BY OTAK ON MAY 28, 2008 AND FEBRUARY 16, 2016.
5. SITE MAPPING SURVEYED BY OTAK ON APRIL 30, 2013. THE PURPOSE OF THIS SURVEY IS TO SHOW PLANIMETRIC FEATURES AND LOCATED UNDERGROUND UTILITIES IN THE VICINITY OF MONITORING AND RECOVERY WELLS.
6. NUMERIC SUM OF DETECTED CONCENTRATIONS OF NAPHTHALENES. WHERE NO COMPOUNDS WERE DETECTED, THIS VALUE IS E□UAL TO THE HIGHEST REPORTING LIMIT FOR AN INDIVIDUAL COMPOUND.
7. TOTAL NAPHTHALENE, NUMERIC SUM OF DETECTED CONCENTRATIONS. WHERE THE FIGURE IS E□UAL TO THE HIGHEST INDIVIDUAL COMPOUND.

GRAPHIC SCALE: 0 – 80' – 160'

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GROUNDWATER MONITORING REPORT
FIRST SEMI-ANNUAL 2016

GROUNDWATER cPAH DATA FEBRUARY 16, 2016 AND JUNE 13-15, 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE 5

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS LAYOUT: 5 SAVED: 7/12/2016 3:01 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 7/25/2016 8:37 AM BY: HARRIS, JESSICA
G:\ENVCAD\San Rafael\ACT\B0045363\0009\00005\SA 2016 GWMR\DWG\45363C02.dwg PROJECTNAME: ---- IMAGES: XREFS:

APPENDIX A

Standard Operating Procedure

ARCADIS

Appendix A

Standard Operating Procedure

ARCADIS
Infrastructure, environment, facilities

Imagine the result

Low-Flow Groundwater Purging and Sampling Procedures for Monitoring Wells

Rev. #: 3

Rev Date: March 9, 2009

Approval Signatures

Prepared by:  Date: 3/9/2009

Reviewed by:  Date: 3/9/2009

(Technical Expert)

I. Scope and Application

Groundwater samples will be collected from monitoring wells to evaluate groundwater quality. The protocol presented in this standard operating procedure (SOP) describes the procedures to be used to purge monitoring wells and collect groundwater samples. This protocol has been developed in accordance with the United States Environmental Protection Agency (USEPA) Region I Low Stress (Low Flow) Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells (USEPA SOP No. GW0001; July 30, 1996). Both filtered and unfiltered groundwater samples may be collected using this low-flow sampling method. Filtered samples will be obtained using a 0.45-micron disposable filter. No wells will be sampled until well development has been performed in accordance with the procedures presented in the SOP titled Monitoring Well Development, unless that well has been sampled or developed within the prior 1-year time period. Groundwater samples will not be collected within 1 week following well development.

II. Personnel Qualifications

ARCADIS personnel directing, supervising, or leading groundwater sample collection activities should have a minimum of 2 years of previous groundwater sampling experience. ARCADIS personnel providing assistance to groundwater sample collection and associated activities should have a minimum of 6 months of related experience or an advanced degree in environmental sciences, engineering, hydrogeology, or geology.

The supervisor of the groundwater sampling team will have at least 1 year of previous supervised groundwater sampling experience.

Prior to mobilizing to the field, the groundwater sampling team should review and be thoroughly familiar with relevant site-specific documents including but not limited to the site work plan, field sampling plan, QAPP, HASP, and historical information. Additionally, the groundwater sampling team should review and be thoroughly familiar with documentation provided by equipment manufacturers for all equipment that will be used in the field prior to mobilization.

III. Equipment List

Specific to this activity, the following materials (or equivalent) will be available:

- Health and safety equipment (as required in the site Health and Safety Plan [HASP]).

- Site Plan, well construction records, prior groundwater sampling records (if available).
- Sampling pump, which may consist of one or more of the following:
  - submersible pump (e.g., Grundfos Redi-Flo 2);
  - peristaltic pump (e.g., ISCO Model 150); and/or
  - bladder pump (e.g., Marschalk System 1, QED Well Wizard, etc.).
- Appropriate controller and power source for pump:
  - Submersible and peristaltic pumps require electric power from either a generator or a deep cell battery.
  - Submersible pumps such as Grundfos require a pump controller to run the pump
  - Bladder pumps require a pump controller and a gas source (e.g., air compressor or compressed N_2 or CO_2 gas cylinders).
- Teflon® tubing or Teflon®-lined polyethylene tubing of an appropriate size for the pump being used. For peristaltic pumps, dedicated Tygon® tubing (or other type as specified by the manufacturer) will also be used through the pump apparatus.
- Water-level probe (e.g., Solinist Model 101).
- Water-quality (temperature/pH/specific conductivity/ORP/turbidity/dissolved oxygen) meter and flow-through measurement cell. Several brands may be used, including:
  - YSI 6-Series Multi-Parameter Instrument;
  - Hydrolab Series 3 or Series 4a Multiprobe and Display; and/or
  - Horiba U-10 or U-22 Water Quality Monitoring System.
- Supplemental turbidity meter (e.g., Horiba U-10, Hach 2100P, LaMotte 2020). Turbidity measurements collected with multi-parameter meters have been shown to sometimes be unreliable due to fouling of the optic lens of the

turbidity meter within the flow-through cell. A supplemental turbidity meter will be used to verify turbidity data during purging if such fouling is suspected. Note that industry improvements may eliminate the need for these supplemental measurements in the future.

- Appropriate water sample containers (supplied by the laboratory).
- Appropriate blanks (trip blank supplied by the laboratory).
- 0.45-micron disposable filters (if field filtering is required).
- Large glass mixing container (if sampling with a bailer).
- Teflon® stirring rod (if sampling with a bailer).
- Cleaning equipment.
- Groundwater sampling log (attached) or bound field logbook.

Note that in the future, the client may acquire different makes/models of some of this equipment if the listed makes/models are no longer available, or as a result of general upgrades or additional equipment acquisitions. In the event that the client uses a different make/model of the equipment listed, the client will use an equivalent type of equipment (e.g., pumps, flow-through analytical cells) and note the specific make/model of the equipment used during a sampling event on the groundwater sampling log. In addition, should the client desire to change to a markedly different sampling methodology (e.g., discrete interval samplers, passive diffusion bags, or a yet to be developed technique), the client will submit a proposed SOP for the new methodology for USEPA approval prior to implementing such a change.

The maintenance requirements for the above equipment generally involve decontamination or periodic cleaning, battery charging, and proper storage, as specified by the manufacturer. For operational difficulties, the equipment will be serviced by a qualified technician.

IV. Cautions

If heavy precipitation occurs and no cover over the sampling area and monitoring well can be erected, sampling must be discontinued until adequate cover is provided. Rain water could contaminate groundwater samples.

Do not use permanent marker or felt-tip pens for labels on sample container or sample coolers – use indelible ink. The permanent markers could introduce volatile constituents into the samples.

It may be necessary to field filter some parameters (e.g., metals) prior to collection, depending on preservation, analytical method, and project quality objectives.

Store and/or stage empty and full sample containers and coolers out of direct sunlight.

To mitigate potential cross-contamination, groundwater samples are to be collected in a pre-determined order from least impacted to impacted based on previous analytical data. If no analytical data are available, samples are collected in order of upgradient, then furthest downgradient to source area locations.

Be careful not to over-tighten lids with Teflon liners or septa (e.g., 40 mL vials). Over-tightening can cause the glass to shatter or impair the integrity of the Teflon seal.

V. Health and Safety Considerations

Use caution and appropriate cut resistant gloves when tightening lids to 40 mL vials. These vials can break while tightening and can lacerate hand. Amber vials (thinner glass) are more prone to breakage.

If thunder or lighting is present, discontinue sampling and take cover until 30 minutes have passed after the last occurrence of thunder or lighting.

Use caution when removing well caps as well may be under pressure, cap can dislodge forcefully and cause injury.

Use caution when opening protective casing on stickup wells as wasps frequently nest inside the tops of the covers. Also watch for fire ant mounds near well pads when sampling in the south or western U.S.

VI. Procedure

Groundwater will be purged from the wells using an appropriate pump. Peristaltic pumps will initially be used to purge and sample all wells when applicable. If the depth to water is below the sampling range of a peristaltic pump (approximately 25 feet), submersible pumps or bladder pumps will be used provided the well is constructed with a casing diameter greater than or equal to 2 inches (the minimum well diameter capable of accommodating such pumps). Bladder pumps are preferred over peristaltic and submersible pumps if sampling of VOCs is required to prevent volatilization. For

smaller diameter wells where the depth to water is below the sampling range of a peristaltic pump, alternative sampling methods (i.e., bailing or small diameter bladder pumps) will be used to purge and sample the groundwater. Purge water will be collected and containerized.

1. Calibrate field instruments according to manufacturer procedures for calibration.

2. Measure initial depth to groundwater prior to placement of pumps.

3. Prepare and install pump in well: For submersible and non-dedicated bladder pumps, decontaminate pump according to site decontamination procedures. Non-dedicated bladder pumps will require a new Teflon® bladder and attachment of an air line, sample discharge line, and safety cable prior to placement in the well. Attach the air line tubing to the air port on the top of the bladder pump. Attach the sample discharge tubing to the water port on the top of the bladder pump. Care should be taken not to reverse the air and discharge tubing lines during bladder pump set-up as this could result in bladder failure or rupture. Attach and secure a safety cable to the eyebolt on the top of bladder pump (if present, depending on pump model used). Slowly lower pump, safety cable, tubing, and electrical lines into the well to a depth corresponding to the approximate center of the saturated screen section of the well. Take care to avoid twisting and tangling of safety cable, tubing, and electrical lines while lowering pump into well; twisted and tangled lines could result in the pump becoming stuck in the well casing. Also, make sure to keep tubing and lines from touching the ground or other surfaces while introducing them into the well as this could lead to well contamination. If a peristaltic pump is being used, slowly lower the sampling tubing into the well to a depth corresponding to the approximate center of the saturated screen section of the well. The pump intake or sampling tube must be kept at least 2 feet above the bottom of the well to prevent mobilization of any sediment present in the bottom of the well.

4. Connect the pump to other equipment. If using a bladder pump, the discharge water line should be connected to the bottom inlet port on the flow-through cell connected to the water quality meter. Connect the air line to the pump controller output port. The pump controller should then be connected to a supply line from an air compressor or compressed gas cylinder using an appropriate regulator and air hose. Take care to tighten the regulator connector onto the gas cylinder (if used) to prevent leaks. Teflon tape may be used on the threads of the cylinder to provide a tighter seal. Once the air compressor or gas cylinder is connected to the pump controller, turn on the compressor or open the valve on the cylinder to begin the gas flow. Turn on the pump controller if an on/off switch

is present and verify that all batteries are charged and fully operating before beginning to pump.

5. Measure the water level again with the pump in the well before starting the pump. Start pumping the well at 200 to 500 milliliters (mL) per minute (or at lower site-specific rate if specified). The pump rate should be adjusted to cause little or no water level drawdown in the well (less than 0.3 feet below the initial static depth to water measurement) and the water level should stabilize. The water level should be monitored every 3 to 5 minutes (or as appropriate, lower flow rates may require longer time between readings) during pumping if the well diameter is of sufficient size to allow such monitoring. Care should be taken not to break pump suction or cause entrainment of air in the sample. Record pumping rate adjustments and depths to water. If necessary, pumping rates should be reduced to the minimum capabilities of the pump to avoid pumping the well dry and/or to stabilize indicator parameters. A steady flow rate should be maintained to the extent practicable. Groundwater sampling records from previous sampling events (if available) should be reviewed prior to mobilization to estimate the optimum pumping rate and anticipated drawdown for the well in order to more efficiently reach a stabilized pumping condition.

   If the recharge rate of the well is very low, alternative purging techniques should be used, which will vary based on the well construction and screen position. For wells screened across the water table, the well should be pumped dry and sampling should commence as soon as the volume in the well has recovered sufficiently to permit collection of samples. For wells screened entirely below the water table, the well should be pumped until a stabilized level (which may be below the maximum displacement goal of 0.3 feet) can be maintained and monitoring for stabilization of field indicator parameters can commence. If a lower stabilization level cannot be maintained, the well should be pumped until the drawdown is at a level slightly higher than the bentonite seal above the well screen. Sampling should commence after one well volume has been removed and the well has recovered sufficiently to permit collection of samples.

   During purging, monitor the field indicator parameters (e.g., turbidity, temperature, specific conductance, pH, etc.) every 3 to 5 minutes (or as appropriate). Field indicator parameters will be measured using a flow-through analytical cell or a clean container such as a glass beaker. Record field indicator parameters on the groundwater sampling log. The well is considered stabilized and ready for sample collection when turbidity values remain within 10% (or within 1 NTU if the turbidity reading is less than 10 NTU), the specific conductance and temperature values remain within 3%, and pH remains within 0.1 units for three consecutive readings collected at 3- to 5-minute intervals (or

other appropriate interval, alternate stabilization goals may exist in different geographic regions, consult the site-specific Work Plan for stabilization criteria). If the field indicator parameters do not stabilize within 1 hour of the start of purging, but the groundwater turbidity is below the goal of 50 NTU and the values for all other parameters are within 10%, the well can be sampled. If the parameters have stabilized but the turbidity is not in the range of the 50 NTU goal, the pump flow rate should be decreased to a minimum rate of 100 mL/min to reduce turbidity levels as low as possible. If dissolved oxygen values are not within acceptable range for the temperature of groundwater (Attachment 1), then check for and remove air bubbles on probe or in tubing. If the dissolved oxygen value is 0.00 or less, then the meter should be serviced and re-calibrated.

During extreme weather conditions, stabilization of field indicator parameters may be difficult to obtain. Modifications to the sampling procedures to alleviate these conditions (e.g., measuring the water temperature in the well adjacent to the pump intake) will be documented in the field notes. If other field conditions exist that preclude stabilization of certain parameters, an explanation of why the parameters did not stabilize will also be documented in the field logbook.

6. Complete the sample label and cover the label with clear packing tape to secure the label onto the container.

7. After the indicator parameters have stabilized, collect groundwater samples by diverting flow out of the unfiltered discharge tubing into the appropriate labeled sample container. If a flow-through analytical cell is being used to measure field parameters, the flow-through cell should be disconnected after stabilization of the field indicator parameters and prior to groundwater sample collection. Under no circumstances should analytical samples be collected from the discharge of the flow-through cell. When the container is full, tightly screw on the cap. Samples should be collected in the following order: VOCs, TOC, SVOCs, metals and cyanide, and others (or other order as defined in the site-specific Work Plan).

8. If sampling for total and filtered metals and/or PCBs, a filtered and unfiltered sample will be collected. Install an in-line, disposable 0.45-micron particle filter on the discharge tubing after the appropriate unfiltered groundwater sample has been collected. Continue to run the pump until an initial volume of “flush” water has been run through the filter in accordance with the manufacturer’s directions (generally 100 to 300 mL). Collect filtered groundwater sample by diverting flow out of the filter into the appropriately labeled sample container. When the container is full, tightly screw on the cap.

9. Secure with packing material and store at 4°C in an insulated transport container provided by the laboratory.

10. Record on the groundwater sampling log or bound field logbook the time sampling procedures were completed, any pertinent observations of the sample (e.g., physical appearance, and the presence or lack of odors or sheens), and the values of the stabilized field indicator parameters as measured during the final reading during purging (Attachment 2 – Example Sampling Log).

11. Turn off the pump and air compressor or close the gas cylinder valve if using a bladder pump set-up. Slowly remove the pump, tubing, lines, and safety cable from the well. Do not allow the tubing or lines to touch the ground or any other surfaces which could contaminate them. .

12. If tubing is to be dedicated to a well, it should be folded to a length that will allow the well to be capped and also facilitate retrieval of the tubing during later sampling events. A length of rope or string should be used to tie the tubing to the well cap. Alternatively, if tubing and safety line are to be saved and reused for sampling the well at a later date they may be coiled neatly and placed in a clean plastic bag that is clearly labeled with the well ID. Make sure the bag is tightly sealed before placing it in storage.

13. Secure the well and properly dispose of personal protective equipment (PPE) and disposable equipment.

14. Complete the procedures for packaging, shipping, and handling with associated chain-of-custody.

15. Complete decontamination procedures for flow-through analytical cell and submersible or bladder pump, as appropriate.

16. At the end of the day, perform calibration check of field instruments.

If it is not technically feasible to use the low-flow sampling method, purging and sampling of monitoring wells may be conducted using the bailer method as outlined below:

1. Don appropriate PPE (as required by the HASP).

2. Place plastic sheeting around the well.

3. Clean sampling equipment.

4. Open the well cover while standing upwind of the well. Remove well cap and place on the plastic sheeting. Insert PID probe approximately 4 to 6 inches into the casing or the well headspace and cover with gloved hand. Record the PID reading in the field log. If the well headspace reading is less than 5 PID units, proceed; if the headspace reading is greater than 5 PID units, screen the air within the breathing zone. If the breathing zone reading is less than 5 PID units, proceed. If the PID reading in the breathing zone is above 5 PID units, move upwind from well for 5 minutes to allow the volatiles to dissipate. Repeat the breathing zone test. If the reading is still above 5 PID units, don appropriate respiratory protection in accordance with the requirements of the HASP. Record all PID readings. For wells that are part of the regular weekly monitoring program and prior PID measurements have not resulted in a breathing zone reading above 5 PID units, PID measurements will be taken monthly.

5. Measure the depth to water and determine depth of well by examining drilling log data or by direct measurement. Calculate the volume of water in the well (in gallons) by using the length of the water column (in feet), multiplying by 0.163 for a 2-inch well or by 0.653 for a 4-inch well. For other well diameters, use the formula:

   Volume (in gallons) = • TIMES well radius (in feet) squared TIMES length of water column (in feet) TIMES 7.481 (gallons per cubic foot)

6. Measure a length of rope or twine at least 10 feet greater than the total depth of the well. Secure one end of the rope to the well casing and secure the other end to the bailer. Test the knots and make sure the rope will not loosen. Check bailers so that all parts are intact and will not be lost in the well.

7. Lower bailer into well and remove one well volume of water. Contain all water in appropriate containers.

8. Monitor the field indicator parameters (e.g., turbidity, temperature, specific conductance, and pH). Measure field indicator parameters using a clean container such as a glass beaker or sampling cups provided with the instrument. Record field indicator parameters on the groundwater sampling log.

9. Repeat Steps 7 and 8 until three or four well volumes have been removed. Examine the field indicator parameter data to determine if the parameters have stabilized. The well is considered stabilized and ready for sample collection when turbidity values remain within 10% (or within 1 NTU if the turbidity reading is less than 10 NTU), the specific conductance and temperature values remain

within 3%, and pH remains within ±0.1 units for three consecutive readings collected once per well volume removed.

10. If the field indicator parameters have not stabilized, remove a maximum of five well volumes prior to sample collection. Alternatively, five well volumes may be removed without measuring the field indicator parameters.

11. If the recharge rate of the well is very low, wells screened across the water table may be bailed dry and sampling should commence as soon as the volume in the well has recovered sufficiently to permit collection of samples. For wells screened entirely below the water table, the well should only be bailed down to a level slightly higher than the bentonite seal above the well screen. The well should not be bailed completely dry, to maintain the integrity of the seal. Sampling should commence as soon as the well volume has recovered sufficiently to permit sample collection.

12. Following purging, allow water level in well to recharge to a sufficient level to permit sample collection.

13. Complete the sample label and cover the label with clear packing tape to secure the label onto the container.

14. Slowly lower the bailer into the screened portion of the well and carefully retrieve a filled bailer from the well causing minimal disturbance to the water and any sediment in the well.

15. The sample collection order (as appropriate) will be as follows:

    a. VOCs;

    b TOC;

    c. SVOCs;

    d. metals and cyanide; and

    e. others.

16. When sampling for volatiles, collect water samples directly from the bailer into 40-mL vials with Teflon®-lined septa.

17. For other analytical samples, remove the cap from the large glass mixing container and slowly empty the bailer into the large glass mixing container. The sample for dissolved metals and/or filtered PCBs should either be placed directly from the bailer into a pressure filter apparatus or pumped directly from the bailer with a peristaltic pump, through an in-line filter, into the pre-preserved sample bottle.

18. Continue collecting samples until the mixing container contains a sufficient volume for all laboratory samples.

19. Mix the entire sample volume with the Teflon® stirring rod and transfer the appropriate volume into the laboratory jar(s). Secure the sample jar cap(s) tightly.

20. If sampling for total and filtered metals and/or PCBs, a filtered and unfiltered sample will be collected. Sample filtration for the filtered sample will be performed in the field using a peristaltic pump prior to preservation. Install new medical-grade silicone tubing in the pump head. Place new Teflon® tubing into the sample mixing container and attach to the intake side of pump tubing. Attach (clamp) a new 0.45-micron filter (note the filter flow direction). Turn the pump on and dispense the filtered liquid directly into the laboratory sample bottles.

21. Secure with packing material and store at 4°C in an insulated transport container provided by the laboratory.

22. After sample containers have been filled, remove one additional volume of groundwater. Measure the pH, temperature, turbidity, and conductivity. Record on the groundwater sampling log or bound field logbook the time sampling procedures were completed, any pertinent observations of the sample (e.g., physical appearance, and the presence or lack of odors or sheens), and the values of the field indicator parameters.

23. Remove bailer from well, secure well, and properly dispose of PPE and disposable equipment.

24. If a bailer is to be dedicated to a well, it should be secured inside the well above the water table, if possible. Dedicated bailers should be tied to the well cap so that inadvertent loss of the bailer will not occur when the well is opened.

25. Complete the procedures for packaging, shipping, and handling with associated chain-of-custody.

VII. Waste Management

Materials generated during groundwater sampling activities, including disposable equipment, will be placed in appropriate containers. Containerized waste will be disposed of by the client consistent with the procedures identified in the HASP.

VIII. Data Recording and Management

Initial field logs and chain-of-custody records will be transmitted to the ARCADIS PM at the end of each day unless otherwise directed by the PM. The groundwater team leader retains copies of the groundwater sampling logs.

IX. Quality Assurance

In addition to the quality control samples to be collected in accordance with this SOP, the following quality control procedures should be observed in the field:

- Collect samples from monitoring wells in order of increasing concentration, to the extent known based on review of historical site information if available.
- Equipment blanks should include the pump and tubing (if using disposable tubing) or the pump only (if using tubing dedicated to each well).
- Collect equipment blanks after wells with higher concentrations (if known) have been sampled.
- Operate all monitoring instrumentation in accordance with manufacturer's instructions and calibration procedures. Calibrate instruments at the beginning of each day and verify the calibration at the end of each day. Record all calibration activities in the field notebook.
- Clean all groundwater sampling equipment prior to use in the first well and after each subsequent well using procedures for equipment decontamination.

X. References

United States Environmental Protection Agency (USEPA). 1986. RCRA Groundwater Monitoring Technical Enforcement Guidance Document (September 1986).

USEPA Region II. 1998. *Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling*.

USEPA. 1991. Handbook Groundwater, Volume II Methodology, Office of Research and Development, Washington, DC. USEPN62S, /6-90/016b (July, 1991).

U.S. Geological Survey (USGS). 1977. National Handbook of Recommended Methods for Water-Data Acquisition: USGS Office of Water Data Coordination. Reston, Virginia.

Attachment 1

Groundwater Sampling Log

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project _____

Project Number _____ **Site Location** _____ **Well ID** _____

Date _____ **Sampled By** _____

Sampling Time _____ **Recorded By** _____

Weather _____ **Coded Replicate No.** _____

Instrument Identification

Water Quality Meter(s) _____ **Serial #** _____

Casing Material _____ **Purge Method** _____

Casing Diameter _____ **Screen Interval (ft bmp)** **Top** _____ **Bottom** _____

Sounded Depth (ft bmp) _____ **Pump Intake Depth (ft bmp)** _____ _____

Depth to Water (ft bmp) _____ **Purge Time** **Start** _____ **Finish** _____

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)

Collected Sample Condition **Color**_____ **Odor**_____ **Appearance**_____

Parameter	Container	No.	Preservative

PID Reading _____

Comments _____

_____

_____

_____

1) Circle one unit type

Attachment 2

Oxygen Solubility in Fresh Water

Temperature (degrees C)	**Dissolved Oxygen** (mg/L)
0	14.6
1	14.19
2	13.81
3	13.44
4	13.09
5	12.75
6	12.43
7	12.12
8	11.83
9	11.55
10	11.27
11	11.01
12	10.76
13	10.52
14	10.29
15	10.07
16	9.85
17	9.65
18	9.45
19	9.26
20	9.07
21	8.9
22	8.72
23	8.56
24	8.4
25	8.24
26	8.09
27	7.95
28	7.81
29	7.67
30	7.54
31	7.41
32	7.28
33	7.16
34	7.05
35	6.93

Reference: Vesilind, P.A., *Introduction to Environmental Engineering*, PWS Publishing Company, Boston, 468 pages (1996).

APPENDIX B

Field Data Sheets

2-16-2016 Seattle 1Q 2016 GWM Event R. Brauchla A. Pink

Weather: 53°F, light rain
High Tide: 10:48 AM
overcast & 60°F, in afternoon

0650 - ARCADIS on site, don PPE, prepare permit-to-work calibrate PID & TROLLs, get ready to gauge

0730 - S. Miles calls - OTAK & BNSF flagger are running behind PTW verified

0750 - BNSF & OTAK on site - safety meeting (rail safety)

0810 - Begin Gauging round

Well	Time	PID	DTW	Comments
MW-205	0810	1.0 ppm	21.28'	buried, water in well box
MW-204	0820	6.0 ppm	17.31'	buried, water in well box
MW-203	0830	0.3 ppm	11.48'	DTP = 11.47'; buried, water in wellbox
MW-201	0835	0.7 ppm	8.91'	none
MW-200	0840	13.2 ppm	8.25'	buried, water in well box
MW-202	0845	16.6 ppm	8.37'	water in well box, well shrimp
MW-206	0850	0.2 ppm	8.51'	water in well box
MW-207	0855	2.7 ppm	8.94'	water in well box, well shrimp
MW-70R	0905	1.5 ppm	9.14'	
MW-61AR	0915	52.4 ppm	11.08'	
MW-30	0920	0.5 ppm	10.89'	Dark brown globs on probe
MW-209	0945	264.1 ppm	8.26'	
MW-210	0950	718.0 ppm	7.52'	
MW-211	0955	8.2 ppm	7.91'	

Air Monitoring

0800 - 0.2 ppm
0830 - 0.2 ppm
0900 - 0.2 ppm
0930 - 0.3 ppm
1000 - 0.3 ppm
1030 - 0.2 ppm
1100 - 0.2 ppm
1130 - 0.2
1200 - 0.2
1230 - 0.2
1300 - 0.2
1330 - 0.2
1400 - 0.2
1430 0.2
1500 - 0.2
1530 - 0.2 ppm

1045 - S. Miles on site for site visit

1115 - Sample MW-211

1127 - Sample MW-209

1220 - Sample MW-210

1320 - Batteries dead - R. Brauchla out to get more batteries

1440 - Sample MW-70R & DUP-1 (GRWAB 2-16-16)

1540 - Check MW-203 for NAPL with bailer - no product - ARCADIS OUT

[signature] 2-16-16

Methodology For 1Q 2016 GWM Event

Samples were collected using low-flow methods with a Geotech portable peristaltic pump, poly tubing, and a TROLL 950 multimeter connected to a rugged reader. Wells were purged at a rate between 150 & 350 mL/min until parameters stabilized or 45 minutes had passed (as per S. Miles direction). When one of these conditions had been met, the TROLL multimeter was disconnected and the water was collected in bottles. All wells were sampled for GRO by NWTPH-Gx, DRO (with Chevron silica gel cleanup) by NWTPH-Dx, BTEX by 8021, and PAHs by SIM. One duplicate sample was collected from MW-70R, and trip blanks were provided to be analyzed for GRO and BTEX. Samples were packed in coolers with ice and shipped to Lancaster Laboratories by FedEx.

Drum Inventory: There are currently 10 55-gallon drums stored on-site. The drums are located on the west side of the railroad tracks, on the opposite side of the fence from the public park area. The drums contain soil cuttings and purge water from the January 18th well install at the site. Purge water from this sampling event was deposited in one of these purgewater drums.

Alex Pratt 2/16/16

6-13-2016 Seattle 2016 GWM Event

R. Draucla
E. Krueger

Weather: cloudy 55°F
wind from west ~5mph
High Tide: 1310, scattered showers

0700 Arcadis on site, don PPE, Fill out PTW, call S. Miles to approve permit at 0720

0725 Calibrate instruments - sam calls Flagger's #

0820 Start Gauging round - BNSF Flagger arrives @ 0930

Air Monitoring Log
0700-0.0
0800-0.0
0900-0.0
1000-0.0
1100-0.0
1200-0.0
1300-0.0
1400-0.0
1500-0.0

Well	Time	PID	DTW	Comments
MW-30	0840	0.3	13.79	sock in well - no bolts - globs of tar NAPL
MW-61A-R	0830	172.3	14.40	sock in well
MW-70-R	0850	0.0	12.41	water in well box
MW-200	0910	0.0	9.75	buried
MW-201	0915	0.1	10.39	
MW-202	0905	0.5	10.65	water in well box; shrimps in well
MW-203	0920	0.0	13.62	buried
MW-204	0925	0.8	19.42	buried
MW-205	0930	0.2	23.37	buried - water in well box
MW-206	0900	0.0	12.46	
MW-207	0855	0.1	12.48	water in well box; shrimp in well
MW-209	0950	21.4	10.31	
MW-210	0945	176.9	9.59	
MW-211	0940	0.3	9.74	

1000 - Begin sampling

1100 - Collect MW-209

1120 - Collect MW-210

1210 - Collect MW-211

1245 - Break for lunch

1345 - S. Miles arrives to pick up excess gear - mid-day moment

1415 Collect MW-205

1430 Collect MW-204 - leave site for the day at 1530

6-13-16

6-14-2016 Seattle 2016 GWM Event continued

R Bravehla
E. Krueger

Weather: 50°F, partly cloudy, 5-10 mph wind, scattered showers/sun in afternoon

Air Monitoring Log
0800 - 0.0
0800 - 0.0
0900 - 0.1
1000 - 0.1
1100 - 0.1
1200 - 0.1
1300 - 0.1

0645	- Arcadis arrive on site - perform H&S meeting - calibrate YSI & trolls
0715	- R. Andresen on site for safety audit
0830	- Sunny from Ecology on site for meeting with Rebecca
0840	- Collect MW-70R sample
0900	- Collect MW-207 sample
1010	- Collect MW-206 sample
1020	- Collect MW-202 sample
1150	Collect MW-200 sample
1200	- Collect MW-201 sample - note - tarry NAPL on probe tip (not noticed during gauging round yesterday)
1300	- Waste drum full - take lunch then leave site
1400	- Pack coolers
1500	- Drop coolers off at UPS - return to office - waiting for Sam - waiting to see if we can drop off waste
1515	- Call from S. Miles - no word from Emerald - continue tomorrow with a second drum - close out PTW

Ryan W Bravehla
6-14-2016

6-15-2016 Seattle 2Q16 GWM Event continued — R. Draucker, E. Krueger

Weather: 55°F, partly cloudy sunny & high of 62°F later in the morning

Air Monitoring Log
0800 - 0.1
0900 - 0.0
1000 - 0.0
1100 - 0.0

0730 - Arcadis on site - don PPE, calibrate equipment, perform H&S meeting - prepare to sample MW-61AR, MW-203

0930 - collect MW-61A-R sample (remove 61-A-R 30 socks)

1045 - Collect MW-203 & DUP-1

1145 - Arcadis off site

1215 - Drop off 2 20 gallon drums at Emerald

1430 - Drop off samples at UPS

1500 - PTW closed out

Methodology: Samples were collected via low-flow methods using dedicated polyethylene tubing, a Geopump peristaltic pump from Geotech, and a TROLL 700 Multimeter with Rugged Reader data logger. All wells were ~~sampled~~ gauged with 100' oil-water interface probes near low tide (to ensure water level was lower than top of screen. After the gauging round ~~wells were~~ tubing was installed such that the intake depth was six inches below water level. Wells were purged at 150-300 mL/minute until parameters stabilized (or 45 minutes if parameters did not stabilize). The TROLL flow-through cell was disconnected and water was pumped directly into laboratory-provided bottleware. All bottleware was stored on ice. At the end of each day, filled coolers of sampled were repacked with fresh ice and shipped to Lancaster Labs for delivery next day.

Samples were collected from all wells except MW-30 which contained a sticky black substance (noted during the gauging round on the end of the oil-water interface probe tip). This substance also made an appearance in MW-202 (during the sampling round - not the gauging round).

Samples from each ~~we~~ of the sampled wells were analyzed for GRO, DRO/HO (w/10-g SGC), BTEX, and cPAHs/naphthalenes. with the exception of MW-61AR which was not sampled for cPAHs/naphthalenes.

Drum Inventory: During sampling activities, ~25 gallons of purged groundwater were generated and stored in 2 20-gallon steel drums - on 6-15-2016, the drums were delivered to Emerald Services in Seattle for disposal.

6-15-2016

APPENDIX C

Historical Groundwater Analytical Results

Table 1

Monitoring Well History
Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well ID	Installation Date	Compliance Parameters	Compliance/Removal Date
Upper Yard			
MW-37	06/1990	**LNAPL-TPH - BTEX (MW-61A-R)**	12/1995
MW-38	06/1990		1992
MW-39	06/1990		1992
MW-40	06/1990		1992
MW-58	09/1995		01/2004
MW-61	1995		1997
MW-61A	01/1998		01/2004
MW-61A-R	**03/2006**		**sampled**
MW-62	1995		1997
MW-62A	01/1998		01/2004
MW-63	1995		1997
MW-63A	01/1998		01/2004
MW-64	1995		01/2004
Elliott Avenue			
MW-30	**1989**	**LNAPL - TPH - BTEX (MW-30)**	**LNAPL**
MW-31	1989		12/2003
MW-32	1989		04/1991
MW-59	03/1998		*no data*
MW-65	03/1998		ABANDONED 12/07
MW-66	03/1998		ABANDONED 12/07
MW-69	*no data*		*no data*
Lower Yard			
MW-1	*no data*	**No wells in Lower Yard currently sampled for compliance parameters**	1998
MW-2	*no data*		1998
MW-18	*no data*		1998
MW-22	*no data*		1998
MW-23	*no data*		1998
MW-33	*no data*		1998
MW-34	*no data*		1998
MW-35	*no data*		1998
MW-49	*no data*		1998
MW-50	*no data*		1998
MW-51	*no data*		1998
MW-53	*no data*		1998
MW-54	*no data*		1998
MW-55	*no data*		1998
MW-56	*no data*		1998

Table 1

Monitoring Well History
Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well ID	Installation Date	Compliance Parameters	Compliance/Removal Date
Lower Yard (continued)			
MW-57	*no data*	**No wells in Lower Yard currently sampled for compliance parameters**	1998
MW-60	*no data*		1998
MW-81	09/1998		06/2002
MW-82	09/1998		06/2002
MW-83	09/1998		06/2002
MW-84	09/1998		06/2002
MW-85	09/1998		06/2002
MW-86	09/1998		06/2002
Offsite Area			
MW-8	01/1989	**LNAPL - TPH - BTEX - PAHs Dissolved Lead (MW-70R)**	10/2005
MW-9	*no data*		07/2005
MW-10	01/1989		10/2005
MW-20	01/1989		10/2005
MW-25	01/1989		10/2005
MW-26	01/1989		10/2005
MW-27	01/1989		damaged 2006
MW-27R	12/2006		ABANDONED 12/07
MW-34	10/1989		*no data*
MW-35	10/1989		*no data*
MW-36	10/1989		07/2005
MW-41	10/1990		12/2002
MW-42	10/1990		12/1991
MW-43	10/1990		12/1991
MW-44	*no data*		*no data*
MW-52	06/1998		10/2005
MW-67	03/1998		10/2005
MW-68	03/1998		07/2005
MW-69	03/1998		*no data*
MW-70	03/1998		10/2005
MW-70R	**1/2016**		**sampled**
MW-71	03/1998		10/2005
MW-72	03/1998		07/2005
MW-76	03/1998		10/2005

Table 1

Monitoring Well History
Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well ID	Installation Date	Compliance Parameters	Compliance/Removal Date
Offsite Area- Amendment No. 4 Point of Compliance monitoring wells			
MW-200	**10/2006**	**LNAPL - TPH - BTEX PAHs (MW-200 to MW-207, MW-209 to MW-211)**	**sampled**
MW-201	**10/2006**		**sampled**
MW-202	**10/2006**		**sampled**
MW-203	**10/2006**		**sampled**
MW-204	**10/2006**		**sampled**
MW-205	**10/2006**		**sampled**
MW-206	**10/2006**		**sampled**
MW-207	**10/2006**		**sampled**
MW-209	**1/2016**		**sampled**
MW-210	**1/2016**		**sampled**
MW-211	**1/2016**		**sampled**

Notes:

LNAPL = Light non-aqueous phase liquid
TPH = Total petroleum hydrocarbons
BTEX = Benzene, Toluene, Ethylbenzene and Xylenes (Total)
PAHs = Polycyclic Aromatic Hydrocarbons
Items in bold represent compliance wells sampled in the most recent sampling event.

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-27	12/11/02	13:20	9.38	NR	NR	-9.38	--
(6.18)	03/20/03	10:31	11.09	NR	NR	-4.91	--
	07/03/03	9:02	12.10	NR	NR	-5.92	--
	09/18/03	11:27	10.58	NR	NR	-4.40	--
	12/02/03	10:56	9.50	NR	NR	-3.32	--
	03/09/04	10:37	11.83	NR	NR	-5.65	--
	06/03/04	10:09	12.32	NR	NR	-6.14	--
	09/03/04	10:35	10.63	NR	NR	-4.45	--
	12/06/04	10:30	9.41	NR	NR	-3.23	--
	03/04/05	10:33	9.05	NR	NR	-2.87	--
	06/03/05	--	13.05	NR	NR	-6.87	--
	09/01/05	8:00	10.29	NR	NR	-4.11	--
	12/01/05	9:45	9.28	NR	NR	-3.10	--
	03/02/06	9:00	9.29	NR	NR	-3.11	--
	06/06/06	Well Damaged During Construction Activities					
MW-27R[6]	03/07/07	9:35	8.25	--	--	-3.88	--
(4.37)	09/26/07	7:59	9.19	--	--	-4.82	--
	11/26/07	14:55	7.56	--	--	-3.19	--
	12/03/07	Well Abandoned					
MW-30	12/11/02	14:10	15.23	NR	NR	5.62	--
(11.29)	03/20/03	13:00	12.59	NR	NR	8.26	--
	07/03/03	11:18	14.30	NR	NR	6.55	--
	09/18/03	10:36	14.70	NR	NR	6.15	--
	12/02/03	11:23	12.20	NR	NR	8.65	--
	03/09/04	10:58	13.81	NR	NR	7.04	--
	06/03/04	11:44	14.60	NR	NR	6.25	--
	09/03/04	13:42	9.85	NR	NR	11.00	--
	12/06/04	9:37	15.27	NR	NR	5.58	--
	03/04/05	14:08	14.33	NR	NR	6.52	--
	06/03/05	--	14.47	NR	NR	6.38	--
	09/01/05	10:05	15.05	NR	NR	5.80	--
	12/01/05	11:23	11.98	NR	NR	8.87	--
	03/02/06	11:28	14.53	NR	NR	6.32	--
	06/06/06	8:20	14.16	NR	NR	6.69	--
	09/15/06	--	14.10	NR	NR	6.75	--
	03/07/07	8:55	13.74	Sheen	--	7.11	--
	06/07/07	8:43	13.87	--	--	6.98	--
	07/10/07	9:45	14.21	--	--	6.64	--
	07/25/07	11:35	13.94	--	--	6.91	--
	08/22/07	9:35	14.15	--	--	6.70	--
	09/06/07	9:50	14.25	--	--	6.60	--
	09/26/07	9:30	14.52	--	--	6.33	--
	10/11/07	7:55	14.22	--	--	6.63	--
	11/01/07	9:50	14.29	--	--	6.56	--
	11/16/07	15:25	13.85	--	--	7.00	--
	11/26/07	13:40	13.90	--	--	6.95	--
	12/19/07	9:30	12.59	--	--	8.26	--
	01/03/08	8:30	12.60	--	--	8.25	--
	01/17/08	8:48	12.53	--	--	8.32	--
	01/30/08	9:30	13.10	Sheen	--	7.75	--
	02/12/08	9:28	13.39	Sheen	--	7.46	--
	03/03/08	9:31	13.80	--	--	7.05	--
	03/17/08	9:29	13.99	--	--	6.86	--
	04/01/08	9:13	13.78	--	--	7.07	--
	04/14/08	9:14	13.97	--	--	6.88	--
	04/28/08	9:56	14.18	--	--	6.67	--
(20.85)[8]	05/13/08	9:24	14.46	--	--	6.39	--
	05/27/08	13:40	14.33	--	--	6.52	--
	06/10/08	10:25	14.08	--	--	6.77	--
	06/24/08	9:46	14.35	--	--	6.50	--
	07/07/08	9:50	14.13	--	--	6.72	--
	07/22/08	9:29	14.19	Sheen	--	6.66	--
	08/12/08	9:58	14.05	--	--	6.80	--
	09/03/08	--	14.03	--	--	6.82	--
	09/26/08	--	14.16	--	--	6.69	--
	10/17/08	9:15	14.35	--	--	6.50	--
	10/29/08	8:43	14.49	--	--	6.36	--
	11/12/08	10:46	13.03	--	--	7.82	--
	12/03/08	12:46	13.75	--	--	7.10	--
	01/06/09	9:36	12.68	--	--	8.17	--
	01/20/09	12:46	12.98	--	--	7.87	--
	02/03/09	9:39	13.79	--	--	7.06	--
	02/17/09	11:15	13.75	--	--	7.10	--
	03/12/09	12:09	13.79	--	--	7.06	--
	03/25/09	8:46	13.70	--	--	7.15	--
	04/08/09	10:16	13.30	--	--	7.55	--
	04/30/09	10:09	12.98	--	--	7.87	--
	05/12/09	10:10	12.72	12.70	0.02	8.13	--
	05/26/09	14:27	13.20	--	--	7.65	--
	06/09/09	9:41	13.91	--	--	6.94	--
	06/25/09	9:43	13.49	--	--	7.36	--
	07/07/09	9:35	13.75	Sheen	--	7.10	--
	07/13/09	8:09	14.23	--	--	6.62	--
	08/05/09	6:45	13.96	Sheen	--	6.89	--
	08/06/09	9:26	13.99	--	--	6.86	--
	08/20/09	8:41	14.18	--	--	6.67	--
	09/10/09	10:11	14.15	--	--	6.70	--
	09/23/09	9:33	14.07	Sheen	--	6.78	--
	10/08/09	9:49	14.21	--	--	6.64	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-30 (continued)	10/19/09	9:20	14.13	--	--	6.72	--
	11/12/09	9:33	12.43	--	--	8.42	--
	03/24/10	9:48	12.98	Sheen	--	7.87	--
	04/13/10	10:31	12.98	Sheen	--	7.87	--
	05/26/10	9:15	13.36	Sheen	--	7.49	--
	07/28/10	14:40	14.11	--	--	6.74	--
	08/05/10	11:49	14.10	--	--	6.75	--
	08/13/10	10:10	13.90	--	--	6.95	--
	08/18/10	8:36	13.92	--	--	6.93	--
	09/21/10	10:29	13.30	--	--	7.55	--
	10/11/10	11:01	13.40	--	--	7.45	--
	11/19/10	14:54	12.41	--	--	8.44	--
	03/04/11	9:44	12.54	Sheen	--	8.31	--
	04/25/11	10:50	12.80	Sheen	--	8.05	--
	09/21/11	9:32	13.55	--	--	7.30	--
	11/21/11	11:00	13.74	--	--	7.11	--
	02/20/12	8:59	13.16	--	--	7.69	--
	04/17/12	11:55	12.90	Sheen	--	7.95	--
	10/10/12	12:10	14.41	--	--	6.44	--
	12/24/12	11:40	13.00	--	--	7.85	--
	01/08/13	14:20	11.88	--	--	8.97	--
	04/30/13	10:55	13.34	--	--	7.51	--
	09/19/13	9:54	13.74	--	--	7.11	--
	11/22/13	9:15	14.61	--	--	6.24	--
	06/23/14	10:27	14.04	--	--	6.81	--
	09/10/14	9:10	14.82	--	--	6.03	--
	12/15/14	13:27	11.38	--	--	9.47	--
	06/17/15	11:25	13.90	--	--	6.95	--
	12/09/15	10:39	10.00	--	--	10.85	--
	02/16/16	**9:20**	**10.89**	**--**	**--**	**9.96**	**--**
	06/13/16	**8:40**	**13.79**	**LNAPL**	**--**	**7.06**	**--**
MW-34	12/11/02	13:45	9.45	NR	NR	-4.12	--
(5.33)	03/20/03	11:43	6.99	NR	NR	-1.66	--
	07/03/03	8:29	9.02	NR	NR	-3.69	--
	09/18/03	9:55	9.57	NR	NR	-4.24	--
	12/02/03	11:45	7.00	NR	NR	-1.67	--
	03/09/04	12:15	8.42	NR	NR	-3.09	--
	06/03/04	11:25	8.95	NR	NR	-3.62	--
	09/03/04	13:53	8.63	NR	NR	-3.30	--
	12/06/04	9:45	9.48	NR	NR	-4.15	--
	03/04/05	13:55	8.87	NR	NR	-3.54	--
	06/03/05	--	9.08	NR	NR	-3.75	--
	09/01/05	9:08	9.38	NR	NR	-4.05	--
	12/01/05	10:49	6.72	NR	NR	-1.39	--
	03/02/06	10:50	9.25	NR	NR	-3.92	--
	06/06/06	9:20	8.82	NR	NR	-3.49	--
	09/15/06	--	8.66	NR	NR	-3.33	--
	03/07/07	--	--	NR	NR	--	--
	02/13/08	Well Possibly Removed During Previous Excavation Activities					
MW-35	12/11/02	13:35	9.29	NR	NR	-4.18	--
(5.11)	03/20/03	11:42	7.65	NR	NR	-2.54	--
	07/03/03	--	--	NR	NR	--	--
	09/18/03	--	--	NR	NR	--	--
	12/02/03	--	--	NR	NR	--	--
	03/09/04	--	--	NR	NR	--	--
	06/03/04	--	--	NR	NR	--	--
	09/03/04	--	--	NR	NR	--	--
	12/06/04	--	--	NR	NR	--	--
	03/04/05	--	--	NR	NR	--	--
	06/03/05	--	--	NR	NR	--	--
	09/01/05	--	--	NR	NR	--	--
	12/01/05	--	--	NR	NR	--	--
	03/02/06	--	--	NR	NR	--	--
	06/06/06	--	--	NR	NR	--	--
	09/15/06	--	--	NR	NR	--	--
	03/07/07	--	--	NR	NR	--	--
	02/13/08	Well Possibly Removed During Previous Excavation Activities					
MW-42	12/11/02	13:30	9.38	NR	NR	-4.18	--
(5.20)	03/20/03	11:50	7.86	NR	NR	-2.66	--
	07/03/03	8:11	9.44	NR	NR	-4.24	--
	09/18/03	10:21	10.92	NR	NR	-5.72	--
	12/02/03	11:36	9.14	NR	NR	-3.94	--
	03/09/04	10:09	8.58	NR	NR	-3.38	--
	06/03/04	11:10	9.19	NR	NR	-3.99	--
	09/03/04	14:01	9.02	NR	NR	-3.82	--
	12/06/04	9:48	9.43	NR	NR	-4.23	--
	03/04/05	13:56	8.99	NR	NR	-3.79	--
	06/03/05	--	9.24	NR	NR	-4.04	--
	09/01/05	9:00	9.55	NR	NR	-4.35	--
	12/01/05	10:54	8.91	NR	NR	-3.71	--
	03/02/06	10:45	9.25	NR	NR	-4.05	--
	06/06/06	9:28	8.93	NR	NR	-3.73	--
	09/15/06	--	8.87	NR	NR	-3.67	--
	03/07/07	--	--	NR	NR	--	--
	02/13/08	Well Possibly Removed During Previous Excavation Activities					
MW-43	12/11/02	13:40	9.06	NR	NR	-4.12	--
(4.94)	03/20/03	11:30	7.10	NR	NR	-2.16	--
	07/03/03	8:15	8.86	NR	NR	-3.92	--
	09/18/03	--	--	NR	NR	--	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-43 Continued	12/02/03	--	--	NR	NR	--	--
	03/09/04	--	--	NR	NR	--	--
	06/03/04	--	--	NR	NR	--	--
	09/03/04	--	--	NR	NR	--	--
	12/06/04	--	--	NR	NR	--	--
	03/04/05	--	--	NR	NR	--	--
	06/03/05	--	--	NR	NR	--	--
	09/01/05	--	--	NR	NR	--	--
	12/01/05	--	--	NR	NR	--	--
	03/02/06	--	--	NR	NR	--	--
	06/06/06	--	--	NR	NR	--	--
	09/15/06	--	--	NR	NR	--	--
	03/07/07	--	--	NR	NR	--	--
	02/13/08	Well Possibly Removed During Previous Excavation Activities					
MW-44	12/11/02	--	--	NR	NR	--	--
(5.46)	03/20/03	--	--	NR	NR	--	--
	07/03/03	--	--	NR	NR	--	--
	09/18/03	--	--	NR	NR	--	--
	12/02/03	--	--	NR	NR	--	--
	03/09/04	--	--	NR	NR	--	--
	06/03/04	--	--	NR	NR	--	--
	09/03/04	--	--	NR	NR	--	--
	12/06/04	--	--	NR	NR	--	--
	03/04/05	--	--	NR	NR	--	--
	06/03/05	--	--	NR	NR	--	--
	09/01/05	--	--	NR	NR	--	--
	12/01/05	--	--	NR	NR	--	--
	03/02/06	--	--	NR	NR	--	--
	06/06/06	--	--	NR	NR	--	--
	09/15/06	--	--	NR	NR	--	--
	03/07/07	--	--	NR	NR	--	--
MW-61A-R[6]	03/02/06	--	15.15[6]	NR	NR	7.28	1.91
(13.35)	06/06/06	8:00	14.96	NR	NR	7.48	--
	09/15/06	--	14.26	NR	NR	8.18	--
	03/07/07	8:44	14.04	--	NR	8.40	--
	06/07/07	9:15	14.36	--	NR	8.08	--
	07/10/07	9:50	14.84	--	NR	7.60	--
	07/25/07	11:40	14.55	--	NR	7.89	--
	08/22/07	9:40	14.72	--	NR	7.72	--
	09/06/07	9:55	14.90	--	NR	7.54	--
	09/26/07	9:16	15.09	--	NR	7.35	--
	10/11/07	8:00	14.82	--	NR	7.62	--
	11/01/07	9:55	14.81	--	NR	7.63	--
	11/16/07	15:30	14.59	--	NR	7.85	--
	11/26/07	13:48	14.40	--	NR	8.04	--
	12/19/07	9:35	13.83	--	NR	8.61	--
	01/03/08	8:41	12.93	--	NR	9.51	--
	01/17/08	9:00	12.76	--	NR	9.68	--
	02/12/08	9:24	13.65	--	NR	8.79	--
	03/03/08	9:24	14.14	--	NR	8.30	--
	03/17/08	9:23	14.49	--	NR	7.95	--
	04/01/08	9:10	14.22	14.21	0.01	8.22	--
	04/14/08	9:06	14.41	14.39	0.02	8.03	--
	04/28/08	9:36	14.70	14.64	0.06	7.74	--
(22.44)[8]	05/13/08	9:29	14.88	--	--	7.56	11.00
	05/27/08	13:53	14.93	Sheen	--	7.51	--
	06/10/08	10:20	14.73	--	--	7.71	--
	06/24/08	9:41	14.92	--	--	7.52	--
	07/07/08	9:56	14.70	--	--	7.74	--
	07/22/08	9:34	14.72	14.70	0.02	7.72	--
	08/12/08	9:50	14.75	14.68	0.07	7.69	--
	09/03/08	--	15.58	15.56	0.02	6.86	--
	09/26/08	--	14.89	14.79	0.10	7.55	--
	10/17/08	9:03	15.12	14.92	0.20	7.32	--
	10/29/08	8:50	15.21	15.00	0.21	7.23	--
	11/12/08	10:51	13.95	13.81	0.14	8.49	--
	12/03/08	12:52	14.25	14.19	0.06	8.19	--
	01/06/09	9:40	13.12	12.99	0.13	9.32	--
	01/20/09	12:50	13.06	13.01	0.05	9.38	--
	02/03/09	9:43	14.40	13.88	0.52	8.04	--
	02/17/09	11:20	14.30	13.80	0.50	8.14	--
	03/12/09	12:16	14.20	14.05	0.15	8.24	--
	03/25/09	8:50	14.01	13.91	0.10	8.43	--
	04/08/09	10:21	13.81	13.71	0.10	8.63	--
	04/30/09	10:12	14.14	13.95	0.19	8.30	--
	05/12/09	10:51	13.66	13.64	0.02	8.78	--
	05/26/09	14:15	13.74	--	--	8.70	--
	06/09/09	9:46	13.40	--	--	9.04	--
	06/25/09	9:47	14.14	13.94	0.20	8.30	--
	07/07/09	9:40	14.18	14.15	0.03	8.26	--
	07/13/09	8:14	14.88	14.87	0.01	7.56	--
	08/05/09	6:45	14.68	14.39	0.29	7.76	--
	08/06/09	9:29	14.64	14.62	0.02	7.80	--
	08/20/09	8:51	14.85	14.84	0.01	7.59	--
	09/10/09	10:15	14.84	14.78	0.06	7.60	--
	09/23/09	9:37	14.89	14.81	0.08	7.55	--
	10/08/09	9:39	15.01	14.94	0.07	7.43	--
	10/19/09	9:05	14.98	14.91	0.07	7.46	--
	11/12/09	9:36	12.85	12.80	0.05	9.59	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-61A-R (continued)	03/24/10	9:54	13.20	12.95	0.25	9.24	--
	04/13/10	10:37	13.06	12.95	0.11	9.38	--
	05/26/10	9:06	13.91	13.76	0.15	8.53	--
	07/28/10	14:56	14.78	--	--	7.66	--
	08/05/10	11:28	14.79	--	--	7.65	--
	08/13/10	9:38	13.62	--	--	8.82	--
	08/13/10	10:37	13.61	--	--	8.83	--
	08/13/10	10:42	13.61	--	--	8.83	--
	08/13/10	15:42	13.64	--	--	8.80	--
	08/18/10	8:55	14.70	--	--	7.74	--
	09/21/10	10:42	15.35	--	--	7.09	--
	10/11/10	11:20	14.35	14.31	0.04	8.09	--
	11/19/10	15:25	13.30	13.19	0.11	9.14	--
	03/04/11	10:04	12.80	12.63	0.17	9.64	--
	04/25/11	11:20	12.70	Sheen[10]	--	9.74	--
	09/21/11	9:45	14.65	14.10	0.55	7.79	--
	11/21/11	11:05	14.82	14.26	0.56	7.62	--
	02/20/12	9:15	13.55	13.15	0.40	8.89	--
	04/17/12	12:10	13.18	12.79	0.39	9.26	--
	10/10/12	12:25	14.80	14.39	0.41	7.64	--
	12/24/12	11:28	12.61	12.20	0.41	9.83	--
	01/08/13	14:30	11.84	11.74	0.10	10.60	--
	04/30/13	11:10	13.59	13.35	0.24	8.85	--
	09/19/13	9:48	14.45	14.40	0.05	7.99	--
	11/22/13	9:25	15.28	15.22	0.06	7.16	--
	06/23/14	10:36	14.60	--	--	7.84	--
	06/24/14	--	14.80	14.61	0.19	7.64	--
	09/10/14	9:30	14.92	--		7.52	
	12/15/14	13:35	11.71	--		10.73	
	12/16/14	15:25	11.90	11.81	0.01	10.54	--
	06/17/15	11:15	14.79	14.78	0.01	7.65	--
	12/09/15	10:45	10.99	10.98	0.01	11.45	--
	02/16/16	**9:15**	**11.08**	**--**	**--**	**11.36**	
	06/13/16	**8:30**	**14.40**	**--**	**--**	**8.04**	**--**
PZ-7.5	04/30/13	9:45	7.18	--	--	UK	--
	09/15/13	8:46	7.19	--	--	UK	--
	11/22/13	9:27	8.03	--	--	UK	--
	06/11/14	Well Decommissioned					
PZ-9.5	04/30/13	9:53	9.00	--	--	UK	--
	09/15/13	8:52	9.86	--	--	UK	--
	11/22/13	9:37	9.86	--	--	UK	--
	06/10/14	Well Decommissioned					
PZ-61A-R[11]	09/21/10	10:36	14.05	--	--	UK	--
	09/28/09	8:50	14.04	--	--	UK	--
	10/11/10	11:12	14.18	--	--	UK	--
	03/04/11	9:55	12.46	--	--	UK	--
	04/25/11	11:30	13.05	0.27	12.78	UK	--
	09/21/11	9:40	14.18	14.17	0.01	UK	--
	11/21/11	11:10	14.34	--	--	UK	--
	02/20/12	9:10	13.28	13.18	0.10	UK	--
	04/17/12	12:05	12.84	--	--	UK	--
	10/10/12	12:30	14.89	--	--	UK	--
	12/24/12	11:31	12.66	--	--	UK	--
	01/08/13	14:31	11.73	--	--	UK	--
	04/30/13	11:05	13.38	--	--	UK	--
	09/19/13	9:51	14.10	--	--	UK	--
	11/22/13	9:30	15.01	--	--	UK	--
	06/12/14	Well Decommissioned					
PZ-203[11]	09/21/10	11:24	13.29	--	--	UK	--
	04/25/11	13:50	11.80	--	--	UK	--
	09/21/11	10:29	13.67	--	--	UK	--
	11/21/11	10:24	12.60	--	--	UK	--
	02/20/12	UNABLE TO LOCATE					
	04/17/12	12:25	13.00	--	--	UK	--
	10/10/12	UNABLE TO LOCATE					
	12/24/12	10:39	14.52	--	--	UK	--
	01/08/13	15:25	10.13	--	--	UK	--
	04/30/13	10:26	11.53	--	--	UK	--
	09/19/13	9:27	12.30	--	--	UK	--
	11/22/13	10:10	12.03	--	--	UK	--
	06/12/14	Well Decommissioned					
PZ-204[11]	09/21/10	11:32	19.02	--	--	UK	--
	04/25/11	14:05	17.67	--	--	UK	--
	09/21/11	10:18	19.34	--	--	UK	--
	11/21/11	10:30	18.71	--	--	UK	--
	02/20/12	UNABLE TO LOCATE					
	04/17/12	11:35	18.23	--	--	UK	--
	10/10/12	UNABLE TO LOCATE					
	12/24/12	10:21	16.65	--	--	UK	--
	01/08/13	15:15	16.82	--	--	UK	--
	04/30/13	10:34	17.75	--	--	UK	--
	09/19/13	9:21	18.40	--	--	UK	--
	11/22/13	9:55	18.80	--	--	UK	--
	06/12/14	Well Decommissioned					
MW-65	12/11/02	14:03	14.69	NR	NR	-3.86	--
(10.83)	03/20/03	10:44	10.09	NR	NR	0.74	--
	07/03/03	11:12	13.85	NR	NR	-3.02	--
	09/18/03	10:40	14.15	NR	NR	-3.32	--
	12/02/03	11:14	12.38	NR	NR	-1.55	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-65 Continued	03/09/04	10:50	13.63	NR	NR	-2.80	--
	06/03/04	11:42	14.24	NR	NR	-3.41	--
	09/03/04	14:08	13.77	NR	NR	-2.94	--
	12/06/04	9:32	14.59	NR	NR	-3.76	--
	03/04/05	14:04	14.06	NR	NR	-3.23	--
	06/03/05	--	14.14	NR	NR	-3.31	--
	09/01/05	9:55	14.67	NR	NR	-3.84	--
	12/01/05	11:19	12.05	NR	NR	-1.22	--
	03/02/06	11:12	14.28	NR	NR	-3.45	--
	06/06/06	8:26	13.83	NR	NR	-3.00	--
	09/15/06	--	13.90	NR	NR	-3.07	--
	03/07/07	8:51	13.63	--	--	-2.80	--
	06/07/07	8:30	13.69	--	--	-2.86	--
	09/26/07	9:27	14.29	--	--	-3.46	--
	11/26/07	10:00	13.62	--	--	-2.79	--
	12/03/07	Well Decommissioned					
MW-66	12/11/02	14:15	15.36	NR	NR	-3.74	--
(11.62)	03/20/03	13:04	12.21	NR	NR	-0.59	--
	07/03/03	11:22	14.73	NR	NR	-3.11	--
	09/18/03	10:34	15.25	NR	NR	-3.63	--
	12/02/03	11:27	11.99	NR	NR	-0.37	--
	03/09/04	11:02	13.67	NR	NR	-2.05	--
	06/03/04	11:45	14.78	NR	NR	-3.16	--
	09/03/04	14:12	14.16	NR	NR	-2.54	--
	12/06/04	9:39	15.22	NR	NR	-3.60	--
	03/04/05	14:01	14.54	NR	NR	-2.92	--
	06/03/05	--	14.69	NR	NR	-3.07	--
	09/01/05	10:10	15.31	NR	NR	-3.69	--
	12/01/05	11:26	11.78	NR	NR	-0.16	--
	03/02/06	11:20	14.77	NR	NR	-3.15	--
	06/06/06	8:15	14.35	NR	NR	-2.73	--
	09/15/06	--	14.39	NR	NR	-2.77	--
	03/07/07	9:00	14.11	--	--	-2.49	--
	09/26/07	9:36	14.97	--	--	-3.35	--
	11/26/07	13:42	14.23	--	--	-2.61	--
	12/03/07	Well Decommissioned					
MW-200[6]	03/07/07	9:45	8.88	--	--	5.48	-0.22
(4.78)	06/07/07	15:53	9.26	--	--	5.10	--
	07/06/07	10:00	9.76	--	--	4.60	--
	09/26/07	8:08	9.43	--	--	4.93	--
	11/26/07	14:48	8.54	--	--	5.82	--
	02/13/08	11:15	8.57	--	--	5.79	--
(14.36)[8]	05/13/08	10:16	10.02	--	--	4.34	9.36
	09/03/08	--	9.56	--	--	4.80	--
	12/03/08	12:10	9.11	--	--	5.25	--
	02/17/09	10:43	8.28	--	--	6.08	--
	05/12/09	12:02	8.95	--	--	5.41	--
	05/26/09	13:54	9.40	--	--	4.96	--
	09/10/09	10:39	9.74	--	--	4.62	--
	04/13/10	11:21	9.23	--	--	5.13	--
	06/16/10	10:05	9.10	--	--	5.26	--
	08/12/10	9:45	8.92	Sheen	--	5.44	--
	09/14/10	1:48	9.31	--	--	5.05	--
	09/14/10	1:53	9.31	--	--	5.05	--
	09/15/10	15:03	9.34	--	--	5.02	--
	09/15/10	15:05	9.33	--	--	5.03	--
	09/15/10	15:10	9.31	--	--	5.05	--
	09/15/10	15:15	9.29	--	--	5.07	--
	09/15/10	15:20	9.28	--	--	5.08	--
	09/15/10	15:25	9.26	--	--	5.10	--
	09/15/10	15:35	9.38	--	--	4.98	--
	09/15/10	15:39	9.49	--	--	4.87	--
	09/15/10	15:45	9.58	--	--	4.78	--
	09/15/10	15:50	9.66	--	--	4.70	--
	09/15/10	15:55	9.70	--	--	4.66	--
	09/15/10	16:00	9.74	--	--	4.62	--
	09/15/10	16:05	9.76	--	--	4.60	--
	09/15/10	16:10	9.79	--	--	4.57	--
	09/15/10	16:16	9.82	--	--	4.54	--
	09/15/10	16:28	9.80	--	--	4.56	--
	09/15/10		9.69	--	--	4.67	--
	09/15/10	16:36	9.56	--	--	4.80	--
	09/15/10	16:40	9.50	--	--	4.86	--
	09/15/10	16:46	9.43	--	--	4.93	--
	09/15/10	16:55	9.35	--	--	5.01	--
	09/15/10	17:05	9.27	--	--	5.09	--
	09/15/10	17:20	9.21	--	--	5.15	--
	09/15/10	17:29	9.20	--	--	5.16	--
	09/21/10	11:14	9.50	--	--	4.86	--
	09/22/10	11:00	9.40	--	--	4.96	--
	04/26/11	10:45	9.30	--	--	5.06	--
	09/21/11	10:45	10.15	--	--	4.21	--
	11/21/11	Unable to Gauge due to rain fillup of well					
	02/20/12	UNABLE TO LOCATE					
	04/17/12	14:00	9.78	--	--	4.58	--
	10/10/12	11:35	10.35	--	--	4.01	--
	12/24/12	10:54	7.94	--	--	6.42	--
	01/08/13	15:40	7.83	--	--	6.53	--
	04/30/13	10:21	8.62	--	--	5.74	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-200 (continued)	09/19/13	9:33	9.40	--	--	4.96	--
	11/22/13	10:30	9.82	--	--	4.54	--
	06/23/14	9:52	9.61	--	--	4.75	--
	12/15/14	12:59	8.00	--	--	6.36	--
	06/17/15	10:25	8.51	--	--	5.85	--
	12/09/15	10:08	5.89	--	--	8.47	--
	01/15/16	16:47	8.16	--	--	6.20	--
	02/16/16	**8:40**	**8.25**	**--**	**--**	**6.11**	**--**
	06/13/16	**9:10**	**9.75**	**--**	**--**	**4.61**	**--**
MW-201[6]	03/07/07	9:55	9.41	Sheen	--	4.95	0.28
(5.28)	06/07/07	16:35	9.79	--	--	4.57	--
	07/06/07	11:00	10.27	--	--	4.59	--
	09/26/07	8:20	9.97	--	--	4.89	--
	11/27/07	14:38	9.04	--	--	5.82	--
	02/12/08	10:24	9.65	--	--	5.21	--
(14.86)[8]	05/13/08	10:24	10.34	--	--	4.52	9.86
	09/03/08	--	10.08	--	--	4.78	--
	12/03/08	12:17	9.66	--	--	5.20	--
	02/17/09	10:37	8.82	--	--	6.04	--
	05/12/09	12:13	9.52	--	--	5.34	--
	05/26/09	13:50	9.90	--	--	4.96	--
	08/11/09	9:02	10.31	--	--	4.55	--
	08/28/09	14:50	10.21	--	--	4.65	--
	09/10/09	10:42	10.29	--	--	4.57	--
	04/13/10	11:17	9.75	--	--	5.11	--
	08/11/10	14:45	10.68	Sheen	--	4.18	--
	09/14/10	13:55	9.89	--	--	4.97	--
	09/14/10	14:00	9.89	--	--	4.97	--
	09/14/10	15:05	10.04	--	--	4.82	--
	09/14/10	15:07	10.02	--	--	4.84	--
	09/14/10	15:19	9.92	--	--	4.94	--
	09/14/10	15:26	9.89	--	--	4.97	--
	09/14/10	15:36	9.86	--	--	5.00	--
	09/17/10	18:14	9.59	--	--	5.27	--
	09/17/10	20:07	9.36	--	--	5.50	--
	09/21/10	11:18	10.06	--	--	4.80	--
	04/25/11	13:15	9.22	--	--	5.64	--
(14.86)[8]	09/21/11	10:40	10.81	--	--	4.05	--
	11/21/11	10:15	10.17	--	--	4.69	--
	02/20/12	11:20	9.68	--	--	5.18	--
	04/17/12	11:20	10.11	--	--	4.75	--
	10/10/12	11:45	10.91	--	--	3.95	--
	12/24/12	10:47	8.35	--	--	6.51	--
	01/08/13	15:35	8.35	--	--	6.51	--
	04/30/13	10:23	9.14	--	--	5.72	--
	09/19/13	9:30	9.90	--	--	4.96	--
	11/22/13	10:20	10.27	--	--	4.59	--
	06/23/14	9:56	10.14	--	--	4.72	--
	12/15/14	12:51	8.60	--	--	6.26	--
	06/17/15	10:20	8.99	--	--	5.87	--
	12/09/15	10:14	6.59	--	--	8.27	--
	01/15/16	16:56	8.85	--	--	6.01	--
	02/16/16	**8:35**	**8.91**	**--**	**--**	**5.95**	**--**
	06/13/16	**9:15**	**10.39**	**--**	**--**	**4.47**	**--**
MW-202[6]	03/07/07	9:25	8.79	--	--	6.07	-2.74
(5.01)	06/07/07	14:53	9.52	--	--	5.34	--
	07/06/07	10:05	10.16	--	--	4.42	--
	09/26/07	7:48	9.59	--	--	4.99	--
	11/26/07	15:16	8.43	--	--	6.15	--
	02/12/08	10:26	8.59	--	--	5.99	--
(14.58)[8]	05/13/08	10:06	10.20	--	--	4.38	6.83
	09/03/08	--	9.61	--	--	4.97	--
	12/03/08	11:55	8.86	--	--	5.72	--
	02/17/09	10:32	8.15	--	--	6.43	--
	05/12/09	11:58	9.77	--	--	4.81	--
	05/26/09	13:56	10.84	--	--	3.74	--
	08/11/09	9:25	9.96	--	--	4.62	--
	08/28/09	14:29	9.85	--	--	4.73	--
	09/10/09	10:58	9.90	--	--	4.68	--
	04/13/10	11:23	10.17	--	--	4.41	--
	06/16/10	9:58	8.95	--	--	5.63	--
	08/11/10	11:45	10.00	--	--	4.58	--
	08/16/10	14:40	8.46	--	--	6.12	--
	08/16/10	14:43	8.46	--	--	6.12	--
	08/16/10	14:45	9.01	--	--	5.57	--
	08/16/10	14:57	9.02	--	--	5.56	--
	08/16/10	14:48	9.06	--	--	5.52	--
	08/16/10	14:49	9.13	--	--	5.45	--
	08/16/10	14:50	9.14	--	--	5.44	--
	08/16/10	14:51	9.13	--	--	5.45	--
	08/16/10	14:56	9.19	--	--	5.39	--
	08/16/10	14:56	8.75	--	--	5.83	--
	08/16/10	14:57	8.60	--	--	5.98	--
	08/16/10	14:57	8.59	--	--	5.99	--
	08/16/10	14:58	8.53	--	--	6.05	--
	08/18/10	9:12	11.12	--	--	3.46	--
	09/17/10	14:32	18.86	--	--	-4.28	--
	09/17/10	16:18	9.18	--	--	5.40	--
	09/17/10	17:52	8.83	--	--	5.75	--

Table 2
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3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-202 (continued)	09/21/10	11:10	10.55	--	--	4.03	--
	09/22/10	9:30	9.66	--	--	4.92	--
	04/25/11	14:40	9.32	--	--	5.26	--
	09/21/11	10:47	10.90	--	--	3.68	--
	11/21/11	9:56	10.03	--	--	4.55	--
	02/20/12	11:29	9.61	--	--	4.97	--
	04/17/12	11:00	10.30	--	--	4.28	--
	10/10/12	11:50	11.00	--	--	3.58	--
	12/24/12	11:00	7.85	--	--	6.73	--
	01/08/13	15:45	7.59	--	--	6.99	--
	04/30/13	10:18	8.75	--	--	5.83	--
	09/19/13	9:36	10.12	--	--	4.46	--
	11/22/13	10:40	7.00	--	--	7.58	--
	06/23/14	9:45	10.65	--	--	3.93	--
	12/15/14	13:06	7.41	--	--	7.17	--
	06/17/15	10:35	8.84	--	--	5.74	--
	12/09/15	10:00	6.61	--	--	7.97	--
	01/15/16	16:32	9.06	--	--	5.52	--
	02/16/16	**8:45**	**8.37**	**--**	**--**	**6.21**	**--**
	06/13/16	**9:05**	**10.65**	**--**	**--**	**3.93**	**--**
MW-203[6]	03/07/07	--	11.86	--	--	2.72	-2.52
(7.98)	06/07/07	13:54	12.45	--	--	2.13	--
	07/06/07	11:01	13.07	--	--	4.48	--
	09/26/07	8:30	12.69	--	--	4.86	--
	11/26/07	14:33	11.56	--	--	5.99	--
	02/12/08	10:05	12.29	--	--	5.26	--
(17.55)[8]	05/13/08	10:32	13.56	--	--	3.99	7.05
	09/03/08	--	13.40	--	--	4.15	--
	12/03/08	12:26	11.76	--	--	5.79	--
	02/17/09	10:47	11.00	--	--	6.55	--
	05/12/09	12:21	12.81	--	--	4.74	--
	05/26/09	13:45	13.51	--	--	4.04	--
	08/28/09	15:14	12.67	--	--	4.88	--
	09/10/09	10:45	12.99	--	--	4.56	--
	04/13/10	11:12	12.92	--	--	4.63	--
	07/21/10	16:30	12.59	--	--	4.96	--
	08/11/10	11:12	11.68	--	--	5.87	--
	08/11/10	11:28	11.89	--	--	5.66	--
	08/11/10	11:29	11.84	--	--	5.71	--
	08/13/10	16:15	13.10	--	--	4.45	--
	08/16/10	7:12	13.96	--	--	3.59	--
	08/16/10	7:13	13.96	--	--	3.59	--
	09/02/10	14:45	12.76	--	--	4.79	--
	09/02/10	14:55	12.71	--	--	4.84	--
	09/02/10	15:10	12.31	--	--	5.24	--
	09/02/10	15:33	12.56	--	--	4.99	--
	09/15/10	6:47	14.20	--	--	3.35	--
	09/16/10	15:55	12.02	--	--	5.53	--
	09/16/10	16:00	12.01	--	--	5.54	--
	09/16/10	16:11	11.95	--	--	5.60	--
	09/16/10	16:20	11.90	--	--	5.65	--
	09/21/10	11:28	13.54	--	--	4.01	--
	04/25/11	13:45	12.06	--	--	5.49	--
	09/21/11	14:26	12.68	--	--	4.87	--
	11/21/11	10:21	11.69	--	--	5.86	--
	02/20/12	11:14	12.25	--	--	5.30	--
	04/17/12	13:45	13.39	--	--	4.16	--
	10/10/12	11:20	14.18	--	--	3.37	--
	12/24/12	10:35	9.67	--	--	7.88	--
	01/08/13	15:30	10.34	--	--	7.21	--
	04/30/13	10:28	11.76	--	--	5.79	--
	09/19/13	9:39	12.81	--	--	4.74	--
	11/22/13	10:05	12.48	--	--	5.07	--
	06/23/14	10:04	13.68	--	--	3.87	--
	12/15/14	12:46	10.46	--	--	7.09	--
	06/17/15	10:15	11.94	--	--	5.61	--
	12/09/15	10:19	9.63	--	--	7.92	--
	01/15/16	16:16	11.89	--	--	5.66	--
	02/16/16	**8:30**	**11.48**	**--**	**--**	**6.07**	**--**
	06/13/16	**9:20**	**13.62**	**--**	**--**	**3.93**	**--**
MW-204[6]	03/07/07	10:15	18.12	--	--	-0.57	-2.87
(14.38)	06/07/07	14:50	18.52	--	--	-0.97	--
	07/06/07	11:40	19.03	--	--	4.90	--
	09/26/07	8:37	18.85	--	--	5.08	--
	11/26/07	14:29	17.78	--	--	6.15	--
	02/12/08	10:03	18.00	--	--	5.93	--
(23.93)[8]	05/13/08	10:38	19.43	--	--	4.50	6.68
	09/03/08	--	18.76	--	--	5.17	--
	10/01/08	10:25	18.40	--	--	5.53	--
	10/17/08	9:29	18.72	--	--	5.21	--
	12/03/08	12:31	18.06	--	--	5.87	--
	02/17/09	10:54	17.42	--	--	6.51	--
	05/12/09	12:41	19.81	--	--	4.12	--
	05/26/09	13:41	19.20	--	--	4.73	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-204[6] Continued	07/13/09	8:18	19.82	--	--	4.11	--
	08/04/09	--	18.88	--	--	5.05	--
	08/06/09	9:36	18.33	--	--	5.60	--
	08/20/09	9:02	18.21	--	--	5.72	--
	09/10/09	10:47	19.02	--	--	4.91	--
	04/13/10	10:59	18.71	--	--	5.22	--
	06/16/10	10:15	18.06	--	--	5.87	--
	08/11/10	16:16	18.65	--	--	5.28	--
	08/12/10	12:31	18.11	--	--	5.82	--
	08/12/10	12:34	18.12	--	--	5.81	--
	08/12/10	16:13	18.95	--	--	4.98	--
	08/12/10	16:15	18.94	--	--	4.99	--
	08/12/10	16:17	18.90	--	--	5.03	--
	08/13/10	16:25	18.79	--	--	5.14	--
	08/14/10	7:17	19.70	--	--	4.23	--
	08/14/10	7:18	19.70	--	--	4.23	--
	09/02/10	14:33	18.93	--	--	5.00	--
	09/02/10	14:35	18.93	--	--	5.00	--
	09/02/10	14:39	18.93	--	--	5.00	--
	09/02/10	15:37	18.73	--	--	5.20	--
	09/02/10	17:35	18.57	--	--	5.36	--
	09/14/10	11:58	18.91	--	--	5.02	--
	09/14/10	12:37	18.70	--	--	5.23	--
	09/14/10	12:46	18.65	--	--	5.28	--
	09/16/10	7:10	19.67	--	--	4.26	--
	09/16/10	7:12	19.67	--	--	4.26	--
	09/16/10	7:13	19.67	--	--	4.26	--
	09/16/10	7:14	19.68	--	--	4.25	--
	09/16/10	7:15	19.68	--	--	4.25	--
	09/16/10	7:17	19.69	--	--	4.24	--
	09/16/10	7:19	19.69	--	--	4.24	--
	09/16/10	7:21	19.70	--	--	4.23	--
	09/16/10	7:23	19.70	--	--	4.23	--
	09/16/10	7:25	19.71	--	--	4.22	--
	09/16/10	7:27	19.72	--	--	4.21	--
	09/16/10	7:29	19.72	--	--	4.21	--
	09/16/10	7:30	19.75	--	--	4.18	--
	09/17/10	14:30	18.93	--	--	5.00	--
	09/17/10	16:20	18.47	--	--	5.46	--
	09/17/10	19:57	18.26	--	--	5.67	--
	09/21/10	11:35	19.18	--	--	4.75	--
	04/25/11	14:15	18.07	--	--	5.86	--
	09/21/11	10:22	19.62	--	--	4.31	--
	11/21/11	10:30	18.71	--	--	5.22	--
	02/20/12	10:53	17.99	--	--	5.94	--
	04/17/12	13:25	19.03	--	--	4.90	--
	10/10/12	11:10	19.87	--	--	4.06	--
	12/24/12	10:16	16.73	--	--	7.20	--
	01/08/13	15:20	16.69	--	--	7.24	--
	04/30/13	10:40	17.97	--	--	5.96	--
	09/19/13	9:18	18.63	--	--	5.30	--
	11/22/13	9:50	18.95	--	--	4.98	--
	06/23/14	10:13	19.51	--	--	4.42	--
	12/15/14	12:37	16.71	--	--	7.22	--
	06/17/15	10:10	18.20	--	--	5.73	
	12/09/15	10:24	15.49	--	--	8.44	--
	01/15/16	15:44	17.59	--	--	6.34	--
	02/16/16	**8:20**	**17.31**	**--**	**--**	**6.62**	**--**
	06/13/16	**9:25**	**19.42**	**--**	**--**	**4.51**	**--**
MW-205[6]	03/07/07	10:30	22.20	Sheen	--	1.73	0.43
(18.43)	06/07/07	15:45	22.45	--	--	1.48	--
	07/06/07	11:47	22.93	--	--	4.96	--
	09/26/07	8:46	22.83	--	--	5.06	--
	11/26/07	14:23	21.76	--	--	6.13	--
	02/12/08	10:01	21.78	--	--	6.11	--
(27.89)[8]	05/13/08	10:43	23.38	--	--	4.51	9.89
	09/03/08	--	22.68	--	--	5.21	--
	12/03/08	12:36	22.01	--	--	5.88	--
	02/17/09	10:59	21.40	--	--	6.49	--
	05/12/09	12:47	22.73	--	--	5.16	--
	05/26/09	13:36	23.06	--	--	4.83	--
	08/04/09	--	22.84	--	--	5.05	--
	08/28/09	15:34	22.71	--	--	5.18	--
	09/10/09	10:46	23.01	--	--	4.88	--
	04/13/10	11:07	22.62	--	--	5.27	--
	08/13/10	8:45	22.31	--	--	5.58	--
	08/16/10	14:18	21.50	--	--	6.39	--
	08/16/10	12:22	21.75	--	--	6.14	--
	09/14/10	11:59	22.66	--	--	5.23	--
	09/16/10	9:24	24.00	--	--	3.89	--
	09/16/10	9:25	24.00	--	--	3.89	--
	09/16/10	9:28	24.00	--	--	3.89	--
	09/16/10	15:05	22.42	--	--	5.47	--
	09/17/10	13:43	23.12	--	--	4.77	--
	09/17/10	13:48	23.11	--	--	4.78	--
	09/17/10	13:55	23.05	--	--	4.84	--
	09/17/10	14:00	23.05	--	--	4.84	--
	09/17/10	14:04	23.02	--	--	4.87	--
	09/17/10	14:09	23.03	--	--	4.86	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-205[6] Continued	09/17/10	14:19	22.96	--	--	4.93	--
	09/17/10	14:26	22.92	--	--	4.97	--
	09/21/10	11:40	23.15	--	--	4.74	--
	09/28/10	8:15	23.05	Sheen[9]		4.84	
	10/11/10	10:48	21.89	--	--	6.00	--
	11/19/10	16:51	22.81	--	--	5.08	--
	03/04/11	10:32	21.98	--	--	5.91	--
	04/25/11	14:20	22.04	--	--	5.85	--
	04/26/11	13:40	--	LNAPL	--	--	--
	05/12/11	7:49	22.68	--	--	5.21	--
	06/03/11	11:33	22.70	--	--	5.19	--
	06/09/11	14:48	22.66	Sheen	--	5.23	--
	09/21/11	10:13	23.60	--	--	4.29	--
	09/30/11	13:50	22.26	--	--	5.63	--
	10/06/11	14:35	22.31	--	--	5.58	--
	10/14/11	6:15	22.61	--	--	5.28	--
	10/21/11	6:30	22.40	--	--	5.49	--
	10/28/11	13:40	22.53	--	--	5.36	--
	11/04/11	13:05	22.42	--	--	5.47	--
	11/10/11	14:35	22.18	--	--	5.71	--
	11/21/11	10:43	22.76	--	--	5.13	--
	02/20/12	11:10	22.32	--	--	5.57	--
	04/17/12	11:45	23.03	--	--	4.86	--
	10/10/12	11:00	23.80	--	--	4.09	--
	12/24/12	10:10	20.73	--	--	7.16	--
	01/08/13	15:00	20.73	--	--	7.16	--
	04/30/13	10:45	21.91	--	--	5.98	--
	09/19/13	9:15	22.33	--	--	5.56	--
	11/22/13	9:40	22.69	--	--	5.20	--
	06/23/14	10:17	23.50	--	--	4.39	--
	12/15/14	12:30	20.78	--	--	7.11	--
	06/17/15	10:05	22.22	--	--	5.67	--
	12/09/15	10:27	19.51	--	--	8.38	--
	01/15/16	16:10	21.56	--	--	6.33	--
	02/16/16	**8:10**	**21.28**	**--**	**--**	**6.61**	**--**
	06/13/16	**9:30**	**23.37**	**--**	**--**	**4.52**	**--**
MW-206[6]	03/07/07	9:15	9.15	--	--	18.74	-5.41
(5.59)	06/07/07	13:26	10.24	--	--	17.65	--
	07/06/07	9:22	10.84	--	--	4.31	--
	09/26/07	7:35	10.21	--	--	4.94	--
	11/26/07	15:08	8.47	--	--	6.68	--
	02/12/08	10:28	8.69	--	--	6.46	--
(15.15)[8]	05/13/08	9:59	11.80	--	--	3.35	4.15
	09/03/08	--	9.91	--	--	5.24	--
	10/01/08	9:30	9.21	--	--	5.94	--
	12/03/08	11:51	8.78	--	--	6.37	--
	02/17/09	10:29	8.28	--	--	6.87	--
	05/12/09	11:47	11.83	--	--	3.32	--
	05/26/09	13:59	13.30	--	--	1.85	--
	08/11/09	9:38	10.02	--	--	5.13	--
	08/28/09	14:07	9.78	--	--	5.37	--
	09/10/09	11:14	9.81	--	--	5.34	--
	04/13/10	11:27	12.60	--	--	2.55	--
	08/11/10	17:30	13.10	--	--	2.05	--
	08/16/10	11:52	9.70	--	--	5.45	--
	08/16/10	12:26	8.60	--	--	6.55	--
	08/18/10	9:07	13.10	--	--	2.05	--
	09/17/10	16:12	8.69	--	--	6.46	--
	09/17/10	17:55	10.03	--	--	5.12	--
	09/21/10	11:07	12.65	--	--	2.50	--
	09/22/10	9:20	11.09	--	--	4.06	--
	04/25/11	14:50	10.84	--	--	4.31	--
	09/21/11	10:52	11.00	--	--	4.15	--
	11/21/11	9:50	10.20	--	--	4.95	--
	02/20/12	11:32	11.31	--	--	3.84	--
	04/17/12	10:55	12.45	--	--	2.70	--
	10/10/12	12:00	10.65	--	--	4.50	--
	12/24/12	11:10	8.45	--	--	6.70	--
	01/08/13	15:48	8.47	--	--	6.68	--
	04/30/13	10:15	9.64	--	--	5.51	--
	09/19/13	9:42	12.46	--	--	2.69	--
	11/22/13	10:50	9.22	--	--	5.93	--
	06/23/14	9:41	13.04	--	--	2.11	--
	12/15/14	13:13	7.09	--	--	8.06	--
	06/17/15	10:45	10.67	--	--	4.48	--
	12/09/15	9:54	7.86	--	--	7.29	--
	02/16/16	**8:50**	**8.51**	**--**	**--**	**6.64**	**--**
	06/13/16	**9:00**	**12.46**	**--**	**--**	**2.69**	**--**
MW-207[6]	03/07/07	10:40	10.64	--	--	4.51	-3.68
(5.82)	06/07/07	17:10	10.53	--	--	4.62	--
	07/06/07	9:10	11.20	--	--	4.20	--
	09/26/07	7:25	10.30	--	--	5.10	--
	11/26/07	15:03	8.84	--	--	6.56	--
	02/12/08	10:31	8.90	--	--	6.50	--
(15.40)[8]	05/13/08	9:53	12.07	--	--	3.33	5.90
	09/03/08	--	10.14	--	--	5.26	--
	10/01/08	8:10	9.51	--	--	5.89	--
	12/03/08	11:46	9.05	--	--	6.35	--
	02/17/09	10:25	8.40	--	--	7.00	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
MW-207[6] Continued	05/12/09	11:43	11.70	--	--	3.70	--
	05/26/09	14:03	13.52	--	--	1.88	--
	08/11/09	9:46	10.41	--	--	4.99	--
	08/28/09	13:45	10.35	--	--	5.05	--
	09/10/09	11:25	10.20	--	--	5.20	--
	04/13/10	11:30	12.43	--	--	2.97	--
	06/16/10	9:54	9.70	--	--	5.70	--
	08/13/10	13:30	12.52	--	--	2.88	--
	08/16/10	11:22	10.35	--	--	5.05	--
	08/16/10	11:25	10.32	--	--	5.08	--
	08/16/10	11:28	10.32	--	--	5.08	--
	08/16/10	11:31	10.29	--	--	5.11	--
	08/16/10	11:33	10.26	--	--	5.14	--
	08/16/10	11:37	10.25	--	--	5.15	--
	08/16/10	11:50	9.70	--	--	5.70	--
	09/21/10	11:02	12.55	--	--	2.85	--
	04/25/11	14:55	10.83	--	--	4.57	--
	09/21/11	10:55	11.45	--	--	3.95	--
	11/21/11	9:45	10.08	--	--	5.32	--
	02/20/12	11:36	11.25	--	--	4.15	--
	04/17/12	10:45	12.30	--	--	3.10	--
	10/10/12	12:05	11.19	--	--	4.21	--
	12/24/12	11:15	8.73	--	--	6.67	--
	01/08/13	15:52	8.42	--	--	6.98	--
	04/30/13	10:10	9.59	--	--	5.81	--
	09/19/13	9:45	12.23	--	--	3.17	--
	11/22/13	11:00	8.98	--	--	6.42	--
	06/23/14	9:01	12.88	--	--	2.52	--
	12/15/14	13:18	7.45	--	--	7.95	--
	06/17/15	10:55	10.24	--	--	5.16	--
	12/09/15	9:45	7.82	--	--	7.58	--
	01/15/16	15:38	10.63	--	--	4.77	--
	02/16/16	**8:55**	**8.94**	**--**	**--**	**6.46**	**--**
	06/13/16	**8:55**	**12.48**	**--**	**--**	**2.92**	**--**
MW-209	**02/16/16**	**9:45**	**8.26**	**--**	**--**	**7.27**	**--**
	06/13/16	**9:50**	**10.31**	**--**	**--**	**5.22**	**--**
MW-210	**02/16/16**	**9:50**	**7.52**	**--**	**--**	**7.61**	**--**
	06/13/16	**9:45**	**9.59**	**--**	**--**	**5.54**	**--**
MW-211	**02/16/16**	**9:55**	**7.91**	**--**	**--**	**7.11**	**--**
	06/13/16	**9:40**	**9.79**	**--**	**--**	**5.23**	**--**
MW-70R	**02/16/16**	**9:05**	**9.14**	**--**	**--**	**6.47**	**--**
	06/13/16	**8:50**	**12.41**	**--**	**--**	**3.20**	**--**
RW-1	09/13/07	--	9.12	--	--	6.28	--
(4.65)	11/01/07	10:45	9.60	--	--	5.80	--
	11/26/07	11:57	8.43	--	--	5.77	--
	12/07/07	11:55	7.00	--	--	7.20	--
	12/19/07	9:25	7.75	--	--	6.45	--
	01/03/08	9:05	7.78	--	--	6.42	--
	01/30/07	8:34	8.22	--	--	5.98	--
	02/12/08	9:00	8.55	--	--	5.65	--
	03/03/08	8:58	8.88	--	--	5.32	--
	03/17/08	8:52	8.80	--	--	5.40	--
	04/01/08	8:49	8.79	--	--	5.41	--
	04/14/08	8:51	8.85	--	--	5.35	--
	04/28/08	9:01	8.90	--	--	5.30	--
	05/13/08	9:10	9.25	--	--	4.95	--
	05/27/08	10:25	9.05	--	--	5.15	--
	06/10/08	10:36	8.88	--	--	5.32	--
	06/24/08	9:15	8.98	--	--	5.22	--
	07/07/08	9:26	8.65	--	--	5.55	--
	07/22/08	9:15	8.88	--	--	5.32	--
	08/12/08	9:23	8.86	--	--	5.34	--
	09/03/08	--	9.13	--	--	5.07	--
	10/17/08	8:29	6.33	--	--	7.87	--
	10/29/08	8:17	9.23	--	--	4.97	--
	11/12/08	9:09	7.63	--	--	6.57	--
	12/03/08	11:25	9.82	--	--	4.38	--
	01/06/09	9:15	7.86	--	--	6.34	--
	01/20/09	12:20	8.34	--	--	5.86	--
	02/03/09	9:08	8.89	--	--	5.31	--
	02/17/09	9:06	8.41	--	--	5.79	--
	03/12/09	11:18	8.75	--	--	5.45	--
	03/25/09	9:05	8.62	--	--	5.58	--
	04/08/09	9:14	8.58	--	--	5.62	--
	04/30/09	9:20	8.55	--	--	5.65	--
	05/12/09	9:21	7.98	--	--	6.22	--
	05/26/09	13:19	8.24	--	--	5.96	--
	06/09/09	9:09	8.00	--	--	6.20	--
	06/25/09	9:19	8.08	--	--	6.12	--
	07/07/09	9:13	8.34	--	--	5.86	--
	09/10/09	9:52	8.98	--	--	5.22	--
	09/23/09	9:09	8.98	--	--	5.22	--
	10/08/09	9:24	9.01	--	--	5.19	--
	10/19/09	9:36	8.60	--	--	5.60	--
	11/12/09	9:10	7.75	--	--	6.45	--
	03/24/10	9:24	8.39	--	--	5.81	--
	04/13/10	10:15	8.29	--	--	5.91	--
	05/24/10	10:14	8.38	--	--	5.82	--
	09/21/10	9:59	8.00	--	--	6.20	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
RW-1 Continued	11/19/10	16:25	7.98	--	--	6.22	--
	03/04/11	9:12	7.96	--	--	6.24	--
	04/25/11	9:10	8.25	--	--	5.95	--
	09/21/11	8:30	8.94	--	--	5.26	--
	11/21/11	8:30	8.67	--	--	5.53	--
	02/20/12	9:55	8.41	--	--	5.79	--
	04/17/12	9:22	8.40	--	--	5.80	--
	10/10/12	9:40	9.41	--	--	4.79	--
	12/24/12			UNABLE TO ACCESS			
	01/08/13	13:40	7.54	--	--	6.66	--
	04/30/13	9:20	8.31	--	--	5.89	--
	09/15/13	8:25	6.30	--	--	7.90	--
	11/22/13	8:00	9.04	--	--	5.16	--
	02/25/14	12:00	7.80	--	--	6.50	--
	05/05/14	8:45	7.30	--	--	7.00	--
	06/12/14			Well Decommissioned			
RW-2	04/28/08	9:10	9.98	--	--	4.32	--
(4.47)	05/13/08	9:08	8.29	--	--	6.01	--
(14.3)[8]	05/27/08	10:23	9.12	--	--	5.18	--
	06/10/08	10:38	9.00	--	--	5.30	--
	06/24/08	9:19	9.12	--	--	5.18	--
	07/07/08	9:30	8.86	--	--	5.44	--
	07/22/08	9:19	9.03	--	--	5.27	--
	08/12/08	9:27	8.78	--	--	5.52	--
	09/03/08	--	9.23	--	--	5.07	--
	10/17/08	8:35	6.34	--	--	7.96	--
	10/29/08	8:21	9.37	--	--	4.93	--
	11/12/08	9:13	6.32	--	--	7.98	--
	12/03/08	11:23	8.92	--	--	5.38	--
	01/06/09	9:18	6.84	--	--	7.46	--
	01/20/09	12:23	8.40	--	--	5.90	--
	02/03/09	9:13	9.08	--	--	5.22	--
	02/17/09	9:09	8.55	--	--	5.75	--
	03/12/09	11:21	8.91	--	--	5.39	--
	03/25/09	9:07	8.50	--	--	5.80	--
	04/08/09	9:18	8.68	--	--	5.62	--
	04/30/09	9:24	8.70	--	--	5.60	--
	05/12/09	9:15	8.15	--	--	6.15	--
	05/26/09	13:17	8.31	--	--	5.99	--
	06/09/09	9:13	8.21	--	--	6.09	--
	06/25/09	9:22	8.28	--	--	6.02	--
	07/07/09	9:17	8.49	--	--	5.81	--
	09/10/09	9:50	9.11	--	--	5.19	--
	09/23/09	9:12	9.10	--	--	5.20	--
	10/08/09	9:27	9.24	--	--	5.06	--
	10/19/09	9:40	8.72	--	--	5.58	--
	11/12/09	9:12	7.16	--	--	7.14	--
	03/24/10	9:28	8.42	--	--	5.88	--
	04/13/10	10:12	8.35	--	--	5.95	--
	05/24/10	10:16	8.46	--	--	5.84	--
	08/16/10	7:40	7.87	--	--	6.43	--
	08/16/10	7:42	7.87	--	--	6.43	--
	09/02/10	10:14	9.24	--	--	5.06	--
	09/02/10	10:42	9.25	--	--	5.05	--
	09/02/10	11:45	9.32	--	--	4.98	--
	09/02/10	11:46	9.32	--	--	4.98	--
	09/02/10	11:47	9.32	--	--	4.98	--
	09/02/10	11:48	9.32	--	--	4.98	--
	09/02/10	11:49	9.32	--	--	4.98	--
	09/02/10	11:55	9.33	--	--	4.97	--
	09/02/10	12:00	9.33	--	--	4.97	--
	09/02/10	12:05	9.33	--	--	4.97	--
	09/02/10	12:10	9.33	--	--	4.97	--
	09/02/10	12:15	9.34	--	--	4.96	--
	09/02/10	12:20	9.34	--	--	4.96	--
	09/02/10	12:25	9.34	--	--	4.96	--
	09/02/10	12:42	9.35	--	--	4.95	--
	09/02/10	13:00	9.36	--	--	4.94	--
	09/02/10	13:32	9.36	--	--	4.94	--
	09/03/10	9:12	9.52	--	--	4.78	--
	09/03/10	10:26	9.48	--	--	4.82	--
	09/03/10	10:54	9.55	--	--	4.75	--
	09/03/10	11:08	9.54	--	--	4.76	--
	09/21/10	9:57	8.10	--	--	6.20	--
	11/19/10	16:24	7.62	--	--	6.68	--
	03/04/11	9:16	7.80	--	--	6.50	--
	04/25/11	9:15	8.20	--	--	6.10	--
	09/21/11	8:33	8.39	--	--	5.91	--
	11/21/11	8:36	8.82	--	--	5.48	--
	02/20/12	9:57	8.53	--	--	5.77	--
	04/17/12	9:25	8.38	--	--	5.92	--
	10/10/12	9:50	9.26	--	--	5.04	--
	12/24/12			UNABLE TO ACCESS			
	01/08/13	13:42	7.40	--	--	6.90	--
	04/30/13	9:25	8.35	--	--	5.95	--
	09/15/13	8:28	8.32	--	--	5.98	--
	11/22/13	8:05	9.22	--	--	5.08	--
	02/25/14	11:52	7.54	--	--	6.76	
	05/05/14	08:55	7.00	--	--	7.30	

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
RW-2 Continued	06/12/14	Well Decommissioned					
RW-3	09/13/07	--	9.45	--	--	4.85	--
(4.70)	11/01/07	10:52	10.00	--	--	4.30	--
	11/26/07	12:00	8.60	--	--	5.70	--
	12/07/07	11:50	7.10	--	--	7.20	--
	12/19/07	9:20	7.63	--	--	6.67	--
	01/03/08	9:07	7.49	--	--	6.81	--
	01/30/08	8:38	8.44	--	--	5.86	--
	02/12/08	9:30	8.84	--	--	5.46	--
	03/03/08	9:02	9.11	--	--	5.19	--
	03/17/08	8:58	8.91	--	--	5.39	--
	04/01/08	8:43	9.01	--	--	5.29	--
	04/14/08	8:44	9.16	--	--	5.14	--
	04/28/08	9:16	9.10	--	--	5.20	--
(14.3)[8]	05/13/08	9:03	9.53	--	--	4.77	--
	05/27/08	10:20	9.36	--	--	4.94	--
	06/10/08	10:41	9.34	Sheen	--	4.96	--
	06/24/08	9:23	9.34	--	--	4.96	--
	07/07/08	9:34	9.04	--	--	5.26	--
	07/22/08	9:22	9.21	--	--	5.09	--
	08/12/08	9:30	9.21	--	--	5.09	--
	09/03/08	--	9.51	--	--	4.79	--
	10/17/08	8:39	9.60	--	--	4.70	--
	10/29/08	8:26	9.53	--	--	4.77	--
	11/12/08	9:17	7.10	--	--	7.20	--
	12/03/08	11:19	8.04	--	--	6.26	--
	01/06/09	9:21	7.69	--	--	6.61	--
(14.3)[8]	01/20/09	12:26	8.58	--	--	5.72	--
	02/03/09	9:17	9.22	Sheen	--	5.08	--
	02/17/09	9:11	8.69	--	--	5.61	--
	03/12/09	11:24	9.08	--	--	5.22	--
	03/25/09	9:09	8.91	8.90	0.01	5.39	--
	04/08/09	9:20	8.83	8.82	0.01	5.47	--
	04/30/09	9:25	8.90	Sheen	--	5.40	--
	05/12/09	9:26	8.45	Sheen	--	5.85	--
	05/26/09	14:38	9.09	--	--	5.21	--
	06/09/09	9:16	8.40	--	--	5.90	--
	06/25/09	9:23	8.35	--	--	5.95	--
	07/07/09	9:21	8.62	--	--	5.68	--
	08/20/09	8:26	8.60	Sheen	--	5.70	--
	08/28/09	16:00	9.76	--	--	4.54	--
	09/10/09	9:47	9.54	--	--	4.76	--
	09/23/09	9:16	9.41	Sheen	--	4.89	--
	10/08/09	9:30	9.46	--	--	4.84	--
	10/19/09	9:45	9.13	--	--	5.17	--
	11/12/09	9:15	8.36	--	--	5.94	--
	03/24/10	9:31	8.60	Sheen	--	5.70	--
	04/13/10	10:09	8.58	--	--	5.72	--
	05/24/10	10:18	8.82	--	--	5.48	--
	08/16/10	7:40	8.40	--	--	5.90	--
	08/16/10	7:50	8.36	--	--	5.94	--
	09/02/10	10:13	9.81	--	--	4.49	--
	09/02/10	10:40	9.79	--	--	4.51	--
	09/21/10	9:55	8.58	--	--	5.72	--
	11/19/10	16:32	7.73	--	--	6.57	--
	03/04/11	9:19	7.92	--	--	6.38	--
	04/25/11	9:30	8.43	--	--	5.87	--
	09/21/11	8:37	8.39	--	--	5.91	--
	11/21/11	8:43	9.00	--	--	5.30	--
	02/20/12	10:00	8.60	--	--	5.70	--
	04/17/12	9:30	8.58	--	--	5.72	--
	10/10/12	9:55	9.67	--	--	4.63	--
	12/24/12	UNABLE TO ACCESS					
	01/08/13	13:43	7.46	--	--	6.84	--
	04/30/13	9:28	8.49	LNAPL on probe	--	5.81	--
	09/15/13	8:31	8.65	--	--	5.65	--
	11/22/13	8:10	9.55	--	--	4.75	--
	02/25/14	11:15	7.67			6.63	
	05/05/14	8:04	7.50			6.80	
	06/12/14	Well Decommissioned					
RW-4		UNABLE TO LOCATE					
RW-5	09/13/07	--	8.6	--	--	5.70	--
(13.9)[8]	11/01/07	11:00	9.4	--	--	4.50	--
	11/26/07	12:05	7.89	--	--	6.01	--
	12/07/07	11:45	6.4	--	--	7.50	--
	12/19/07	9:15	2.2	--	--	11.70	--
	05/13/08	9:01	8.72	--	--	5.18	--
	09/03/08	--	8.74	--	--	5.16	--
	12/03/08	11:16	8.45	--	--	5.45	--
	02/17/09	9:14	7.77	Sheen	--	6.13	--
	05/12/09	9:12	7.48	--	--	6.42	--
	05/26/09	13:15	7.94	--	--	5.96	--
	09/10/09	9:44	8.95	--	--	4.95	--
	04/13/10	10:07	7.75	--	--	6.15	--
	09/21/10	9:52	7.82	--	--	6.08	--
	04/25/11	UNABLE TO LOCATE					
	09/21/11	8:48	8.52	--	--	5.38	--
	11/21/11	8:49	8.52	--	--	5.38	--
	02/20/12	10:02	7.85	--	--	6.05	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
RW-5 Continued	04/17/12	9:35	7.82	--	--	6.08	--
	10/10/12	10:02	9.00	--	--	4.90	
	12/24/12			UNABLE TO ACCESS			
	01/08/13	13:44	6.90	--	--	7.00	--
	04/30/13	9:35	7.75	--	--	6.15	--
	09/15/13	8:34	8.00	--	--	5.90	--
	11/22/13	8:15	9.20	--	--	4.70	--
	02/25/14	11:35	7.43	--	--	6.47	--
	05/05/14	09:27	7.23	--	--	6.67	--
	06/11/14			Well Decommissioned			
RW-6 (13.9)[8]	05/13/08[7]	8:58	8.35	--	--	5.55	--
	09/03/08	--	8.14	--	--	5.76	--
	12/03/08	11:13	7.95	--	--	5.95	--
	02/17/09	9:17	7.80	--	--	6.10	--
	05/12/09	9:10	7.57	--	--	6.33	--
	05/26/09	13:12	7.65	--	--	6.25	--
	09/10/09	9:43	7.90	--	--	6.00	--
	04/13/10	10:05	7.42	--	--	6.48	--
	09/21/10	9:50	6.74	--	--	7.16	--
	04/25/11			UNABLE TO LOCATE			
	09/21/11			UNABLE TO LOCATE			
	11/21/11			UNABLE TO LOCATE			
	02/20/12			UNABLE TO LOCATE			
	04/17/12			UNABLE TO LOCATE			
	10/10/12			UNABLE TO LOCATE			
	12/24/12			UNABLE TO ACCESS			
	01/08/13	13:45	6.87	--	--	7.03	--
	04/30/13	9:40	7.60	--	--	6.30	--
	09/15/13	8:40	7.73	--	--	6.17	--
	11/22/13	8:20	8.02	--	--	5.88	--
	02/25/14	11:25	6.98	--	--	7.22	--
	05/05/14	09:36	7.02	--	--	7.18	--
	06/11/14			Well Decommissioned			
RW-7 (14.2)[8]	09/13/07	--	8.75	--	--	5.45	--
	11/01/07	11:20	9.3	--	--	4.90	--
	11/26/07	12:07	8.1	--	--	6.10	--
	12/07/07	11:40	6.45	--	--	7.75	--
	12/07/07	9:10	6.4	--	--	7.80	--
	05/13/08	8:43	8.80	--	--	5.40	--
	09/03/08	--	8.84	--	--	5.36	--
	12/03/08	11:11	8.60	--	--	5.60	--
	02/17/09	9:20	8.95	--	--	5.25	--
	05/12/09	9:08	7.41	--	--	6.79	--
	05/26/09	13:10	7.81	--	--	6.39	--
	08/04/09	--	8.18	--	--	6.02	--
	09/10/09	9:40	8.83	--	--	5.37	--
	04/13/10	10:03	7.78	--	--	6.42	--
	09/21/10	9:47	7.88	--	--	6.32	--
	04/25/11	9:40	7.62	--	--	6.58	--
	09/21/11	8:51	8.49	--	--	5.71	--
	11/21/11	8:56	4.62	--	--	9.58	--
	02/20/12	10:04	7.92	--	--	6.28	--
	04/17/12	9:40	7.87	--	--	6.33	--
	10/10/12	10:07	8.99	--	--	5.21	--
	12/24/12			UNABLE TO ACCESS			
	01/08/13	13:46	6.24	--	--	7.96	--
	04/30/13	9:43	7.92	--	--	6.28	--
	09/15/13	8:40	8.08	--	--	6.12	--
	11/22/13	8:25	8.95	--	--	5.25	--
	02/25/14	11:15	7.40	--	--	6.50	--
	05/05/14	09:46	7.40	--	--	6.50	--
	06/11/14			Well Decommissioned			
RW-8 (13.9)[8]	09/13/07	--	8.75	--	--	5.15	--
	11/01/07	11:25	8.9	--	--	5.00	--
	11/26/07	12:09	7.9	--	--	6.00	--
	12/07/07	11:35	6.07	--	--	7.83	--
	12/19/07	9:05	7.18	--	--	6.72	--
	05/13/08	8:39	8.59	--	--	5.31	--
	09/03/08	--	8.53	--	--	5.37	--
	12/03/08	11:09	8.20	--	--	5.70	--
	02/17/09	9:24	7.70	--	--	6.20	--
	05/12/09	9:05	7.41	--	--	6.49	--
	05/26/09	13:07	7.59	--	--	6.31	--
	09/10/09	9:38	8.61	--	--	5.29	--
	04/13/10	10:00	7.39	--	--	6.51	--
	09/21/10	9:43	7.58	--	--	6.32	--
	04/25/11	9:45	7.21	--	--	6.69	--
	09/21/11	8:53	8.15	--	--	5.75	--
	11/21/11	9:03	8.24	--	--	5.66	--
	02/20/12	10:05	7.55	--	--	6.35	--
	04/17/12	9:45	7.56	--	--	6.34	--
	10/10/12	10:10	8.61	--	--	5.29	--
	12/24/12			UNABLE TO ACCESS			
	01/08/13	13:54	6.65	--	--	7.25	--
	04/30/13	9:48	7.52	--	--	6.38	--
	09/15/13	8:43	7.71	--	--	6.19	--
	11/22/13	8:30	8.55	--	--	5.35	--
	02/25/14	11:00	7.00	--	--	7.10	--
	05/05/14	10:04	7.11	--	--	6.99	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
RW-8 Continued	06/11/14	Well Decommissioned					
RW-9	09/13/07	--	8.45	--	--	5.65	--
(14.1)[8]	11/01/07	11:30	7.4	--	--	6.70	--
	11/26/07	12:11	7.44	--	--	6.66	--
	12/07/07	11:32	5.55	--	--	8.55	--
	12/19/07	9:00	6.15	--	--	7.95	--
	05/13/08	8:33	8.61	--	--	5.49	--
	09/03/08	--	7.38	--	--	6.72	--
	12/03/08	11:06	6.95	--	--	7.15	--
	02/17/09	9:27	6.80	--	--	7.30	--
	05/12/09	9:03	7.22	--	--	6.88	--
	05/26/09	13:04	10.06	--	--	4.04	--
	09/10/09	9:34	7.47	--	--	6.63	--
	04/13/10	9:57	8.28	--	--	5.82	--
	09/21/10	9:40	8.47	--	--	5.63	--
	04/25/11	9:50	7.29	--	--	6.81	--
	09/21/11	8:54	8.20	--	--	5.90	--
	11/21/11	9:08	7.68	--	--	6.42	--
	02/20/12	10:07	7.78	--	--	6.32	--
	04/17/12	9:50	8.02	--	--	6.08	--
	10/10/12	10:15	8.35	--	--	5.75	--
	12/24/12	UNABLE TO ACCESS					
	01/08/13	13:55	5.55	--	--	8.55	--
	04/30/13	9:51	7.02	--	--	7.08	--
	09/15/13	8:49	8.88	--	--	5.22	--
	11/22/13	8:35	7.06	--	--	7.04	--
	02/25/14	10:50	6.28	--	--	8.02	--
	05/05/14	10:18	6.70	--	--	7.60	--
	06/10/14	Well Decommissioned					
RW-10	09/13/07	--	8.9	--	--	5.40	--
(14.3)[8]	11/01/07	11:40	8.7	--	--	5.60	--
	11/26/07	12:12	7.89	--	--	6.41	--
	12/07/07	11:29	6.26	--	--	8.04	--
	12/19/07	8:55	7.25	--	--	7.05	--
	05/13/08	8:31	8.86	--	--	5.44	--
	09/03/08	--	8.41	--	--	5.89	--
	12/03/08	11:03	7.87	--	--	6.43	--
	02/17/09	9:28	7.90	--	--	6.40	--
	05/12/09	9:01	7.47	--	--	6.83	--
	05/26/09	13:02	8.95	--	--	5.35	--
	09/10/09	9:32	8.58	--	--	5.72	--
	04/13/10	9:55	7.80	--	--	6.50	--
	09/21/10	9:38	8.12	--	--	6.18	--
	04/25/11	9:51	6.70	--	--	7.60	--
	09/21/11	8:56	8.76	--	--	5.54	--
	11/21/11	9:14	8.42	--	--	5.88	--
	02/20/12	10:10	7.75	--	--	6.55	--
	04/17/12	9:53	7.90	--	--	6.40	--
	10/10/12	10:18	9.09	--	--	5.21	--
	12/24/12	UNABLE TO ACCESS					
	01/08/13	13:59	6.32	--	--	7.98	
	04/30/13	9:51	7.46	--	--	6.84	--
	09/15/13	8:55	8.66	--	--	5.64	--
	11/22/13	8:40	8.22	--	--	6.08	--
	02/25/14	10:38	7.07	--	--	7.03	--
	05/05/14	10:33	7.22	--	--	6.88	--
	06/10/14	Well Decommissioned					
RW-11	12/07/07	11:14	6.5	--	--	7.60	--
(14.1)[8]	12/19/07	8:50	7.6	--	--	6.50	--
	05/13/08	8:28	8.86	--	--	5.24	--
	09/03/08	--	8.79	--	--	5.31	--
	12/03/08	11:01	8.26	--	--	5.84	--
	02/17/09	9:31	7.80	--	--	6.30	--
	05/12/09	8:59	7.64	--	--	6.46	--
	05/26/09	12:59	8.33	--	--	5.77	--
	09/10/09	9:29	8.61	--	--	5.49	--
	04/13/10	9:53	7.85	--	--	6.25	--
	09/21/10	9:35	7.98	--	--	6.12	--
	04/25/11	9:55	7.46	--	--	6.64	--
	09/21/11	8:57	8.77	--	--	5.33	--
	11/21/11	9:20	8.52	--	--	5.58	--
	02/20/12	10:11	7.92	--	--	6.18	--
	04/17/12	10:00	7.90	--	--	6.20	--
	10/10/12	10:21	9.12	--	--	4.98	--
	12/24/12	UNABLE TO ACCESS					
	01/08/13	14:00	6.74	--	--	7.36	--
	04/30/13	9:54	7.73	--	--	6.37	--
	09/15/13	8:58	8.50	--	--	5.60	--
	11/22/13	8:45	8.90	--	--	5.20	--
	02/25/14	10:30	7.40	--	--	6.70	--
	05/05/14	10:45	7.51	--	--	6.59	--
	06/10/14	Well Decommissioned					
RW-12	12/07/07	11:08	6.78	--	--	7.32	--
(14.0)[8]	12/19/07	8:40	7.88	--	--	6.22	--
	05/13/08	8:25	8.97	--	--	5.03	--
	09/03/08	--	9.02	--	--	4.98	--
	12/03/08	10:48	8.56	--	--	5.44	--
	02/17/09	9:33	7.85	--	--	6.15	--
	05/12/09	8:56	7.76	--	--	6.24	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
RW-12 Continued	05/26/09	12:55	8.37	--	--	5.63	--
	09/10/09	9:27	9.22	--	--	4.78	--
	04/13/10	9:50	7.93	--	--	6.07	--
	09/21/10	UNABLE TO LOCATE					
	04/25/11	UNABLE TO LOCATE					
	09/21/11	UNABLE TO LOCATE					
	11/21/11	UNABLE TO LOCATE					
	02/20/12	UNABLE TO LOCATE					
	04/17/12	UNABLE TO LOCATE					
	10/10/12	UNABLE TO LOCATE					
	12/24/12	UNABLE TO ACCESS					
	01/08/13	UNABLE TO LOCATE					
	04/30/13	UNABLE TO LOCATE					
	09/15/13	UNABLE TO LOCATE					
	11/22/13	UNABLE TO LOCATE					
	06/09/14	UNABLE TO LOCATE DURING FINAL DECOMMISSIONING ACTIVITIES					
RW-13	12/07/07	11:05	6.83	--	--	7.27	--
(14.1)[8]	12/19/07	8:35	7.5	--	--	6.60	--
	05/13/08	8:22	9.01	--	--	5.09	--
	09/03/08	--	9.05	--	--	5.05	--
	12/03/08	10:45	8.64	--	--	5.46	--
	02/17/09	9:36	8.22	--	--	5.88	--
	05/12/09	8:53	7.85	--	--	6.25	--
	05/26/09	12:53	8.48	--	--	5.62	--
	09/10/09	9:22	8.89	--	--	5.21	--
	04/13/10	9:47	8.01	--	--	6.09	--
	09/21/10	9:30	8.15	--	--	5.95	--
	04/25/11	10:00	7.51	--	--	6.59	--
	09/21/11	9:00	8.99	--	--	5.11	--
	11/21/11	9:27	8.56	--	--	5.54	--
	02/20/12	10:13	8.24	--	--	5.86	--
	04/17/12	10:04	8.21	--	--	5.89	--
	10/10/12	10:25	9.47	--	--	4.63	--
	12/24/12	UNABLE TO ACCESS					
	01/08/13	14:02	7.07	--	--	7.03	--
	04/30/13	9:56	7.96	--	--	6.14	--
	09/15/13	9:01	8.68	--	--	5.42	--
	11/22/13	8:50	9.25	--	--	4.85	--
	02/25/14	10:00	8.16	--	--	5.94	--
	05/05/14	11:00	7.65	--	--	6.45	--
	06/10/14	Well Decommissioned					
RW-14		UNABLE TO LOCATE					
RW-15	09/13/07	--	8.83	--	--	5.27	--
(13.9)[8]	11/01/07	11:50	9	--	--	4.90	--
	11/26/07	12:18	8.4	--	--	5.50	--
	12/07/07	10:56	6.55	--	--	7.35	--
	12/19/07	8:25	6.31	--	--	7.59	--
	05/13/08	8:17	8.97	--	--	4.93	--
	09/03/08	--	8.52	--	--	5.38	--
	12/03/08	10:40	8.31	--	--	5.59	--
	02/17/09	9:44	8.24	--	--	5.66	--
	05/12/09	8:50	8.19	--	--	5.71	--
	05/26/09	12:48	8.25	--	--	5.65	--
	09/10/09	9:20	5.52	--	--	8.38	--
	04/13/10	9:45	7.88	--	--	6.02	--
	09/21/10	UNABLE TO LOCATE					
	04/25/11	UNABLE TO LOCATE					
	09/21/11	UNABLE TO LOCATE					
	11/21/11	UNABLE TO LOCATE					
	2/20/12	UNABLE TO LOCATE					
	04/17/12	UNABLE TO LOCATE					
	10/10/12	UNABLE TO LOCATE					
	12/24/12	UNABLE TO LOCATE					
	01/08/13	UNABLE TO LOCATE					
	04/30/13	UNABLE TO LOCATE					
	09/15/13	UNABLE TO LOCATE					
	11/22/13	UNABLE TO LOCATE					
	06/09/14	UNABLE TO LOCATE DURING FINAL DECOMMISSIONING ACTIVITIES					
RW-21	09/13/07	--	9.85	Sheen	--	5.45	--
(5.87)	11/01/07	10:35	9.90	7.90	2.00	7.00	--
	11/26/07	12:23	--	Sheen	--	--	--
	12/07/07	9:40	6.90	Sheen	--	8.40	--
	12/19/07	--	7.79	--	--	7.51	--
	01/03/07	9:25	7.88	--	--	7.42	--
	01/30/07	8:44	8.67	--	--	6.63	--
	02/12/08	9:11	8.80	--	--	6.50	--
	03/03/08	9:10	9.25	--	--	6.05	--
	03/17/08	9:07	9.21	--	--	6.09	--
	04/01/08	9:05	9.09	--	--	6.21	--
	04/14/08	8:55	9.32	--	--	5.98	--
	04/28/08	9:24	9.33	--	--	5.97	--
	05/13/08	UNABLE TO ACCESS					
(15.3)[8]	05/27/08	11:20	9.45	--	--	5.85	--
	06/10/08	10:45	9.21	--	--	6.09	--
	06/24/08	9:29	9.49	--	--	5.81	--
	07/07/08	9:39	9.19	--	--	6.11	--
	07/22/08	9:00	9.38	--	--	5.92	--
	08/12/08	9:36	9.35	--	--	5.95	--
	09/03/08	--	9.36	Sheen	--	5.94	--

Table 2
Summary of Groundwater Elevation Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Well Number[1] (Well Casing Elevation)	Date Measured	Time Measured (hr:min)	Depth to Groundwater[2] (feet)	Depth to LNAPL[3] (feet)	LNAPL Thickness[3] (feet)	Groundwater Elevation[4] (feet)	Top of Well Screen Elevation[5] (feet)
RW-21 Continued	10/08/08	8:30	9.72	Sheen	--	5.58	--
	10/17/08	8:41	9.50	--	--	5.80	--
	10/29/08	8:31	9.58	--	--	5.72	--
	11/12/08	9:27	7.83	--	--	7.47	--
	12/03/08	10:10	9.22	9.20	0.02	6.10	--
	01/06/09	9:26	7.89	Sheen	--	7.41	--
	01/20/09	12:29	8.56	8.55	0.01	6.75	--
	02/03/09	9:24	9.20	Sheen	--	6.10	--
	02/17/09	9:50	9.05	Sheen	--	6.25	--
	03/12/09	11:31	9.16	Sheen	--	6.14	--
	03/25/09	9:24	9.01	Sheen	--	6.29	--
	04/08/09	9:57	8.91	8.90	0.01	6.40	--
	04/30/09	9:49	8.88	Sheen	--	6.42	--
	05/12/09	9:43	8.45	8.44	0.01	6.86	--
	05/26/09	14:48	8.82	--	--	6.48	--
	06/09/09	9:26	8.64	--	--	6.66	--
	06/25/09	9:29	8.68	--	--	6.62	--
	07/07/09	9:26	8.95	Sheen	--	6.35	**--**
	07/13/09	8:05	9.45	--	--	5.85	**--**
	08/05/09	6:45	8.96	Sheen	--	6.34	**--**
	08/06/09	9:18	9.06	--	--	6.24	**--**
	08/20/09	8:34	9.15	--	--	6.15	**--**
	09/10/09	9:57	9.28	--	--	6.02	**--**
	09/23/09	9:21	9.25	Sheen	--	6.05	**--**
	10/08/09	9:16	9.31	Sheen	--	5.99	**--**
	10/19/09	9:50	9.23	Sheen	--	6.07	**--**
	11/12/09	9:19	7.82	Sheen	--	7.48	**--**
	03/24/10	9:37	8.62	Sheen	--	6.68	--
	04/13/10	10:19	8.61	Sheen	--	6.69	--
	05/26/10	9:32	8.73	Sheen	--	6.57	--
	09/21/10	10:05	8.46	Sheen	--	6.84	--
	11/19/10	16:01	9.21	Sheen	--	6.09	--
	03/04/11	9:31	8.18	Sheen	--	7.12	**--**
	04/25/11	8:50	8.50	8.49	0.01	6.81	**--**
	09/21/11	9:18	9.20	LNAPL on probe	--	6.10	--
	11/21/11	9:34	9.03	--	--	6.27	--
	02/20/12	10:23	8.76	LNAPL on probe	--	6.54	--
	04/17/12	10:10	8.65	--	--	6.65	--
	10/10/12	9:20	9.70	LNAPL on probe	--	5.60	--
	12/24/12	UNABLE TO ACCESS					
	01/08/13	UNABLE TO ACCESS					
	04/30/13	10:00	8.74	Tar on probe	--	6.56	
	09/19/13	10:10	9.43	Tar on probe	--	5.87	--
	11/22/13	8:55	10.23	--	--	5.07	--
	06/12/14	Well Decommissioned					

Notes:
[1]Well casing elevations listed in feet above mean sea level. Approximate monitoring well locations are shown in Figure 2.
"--" = not measured or not obtainable
[2]Below top of casing.
[3]Light non-aqueous phase liquid
[4]Elevation referenced to city of Seattle datum.
[5]Top of well screen elevation data from historic records.
[6]TOC elevations for wells MW-200 to 207, MW-27R, and MW-61A-R were surveyed using an arbitrary datum point, 9.65 feet lower than the datum from the upper well survey.
[7]Depth to water was measured with pump in well.
[8]Survey by OTAK 5/27/08.
[9] Groundwater elevation recorded prior to pump testing at the site. Sheen observed on extracted groundwater during hydraulic conductivity testing on well MW-205.
[10] LNAPL indicated in field notes, measurement not taken
[11] TOC elevations for wells PZ-61A-R, PZ-203, and PZ-204 unknown.
NR = Not reported.
UK = TOC elevations unknown.
Bolded data are for the current reporting period.

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Upper Yard RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Upper Yard											
MW-37	06/01/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
	09/15/95	ND	<0.50	<0.50	<0.50	<1.0	--	<1.0	<1.0	<0.75	--
	12/14/95	ND	<0.50	<0.50	<0.50	<1.0	--	<0.05	<0.27	<0.75	--
MW-38	06/01/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
MW-39	01/17/91	--	<0.5	0.5	0.6	2.2	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	--
MW-40	06/01/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	10/16/90	--	<0.5	1.0	0.6	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	--
MW-61A	03/13/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.956	2.14	<0.750	--
	06/18/98	ND	<2.50	<2.50	<2.50	<5.00	--	1.01	3.49	<0.750	
	09/03/98	ND	<0.500	<0.500	<0.500	<0.500	--	0.396	1.85	<0.750	<1.00
	12/15/98	Sheen	<2.50	<2.50	2.82	12.8	--	10.2	146/73.0	<30.8/<15.8	--
Duplicate	12/15/98	Sheen	<2.50	<2.50	<2.50	5.81	--	2.93	32.3/14.6	<3.75/<0.750	--
	03/23/99	Sheen	<0.500	<0.500	2.56	13.8	--	4.34	39.7/32.7	<8.25/<3.75	--
Duplicate	03/23/99	Sheen	<2.50	<2.50	<2.50	<5.00	--	1.56	52.8/42.1	<8.25/<8.25	--
	07/01/99	ND	<0.500	<0.500	<0.900	<3.70	--	1.38[4]	4.43/2.08	<0.750/<0.750	<1.00
Duplicate	07/01/99	ND	<1.00	<1.00	<1.40	<5.60	--	1.30[4]	4.45/3.08	<0.750/<0.750	--
	09/29/99	Sheen	<0.500	<5.00	<5.00	<1.00	--	2.16[5]	7.57/4.04	<0.750/<0.750	--
Duplicate	09/29/99	Sheen	<0.500	<0.500	<5.00	<10.0	--	2.80[5]	19.7/21.1	0.758/<1.57	--
	12/16/99	Sheen	<0.500	<5.00	<3.50	<17.00	--	7.61	33.4/30.1	<15.8/<8.25	--
Duplicate	01/04/00[6]	Sheen	<0.500	<5.00	<5.00	<4.15	--	1.40	12.1/8.29	<1.34/<1.34	--
	03/21/00	ND	<0.500	<0.500	<0.550	<1.85	--	0.831	13.1[7]	<0.750[7]	--
Duplicate	03/21/00	ND	<0.500	<0.500	<0.720	<3.40	--	1.05	6.36[7]	<0.750[7]	--
	06/22/00[8]	ND	0.779	<0.500	<0.500	2.32	--	1.00	4.23/3.38	<0.750/<0.750	<1.00
Duplicate	06/22/00	ND	0.880	<0.500	0.591	2.46	--	0.836	5.99/4.13	<0.750/<0.750	--
	09/14/00	ND	<0.500	<0.500	<0.704	<3.11	--	1.36	2.49/1.50	<0.750/<0.750	--
Duplicate	09/14/00	ND	<0.500	<0.500	0.986	<3.21	--	1.00	5.00/3.13	<0.750/<0.750	--
	12/21/00	ND	<0.500	<1.24	<0.500	<3.87	--	1.18	4.62/2.48	<0.750/<0.750	--
Duplicate	12/21/00[9]	ND	<0.500	<0.500	<0.500	<1.00	--	0.721	5.64/3.81	<0.750/<0.750	--
	03/14/01	ND	<0.565	<0.500	<1.38	<4.31	--	0.962	2.55/1.28	<0.750/<0.750	--
Duplicate	03/14/01	ND	<0.500	<0.500	<0.500	<1.12	--	0.498	1.82/0.668	<0.750/<0.750	--
	06/21/01	ND	<0.500	0.855	<0.500	1.14	--	0.773	2.45/1.55	<0.750/<0.750	<1.00
Duplicate	06/21/01	ND	<0.500	<0.500	<0.500	2.61	--	0.676	1.80/1.04	<0.750/<0.750	--
	09/25/01	Sheen	<0.500	<0.500	<0.500	2.62	--	0.839	14.3/11.3	<8.25/<0.750	--
Duplicate	09/25/01	Sheen	<0.500	0.923	0.592	4.22	--	0.918	5.12/4.47	<0.750/<0.750	--
	12/19/01	Sheen	0.825	<2.00	<1.00	<1.50	--	2.54	19.4/14.8[10]	<3.00/<3.00[10]	--
	03/26/02	Sheen	<0.500	<0.500	<0.500	1.24	--	0.414	1.38/0.615	<0.750/<0.750	--
Duplicate	03/26/02	Sheen	<0.500	<0.500	<0.500	1.85	--	0.592	1.99/0.847	<0.750/<0.750	--
Duplicate	06/19/03	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.360	1.43	<0.750	--
	09/18/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.728	<0.750	--
	12/03/03	Sheen	<0.500	<0.500	<0.500	1.22	--	0.604	2.46	<0.750	--
Duplicate	12/03/03	Sheen	<0.500	<0.500	<0.500	1.30	--	0.701	2.35	<0.750	--
MW-61A-R	03/02/06	Sheen/LNAPL	--	--	--	<1.00	--	--	--	--	--
	06/06/06	Sheen	<2.50	<2.50	7.64	7.48	--	3.92	20.6	<3.75	--
	09/15/06	Sheen	396	79.7	26.4	243	--	17.2	200	<142	--
	03/07/07	ND	<0.5	<0.5	0.5	<1.5	--	0.18	0.29	<0.095	--
	06/08/07	ND	<0.500	<2.0[16]	1.500	1.7	--	0.400	0.600	<0.095	<0.037
	09/26/07	ND	<0.5	<0.5	1.4	<1.5	--	0.430	0.770	0.120	--
	11/28/07	ND	<0.5	<0.5	0.9	<1.5	--	0.410	0.340	<0.100	--
Duplicate	11/28/07	ND	<0.5	<0.5	0.9	<1.5	--	0.400	0.670	0.370	--
	02/13/08	ND	<0.500	<0.500	0.980	1.14	--	0.455	0.308	<0.485	--
	05/14/08	ND	<0.500	<0.500	1.24	1.43	--	0.363	0.406	<0.472	--
	09/04/08	Sheen	<0.500	1.16	3.58	1.13	--	0.933	0.380	<0.490	--
	12/03/08	LNAPL	--	--	--	--	--	--	--	--	--
	02/18/09	Sheen	<0.500	<0.500	<0.500	1.32	--	0.490	0.830	<0.481	--
	09/10/09	LNAPL	--	--	--	--	--	--	--	--	--
	04/14/10	LNAPL	--	--	--	--	--	--	--	--	--
	09/23/10	ND	<0.50	<0.50	0.68	<2.0	--	0.76	1.5	<0.26	--
	04/25/11	LNAPL	--	--	--	--	--	--	--	--	--
	09/21/11	LNAPL	--	--	--	--	--	--	--	--	--
	04/18/12	LNAPL	--	--	--	--	--	--	--	--	--
	10/10/12	LNAPL	--	--	--	--	--	--	--	--	--
	04/30/13	LNAPL	--	--	--	--	--	--	--	--	--
	09/19/13	LNAPL	--	--	--	--	--	--	--	--	--
	06/24/14	LNAPL	--	--	--	--	--	--	--	--	--
	12/16/15	LNAPL	--	--	--	--	--	--	--	--	--
	06/17/15	LNAPL	--	--	--	--	--	--	--	--	--
	12/09/15	LNAPL	--	--	--	--	--	--	--	--	--
	06/15/16	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**0.220**	**0.120**	**<0.067**	**--**
MW-62A	03/13/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.288	<.0250	<.0750	--
	06/18/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/03/98	ND	<1.00	<0.500	0.901	2.79	--	0.134	<0.250	<0.750	<1.00
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/23/99	ND	10.8	<5.00	<5.00	<10.0	--	<0.500	0.371/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.311/<0.250	<0.750/<0.750	1.09
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.709/<0.250	<0.750/<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.376/<0.250	<0.750/<0.750	--
	12/21/00[9]	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/14/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/25/01	ND	<0.500	<0.500	<0.500	1.57	--	<0.0500	0.373/<0.250	<0.750/<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	<0.250[10]	<0.750[10]	--
	03/26/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.320/<0.250	<0.750/<0.750	<1.00
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.863	<0.750	--
	12/03/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-63A	03/13/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/18/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/03/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/23/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.389/<0.250	<0.750/<0.750	1.82
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.305/<0.539	<0.750/<1.62	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.380/<0.250	<0.750/<0.750	--
	03/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.366/<0.462	<0.750/<1.39	<1.00
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.273/<0.250	<0.750/<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.575/<0.250	<0.750/<0.750	--
	03/14/01	ND	<0.500	0.922	<0.500	1.92	--	<0.0500	<0.250	<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.468/<0.250[10]	<0.750/<0.750[10]	--
	03/26/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.379/<0.250	<0.750/<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.299/<0.250	<0.750/<0.750	<1.00
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.514	<0.750	--
	12/03/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Upper Yard RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Upper Yard											
MW-64	06/18/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/03/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.325/<0.250	<0.750/<0.750	--
	03/23/99	ND	<0.500	<0.500	<0.500	2.42	--	<0.0500	0.354/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.319/<0.250	<0.750/<0.750	1.09
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.448/<0.564	<0.750/<0.169	--
	01/04/00[4]	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250/<0.250	<0.750/<0.750	--
	03/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.255[7]	<0.750	--
	06/22/00[4]	ND	<0.500	1.39	0.654	5.39	--	0.0908	0.315/<0.487	<0.750/<1.46	<1.00
	07/25/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.298/<0.250	<0.750/<0.750	--
	03/14/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.263/<0.250[11]	<0.750/<0.750[11]	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.372/<0.250[10]	<0.750/<0.750[10]	--
	03/26/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.499/<0.250	<0.750/<0.750	<1.00
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	0.0563	0.38	<0.750	--
	12/03/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.379	<0.750	--
Elliott Avenue RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Elliott Avenue											
MW-30[12]	01/31/89	--	4.0	0.6	<0.5	<0.5	6	<5	--	--	--
	04/27/89	--	5.0	<0.5	0.6	<0.5	0.37	<5	--	--	--
	07/25/89	--	8.0	4.9	17.0	11.1	13	<5	--	--	--
	10/26/89	LNAPL	--	--	--	--	--	--	--	--	--
	01/16/90	LNAPL	--	--	--	--	--	--	--	--	--
	04/16/90	LNAPL	--	--	--	--	--	--	--	--	--
	07/25/90	LNAPL	--	--	--	--	--	--	--	--	--
	09/20/90		--	--	--	--	1	--	--	--	--
	10/16/90	--	<5.0	<5.0	<5.0	<5.0	10	--	--	--	28
	01/17/91	--	<0.5	<0.5	0.6	3.5	24	2	13	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
	09/17/91	LNAPL	--	--	--	--	--	--	--	--	--
	12/10/91	LNAPL	--	--	--	--	--	--	--	--	--
	01/29/92	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	03/13/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.341	<0.750	--
Duplicate	03/13/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.0522	<0.250	<0.750	--
	06/29/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
Duplicate	06/29/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/04/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.575	<0.750	--
Duplicate	09/04/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.416	<0.750	--
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.900/0.310	<0.750/<0.750	--
	03/24/99	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.47/0.580	1.38/<0.750	--
	07/01/99	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.526/<0.250	<0.750/<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.12/<0.454	1.19/<1.36	--
	12/15/99	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.0657	2.72/0.679	<1.43/<1.43	--
	03/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.68/0.753	1.35/<0.750	--
	06/21/00	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.0545	0.345/<0.250	<0.750/<0.750	<1.00
	09/14/00	--	--	--	--	--	--	--	--	--	--
	12/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	0.0766	1.17/0.353	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	0.248	4.85/3.27	6.28/3.25	--
	06/22/01	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.448/<0.250	<0.750/<0.750	--
	09/25/01	Sheen	<0.500	<0.500	<0.500	1.12	--	<0.0500	2.73/1.60	2.20/1.22	--
	12/18/01	Sheen	<0.500	<2.00	<1.00	<1.50	--	<0.100	1.09/<0.250[10]	<0.750/<0.750[10]	--
Duplicate	12/18/01	Sheen	<0.500	<2.00	<1.00	<1.50	--	0.107	1.05/<0.250[10]	<0.750/<0.750[10]	--
	03/27/02	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.0793	1.62/0.536	0.936/<0.750	--
	06/20/02	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.527/<0.250	<0.750/<0.750	--
	09/19/02	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/13/02	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.419	<0.750	--
	06/19/03	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/18/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/03/03	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/09/04	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/03/04	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.544	<0.750	--
Duplicate	06/03/04	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.913	0.765	--
	09/03/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.451	<0.750	--
Duplicate	09/03/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.33	0.765	--
	12/06/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.381	<0.750	--
Duplicate	12/06/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.268	<0.750	--
	03/04/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.747	0.898	--
Duplicate	03/04/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.835	0.976	--
	06/03/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.278	<0.750	--
Duplicate	06/03/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/01/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.416	<0.750	--
Duplicate	09/01/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.366	<0.750	--
	12/01/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.359	<0.708	--
Duplicate	12/01/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.438	<0.714	--
	03/02/06	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.236	<0.708	--
Duplicate	03/02/06	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.236	<0.708	--
	06/06/06	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
Duplicate	06/06/06	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/15/06	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.708	--
Duplicate	09/15/06	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.708	--
	03/07/07	Sheen	<0.5	<0.5	<0.5	<1.5	--	<0.048	1.6	0.53	--
	06/08/07	ND	<0.500	<0.500	<0.500	<1.50	--	<0.050	0.800	<0.095	<0.037
	09/26/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.300	<0.095	--
	11/28/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.340	0.120	--
	02/13/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.278	<0.556	--
	05/14/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472	--
	09/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.243	<0.485	--
	12/05/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.245	<0.490	--
	02/18/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495	--
	05/12/09	LNAPL	--	--	--	--	--	--	--	--	--
	09/10/09	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	<0.500	--
	04/14/10	Sheen	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.13	<0.27	--
	09/23/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.13	<0.25	--
	04/27/11	Sheen	<0.50	<0.50	<0.50	<1.0	--	0.052	--	--	--
	09/22/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	<0.12	<0.24	--
	09/22/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	0.17[17]	<0.24	--
	04/18/12	Sheen	--	--	--	--	--	--	--	--	--
	10/12/12	ND	<0.50	<0.50	<0.50	<0.50	--	<0.025	0.19	<0.24	--
	04/26/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.069	--
	09/19/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067	--
	06/24/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050 UJ	<0.029	<0.067	--
	12/16/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066	--
	06/18/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.5	0.640	--
	12/07/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.120	0.310	--
	06/13/16	**LNAPL**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Elliott Avenue RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Elliott Avenue (continued)											
MW-31	08/10/89	--	<0.5	1.4	2.1	5.9	4.1	--	--	--	<5
	10/26/89	--	7.1	<0.5	1.0	3.3	5.5	--	--	--	<5
	01/16/90	--	4.2	<0.5	<0.5	<0.5	2.2	--	--	--	<5
	04/16/90	--	5.2	1.5	1.9	4.5	<1	--	--	--	<5
	07/25/90	--	2.0	<0.5	2.2	1.8	6	--	--	--	<5
	10/16/90	--	0.7	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/90	--	1.6	0.6	1.6	4.4	--	2	<1	--	<5
	04/16/91	--	1.8	0.6	1.9	4.5	--	<1	<1	--	<2
	09/17/91	--	--	--	--	--	--	--	--	--	--
	12/10/91	--	--	--	--	--	--	--	--	--	--
	09/14/95	ND	<0.50	<0.50	<0.50	<0.50	--	<0.05	0.54	0.94	--
	12/15/95	ND	<0.50	<0.50	<0.50	<1.0	--	<0.05	0.36	0.78	--
	03/14/96	ND	<0.50	<0.50	<0.50	<1.0	--	<0.05	1.2	0.94	--
	09/11/96	ND	<0.500	<0.500	<0.500	<1.00	--	0.0519	0.864	2.16	--
	03/18/97	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	0.546	<0.750	--
	06/26/97	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	<0.750	--
	06/29/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.320/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.269/<0.250	<0.750/<0.750	<1.00
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.723/<0.250	<0.750/<0.750	--
	06/22/00[6]	ND	<0.500	5.05	1.39	15.0	--	0.167	<0.250	<0.750	<1.00
	12/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/01	ND	<0.500	<0.500	<0.500	<1.00	--	0.0576	<0.250	<0.750	<1.00
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	1.08/<0.250[10]	<0.750/<0.750[10]	<1.00
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.568/<0.250	<0.750/<0.750	<1.00
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.436	1.27	--
	12/03/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-32	08/10/89	--	2.7	2.9	0.8	2.3	1.7	--	--	--	<5
	10/26/89	--	<0.5	1.7	<0.5	0.7	2.1	--	--	--	<5
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	0.76	--	--	--	<5
	04/16/90	--	<0.5	1.0	<0.5	<0.5	<1	--	--	--	<5
	07/25/90	--	<0.5	<0.5	1.1	<0.5	1	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	0.5	1.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	0.6	0.6	1.6	--	<1	<1	--	<2
	09/17/91	--	--	--	--	--	--	--	--	--	--
	12/01/91	--	--	--	--	--	--	--	--	--	--
MW-58	09/15/95	ND	<0.50	<0.50	<0.50	<1.0	--	<1.0	<1.0	<0.75	--
	12/14/95	ND	<0.50	<0.50	<0.50	<1.0	--	<0.05	<0.25	<0.75	--
	03/14/96	ND	<0.50	<0.50	<0.50	<1.0	--	<0.05	<0.25	<0.75	--
	09/11/96	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	0.979	--
	12/11/96	ND	--	--	--	--	--	--	--	--	--
	03/18/97	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.372	<0.750	--
	06/25/97	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	<0.750	--
	06/30/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	2.43	--	<0.0500	<0.250	<0.750	<1.00
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	<0.250[10]	<0.750[10]	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/03/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-65	03/13/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/29/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/04/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.482/<0.250	<0.750/<0.750	--
	03/24/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.975/<0.250	0.991/<0.750	--
	06/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.750/<0.250	<0.750/<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.683/<0.250	<0.750/<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.418/<0.250	<0.750/<0.750	--
	03/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.816/<0.250	<0.750/<0.750	--
	06/23/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.689/<0.250	<0.750/<0.750	<1.00
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.603/<0.250	<0.750/<0.750	--
	12/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.408/<0.250	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.620/<0.250	<0.750/<0.750	--
	06/22/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.262/<0.250	<0.750/<0.750	<1.00
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.584/0.225	<0.750/<0.750	<1.00
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.675/<0.250[10]	0.779/<0.750[10]	<1.00
	03/26/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.749/<0.250	<0.750/<0.750	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.675/<0.250	<0.750/<0.750	<1.00
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/03/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/07/07	ND	<0.500	<0.500	<0.500	<1.00	--	<0.048	0.730	0.170	--
	06/08/07	ND	<0.500	<0.500	<0.500	<1.50	--	<0.050	0.530	0.250	<0.037
	11/26/07	ND	<0.5	<0.5	0.7	<1.5	--	<0.050	0.470	0.190	--
MW-66	03/13/98	ND	<1.25	<1.25	<1.25	<5.00	--	1.20[5]	3.52	<0.750	--
	06/29/98	ND	<0.500	<0.500	<0.500	1.06	--	0.424	<0.250	<0.750	<1.00
	09/04/98	ND	<0.500	<0.500	<0.500	<2.00	--	0.257	1.27	<0.750	--
	12/15/98	ND	<0.500	<0.500	0.508	2.62	--	0.0387	0.906/<0.250	<0.750/<0.750	--
	03/24/99	ND	<0.500	<0.500	<0.900	<3.00	--	1.05	8.44/5.11	<0.750/<0.750	--
	07/01/99	Sheen	<0.500	<0.500	<0.500	<1.70	--	0.310[4]	1.37/0.596	<0.750/<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	0.216[4]	2.32/1.10	<0.750/<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	0.332	0.659/<0.250	<0.750/<0.750	--
	03/22/00	ND	<0.500	<0.500	<0.500	<3.00	--	0.711	4.31/2.31	<0.750/<0.750	--
	06/23/00[8]	Trace	<0.500	<0.500	<0.500	<1.00	--	0.109	0.439/<0.250	<0.750/<0.750	<1.00
	09/14/00	ND	<0.500	<0.500	<0.500	<2.16	--	0.416	1.601/1.43	<0.750/<0.750	--
	12/22/00	ND	<0.500	<0.500	<0.500	<2.35	--	0.475	1.87/0.819	<0.750/<0.750	--
	03/15/01	ND	<0.570	<0.922	<0.500	<3.91	--	1.16	7.03/5.43	1.01/<0.750	--
	06/22/01	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.130	0.409/<0.250	<0.750/<0.750	--
	09/25/01	Sheen	<0.500	<0.500	<0.500	1.06	--	0.142	4.06/3.14	0.811/<0.750	--
	12/18/01	Sheen	<0.500	<2.00	<1.00	<1.50	--	0.162	0.696/<0.250[10]	<0.750/<0.750[10]	--
	03/27/02	Sheen	<0.500	<0.500	<0.500	1.32	--	0.454	4.41/2.58	1.41/<0.750	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	0.052	0.650/<0.250	<0.750/<0.750	--
	09/19/02	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.128	<0.250[11]	<0.750[11]	--
	12/13/02	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.0845	0.688	<0.750	--
	03/21/03	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.114	2.72	<0.750	--
	06/19/03	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.189[5]	0.707	<0.750	--
	09/18/03	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.171	3.73	<0.750	--
	12/03/03	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.0509	1.45	<0.750	--
	03/09/04	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.131	0.446	<0.750	--
	06/03/04	ND	<0.500	<0.500	<0.500	<1.00	--	0.121	0.504	<0.750	--
	09/03/04	ND	<0.500	<0.500	<0.500	1.25	--	0.330	1.03	<0.750	--
	12/06/04	ND	<0.500	<0.500	<0.500	<1.00	--	0.116	0.380	<0.750	--
	03/04/05	ND	<0.500	<0.500	<0.500	1.4	--	0.275	0.577	<0.750	--
	06/03/05	ND	<0.500	<0.500	<0.500	<1.00	--	0.149	0.860	<0.750	--
	09/01/05	ND	<0.500	<0.500	<0.500	<1.00	--	0.119	0.678	<0.750	--
	12/01/05	ND	<0.500	<0.500	<0.500	<1.00	--	0.115	0.885	<0.721	--
	03/02/06	ND	<0.500	<0.500	<0.500	<1.00	--	0.0651	0.381	<0.714	--
	06/06/06	ND	<0.500	<0.500	<0.500	<1.00	--	0.128	<0.250	<0.750	--
	09/15/06	ND	<0.500	<0.500	<0.500	<1.00	--	0.0778	0.370	<0.708	--
	03/07/07	--	--	--	--	--	--	--	--	--	--

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Lower Yard RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Lower Yard											
MW-81	10/06/98	Sheen	<0.700	<0.500	<0.500	<1.50	--	0.136[4]	27.6/14.8	26.5/10.0	--
	12/14/98	Sheen	<0.500	<0.500	<0.500	<1.00	--	0.273	3.62/0.563	1.18/<0.750	--
	03/23/99	Sheen	<0.500	0.646	<0.500	2.28	--	0.0632	3.90/2.17	3.14/1.50	--
	06/29/99	Sheen	<0.500	<0.500	<0.500	<1.60	--	0.418	5.22/3.12	4.62/2.55	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	0.566[4]	1.69/0.390	<0.750/<0.750	--
	12/15/99	Sheen	<0.500	<0.500	<0.500	1.15	--	0.0762	2.46/0.366	0.764/<0.750	--
	03/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	0.0817	2.20/0.800	1.28/<0.750	--
	06/22/00[8]	ND	0.536	3.35	2.37	16.2	--	0.234	2.36/0.495	1.29/<0.750	--
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.20/0.347	<0.750/<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	0.585	1.5/0.374	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.16/0.324	<0.750/<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.60/0.751	1.32/<0.750	--
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.59/1.11	0.832/<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	1.62/0.323[10]	<0.750/<0.750[10]	--
	03/27/02	ND	<0.500	<0.500	<0.500	<1.00	--	0.0598	1.31/0.324	<0.750/<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.09/<0.250	<0.750/<0.750	--
MW-82	10/06/98	Sheen	<0.500	<0.500	<0.500	<3.50	--	0.311[4]	7.90/5.43	3.93/2.31	--
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.0793	0.787/<0.250	<0.750/<0.750	--
	03/23/99	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.757/0.268	<0.750/<0.750	--
	06/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	0.2750	3.92/2.51	2.19/1.29	1.25
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	0.0566	1.48/0.784	<0.750/<0.750	--
	12/15/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.561/<0.250	<0.750/<0.750	--
	03/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.797/0.349	<0.750/<0.750	--
	06/22/00[8]	ND	<0.500	1.72	1.48	13.6	--	0.2580	1.01/0.494	<0.750/<0.750	--
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.907/0.522	<0.750/<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.911/0.386	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.839/0.451	<0.750/<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.03/0.675	0.830/<0.750	--
	09/25/01	ND	<0.500	<0.500	<0.500	1.14	--	<0.0500	0.742/0.288	<0.750/<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.278/<0.250[10]	<0.750/<0.750[10]	--
	03/27/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.517/<0.250	<0.750/<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.513/<0.250	<0.750/<0.750	--
MW-83	10/06/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.0923[4]	2.19/1.31	2.36/1.11	--
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.634/<0.250	<0.750/<0.750	--
	03/23/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.413/<0.250	<0.750/<0.750	--
	06/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.729/0.417	0.957/<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.390/<0.250[13]	<0.750/<0.750[13]	--
	12/15/99	ND	<0.500	<0.500	<0.500	1.07	--	<0.0500	0.271/<0.250	<0.750/<0.750	--
	03/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/00[8]	ND	<0.500	<0.500	<0.500	3.76	--	0.205	0.302/<0.250	<0.750/<0.750	--
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.316/<0.250	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.268/<0.250	<0.750/<0.750	--
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	<0.250[10]	<0.750[10]	--
	03/27/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.299/<0.250	<0.750/<0.750	--
MW-84	10/06/98	ND	<2.00	<1.00	<1.50	<8.00	--	1.09[4]	3.52/1.70	1.03/<0.750	--
	12/14/98	ND	<0.500	<0.500	<0.500	2.33	--	0.241	1.01/0.351	<0.750/<0.750	--
	03/23/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	Note 14	Note 14	--
	04/01/99	ND	--	--	--	--	--	--	0.0259	<0.750	--
	06/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	0.0833	2.17/1.12	1.61/<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	0.0517	0.941/0.338	<0.750/<0.750	--
	12/15/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.692/<0.250	<0.750/<0.750	--
	03/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.859/<0.750	<0.750/<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	1.37	--	0.0551	1.39/0.649	0.808/<0.750	--
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.485/<0.250	<0.750/<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.09/0.419	<0.750/<0.750	--
	03/15/01	ND	0.584	<0.500	<0.500	<1.00	--	<0.0500	0.559/<0.250	<0.750/<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.407/<0.250	<0.750/<0.750	--
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.324/<0.250	<0.750/<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.965/<0.250[10]	0.926/<0.750[10]	--
	03/27/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.883/<0.250	<0.750/<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.792/<0.250	<0.750/<0.750	--
MW-85	10/06/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.434/<0.250	<0.750/<0.750	--
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.451/<0.250	<0.750/<0.750	--
	03/23/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.404/<0.250	<0.750/<0.750	--
	06/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.412/<0.250	<0.750/<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.365/<0.250	<0.750/<0.750	--
	12/16/99	ND	<0.500	0.628	<0.500	<1.00	--	<0.0500	0.350/<0.250	<0.750/<0.750	--
	03/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.350/<0.250	<0.750/<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.376/<0.250	<0.750/<0.750	--
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.360/<0.250	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	1.57	--	<0.0500	<0.250	<0.750	--
	09/25/01	ND	<0.500	<0.500	<0.500	1.57	--	<0.0500	<0.250	<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.600/<0.250[10]	<0.750/<0.750[10]	--
	03/27/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.271/<0.250	<0.750/<0.750	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.702/<0.250	<0.750/<0.750	--
MW-86	10/06/98	Sheen	<0.800	<0.500	<0.500	<1.00	--	<0.0500	2.28/2.99	2.57/2.92	--
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	1.65/<0.250	<0.750/<0.750	--
	03/23/99	Sheen	<0.500	<0.500	<0.500	2.54	--	<0.0500	1.39/<0.250	0.883/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.926/<0.250	<0.750/<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.481/<0.250	<0.750/<0.750	--
	12/16/99	ND	<0.500	0.574	<0.500	<1.00	--	<0.0500	1.71/<0.250	<0.750/<0.750	--
	03/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.901[7]	<0.750[7]	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.535/<0.250	<0.750/<0.750	--
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.617/<0.250	<0.750/<0.750	--
	12/21/00[9]	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.374/<0.250	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.436/0.250	<0.750/<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.606/0.310	<0.750/<0.750	--
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	1.21/<0.250[10]	<0.750/<0.750[10]	--
	03/27/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.464/<0.250	<0.750/<0.750	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.629/<0.250	<0.750/<0.750	--

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Offsite Area RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Offsite Area											
MW-8	01/31/89	--	0.6	<0.5	<0.5	<0.5	0.21	--	--	--	<25
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	1.1	--	--	--	<5
	07/25/89	--	4.3	2.1	<0.5	<0.5	0.17	--	--	--	18
	10/26/89	--	<0.5	<0.5	<0.5	<0.5	0.94	--	--	--	<5
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	0.35	--	--	--	<5
	04/16/90	--	2.8	<0.5	<0.5	<0.5	<1	--	--	--	<50
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<50
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	2	--	--	--	<100
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<20
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	6
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<3.0
	06/25/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.523/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.501/<0.403	<1.21/<1.21	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	0.0558	0.273/<0.249	<0.750/<0.737	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.441/<0.245	<0.750/<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.464/<0.250[10]	<0.750/<0.750[10]	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.271/<0.250	<0.750/<0.750	--
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.439	0.762	--
	12/02/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-10	01/31/89	--	<0.5	<0.5	<0.5	<0.5	0.36	--	--	--	<5
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	2.2	--	--	--	<5
	07/25/89	--	<0.5	<0.5	<0.5	<0.5	0.45	--	--	--	<5
	10/26/89	--	<0.5	<0.5	<0.5	<0.5	3.4	--	--	--	<5
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	0.35	--	--	--	<5
	04/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	6	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<3
	06/25/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.0593	<0.250	<0.750	1.24
	12/14/98	ND	<0.500	<0.500	<0.500	1.28	--	0.0715	0.953/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.652/<0.250	<0.750/<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	0.076	0.706/<0.475	<1.43/<1.43	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	0.0846	<0.503[13]	<1.51[13]	--
	12/21/00	ND	<0.500	<0.500	<0.500	1.10	--	0.0657	0.555/<0.250	<0.750/<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.301/<0.250	<0.750/<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.551/<0.250[10]	<0.750/<0.750[10]	--
	06/19/02	ND	<0.500	<0.500	<0.500	1.43	--	0.0545	0.656/<0.250	<0.750/<0.750	--
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/02/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-20	01/31/89	--	<0.5	<0.5	<0.5	<0.5	1.1	--	--	--	<5
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	1.6	--	--	--	<5
	07/25/89	--	1.0	<0.5	<0.5	<0.5	0.31	--	--	--	<5
	10/26/89	--	0.7	<0.5	<0.5	<0.5	3.2	--	--	--	<5
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	1.4	--	--	--	<5
	04/16/90	--	0.6	<0.5	<0.5	<0.5	<1	--	--	--	<5
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	3.4
	06/25/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.287/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.291/<0.250	<0.750/<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.452/<0.250	<0.750/<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	1.67	--	<0.0500	<0.250	<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.569/<0.250	<0.750/<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.277/<0.250	<0.750/<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	1.05/<0.250[10]	<0.750/<0.750[10]	--
	06/20/02	ND	6.60	<0.500	<0.500	3.30	--	<0.0500	0.627/<0.250	<0.750/<0.750	--
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/02/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-25	01/31/89	--	<0.5	4.7	<0.5	2.3	3.7	--	--	--	<5
	04/27/89	--	7.2	1.2	1.6	<0.5	0.93	--	--	--	<5
	07/25/89	--	1.4	0.8	<0.5	1.2	3.4	--	--	--	<5
	10/26/89	--	<0.5	<0.5	<0.5	<0.5	7.8	--	--	--	<5
	01/16/90	--	1.3	<0.5	<0.5	<0.5	4.9	--	--	--	<5
	04/16/90	--	6.6	1.4	0.8	2.7	<1	--	--	--	<5
	07/25/90	--	2.5	0.6	0.6	0.8	<1	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	0.8	<1	--	--	--	<5
	01/17/91	--	1.0	0.7	<0.5	1.4	<1	<1	<1	--	<5
	04/16/91	--	0.9	<0.5	<0.5	<0.5	--	<1	<1	--	<20
	09/19/91	--	<0.5	<0.5	<0.5	0.6	--	<1	<1	--	<20
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<3.0
	03/13/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.160	<0.250	<0.750	--
	06/24/98	ND	<0.500	1.68	<0.500	<1.00	--	0.689	<0.250	<0.750	<1.00
	09/03/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.0716	<0.250	<0.750	--
	12/14/98	ND	<0.500	<0.500	0.795	1.31	--	0.0697	1.26/<0.250	<0.750/<0.750	--
	03/24/99	ND	<0.600	<0.700	<1.00	<2.50	--	0.118	0.969/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.719/<0.250	<0.750/<0.750	<20.0
	09/29/99	ND	<0.500	3.52	<0.500	<10.0	--	0.136	1.58/<0.476	<1.43/<1.43	--
	12/16/99	ND	<0.500	<0.500	0.632	1.81	--	0.166	1.31/<0.250	<0.750/<0.750	--
	03/22/00	ND	<0.500	1.94	<0.500	<1.00	--	0.148	1.36/<0.447	<1.34/<1.34	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	0.0876	0.674/<0.250	<0.750/<0.750	<10.0
	09/15/00	ND	<0.500	<0.607	<0.500	<1.28	--	0.716	1.26/<0.250	<0.750/<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	1.18	--	0.0991	1.25/<0.250	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	1.75	--	0.0664	1.19/<0.250	<0.750/<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.538/<0.250	<0.750/<0.750	<1.00
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	0.0596	0.864/<0.250	<0.750/<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	0.175	2.22/<0.250[10]	0.852/<0.750[10]	--
	03/26/02	ND	<0.500	<0.500	<0.500	1.39	--	0.12	0.861/<0.250	<0.750/<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	1.44	--	0.108	0.706/<0.250	<0.750/<0.750	<1.00
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	0.0578	<0.250	<0.750	--
	12/02/03	ND	<0.500	<0.500	<0.500	<1.00	--	0.110	<0.250	<0.750	--

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Offsite Area RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Offsite Area (continued)											
MW-26	01/31/89	--	<0.5	<0.5	<0.5	<0.5	0.64	--	--	--	25
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	0.08	--	--	--	<5
	07/25/89	--	<0.5	<0.5	<0.5	<0.5	1.4	--	--	--	<5
	10/26/89	--	<0.5	<0.5	<0.5	<0.5	0.94	--	--	--	<5
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	1.8	--	--	--	<5
	04/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	2	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<50
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	--	<50
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
	09/19/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<3.0
	06/30/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250/<0.250	<0.750/<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.445/<0.250[10]	<0.750/<0.750[10]	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/02/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-27	01/31/89	--	<0.5	1.8	<0.5	<0.5	0.64	--	--	--	<5
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	0.23	--	--	--	<5
	07/25/89	--	1.0	<0.5	<0.5	<0.5	0.68	--	--	--	<5
	10/26/89	--	1.3	0.7	<0.5	0.7	1.1	--	--	--	<5
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	1.3	--	--	--	<5
	04/16/90	--	<0.5	<0.5	<0.5	0.6	<1	--	--	--	<5
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	2	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	0.6	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	0.9	--	<1	<1	--	<2
	09/19/91	--	<0.5	<0.5	<0.5	1.1	--	<1	<1	--	4
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<3.0
	03/13/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/24/98	ND	<0.500	2.85	<0.500	<1.00	--	0.188	<0.250	<0.750	<1.00
	09/03/98	ND	<0.800	<0.500	<0.500	<1.00	--	0.0961	0.316	<0.750	--
	12/14/98	ND	<4.00	<0.500	<0.500	1.33	--	0.119	0.485/<0.250	<0.750/<0.750	--
	03/24/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.394/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<2.20	<0.500	<1.00	--	0.0823	0.394/<0.250	<0.750/<0.750	--
	09/29/99	ND	<0.500	1.87	<0.500	<1.00	--	<0.0500	0.830/<0.323	<0.750/<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	1.29	--	0.0925	0.544[15]	<0.750[15]	--
	03/22/00	ND	<0.500	0.874	<0.500	<1.00	--	<0.0500	0.468/<0.250	<0.750/<0.750	--
	06/22/00	ND	0.692	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/15/00	ND	<0.605	<0.500	<0.500	<1.00	--	<0.0500	0.420/<0.250	<0.750/<0.750	--
	12/21/00	ND	1.89	<0.500	<0.500	<1.00	--	0.0727	0.308/<0.250	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.537/<0.250	<0.750/<0.750	--
	06/21/01	Sheen	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.259/<0.250	<0.750/<0.750	--
	09/25/01	ND	0.571	<0.500	<0.500	<1.00	--	<0.0500	1.38/0.547	<0.750/<0.750	--
	12/19/01	Sheen	<0.500	<2.00	<1.00	<1.50	--	<0.100	<0.250[10]	<0.750[10]	--
	03/26/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.257/<0.250	<0.750/<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	1.05	--	<0.0500	<0.250	<0.750	--
	09/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/21/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/19/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/18/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.672	<0.750	--
	12/03/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/09/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/03/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/03/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/06/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/04/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/03/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/01/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/01/05	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.236	<0.708	--
	03/02/06	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.236	<0.708	--
MW-27R	03/07/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.048	<0.076	<0.094	--
	09/26/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.077	<0.096	<0.47
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.080	<0.100	0.091
MW-34	10/26/89	--	1.7	3	<0.5	2.1	0.27	--	--	--	<5
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	0.08	--	--	--	<5
	04/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	3
	12/01/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	3.0
MW-35	10/26/89	--	33	1.1	<0.5	1.4	<0.5	--	--	--	<5
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	<5
	04/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	2
	12/01/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	3.3
MW-36	10/26/89	--	330	1.9	2.5	8.0	2	--	--	--	<5
	01/16/90	--	95	3.1	<0.5	9.4	0.39	--	--	--	<5
	04/16/90	--	140	7.8	<0.5	<5.0	3.2	--	--	--	<5
	07/25/90	--	<0.5	<0.5	3.4	17	4	--	--	--	<5
	10/16/90	--	8.0	<0.5	<0.5	4.8	8	--	--	--	<5
	01/17/91	--	1.2	5.6	12	58	6	11	20	--	<5
	04/16/91	--	1.7	6.4	<0.5	4.9	--	<1	<1	--	<2
	09/17/91	--	<0.5	<0.5	1.1	3.2	--	15	29	--	<2
	12/01/91	--	<0.5	<0.5	2.5	6.5	--	<1	<1	--	<3.0
	03/13/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.609	12.5	2.69	--
	06/25/98	ND	<0.500	<0.500	<0.500	<2.50	--	0.345	<0.250	<0.750	<1.00
	09/03/98	ND	<0.800	<0.500	<0.750	<4.00	--	0.499	7.42	1.43	--
	12/14/98	ND	1.24	0.699	0.707	4.12	--	0.536	1.43/<0.250	<0.750/<0.750	--
	03/24/99	ND	1.96	<1.10	<1.40	<3.50	--	0.999	27.1/18.1	5.86/3.39	--
	07/01/99	ND	<0.500	<0.500	<0.500	<2.00	--	0.257[4]	1.28/<0.250	<0.750/<0.750	--
	09/29/99	ND	<0.500	<0.500	<5.00	<10.0	--	0.562[4]	4.63/2.01	0.849/<0.0750	--
	12/16/99	ND	0.813	<1.50	<5.00	<2.00	--	0.344	0.867/<0.250	<0.750/<0.750	--
	03/22/00	ND	<0.500	0.792	<0.500	<3.00	--	0.584	6.42/4.30	1.58/<0.750	--
	06/22/00[8]	ND	5.80	70.0	33.2	240	--	2.17	0.850/<0.250	<0.750/<0.750	--
	09/15/00	Sheen	<0.500	<2.39	<0.704	<5.46	--	0.923	9.25/6.10	1.70/0.927	--
	12/21/00	ND	0.636	<1.12	<0.500	<2.20	--	0.229	1.26/<0.250	<0.750/<0.750	--
	03/15/01	ND	2.00	<1.04	<0.500	<12.5	--	2.19	5.46/4.03	1.40/<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	0.207	0.643/<0.250	<0.750/<0.750	--
	09/25/01	Sheen	1.03	<0.500	<0.500	2.54	--	0.514	8.88/6.64	1.92/<0.750	--
	12/19/01	ND	1.49	<2.00	<1.00	<1.50	--	0.415	1.15/<0.250[10]	<0.750/<0.750[10]	--

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Offsite Area RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Offsite Area (continued)											
MW-36 (continued)	03/26/02	ND	1.01	<0.500	<0.500	1.9	--	0.38	1.47/0.794	<0.750/<0.750	--
	06/20/02	ND	0.618	<0.500	<0.500	<1.00	--	0.106	1.01/<0.250	<0.750/<0.750	--
	09/19/02	Sheen	0.914	<0.500	<0.500	1.85	--	0.307	1.39[13]	<0.750[6]	--
	12/13/02	Sheen	<0.500	<0.500	<0.500	1.07	--	0.186	15.5	<0.750	--
	03/21/03	Sheen	0.846	<0.500	<0.500	2.4	--	0.398	3.25	<0.750	--
	6/19/2003[14]	Sheen	0.691	0.508	0.503	2.93	--	0.623[7]	6.09	1.27	--
	09/18/03	Sheen	<0.500	<0.500	<0.500	1.29	--	0.219	4.87	0.943	--
	12/02/03	Sheen	0.538	<0.500	<0.500	1.37	--	0.242	1.97	<0.750	--
MW-41	09/18/90	--	--	--	--	--	2	--	--	--	<5
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	1.2	3.9	<1	1	<1	--	<5
	04/16/91	--	3.5	0.9	4.5	1.4	--	<1	<1	--	<2
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	4	--	<2
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<3.0
	06/29/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/16/99	ND	<0.500	<0.500	<5.00	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/00[8]	ND	<0.500	6.55	3.97	35.8	--	0.433	<0.250	<0.750	--
	12/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	<0.250[10]	<0.750[10]	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-42	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<2
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	3
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<3.0
MW-43	10/16/90	--	2.9	<0.5	17	5.3	<1	--	--	--	<5
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<5
	04/16/91	--	<0.5	<0.5	0.7	0.6	--	<1	<1	--	<2
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	3	9	--	3
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--	<3.0
MW-52	06/25/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.522/<0.250	<0.750/<0.750	--
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.250/<0.250	<0.750/<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.257/<0.250	<0.750/<0.750	--
	06/22/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.325/<0.250[10]	<0.750/<0.750[10]	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.289/<0.250	<0.750/<0.750	--
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/02/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-67	03/13/98	ND	<0.500	0.658	1.57	3.37	--	0.237	<0.250	<0.750	--
	06/24/98	ND	<0.500	1.44	<0.500	<1.00	--	0.0597	<0.250	<0.750	<1.00
	09/03/98	ND	<1.00	<0.500	0.913	<1.00	--	0.0661	0.287	<0.750	--
	12/14/98	ND	<0.800	<2.00	2.44	4.87	--	0.432	0.813/0.328	<0.750/<0.750	--
	03/24/99	ND	4.84	<0.500	<0.500	<1.00	--	0.158	0.566/<0.250	<0.750/<0.750	--
	07/01/99	ND	<4.20	<1.00	2.68	4.66	--	0.341	0.833/0.275	<0.750/<0.750	<20.0
	09/29/99	ND	0.554	1.88	0.884	1.55	--	0.239	0.544/<0.250	<0.750/<0.750	--
	12/16/99	ND	<8.20	<1.25	1.9	8.65	--	0.561	0.807/<0.250	<0.750/<0.750	--
	03/22/00	ND	<0.500	1.71	0.533	1.46	--	0.156	0.651/0.292	<0.750/<0.750	--
	06/22/00	ND	4.74	1.02	1.65	4.53	--	0.395	0.951/<0.250	<0.750/<0.750	<10.0
	09/15/00	ND	<3.00	<0.500	<0.520	<1.81	--	0.157	0.607/<0.250	<0.750/<0.750	--
	12/21/00	ND	7.35	<1.38	<2.04	5.73	--	0.413	0.646/<0.250	<0.750/<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.624	<1.77	--	0.165	0.524/<0.250	<0.750/<0.750	--
	06/21/01	ND	<0.500	1.21	2.47	2.61	--	0.403	0.479/<0.250	<0.750/<0.750	<1.00
	09/25/01	ND	3.45	<0.500	1.46	2.10	--	0.230	0.585/0.295	<0.750/<0.750	--
	12/19/01	ND	13.2	<2.00	1.46	2.97	--	1.01	0.760/<0.250[10]	<0.750/<0.750[10]	--
	03/26/02	ND	3.01	<0.500	0.671	1.09	--	0.178	0.672/<0.250	0.839/<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	1.21	--	<0.0500	<0.250	<0.750	<1.00
	09/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250[13]	<0.750[13]	--
	12/13/02	ND	<0.500	<0.500	0.751	2.99	--	<0.0500	<0.250	<0.750	--
	03/21/03	ND	<0.500	<0.500	0.751	<1.00	--	<0.0500	0.352	1.44	--
	06/19/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/18/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/03/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-70	06/25/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.488/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<20.0
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.392/<0.250	<0.750/<0.750	--
	06/22/00[8]	ND	<0.500	1.31	0.610	3.83	--	0.0632	<0.250[13]	<0.750[13]	<1.00
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.372/<0.250[10]	<0.750/<0.750[10]	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/02/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/06/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
MW-70R	**02/16/16**	**ND**	**<0.500**	**<0.500**	**<0.500**	**<1.50**	**--**	**<0.0500**	**<0.029**	**<0.067**	**--**
Duplicate	**02/16/16**	**ND**	**<0.500**	**<0.500**	**<0.500**	**<1.50**	**--**	**<0.0500**	**<0.029**	**<0.067**	**--**
	06/14/16	**ND**	**<0.500**	**<0.500**	**<0.500**	**<1.50**	**--**	**<0.0500**	**<0.028**	**<0.066**	**--**
MW-71	06/25/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	3.77/<0.250	<0.750/<0.750	--
	07/01/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<20.0
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.430[15]	<0.904[15]	--
	06/22/00[8]	ND	<0.500	0.980	0.522	3.08	--	0.0746	<0.250	<0.750	<1.00
	12/21/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/21/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.514/<0.0.250[10]	<0.750/<0.750[10]	--
	06/19/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/02/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Offsite Area RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Offsite Area (continued)											
MW-72	03/13/98	ND	<11.0	<3.00	<3.00	<11.0	--	1.30	0.369	<0.750	--
	06/24/98	ND	<1.00	<1.00	<0.500	<2.00	--	0.699	0.286	<0.750	<1.00
	09/03/98	ND	<9.38	<2.50	<2.50	<4.50	--	1.03	3.11	1.78	--
	12/14/98	Sheen	5.45	0.644	1.07	1.68	--	0.196	0.847/<0.250	<0.750/<0.750	--
	03/24/98	Sheen	4.69	<0.950	<0.950	<3.30	--	0.269	1.74/0.744	1.42/<0.750	--
	07/01/99	ND	<2.80	<0.900	<0.500	<2.26	--	0.248	1.05/<0.250	<0.750/<0.750	<1.00
	09/29/99	Sheen	5.71	2.71	0.68	5.01	--	0.481	1.86/0.424[13]	1.01/<0.750[13]	--
	12/16/99	Sheen	<7.40	<1.40	<0.500	6.87	--	0.421	0.905/<0.475	<1.43/<1.43	--
	03/22/00	ND	2.88	5.40	0.846	6.42	--	0.596	1.40/0.462	<0.750/<0.750	--
	06/22/00	ND	5.98	1.11	0.599	2.38	--	0.344	1.11/<0.250	<0.750/<0.750	<1.00
	09/15/00	ND	1.47	<1.20	<0.525	<5.42	--	0.547	1.35/0.427	<0.750/<0.750	--
	12/21/00	ND	5.71	<1.00	<0.500	4.46	--	0.422	0.698/<0.250	<0.750/<0.750	--
	03/15/01	ND	1.90	<1.06	<0.791	<3.29	--	0.454	1.47/<0.250	0.752/<0.750	--
	06/21/01	ND	1.08	1.29	<0.500	2.78	--	0.274	0.591/<0.250	<0.750/<0.750	--
	09/25/01	Sheen	7.98	0.679	1.07	3.24	--	0.695	3.37/1.35	1.90/0.942	--
	12/19/01	ND	12.2	<2.00	<1.00	3.21	--	0.835	1.59/0.261[10]	<0.750/<0.750[10]	--
	03/26/02	Sheen	6.4	0.753	<0.500	3.88	--	0.47	1.05/<0.250	<0.750/<0.750	--
	06/19/02	ND	10.3	0.722	1.48	4.60	--	0.697	3.19/<0.250	<0.750/<0.750	--
	09/19/02	Sheen	13.3	0.798	2.29	4.29	--	0.828	0.769[11]	<0.750[11]	--
	12/13/02	Sheen	8.35	0.747	2.27	6.10	--	0.594	4.15	2.94	--
	03/21/03	Sheen	3.2	<0.500	0.909	1.29	--	0.360	0.281	<0.750	--
	06/19/03	Sheen	8.28	0.509	1.79	3.82	--	0.476	1.61	1.25	--
	09/18/03	Sheen	4.54	<0.500	0.931	4.28	--	0.522	1.17	0.775	--
	12/02/03	Sheen	2.26	<0.500	<0.500	2.34	--	0.439	1.20	0.979	--
	03/09/04	Sheen	0.738	<0.500	<0.500	1.31	--	0.133	0.315	<0.750	--
	06/03/04	Sheen	0.656	<0.500	<0.500	<1.00	--	0.195	0.265	<0.750	--
	09/03/04	ND	1.41	<0.500	<0.500	1.72	--	0.294	0.275	<0.750	--
	12/06/04	ND	1.27	<0.500	<0.500	1.47	--	0.238	<0.250	<0.750	--
	03/04/05	ND	1.07	<0.500	<0.500	2.20	--	0.202	0.524	<0.750	--
	06/03/05	ND	1.10	<0.500	<0.500	<1.00	--	0.141	<0.250	<0.750	--
MW-73	03/12/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/29/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/03/98	ND	<0.500	<0.500	<0.500	1.30	--	<0.0500	<0.250	<0.750	--
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.388/<0.250	<0.750/<0.750	--
	03/24/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.665/<0.250	<0.750/<0.750	--
	06/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.370/<0.250	<0.750/<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.430/<0.250	<0.750/<0.750	--
	12/15/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.830/<0.250	<0.750/<0.750	--
	03/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.559/<0.250	<0.750/<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	0.0737	0.407/<0.250	<0.750/<0.750	<10.0
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.298/<0.250	<0.750/<0.750	--
	12/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.693/<0.250[10]	<0.750/<0.750[10]	--
	03/26/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.618/<0.250	<0.750/<0.750	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.287/<0.250	<0.750/<0.750	<1.00
MW-74	03/12/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/29/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	1.93
	09/03/98	ND	<0.500	<0.500	<0.500	1.02	--	<0.0500	0.29	1.07	--
	12/15/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.517/<0.250	<0.750/<0.750	--
	03/24/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.600/<0.250	0.993/<0.750	--
	06/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.251/<0.250	<0.750/<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.462/<0.250	<0.750/<0.750	--
	12/15/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.659/<0.250	<0.750/<0.750	--
	03/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.500/<0.250	0.923/<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.234	<0.748	<1.00
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.273/<0.250	0.863/<0.750	--
	06/22/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.505/<0.250	<0.750/<0.750	--
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	1.06/<0.250[10]	1.11/<0.750[10]	--
	03/26/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.430/<0.250	<0.750/<0.750	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.305/<0.250	<0.750/<0.750	<1.00
MW-75	03/12/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/29/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/03/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/15/98	ND	<0.500	<0.500	<0.500	1.33	--	<0.0500	<0.250	<0.750	--
	03/24/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/29/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250/<0.250	<0.750/<0.750	--
	12/15/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.239	<0.744	<1.00
	09/14/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	03/15/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/22/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	<0.250[10]	<0.750[10]	--
	03/26/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<1.00
MW-76	06/24/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	<5.00
	09/03/98	ND	0.962	0.774	0.609	<1.00	--	0.0593	0.361	<0.750	--
	12/14/98	ND	<1.00	<0.500	1.29	<1.00	--	0.0779	0.789/<0.250	<0.750/<0.750	--
	03/24/98	ND	<1.00	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	07/01/99	ND	<1.20	<0.500	1.64	1.31	--	0.0998	0.786/<0.250	<0.750/<0.750	<20.0
	09/29/99	ND	<0.500	0.538	0.583	<1.00	--	0.0577	0.632/<0.250	<0.750/<0.750	--
	12/16/99	ND	0.582	<0.500	0.631	<1.00	--	0.728	0.667/<0.250	<0.750/<0.750	--
	03/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.640/<0.250	<0.750/<0.750	--
	06/22/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.259/<0.250	<0.750/<0.750	<1.00
	09/15/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.605/<0.250	<0.750/<0.750	--
	12/21/00	ND	<0.600	<0.500	0.628	<1.00	--	0.784	0.606/<0.250	<0.750/<0.750	--
	03/15/01	ND	0.506	1.35	<0.500	1.22	--	<0.0500	0.278/<0.250	<0.750/<0.750	--
	06/21/01	ND	<0.500	<0.500	0.808	<1.00	--	<0.0500	<0.250	<0.750	--
	09/25/01	ND	0.508	<0.500	0.774	<1.00	--	<0.0500	0.461/0.316	<0.750/<0.750	--
	12/19/01	ND	<0.500	<2.00	<1.00	<1.50	--	0.114	0.549/<0.250	<0.750/<0.750	--
	03/26/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.317/<0.250	<0.750/<0.750	--
	06/19/02	ND	<0.500	<0.500	<0.500	1.11	--	<0.0500	<0.250	<0.750	--
	12/13/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/03/03	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--
	12/06/04	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750	--

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Offsite Area RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Offsite Area (continued)											
MW-200	03/08/07	Sheen	2.80	0.5	3.7	4	--	0.39	0.46	<0.095	--
	06/07/07	ND	2.4	0.6	2.1	2.5	--	0.250	0.310	<0.095	<0.037
	09/26/07	ND	1.6	<0.5	0.9	<1.5	--	0.230	0.270	<0.100	<0.047
Duplicate	09/26/07	ND	1.7	<0.5	0.8	<1.5	--	0.230	0.310	0.120	<0.047
	11/28/07	ND	2.0	<0.5	1.2	2.1	--	0.250	0.330	<0.100	0.064
	02/13/08	ND	3.44	<0.500	1.19	1.79	--	0.497	<0.236	<0.472	<1.00
	05/13/08	ND	2.70	<0.500	1.15	2.07	--	0.426	<0.240	<0.481	<1.00
	09/03/08	ND	<0.500	0.883	1.46	<1.00	--	0.337	<0.236	<0.472	<1.00
	12/04/08	ND	3.19	<0.500	0.975	2.01	--	0.427	<0.238	<0.476	<1.00
	02/18/09	ND	2.54	<0.500	0.619	1.14	--	0.355	<0.250	<0.500	<1.00
	05/13/09	ND	3.43	<0.500	1.12	1.91	--	0.513	<0.278	<0.556	<1.00
	09/11/09	ND	<0.500	<0.500	0.52	<1.00	--	0.360	<0.248	<0.495	<2.0
	04/14/10	ND	<0.50	<0.50	0.54	<2.0	--	0.35	0.31	<0.25	<2.0
	09/22/10	ND	<0.50	<0.50	0.56	1.2	--	0.43	0.56	<0.25	<2.0
	04/26/11	ND	6.2	<0.50	0.59	1.5	--	0.39	--	--	<2.0
	04/28/11	ND	--	--	--	--	--	--	0.33	<0.24	--
	09/22/11	ND	6.7 [18]	<0.50 [18]	0.83 [18]	1.9 [18]	--	0.27	0.39 [17]	<0.24	--
	9/22/11[D]	ND	5.0	<0.50	0.65	1.4	--	0.24	0.37 [17]	<0.24	--
	04/18/12	ND	3.7	<0.50	0.73	1.4	--	0.20	0.27 [17]	<0.24	--
	10/11/12	ND	<0.50	0.75 [21]	<0.50	<0.50	--	0.39	0.30 [17,19,20]	<0.24	--
	04/25/13	ND	6.5	<0.5	1.1	2.1	--	0.35	0.120	<0.068	--
	09/19/13	ND	2.3	<0.5	<0.5	<1.5	--	0.11	0.160	<0.068	--
	06/24/14	ND	2.4	<0.5	<0.5	<1.5	--	0.120 J	0.083	<0.067	--
	12/16/14	ND	<6.0	<0.7	1.1	<2.4	--	0.460	0.130	<0.066	--
	06/18/15	ND	<3.0	<0.5	<0.5	<1.5	--	0.092	0.074	<0.066	--
	12/08/15	ND	<0.5	0.5	0.8	<1.5	--	0.460	0.092	<0.067	--
	06/14/16	**ND**	**<0.5**	**<0.5**	**0.6**	**<1.5**	**--**	**0.290**	**0.150**	**<0.067**	**--**
MW-201	03/08/07	Sheen	0.50	<0.5	<0.5	<1.5	--	0.076	0.51	0.18	--
	06/07/07	ND	0.50	<0.5	<0.5	<1.5	--	0.08	0.53	0.17	0.1
Duplicate	06/07/07	ND	0.60	<0.5	<0.5	<1.5	--	0.069	0.39	0.13	--
	09/27/07	Sheen	<0.5	<0.5	<0.5	<1.5	--	0.076	0.810	0.470	0.080
	11/27/07	ND	0.6	<0.5	<0.5	<1.5	--	0.065	0.390	0.150	0.098
	02/12/08	ND	0.813	<0.500	<0.500	<1.00	--	0.111	<0.243	<0.485	<1.00
	05/14/08	Sheen	0.616	<0.500	<0.500	<1.00	--	0.110	<0.236	<0.472	<1.00
	09/05/08	ND	<0.500	0.517	<0.500	<1.00	--	0.153	<0.238	<0.476	<1.00
	12/05/08	ND	2.24	0.511	<0.500	1.87	--	0.323	<0.248	<0.495	<1.00
	02/17/09	ND	0.552	<0.500	<0.500	<1.00	--	0.0887	<0.263	<0.526	<1.00
	05/13/09	ND	2.42	<0.500	<0.500	1.76	--	0.372	<0.250	<0.500	<1.00
	09/11/09	ND	<0.500	<0.500	<0.500	1.4	--	0.43	<0.248	<0.495	<2.0
	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.15	0.17	<0.25	<2.0
	09/22/10	ND	<0.50	<0.50	<0.50	1.1	--	0.27	0.47	<0.25	<2.0
	04/26/11	ND	1.6	<0.50	<0.50	<1.0	--	0.18	--	--	<2.0
	09/22/11	ND	3.6	<0.50	<0.50	1.4	--	0.22	0.33 [17]	<0.24	--
	04/18/12	ND	1.8	<0.50	<0.50	<1.0	--	0.14	0.29 [17]	<0.24	--
	10/11/12	ND	<0.50	0.61 [21]	<0.50	0.81	--	0.37	0.28 [17,19,20]	<0.24	--
	04/25/13	ND	1.7	0.9	<0.5	<1.5	--	0.14	0.049	<0.067	--
	09/19/13	ND	1.8	<0.5	<0.5	<1.5	--	0.13	0.075	<0.067	--
	06/23/14	ND	2.2	<0.5	<0.5	<1.5	--	0.210 J	0.068	<0.067	--
	12/16/14	ND	2.4	<0.7	0.6	2.3	--	0.450	0.063	<0.067	--
	06/18/15	ND	<2.0	<0.5	<0.5	<1.5	--	0.130	0.32	0.46	--
	12/08/15	ND	<0.5	<0.5	0.6	1.6	--	0.580	0.062	<0.066	--
Duplicate	12/08/15	ND	<0.5	<0.5	<0.5	<1.5	--	0.500	0.19	0.27	--
	06/14/16	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**0.160**	**0.072**	**<0.068**	**--**
MW-202	03/08/07	ND	0.60	<0.5	<0.5	<1.5	--	0.16	0.18	<0.095	--
	06/07/07	ND	<0.5	<2.0 [15]	0.9	<1.5	--	0.072	0.150	<0.095	0.19
	09/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	0.110	0.380	0.360	<0.24
	11/26/07	ND	<0.5	<0.5	0.8	<1.5	--	0.100	0.290	0.120	0.37
	02/12/08	ND	<0.500	<0.500	0.751	<1.00	--	0.249	<0.240	<0.481	<1.00
	05/13/08	ND	<0.500	<0.500	0.620	<1.00	--	0.188	<0.236	<0.472	<1.00
	09/04/08	ND	<0.500	<0.500	1.55	<1.00	--	0.135	<0.238	<0.476	<1.00
	12/04/08	ND	<0.500	<0.500	<0.500	1.34	--	0.132	<0.245	<0.490	<1.00
	02/18/09	ND	<0.500	<0.500	0.583	<1.00	--	0.314	<0.245	<0.490	<1.00
	05/13/09	ND	<0.500	<0.500	<0.500	<1.00	--	0.233	<0.243	<0.485	<1.00
	09/11/09	ND	<0.500	<0.500	<0.500	<1.00	--	0.120	<0.245	<0.490	<2.0
	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.10	<0.12	<0.25	<2.0
	09/22/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.090	<0.12	<0.25	<2.0
	04/27/11	ND	<0.50	<0.50	<0.50	<1.0	--	0.072	--	--	<2.0
	04/28/11	ND	--	--	--	--	--	--	<0.12	<0.24	--
	09/21/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	0.18 [17]	<0.24	--
	04/18/12	ND	<0.50	<0.50	<0.50	<1.0	--	0.074	0.24 [17]	<0.24	--
	10/11/12	ND	<0.50	<0.50	<0.50	<0.50	--	0.100	0.19 [17,19,20]	<0.24	--
	04/25/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.031	<0.073	--
	09/19/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.030	<0.069	--
	06/23/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050 UJ	<0.029	<0.067	--
	12/16/14	ND	<0.5	<0.5	<0.5	<1.5	--	0.052	<0.028	<0.066	--
	06/18/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066	--
	12/08/15	ND	<0.5	<0.5	<0.5	<1.5	--	0.064	<0.029	<0.068	--
	06/14/16	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**<0.050**	**<0.029**	**<0.068**	**--**
MW-203	03/08/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.048	0.32	<0.095	--
	06/07/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.0500	0.150	<0.097	0.045
	09/28/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.500	0.400	0.270	<0.047
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.290	<0.100	0.058
	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481	<1.00
Duplicate	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472	<1.00
	05/14/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.243	<0.485	<1.00
Duplicate	05/14/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	--	--	--
	09/03/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472	<1.00
	12/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481	<1.00
	02/17/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472	<1.00
	05/13/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.243	<0.485	<1.00
	09/11/09	ND	<0.500	<0.500	<1.00	<1.00	--	0.082	<0.248	<0.495	<2.0
	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.12	<0.25	<2.0
	09/22/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.058	<0.12	<0.24	<2.0
	04/27/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	--	--	<2.0
	04/28/11	ND	--	--	--	--	--	--	<0.12	<0.24	--
	09/21/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	<0.12	<0.25	--
	04/18/12	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	0.14 [17]	<0.24	--
	10/11/12	ND	<0.50	<0.50	<0.50	<0.50	--	<0.025	0.22 [17,19,20]	<0.24	--
	04/25/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.031	<0.072	--
	09/19/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.068	--
	06/24/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050 UJ	<0.029	<0.067	--
Duplicate	06/24/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050 UJ	<0.029	<0.067	--
	12/16/14	ND	<0.5	<0.5	<0.5	<1.5	--	0.110	0.032	<0.067	--
	06/18/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.069	--
	12/07/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.030	<0.069	--
	06/15/16	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**<0.050**	**0.047**	**<0.067**	**--**
Duplicate	**06/15/16**	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**<0.050**	**0.035**	**<0.067**	**--**

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Offsite Area RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Offsite Area (continued)											
MW-204	03/08/07	Sheen	1.00	0.9	<0.5	<1.5	--	0.47	0.89	0.14	--
	06/07/07	ND	1.40	1.8	<0.5	2.6	--	0.670	1.400	0.170	<0.037
	09/28/07	ND	0.70	0.9	<0.5	1.6	--	0.640	1.000	0.260	<0.24
	11/27/07	ND	0.9	0.8	0.9	<5.0[16]	--	0.670	0.700	0.160	<0.047
	02/12/08	ND	1.76	1.09	<0.500	2.12	--	0.713	<0.240	<0.481	<1.00
	05/14/08	ND	1.32	1.71	<0.500	4.17	--	0.782	0.310	0.784	<1.00
	09/03/08	ND	4.42	1.06	3.07	1.47	--	1.070	0.384	<0.476	<1.00
	10/01/08	ND	--	--	--	--	--	0.796	--	--	--
	12/04/08	ND	1.45	1.20	1.05	4.22	--	0.869	0.291	<0.495	<1.00
	02/17/09	ND	1.48	1.32	1.82	7.50	--	1.060	0.341	<0.500	<1.00
Duplicate	02/17/09	ND	1.54	1.30	1.81	7.45	--	1.120	0.332	<0.556	<1.00
	05/13/09	ND	1.93	1.55	1.86	4.79	--	1.190	0.593	<0.500	<1.00
Duplicate	05/13/09	ND	1.82	1.58	1.88	7.70	--	1.230	0.553	<0.556	<1.00
	09/11/09	ND	<0.500	1.10	<0.500	1.8	--	1.200	0.396	<0.495	<2.0
Duplicate	09/11/09	ND	<0.500	1.10	<0.500	1.8	--	1.100	0.393	<0.495	<2.0
	04/14/10	ND	1.1	2.1	<0.50	3.6	--	1.5	1.2	0.84	<2.0
Duplicate	04/14/10	ND	1.1	2.1	<0.50	3.7	--	1.5	1.1	<0.25	<2.0
	09/22/10	ND	<0.50	1.5	<0.50	3.2	--	1.3	1.5	<0.25	<2.0
	04/26/11	ND	1.6	1.5	<0.50	3.9	--	0.71	--	--	<2.0
Duplicate	04/26/11	ND	1.9	1.7	<0.50	5.0	--	1.0	--	--	<2.0
	04/28/11	ND	--	--	--	--	--	--	0.69	<0.24	--
Duplicate	04/28/11	ND	--	--	--	--	--	--	0.58	<0.24	--
	09/22/11	ND	1.7	1.6	<0.50	6.1	--	0.92	0.88[17]	<0.25	--
Duplicate	09/22/11	ND	1.7	1.8	<0.50	6.5	--	0.92	0.65[17]	<0.24	--
MW-204-NEAR	09/22/11	ND	1.7	1.7	<0.50	6.3	--	0.94	0.91[17]	<0.25	--
	04/18/12	ND	1.6	1.7	<0.50	4.1	--	0.69	1.2[17]	0.64[17]	--
Duplicate	04/18/12[D]	ND	2.0	1.7	<0.50	5.3	--	0.87	1.2[17]	1.4[17]	--
MW-204-NEAR	04/18/12	ND	2.0	1.8	<0.50	5.3	--	0.90	1.2[17]	1.6[17]	--
Duplicate	04/18/12[D]	ND	2.0	1.8	<0.50	5.3	--	0.90	1.3[17]	2.8[17]	--
	10/12/12	ND	<0.50	1.3	<0.50	2.3	--	0.95	0.6[17,19,20]	<0.24	--
Duplicate	10/12/12	ND	<0.50	1.2	<0.50	2.3	--	0.62	0.62[17,19,20]	<0.24	--
MW-204-NEAR	10/12/12	ND	<0.50	1.3	<0.50	2.4	--	0.71	0.51[17,19,20]	<0.24	--
	04/26/13	ND	0.7	2.2	1.6	4.6	--	0.89	0.24	<0.067	--
Duplicate	04/26/13	ND	0.7	2.2	1.7	4.9	--	0.88	0.32	0.077	--
	09/19/13	ND	1.1	1.5	1.1	3.5	--	0.58	0.31	<0.067	--
	06/24/14	ND	1.0	1.4	<0.5	2.6	--	0.600 J	0.24	<0.066	--
	07/25/14	ND	--	--	--	--	--	0.880	--	--	--
Duplicate	07/25/14	ND	--	--	--	--	--	0.90	--	--	--
	12/16/14	ND	0.9	1.5	1.3	<6.0	--	0.990	0.240	<0.066	--
Duplicate	12/16/14	ND	0.9	1.5	1.2	<6.0	--	1.000	0.200	<0.066	--
	06/18/15	ND	<0.5	0.9	0.6	<3.0	--	0.430	0.250	<0.069	--
	12/09/15	ND	1.0	1.6	1.4	3.8	--	1.400	0.190	<0.069	--
	01/15/16	ND	0.9	1.4	<1.2	3.5	--	1.400	0.840	0.4	--
Duplicate	01/15/16	ND	0.9	1.4	<1.1	3.5	--	1.400	0.210	<0.070	--
	06/13/16	**ND**	**<0.5**	**1.6**	**1.4**	**2.9**	**--**	**0.890**	**0.210**	**<0.067**	**--**
MW-205	03/08/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.048	0.18	<0.095	--
	06/07/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.098	<0.100	<0.037
	09/28/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.081	<0.100	<0.047
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.120	0.560	<0.047
	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	0.529	<1.00
	05/14/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.238	<0.476	<1.00
	09/03/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481	<1.00
	12/05/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472	<1.00
	02/17/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495	<1.00
	05/13/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.245	<0.490	<1.00
	09/11/09	ND	<0.500	<0.500	<0.500	<1.00	--	0.1	<0.248	<0.495	<2.0
	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.051	<0.12	<0.25	<2.0
	09/22/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.082	0.15	<0.25	<2.0
	04/26/11	LNAPL	--	--	--	--	--	--	--	--	--
	09/22/11	ND	<0.50	<0.50	<0.50	<1.0	--	0.07	<0.12	<0.25	--
MW-205-NEAR	09/22/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	<0.12	<0.25	--
	04/18/12	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	0.16[17]	<0.24	--
Duplicate	04/18/12[D]	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	0.25[17]	0.44[17]	--
MW-205-NEAR	04/18/12	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	7.4[17]	4.8[17]	--
	10/12/12	ND	<0.50	<0.50	<0.50	<0.50	--	0.027	0.23[17,19,20]	<0.24	--
Duplicate	10/12/12	ND	<0.50	<0.50	<0.50	<0.50	--	0.035	0.54[17,19,20]	0.34[17]	--
MW-205-NEAR	10/12/12	ND	<0.50	<0.50	<0.50	<0.50	--	0.036	0.30[17,19,20]	<0.24	--
	04/26/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.030	<0.069	--
	09/19/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067	--
Duplicate	09/19/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067	--
	06/24/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050 UJ	<0.028	<0.066	--
	12/16/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066	--
	06/18/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066	--
Duplicate	06/18/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066	--
	12/09/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.031	<0.072	--
	06/13/16	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**<0.050**	**0.053**	**<0.068**	**--**
MW-206	03/08/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.048	<0.075	<0.094	--
	06/07/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.076	<0.095	0.078
	09/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.076	<0.095	<0.047
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.077	<0.096	<0.24
	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472	<1.00
	05/13/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	<0.505	<1.00
	09/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481	<1.00
Duplicate	09/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481	<1.00
	12/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472	<1.00
Duplicate	12/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472	<1.00
	02/18/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.278	<0.556	<1.00
	05/12/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.278	<0.556	<1.00
	09/11/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495	<2.0
	04/13/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	--	--	--
	04/14/10	ND	--	--	--	--	--	--	<0.12	<0.24	<2.0
	09/22/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.12	<0.25	<2.0
	04/27/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	--	--	<2.0
	04/28/11	ND	--	--	--	--	--	--	<0.12	<0.24	--
	09/21/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	<0.12	<0.24	--
	04/18/12	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	<0.12	<0.24	--
	10/11/12	ND	<0.50	<0.50	<0.50	<0.50	--	<0.025	0.16[17,19,20]	<0.24	--
	04/25/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067	--
	09/19/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.069	--
	06/23/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050 UJ	<0.029	<0.067	--
	12/16/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066	--
	06/17/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.068	--
	12/08/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067	--
	06/14/16	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**<0.050**	**<0.028**	**<0.066**	**--**

Table 3
Summary of Groundwater Analytical Data
Total Petroleum Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well[1]	Date Sampled	LNAPL[2]	BTEX (EPA Method 8020 or 8021B) (µg/L)				TPH (EPA Method 418.1) (mg/L)	NWTPH-Gx (mg/L)	NWTPH-D Extended[3] (mg/L)		Dissolved Lead (EPA 6000/7000 Series Method) (µg/L)
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}	
Offsite Area RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*	*50*
Offsite Area (continued)											
MW-207	03/08/07	ND	<0.5	<0.5	0.9	<1.5	--	<0.048	0.12	<0.095	--
Duplicate	03/08/07	ND	<0.5	<0.5	1.1	<1.5	--	<0.048	0.15	<0.095	--
	06/07/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.05	<0.077	<0.096	0.11
	09/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.081	<0.10	<0.47
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.076	<0.095	<0.047
	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495	<1.00
	05/13/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	<0.500	<1.00
	09/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.238	<0.476	<1.00
	12/03/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.238	<0.476	<1.00
	02/18/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495	<1.00
	05/12/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	<0.500	<1.00
	09/11/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495	<2.0
	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.12	<0.24	<2.0
	09/21/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.12	<0.24	<2.0
Duplicate	09/21/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.092	<0.12	<0.25	<2.0
	04/27/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	--	--	<2.0
	04/28/11	ND	--	--	--	--	--	--	<0.12	<0.24	--
	09/21/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	<0.12	<0.24	--
	04/18/12	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	<0.12	<0.24	--
	10/11/12	ND	<0.50	<0.50	<0.50	<0.50		<0.025	0.15 [17,19,20]	<0.24	--
	04/25/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.068	--
	09/19/13	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067	--
	06/23/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050 UJ	<0.028	<0.066	--
	12/16/14	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066	--
	06/17/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066	--
	12/08/15	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066	--
	06/14/16	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**<0.050**	**<0.029**	**<0.068**	**--**
MW-209	**02/16/16**	**ND**	**1.4**	**1.2**	**1.3**	**4.2**	**--**	**1.600**	**0.150**	**<0.067**	**--**
	06/13/16	**ND**	**1.5**	**1.3**	**1.6**	**3.7**	**--**	**0.930**	**0.200**	**<0.066**	**--**
MW-210	**02/16/16**	**ND**	**<0.5**	**1.1**	**1.4**	**4.7**	**--**	**2.500**	**8.600**	**1.600**	**--**
	06/13/16	**ND**	**<0.5**	**1.6**	**<0.5**	**5.1**	**--**	**2.100**	**3.200**	**0.510**	**--**
MW-211	**02/16/16**	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**0.210**	**0.069**	**<0.067**	**--**
	06/13/16	**ND**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**--**	**<0.050**	**0.084**	**<0.068**	**--**

Notes:

[1]Monitoring well locations are shown in Figure 2.

[2]LNAPL = light nonaqueous phase liquid.

[3]For December 2000 through June 2002, samples were first analyzed without the sulfuric acid/silica gel cleanup procedure (first or only result). If analytes were detected, the sulfuric acid/silica gel cleanup procedure was performed (second result). For September 2002 and after, samples obtained from Upper Yard wells were analyzed without the sulfruric acid/silica gel cleanup procedure, and samples obtained from Elliott Avenue and Offsite Area wells were analyzed with the sulfuric acid/silica gel cleanup procedure.

[4]According to the laboratory, the sample chromatogram does not resemble the gasoline standard.

[5]According to the laboratory, sample contains diesel-range hydrocarbons that extend into the hydrocarbon range quantified as gasoline.

[6]Due to an error in the identification of two sets of samples, (MW-64 and Dup 121699), the results from the sampling date of 01/04/00 were not considered reliable. The 12/26/99 results were not reported by the laboratory and a resampling took place.

[7]Due to an extraction anomaly during the silica gel cleanup procedure, a second analytical result is not available for this sample.

[8]After review of field procedures and historic analytical results, the sample appears to have been cross-contaminated in the field or in the laboratory.

[9]BETX and gasoline-range hydrocarbon analyses were completed outside of the recommended holding time. Results should be qualified as estimated.

[10]Samples were extracted 3 or 4 days after expiration of the recommended holding time.

[11]Results should be considered bias low or estimated due to laboratory QA/QC exception.

[12]MW-30 was not sampled between July 1989 and September 1990 because of the presence of free product.

[13]Due to an extraction anomaly, the surrogate recoveries in the WTPH-D extended analyses were outside the established control limits and the results should be considered a low estimated value, according to the laboratory.

[14]The 03/23/99 data for diesel-range hydrocarbons (20.8/14.6 mg/L) for MW-84 appeared anomalous due to field sample handling or laboratory analytical error. The well was resampled on 04/01/99.

[15]Due to a lab error, the sample extract evaporated before testing and was not analyzed with the silica gel cleanup.

[16]Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for this compound. The presence of or concentration cannot be determined.

[17]The chromatographic response resembles a typical fuel pattern.

[18]Sample was reanalyzed due to a surrogate failure. The surrogates were within QC limits in the reanalysis.

[19]Instrument related QC exceeds the control limits.

[20]Compound was found in the blank and sample.

[21]The %RDP between the primary and confirmation column/detector is 40%. The lower value has been reported.

µg/L = micrograms per liter mg/L = milligrams per liter ND = not detected RAL = remedial action level -- = not tested

Shaded concentrations are greater than corresponding Remedial Action Levels. Bolded data are for the current reporting period.

NEAR = The sample was collected from the top 12 inches of the water column within the respective monitoring well.

[D] = Duplicate of the preceeding sample.

UJ = Non-detect value was analyzed outside of hold time, but lest than two times hold time, concentration is an estimated value.

J = Concnetration is an estimated value and was analyzed outside of hold time, but lest than two times hold time.

Table 4
Summary of Groundwater Analytical Data
Carcinogenic Polycyclic Aromatic Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

OFFSITE AREA		Carcinogenic PAHs[2,3] (µg/L)								Noncarcinogenic PAHs[2] (µg/L)								
Monitoring Well[1]	Sample Date	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total CPAHs[4]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Naphthalene[4]	Phenanthrene	Pyrene
RAL		**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
MW-27	12/13/02	0.0282	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0282	0.398	<0.100	<0.100	<0.100	0.149	<0.100	<0.100	<0.100	<0.100
	06/19/03	0.0639	<0.0100	<0.0100	<0.0100	<0.0100	0.0288	0.0232	0.1159	3.46	<0.100	0.226	<0.100	0.963	0.296	0.188	0.357	0.952
	12/03/03	0.0266	<0.0100	<0.0100	<0.0100	0.0195	<0.0100	<0.0100	0.0461	--	--	--	--	--	--	<0.100	--	--
	06/03/04	0.0357	<0.0100	<0.0100	<0.0100	0.0276	<0.0100	<0.0100	0.0633	2.66	<0.100	0.178	<0.100	0.962	0.348	0.821	0.299	0.826
	12/06/04	0.0286	<0.0100	<0.0100	<0.0100	0.0190	<0.0100	<0.0100	0.0476	1.57	<0.100	<0.100	<0.100	0.269	<0.100	<0.100	<0.100	0.488
	06/03/05	0.0709	0.0127	0.0157	0.0166	0.0440	<0.0100	<0.0100	0.1499	2.01	<0.100	<0.100	<0.100	0.995	<0.100	<0.100	<0.100	1.21
	12/01/05	0.0921	0.0576	0.0649	0.0393	0.0698	<0.0100	0.0444	0.3681	--	--	--	--	--	--	--	--	--
	03/08/07	<0.02	<0.02	<0.02	<0.009	<0.02	<0.02	<0.02	<0.129	--	--	--	--	--	--	--	--	--
MW-27R	09/26/07	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	--	--	--	--	--	--	0.079 [5]	--	--
	11/27/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	0.19	--	--
MW-30	04/26/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
MW-67	06/19/03	0.0769	0.0195	<0.0100	<0.0100	0.0278	0.0849	0.0730	0.2821	1.99	<0.100	0.242	<0.100	0.602	0.106	<0.100	0.229	0.549
	12/03/03	0.0284	0.0101	<0.0100	0.0106	0.0337	<0.0100	<0.0100	0.0828	--	--	--	--	--	--	0.133	--	--
	06/03/04	0.0362	<0.0100	<0.0100	0.0132	0.0389	<0.0100	<0.0100	0.0883	1.25	<0.100	0.152	<0.100	0.839	<0.100	<0.100	<0.100	0.763
	12/06/04	0.0273	<0.0100	<0.0100	<0.0100	0.0258	<0.0100	<0.0100	0.0531	0.930	<0.100	<0.100	<0.100	0.342	<0.100	<0.100	<0.100	0.519
	03/04/05	0.0293	0.01	0.01	0.01	0.0221	0.01	0.01	0.0514	0.793	<0.100	0.148	<0.100	0.518	<0.100	<0.100	<0.100	0.511
	06/03/05	0.0323	<0.0100	<0.0100	<0.0100	0.0262	<0.0100	<0.0100	0.0585	0.714	<0.100	<0.100	<0.100	0.816	<0.100	<0.100	<0.100	0.843
MW-70R	**02/16/16**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	--	--	--	--	--	--	--	--	--
Duplicate	**02/16/16**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	--	--	--	--	--	--	--	--	--
	06/14/16	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	--	--	--	--	--	--	**<0.030**	--	--
MW-76	12/13/02	0.0247	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0247	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
	06/19/03	0.0824	0.0262	<0.0100	<0.0100	0.0258	0.0718	0.0589	0.2651	0.484	<0.100	<0.100	<0.100	0.628	<0.100	<0.100	<0.100	0.342
	12/03/03	0.0194	<0.0100	0.0107	<0.0100	0.0172	<0.0100	<0.0100	0.0473	--	--	--	--	--	--	<0.100	--	--
	06/03/04	<0.0100	<0.0100	0.0104	<0.0100	0.0253	<0.0100	<0.0100	0.0357	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
	12/06/04	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
	06/03/05	0.0725	0.0528	0.0448	0.0452	0.0797	0.0142	0.0267	0.3359	<0.100	<0.100	<0.100	<0.100	0.482	<0.100	<0.100	<0.100	0.369
MW-200	06/07/07	<1	<1	<1	<1	<1	<1	<1	<7	22	<1	<1	<1	<1	6	31	1	<1
	07/06/07	0.01	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	0.01	20	<0.30	0.51	<0.0095	0.7	5	24	0.93	0.46
	09/26/07	0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	0.011	--	--	--	--	--	--	24 [5]	--	--
Duplicate	9/26/07[D]	0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	0.011	--	--	--	--	--	--	22 [5]	--	--
	11/28/07	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	--	--	--	--	--	--	31	--	--
	02/13/08	0.0126	<0.00990	<0.00990	<0.00990	0.0137	<0.00990	<0.00990	0.0263	--	--	--	--	--	--	--	--	--
	05/13/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	05/13/08	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	--	--	--	--	--	--	--	--	--
	09/03/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
Filtered	09/03/08	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	--	--	--	--	--	--	--	--	--
	12/04/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
Filtered	12/04/08	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	--	--	--	--	--	--	--	--	--
	02/18/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	02/18/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	05/13/09	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	--	--	--	--	--	--	--	--	--
Filtered	05/13/09	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	--	--	--	--	--	--	--	--	--
	09/11/09	<0.0111	<0.0220	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0220	--	--	--	--	--	--	--	--	--
Filtered	09/11/09	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	--	--	--	--	--	--	--	--	--
	04/14/10	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	--	--	--	--	--	--	--	--	--
Filtered	04/14/10	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	--	--	--	--	--	--	--	--	--
	09/22/10	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	--	--	--	--	--	--	--	--	--
Filtered	09/22/10	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	--	--	--	--	--	--	--	--	--
	04/26/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	17	0.26	0.77	<0.094	1.3	5.5	13	4.7	0.88
Filtered	04/26/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	13	0.22	0.24	<0.094	<0.094	3.1	11	1.5	<0.094
Original	9/22/11 [9]	<0.0094	<0.019	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.19	2.5	0.26	0.16	<0.0094	0.043	2.5	0.70	1.1	0.039
Original Duplicate	9/22/11[D]	0.010	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	0.010	19	0.19	1.1	<0.0099	1.4	6.6	8.50	4.7	1.0
Re-Analysis	9/22/11[7]	<0.0094	<0.019	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.019	2.6	0.25	0.16	<0.0094	0.045	2.6	0.80	1.3	0.042
Original Filtered	9/22/11[9]	<0.0094	<0.019	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.019	12	0.12	0.57	<0.0094	0.69	2.8	6.60	2.5	0.52
Duplicate Filtered	9/22/11[D]	<0.0098	<0.020	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.020	14	0.15	0.57	<0.0098	0.74	3.6	7.00	3.0	0.56
Re-Analysis Filtered	9/22/11[7]	<0.0094	<0.019	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.019	15	0.16	0.61	<0.0094	0.76	4.0	6.80	3.5	0.57
	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	24 [DL]	0.28	0.94	<0.019	1.4	7.8	18 [DL]	5.4	1.0
Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	5.5	0.054	0.046	<0.019	<0.019	0.085	10 [DL]	0.036	<0.019
	10/11/12	0.01	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	0.01	23	0.23	0.92	<0.0095	1.00	4.4	8.6	4.4	0.73
Filtered	10/11/12	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	14	0.093	0.07	<0.0095	<0.0095	0.73	5.5	0.0099	<0.0095
	04/25/13	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	--	--	--	--	--	--	--	--	--
	09/19/13	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	--	--	--	--	--	--	--	--	--
	06/24/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/16/14	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	--	--	--	--	--	--	--	--	--
	06/18/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/08/15	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	--	--	--	--	--	--	--	--	--
	06/14/15	**0.011**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**0.011**	**--**	**--**	**--**	**--**	**--**	**--**	**8.36**	**--**	**--**

Table 4
Summary of Groundwater Analytical Data
Carcinogenic Polycyclic Aromatic Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

OFFSITE AREA		Carcinogenic PAHs[2,3] (µg/L)								Noncarcinogenic PAHs[2] (µg/L)								
Monitoring Well[1]	Sample Date	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total CPAHs[4]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Naphthalene[4]	Phenanthrene	Pyrene
RAL		**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
MW-201	06/07/07	<1	<1	<1	<1	<1	<1	<1	<1	6	<1	<1	<1	<1	2	1	<1	<1
	07/06/07	0.027	0.014	0.017	<0.0096	0.02	<0.0096	<0.0096	0.078	6.7	<0.10	0.52	<0.0096	0.83	2	2.6	0.3	0.72
	09/27/07	0.018	<0.011	<0.011	<0.011	0.027	<0.011	<0.011	0.045	--	--	--	--	--	--	2.3 [5]	--	--
	11/27/07	0.016	<0.0095	<0.0095	<0.0095	0.023	<0.0095	<0.0095	0.039	--	--	--	--	--	--	0.99	--	--
	02/12/08	0.0179	0.0584	<0.0490	<0.0490	0.0210	<0.00980	<0.00980	0.0973	--	--	--	--	--	--	--	--	--
	05/14/08	0.051	<0.0472	<0.0472	<0.0472	0.0756	<0.0472	<0.0472	0.1266	--	--	--	--	--	--	--	--	--
Filtered	05/14/08	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	--	--	--	--	--	--	--	--	--
	09/05/08	0.0243	<0.00962	<0.00962	<0.00962	0.0175	<0.00962	<0.00962	0.0418	--	--	--	--	--	--	--	--	--
Filtered	09/05/08	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	--	--	--	--	--	--	--	--	--
	12/05/08	0.0247	<0.00980	<0.00980	<0.00980	0.0268	<0.00980	<0.00980	0.0515	--	--	--	--	--	--	--	--	--
Filtered	12/05/08	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	--	--	--	--	--	--	--	--	--
	02/17/09	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
Filtered	02/17/09	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	--	--	--	--	--	--	--	--	--
	05/13/09	0.0129	<0.0100	<0.0100	<0.0100	0.0191	<0.0100	<0.0100	0.0320	--	--	--	--	--	--	--	--	--
Filtered	05/13/09	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	--	--	--	--	--	--	--	--	--
	09/11/09	0.021	<0.0200	<0.0100	<0.0100	0.025	<0.0100	<0.0100	0.0460	--	--	--	--	--	--	--	--	--
Filtered	09/11/09	<0.0100	<0.0220	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0220	--	--	--	--	--	--	--	--	--
	04/14/10	0.014	<0.020	<0.0099	<0.0099	0.019	<0.0099	<0.0099	0.033	--	--	--	--	--	--	--	--	--
Filtered	04/14/10	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	--	--	--	--	--	--	--	--	--
	09/22/10	0.026	<0.020	<0.0099	<0.0099	0.030	<0.0099	<0.0099	0.056	--	--	--	--	--	--	--	--	--
Filtered	09/22/10	<0.0098	<0.020	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.020	--	--	--	--	--	--	--	--	--
	04/26/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	7.3	0.10	0.41	<0.094	1.2	1.2	0.25	0.50	0.97
Filtered	04/26/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	5.5	0.12	<0.094	<0.094	<0.094	0.59	0.22	<0.094	<0.094
Original	9/22/11 [8,9]	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	8.3	0.10	0.80	<0.094	1.5	1.8	0.40	0.94	1.3
Original Filtered	9/22/11 [9]	0.014	<0.019	<0.0094	<0.0094	0.014	<0.0094	<0.0094	0.028	6.3	0.077	0.37	<0.0094	0.63	1.1	0.33	0.55	0.52
Re-Analysis Filtered	9/22/11[7]	0.017	<0.019	<0.0094	<0.0094	0.017	<0.0094	<0.0094	0.032	7.9	0.072	0.47	<0.0094	0.82	1.3	0.48	0.74	0.66
	04/18/12	0.025	<0.0096	<0.019	<0.019	0.021	<0.019	<0.019	0.046	8.2	0.11	0.44	<0.019	1.1	1.3	0.2	0.51	0.85
Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	1.4	0.022	0.054	<0.019	<0.019	<0.019	0.098	<0.019	<0.019
	10/11/12	0.029	<0.019	<0.0095	<0.0095	0.027	<0.0095	<0.0095	0.056	9.7	0.11	0.6	<0.0095	1.1	0.92	0.27	0.53	1.0
Filtered	10/11/12	<0.019	<0.038	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	3.9	0.043	0.12	<0.019	<0.019	0.12	0.19	<0.019	<.019
	04/25/13	0.022	<0.010	<0.010	<0.010	0.026	<0.010	<0.010	0.048	--	--	--	--	--	--	--	--	--
	09/19/13	0.02	<0.010	<0.010	<0.010	0.027	<0.010	<0.010	0.047	--	--	--	--	--	--	--	--	--
	06/23/14	0.032	<0.010	<0.010	<0.010	0.034	<0.010	<0.010	0.066	--	--	--	--	--	--	--	--	--
	12/16/14	0.016	<0.010	<0.010	<0.010	0.021	<0.010	<0.010	0.037	--	--	--	--	--	--	--	--	--
	06/18/15	0.034	0.025	0.029	<0.010	0.029	<0.010	0.023	0.140	--	--	--	--	--	--	--	--	--
	12/08/15	0.029	0.011	0.013	<0.010	0.030	<0.010	0.011	0.094	--	--	--	--	--	--	--	--	--
Duplicate	12/08/15	0.022	<0.010	<0.010	<0.010	0.022	<0.010	<0.010	0.044	--	--	--	--	--	--	--	--	--
	06/14/16	**0.030**	**<0.010**	**0.014**	**<0.010**	**0.032**	**<0.010**	**<0.010**	**0.076**	**--**	**--**	**--**	**--**	**--**	**--**	**0.863**	**--**	**--**
MW-202	06/07/07	<1	<1	<1	<1	<1	<1	<1	<7	2	<1	<1	<1	1	<1	<1	2	1
	07/06/07	0.05	0.014	0.016	<0.0097	0.049	<0.0097	<0.0097	0.129	0.27	<0.025	0.22	<0.0097	0.66	0.073	0.27	0.15	0.53
	09/27/07	0.042	<0.010	<0.010	<0.010	0.040	<0.010	<0.010	0.082	--	--	--	--	--	--	0.18 [5]	--	--
	11/26/07	0.043	<0.010	<0.010	<0.010	0.036	<0.010	<0.010	0.079	--	--	--	--	--	--	<0.010	--	--
Filtered	11/26/07	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	0.057	--	--
	02/12/08	0.0457	<0.00990	<0.00990	0.0184	0.0444	<0.00990	<0.00990	0.1085	--	--	--	--	--	--	--	--	--
Filtered	02/12/08	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	--	--	--	--	--	--	--	--	--
	05/13/08	0.0406	<0.00943	0.0116	0.0149	0.0432	<0.00943	<0.00943	0.1103	--	--	--	--	--	--	--	--	--
Filtered	05/13/08	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	--	--	--	--	--	--	--	--	--
	09/04/08	0.0502	<0.00962	<0.00962	<0.00962	0.0482	<0.00962	<0.00962	0.0984	--	--	--	--	--	--	--	--	--
Filtered	09/04/08	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	--	--	--	--	--	--	--	--	--
	12/04/08	0.0286	<0.0100	<0.0100	<0.0100	0.0308	<0.0100	<0.0100	0.0594	--	--	--	--	--	--	--	--	--
Filtered	12/04/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	02/18/09	0.0181	<0.00980	<0.00980	<0.00980	0.0222	<0.00980	<0.00980	0.0403	--	--	--	--	--	--	--	--	--
Filtered	02/18/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	05/13/09	0.0146	<0.00943	<0.00943	<0.00943	0.0160	<0.00943	<0.00943	0.0306	--	--	--	--	--	--	--	--	--
Filtered	05/13/09	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	--	--	--	--	--	--	--	--	--
	09/11/09	0.0490	<0.0200	0.0110	<0.0100	0.0470	<0.0100	<0.0100	0.1070	--	--	--	--	--	--	--	--	--
Filtered	09/11/09	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	--	--	--	--	--	--	--	--	--
	04/14/10	0.013	<0.020	<0.0099	<0.0099	0.013	<0.0099	<0.0099	0.026	--	--	--	--	--	--	--	--	--
Filtered	04/14/10	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	--	--	--	--	--	--	--	--	--
	09/22/10	0.041	<0.020	0.012	<0.010	0.043	<0.010	<0.010	0.096	--	--	--	--	--	--	--	--	--
Filtered	09/22/10	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	--	--	--	--	--	--	--	--	--
	04/27/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	4.8	<0.094	<0.094	<0.094	0.55	0.36	2.9	<0.094	0.42
Filtered	04/27/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	3.6	<0.094	<0.094	<0.094	<0.094	0.19	2.6	<0.094	<0.094
	9/21/11 [8,9]	0.015	<0.019	<0.0094	<0.0094	0.013	<0.0094	<0.0094	0.028	0.35	<0.0094	0.021	<0.0094	0.17	0.019	0.16	0.013	0.19
Filtered	9/21/11 [9]	<0.0094	<0.019	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.019	0.28	<0.0094	0.0094	<0.0094	0.059	0.016	0.13	<0.0094	0.065
Re-Analysis Filtered	9/21/11 [7]	<0.0094	<0.019	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.019	0.35	<0.0094	0.031	<0.0094	0.13	0.026	0.12	0.016	0.14
	04/18/12	0.029	<0.0096	<0.019	<0.019	0.031	<0.019	<0.019	0.06	6.5	0.058	0.051	<0.019	0.54	0.24	1.8	0.11	0.43

Table 4
Summary of Groundwater Analytical Data
Carcinogenic Polycyclic Aromatic Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

OFFSITE AREA		Carcinogenic PAHs[2,3] (µg/L)								Noncarcinogenic PAHs[2] (µg/L)								
Monitoring Well[1]	Sample Date	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total CPAHs[4]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Naphthalene[4]	Phenanthrene	Pyrene
RAL		**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
MW-202 (continued) Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.40	<0.019	<0.019	<0.019	<0.019	<0.019	0.76	<0.019	<0.019
	10/11/12	0.027	<0.019	<0.0095	<0.0095	0.02	<0.0095	<0.0095	0.02	0.82	0.011	0.068	<0.0095	0.23	0.032	0.075	0.016	0.26
Filtered	10/11/12	<0.019	<0.038	<0.019	<0.019	<0.019	<0.019	<0.019	<0.039	0.07	<0.019	<0.019	<0.019	<0.019	<0.019	0.03	<0.019	<0.019
Filtered	10/11/12	<0.019	<0.038	<0.019	<0.019	<0.019	<0.019	<0.019	<0.039	0.07	<0.019	<0.019	<0.019	<0.019	<0.019	0.03	<0.019	<0.019
	04/25/13	0.019	<0.010	<0.010	<0.010	0.017	<0.010	<0.010	0.036	--	--	--	--	--	--	--	--	--
	09/19/13	0.025	<0.010	<0.010	<0.010	0.026	<0.010	<0.010	0.051	--	--	--	--	--	--	--	--	--
	12/16/14	0.018	<0.010	<0.010	<0.010	0.014	<0.010	<0.010	0.032	--	--	--	--	--	--	--	--	--
	06/18/15	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	--	--	--	--	--	--	--	--	--
	12/08/15	0.025	<0.011	<0.011	<0.011	0.023	<0.011	<0.011	0.048	--	--	--	--	--	--	--	--	--
	06/14/16	**0.014**	**<0.011**	**<0.011**	**<0.011**	**<0.011**	**<0.011**	**<0.011**	**0.014**	**--**	**--**	**--**	**--**	**--**	**--**	**0.98**	**--**	**--**
MW-203	06/07/07	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	07/06/07	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	0.62	<0.0096	0.12	<0.0096	0.16	0.047	0.052	0.013	0.11
	09/28/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.07	--	--	--	--	--	--	0.13	--	--
	11/27/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	<0.010	--	--
	02/12/08	0.0127	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	0.0127	--	--	--	--	--	--	--	--	--
Duplicate	02/12/08	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	--	--	--	--	--	--	--	--	--
	05/14/08	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	--	--	--	--	--	--	--	--	--
Filtered	05/14/08	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	--	--	--	--	--	--	--	--	--
	09/03/08	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	--	--	--	--	--	--	--	--	--
Filtered	09/03/08	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	--	--	--	--	--	--	--	--	--
	12/04/08	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	--	--	--	--	--	--	--	--	--
Filtered	12/04/08	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	--	--	--	--	--	--	--	--	--
	02/17/09	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
Filtered	02/17/09	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
	05/13/09	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
Filtered	05/13/09	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
	09/11/09	<0.0110	<0.0220	<0.0110	<0.0110	<0.0110	<0.0110	<0.0110	<0.0220	--	--	--	--	--	--	--	--	--
Filtered	09/11/09	<0.0110	<0.0220	<0.0110	<0.0110	<0.0110	<0.0110	<0.0110	<0.0220	--	--	--	--	--	--	--	--	--
	04/14/10	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	--	--	--	--	--	--	--	--	--
Filtered	04/14/10	<0.0097	<0.019	<0.0097	<0.0097	<0.0097	<0.0097	<0.0097	<0.019	--	--	--	--	--	--	--	--	--
	09/22/10	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	--	--	--	--	--	--	--	--	--
Filtered	09/22/10	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	04/27/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	0.44	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094
Filtered	04/27/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	0.45	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094
	9/21/11[9]	<0.0098	<0.020	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.020	0.34	<0.0098	0.012	<0.0098	0.039	0.0098	0.011	<0.0098	0.079
Re-Analysis	9/21/11[7]	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	0.51	<0.010	0.022	<0.010	0.047	0.017	0.02	<0.010	0.10
Filtered	9/21/11[9]	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	0.34	<0.010	0.011	<0.010	0.023	0.011	0.016	<0.010	0.043
Re-Analysis Filtered	9/21/11[7]	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	0.31	<0.0095	0.017	<0.0095	0.020	0.013	0.0095	<0.0095	0.039
	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.42	<0.019	0.028	<0.019	0.042	<0.019	<0.019	<0.019	0.076
Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	10/11/12	<0.0095	<0.020	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.020	0.23	<0.0098	0.035	<0.0098	0.041	0.011	0.013	0.01	0.10
Filtered	10/11/12	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	0.056	<0.0095	0.019	<0.0095	<0.0095	<0.0095	0.028	<0.0095	<0.0095
	04/25/13	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
	09/19/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/24/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
Duplicate	06/24/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/16/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/18/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/07/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/15/16	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**--**	**--**	**--**	**--**	**--**	**--**	**0.128**	**--**	**--**
Duplicate	**06/15/16**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**--**	**--**	**--**	**--**	**--**	**--**	**0.099**	**--**	**--**
MW-204	06/07/07	<1	<1	<1	<1	<1	<1	<1	<7	5	<1	<1	<1	<1	3	<1	<1	<1
	07/06/07	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	3.3	<0.30	0.19	<0.0095	0.06	2.7	0.45	1.1	0.061
Duplicate	7/6/2007[D]	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	3.3	<0.30	0.18	<0.0096	0.058	2.7	0.44	1	0.064
	09/28/07	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	--	--	--	--	--	--	0.84	--	--
	11/27/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	<0.010	--	--
	02/12/08	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	<0.00971	--	--	--	--	--	--	--	--	--
	05/14/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	05/14/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	09/03/08	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	--	--	--	--	--	--	--	--	--
Filtered	09/03/08	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	--	--	--	--	--	--	--	--	--
	12/04/08	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	--	--	--	--	--	--	--	--	--
Filtered	12/04/08	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
	02/17/09	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	--	--	--	--	--	--	--	--	--
Duplicate	02/17/09	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	<0.0105	--	--	--	--	--	--	--	--	--
Filtered	02/17/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Duplicate	02/17/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--

Table 4
Summary of Groundwater Analytical Data
Carcinogenic Polycyclic Aromatic Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

OFFSITE AREA		Carcinogenic PAHs[2,3] (µg/L)								Noncarcinogenic PAHs[2] (µg/L)								
Monitoring Well[1]	Sample Date	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total CPAHs[4]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Naphthalene[4]	Phenanthrene	Pyrene
RAL		**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
MW-204 (continued)	05/13/09	<0.0100	<0.0100	<0.0100	<0.0100	0.0193	<0.0100	<0.0100	0.0193	--	--	--	--	--	--	--	--	--
Duplicate	05/13/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	05/13/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Duplicate	05/13/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	09/11/09	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	--	--	--	--	--	--	--	--	--
Duplicate	09/11/09	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	--	--	--	--	--	--	--	--	--
Filtered	09/11/09	<0.0110	<0.0220	<0.0110	<0.0110	<0.0110	<0.0110	<0.0110	<0.0220	--	--	--	--	--	--	--	--	--
Duplicate	09/11/09	<0.0096	<0.0190	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0190	--	--	--	--	--	--	--	--	--
	04/14/10	<0.0097	<0.019	<0.0097	<0.0097	<0.0097	<0.0097	<0.0097	<0.019	--	--	--	--	--	--	--	--	--
Duplicate	04/14/10	<0.0099	<0.020	<0.0099	<0.0099	0.0099	<0.0099	<0.0099	0.0099	--	--	--	--	--	--	--	--	--
Filtered	04/14/10	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	--	--	--	--	--	--	--	--	--
Duplicate	04/14/10	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	--	--	--	--	--	--	--	--	--
	09/22/10	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	--	--	--	--	--	--	--	--	--
Filtered	09/22/10	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	--	--	--	--	--	--	--	--	--
	04/26/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	2.6	0.33	0.13	<0.094	<0.094	2.7	1.2	1.1	<0.094
Duplicate	04/26/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	2.5	0.30	0.14	<0.094	<0.094	2.6	1.3	1.0	<0.094
Filtered	04/26/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	2.6	0.28	<0.094	<0.094	<0.094	2.0	1.1	0.43	<0.094
Duplicate	04/26/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	2.1	0.23	0.094	<0.094	<0.094	1.7	1.1	0.53	<0.094
Original	9/22/11 [9]	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	1.7	0.14	0.16	<0.010	0.039	1.6	0.63	1.0	0.034
Duplicate	9/22/11 [D]	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	2.3	0.15	0.13	<0.010	0.058	2.2	0.68	0.59	0.054
Re-Analysis	9/22/11 [7]	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	2.4	0.19	0.13	<0.010	0.041	2.1	0.61	0.83	0.042
Filtered	9/22/11 [9]	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	1.8	0.14	0.067	<0.010	0.018	1.4	0.52	0.72	0.014
Duplicate Filtered	9/22/11[D]	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	2.1	0.17	0.079	<0.010	<0.010	1.6	0.65	0.75	<0.010
Re-Analysis Filtered	9/22/11 [7]	<0.0098	<0.020	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.020	1.6	0.13	0.073	<0.0098	0.015	1.4	0.36	0.54	0.012
NEAR	9/22/11 [9]	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	21	0.21	0.98	<0.010	1.3	4.7	9.6	4.1	0.94
NEAR Re-Analysis	9/22/11 [7]	<0.0096	<0.019	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.019	18	0.21	0.83	<0.0096	1.2	6.0	5.7	4.6	0.89
NEAR Filtered	09/22/11	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	1.7	0.14	0.076	<0.010	0.018	1.3	0.53	0.68	0.013
	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	3.3	0.37	0.21	<0.019	0.05	3.2	0.34	1.1	0.032
Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	2.8	0.19	0.10	<0.019	1.2	<0.019	0.28	<0.019	<0.019
Duplicate	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	3.8	0.41	0.19	<0.019	0.047	3.6	0.37	1.2	0.037
Duplicate Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.82	0.032	0.071	<0.019	<0.019	0.019	0.16	<0.019	<0.019
NEAR	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	3.3	0.36	0.19	<0.019	0.048	3.0	0.33	1.1	0.03
NEAR Duplicate	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	3.2	0.35	0.18	<0.019	0.045	2.9	0.31	1.2	0.037
NEAR Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	3.2	0.30	0.085	<0.019	<0.019	1.7	0.76	0.023	<0.019
NEAR Duplicate Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.91	0.053	0.084	<0.019	<0.019	0.14	0.21	<0.019	<0.019
	10/12/12	<0.095	<0.19	<0.095	<0.095	<0.095	<0.095	<0.095	<0.019	2.5	0.29	0.23	<0.095	<0.095	2.4	0.94	1.1	<0.095
Filtered	10/12/12	<0.095	<0.19	<0.095	<0.095	<0.095	<0.095	<0.095	<0.019	0.98	0.11	<0.095	<0.095	<0.095	0.34	0.57	<0.095	<0.095
Duplicate	10/12/12	<0.095	<0.19	<0.095	<0.095	<0.095	<0.095	<0.095	<0.019	2.5	0.29	0.21	<0.095	<0.095	2.2	0.89	1.0	<0.095
Duplicate Filtered	10/12/12	<0.095	<0.19	<0.095	<0.095	<0.095	<0.095	<0.095	<0.019	2.2	0.24	<0.095	<0.095	<0.095	1.7	1.0	0.17	<0.095
NEAR	10/12/12	<0.095	<0.19	<0.095	<0.095	<0.095	<0.095	<0.095	<0.019	2.0	0.23	0.21	<0.095	<0.095	1.9	0.76	1.0	<0.095
NEAR Filtered	10/12/12	<0.095	<0.19	<0.095	<0.095	<0.095	<0.095	<0.095	<0.019	0.98	0.1	0.097	<0.095	<0.095	0.33	0.63	<0.095	<0.095
	04/26/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
Duplicate	04/26/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	09/19/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/24/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/16/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
Duplicate	12/16/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/18/15	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
	12/09/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	01/15/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
Duplicate	01/15/16	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	--	--	--	--	--	--	--	--	--
	06/13/16	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**--**	**--**	**--**	**--**	**--**	**--**	**0.15**	**--**	**--**
MW-205	06/07/07	<1	<1	<1	<1	<1	<1	<1	<1	4	<1	<1	<1	<1	<1	<1	<1	<1
	07/06/07	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	3.4	0.022	<0.0096	<0.0096	<0.0096	<0.0096	0.041	<0.0096	0.01
	09/28/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	0.050	--	--
	11/27/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	0.022	--	--
	02/12/08	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	<0.0111	--	--	--	--	--	--	--	--	--
	05/14/08	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	--	--	--	--	--	--	--	--	--
Filtered	05/14/08	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	--	--	--	--	--	--	--	--	--
	09/03/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
Filtered	09/03/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
	12/05/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
Filtered	12/05/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
	02/17/09	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
Filtered	02/17/09	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
	05/13/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	05/13/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--

Table 4
Summary of Groundwater Analytical Data
Carcinogenic Polycyclic Aromatic Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

OFFSITE AREA		Carcinogenic PAHs[2,3] (µg/L)								Noncarcinogenic PAHs[2] (µg/L)								
Monitoring Well[1]	Sample Date	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total CPAHs[4]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Naphthalene[4]	Phenanthrene	Pyrene
RAL		**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
MW-205 (Continued)	09/11/09	<0.0110	<0.0220	<0.0110	<0.0110	<0.0110	<0.0110	<0.0110	<0.0220	--	--	--	--	--	--	--	--	--
Filtered	09/11/09	<0.0110	<0.0220	<0.0110	<0.0110	<0.0110	<0.0110	<0.0110	<0.0220	--	--	--	--	--	--	--	--	--
	04/14/10	<0.013	<0.026	<0.013	<0.013	<0.013	<0.013	<0.013	<0.026	--	--	--	--	--	--	--	--	--
Filtered	04/14/10	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	--	--	--	--	--	--	--	--	--
	09/22/10	<0.0094	<0.019	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.019	--	--	--	--	--	--	--	--	--
Filtered	09/22/10	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	--	--	--	--	--	--	--	--	--
	04/26/11									LNAPL								
Filtered	04/26/11									LNAPL								
	09/22/11	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	1.6	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	0.016	<0.0099	0.015
Filtered	09/22/11	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	1.1	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010
NEAR	09/22/11	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	0.011
NEAR Filtered	09/22/11	<0.0098	<0.020	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.020	1.4	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	0.015	<0.0098	<0.0098
	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	1.6	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.16	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Duplicate	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	1.9	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Duplicate Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.32	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
NEAR	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	1.6	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
NEAR Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.8	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	10/12/12	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	1.6	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	0.015	0.0095	<0.0095
Filtered	10/12/12	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	0.22	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	0.013	0.0095	<0.0095
Duplicate	10/12/12	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	1.5	0.015	0.011	<0.0095	<0.0095	0.014	0.017	<0.0095	0.0099
Duplicate Filtered	10/12/12	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	0.12	<0.0095	<0.0095	<00.095	<0.0095	<0.0095	0.016	<0.0095	<0.0095
NEAR	10/12/12	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	1.6	0.017	0.012	<0.0095	<0.0095	0.017	0.016	0.018	0.012
NEAR Filtered	10/12/12	<0.019	<0.038	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.12	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	04/26/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	09/19/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
Duplicate	09/19/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/24/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/16/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/18/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
Duplicate	06/18/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/09/15	<0.010	0.012	0.011	<0.010	<0.010	<0.010	0.022	0.045	--	--	--	--	--	--	--	--	--
	06/13/16	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**--**	**--**	**--**	**--**	**--**	**--**	**<0.031**	**--**	**--**
MW-206	06/07/07	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	07/06/07	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	1.9	<0.0096	0.069	<0.0096	0.087	0.14	0.19	0.51	0.036
	09/27/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	0.063[5]	--	--
	11/27/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	0.031	--	--
	02/12/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	05/13/08	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
Filtered	05/13/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
	09/04/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
Duplicate[6]	09/04/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	09/04/08	0.0132	<0.00952	<0.00952	0.0107	0.0134	0.0638	0.0125	0.1136	--	--	--	--	--	--	--	--	--
Duplicate	09/04/08	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	--	--	--	--	--	--	--	--	--
	10/01/08	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	--	--	--	--	--	--	--	--	--
Filtered	10/01/08	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	--	--	--	--	--	--	--	--	--
	12/04/08	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	--	--	--	--	--	--	--	--	--
Filtered	12/04/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
Duplicate	12/04/08	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	<0.00962	--	--	--	--	--	--	--	--	--
Filtered	12/04/08	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	--	--	--	--	--	--	--	--	--
	02/18/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	02/18/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	05/12/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	05/12/09	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	--	--	--	--	--	--	--	--	--
	09/11/09	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	--	--	--	--	--	--	--	--	--
Filtered	09/11/09	<0.0110	<0.0220	<0.0110	<0.0110	<0.0110	<0.0110	<0.0110	<0.0220	--	--	--	--	--	--	--	--	--
	04/14/10	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	--	--	--	--	--	--	--	--	--
Filtered	04/14/10	<0.0098	<0.020	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.020	--	--	--	--	--	--	--	--	--
	09/22/10	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	--	--	--	--	--	--	--	--	--
Filtered	09/22/10	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	--	--	--	--	--	--	--	--	--
	04/27/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	0.14	<0.094	<0.094	<0.094	0.21	<0.094	<0.094	<0.094	0.15
Filtered	04/27/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	0.12	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094
	09/21/11	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	0.014	<0.010	<0.010	<0.010	0.063	<0.010	0.049	<0.010	0.046
Filtered	09/21/11	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	0.047	<0.010	<0.010	<0.010	0.011	<0.010	0.054	<0.010	0.01
	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.18	<0.019	0.042	<0.019	0.31	<0.019	0.022	<0.019	0.19
Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	10/11/12	0.011	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	0.011	0.21	<0.0095	0.066	<0.0095	0.37	0.018	0.0098	0.014	0.29

Table 4
Summary of Groundwater Analytical Data
Carcinogenic Polycyclic Aromatic Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

OFFSITE AREA		Carcinogenic PAHs[2,3] (µg/L)								Noncarcinogenic PAHs[2] (µg/L)								
Monitoring Well[1]	Sample Date	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total CPAHs[4]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Naphthalene[4]	Phenanthrene	Pyrene
RAL		**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
MW-206 (Continued) Filtered	10/11/12	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	0.018	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	0.011	<0.0095	<0.0095
	04/25/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	09/19/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/23/14	<0.010	<0.010	0.014	<0.010	<0.010	<0.010	0.013	0.027	--	--	--	--	--	--	--	--	--
	12/16/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/17/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/08/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/14/16	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**--**	**--**	**--**	**--**	**--**	**--**	**<0.031**	**--**	**--**
MW-207	06/07/07	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
	07/06/07	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	0.31	<1	0.01	<0.0096	0.017	0.033	0.014	0.064	<0.0096
	09/27/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	<0.010	--	--
	11/27/07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	<0.010	--	--
	02/12/08	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
	05/13/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	05/13/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	09/04/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
Filtered	09/04/08	<0.00952	<0.00952	0.0303	0.0256	<0.00952	<0.00952	<0.00952	0.0559	--	--	--	--	--	--	--	--	--
	10/01/08	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
Duplicate	10/01/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Filtered	10/01/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
Duplicate	10/01/08	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	12/03/08	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	<0.00952	--	--	--	--	--	--	--	--	--
Filtered	12/03/08	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	--	--	--	--	--	--	--	--	--
	02/18/09	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
Filtered	02/18/09	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	<0.00990	--	--	--	--	--	--	--	--	--
	05/12/09	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	<0.00980	--	--	--	--	--	--	--	--	--
Filtered	05/12/09	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	--	--	--	--	--	--	--
	09/11/09	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	--	--	--	--	--	--	--	--	--
Filtered	09/11/09	<0.0110	<0.0220	<0.0110	<0.0110	<0.0110	<0.0110	<0.0110	<0.0220	--	--	--	--	--	--	--	--	--
	04/14/10	<0.0097	<0.019	<0.0097	<0.0097	<0.0097	<0.0097	<0.0097	<0.019	--	--	--	--	--	--	--	--	--
Filtered	04/14/10	<0.0094	<0.019	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.019	--	--	--	--	--	--	--	--	--
	09/21/10	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	--	--	--	--	--	--	--	--	--
Duplicate	09/21/10	<0.0096	<0.019	<0.0096	<0.0096	<0.0096	<0.0096	<0.0096	<0.019	--	--	--	--	--	--	--	--	--
Filtered	09/21/10	<0.0094	<0.019	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.019	--	--	--	--	--	--	--	--	--
Duplicate	09/21/10	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	--	--	--	--	--	--	--	--	--
	04/27/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	3.2	<0.094	0.10	<0.094	0.44	1.1	0.17	0.32	0.31
Filtered	04/27/11	<0.094	<0.19	<0.094	<0.094	<0.094	<0.094	<0.094	<0.19	2.6	<0.094	<0.094	<0.094	<0.094	0.53	0.22	<0.094	<0.094
	09/21/11	<0.0099	<0.020	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.020	0.57	<0.0099	0.031	<0.0099	0.22	0.085	0.035	0.016	0.23
Filtered	09/21/11	<0.0098	<0.020	<0.0098	<0.0098	<0.0098	<0.0098	<0.0098	<0.020	0.35	<0.0098	0.012	<0.0098	0.047	0.045	0.019	<0.0098	0.042
	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.84	0.019	0.040	<0.019	0.19	0.074	0.23	0.021	0.17
Filtered	04/18/12	<0.019	<0.0096	<0.019	<0.019	<0.019	<0.019	<0.019	<0.038	0.93	0.021	0.047	<0.019	0.21	0.080	0.23	0.025	0.19
	10/11/12	0.017	<0.019	<0.0095	<0.0095	0.0097	<0.0095	<0.0095	0.0267	0.74	0.013	0.094	<0.0095	0.23	0.12	0.068	0.031	0.34
Filtered	10/11/12	<0.0095	<0.019	<0.0095	<0.0095	<0.0095	<0.0095	<0.0095	<0.019	0.18	<0.0095	0.029	<0.0095	<0.0095	<0.0095	0.033	0.017	<0.0095
	04/25/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	09/19/13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/23/14	0.019	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	0.03	--	--	--	--	--	--	--	--	--
	12/16/14	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/17/15	0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.030	--	--	--	--	--	--	--	--	--
	12/08/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/14/16	**1.0**	**0.98**	**1.0**	**0.84**	**0.85**	**0.95**	**0.93**	**6.55**	**--**	**--**	**--**	**--**	**--**	**--**	**3.49**	**--**	**--**
MW-209	**02/16/16**	**<0.011**	**<0.011**	**<0.011**	**<0.011**	**<0.011**	**<0.011**	**<0.011**	**<0.011**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
	06/13/16	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**--**	**--**	**--**	**--**	**--**	**--**	**0.21**	**--**	**--**
MW-210	**02/16/16**	**0.100**	**0.042**	**0.050**	**0.016**	**0.170**	**0.012**	**0.021**	**0.411**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
	06/13/16	**0.11**	**0.056**	**0.073**	**0.027**	**0.21**	**0.015**	**0.024**	**0.515**	**--**	**--**	**--**	**--**	**--**	**--**	**<0.031**	**--**	**--**
MW-211	**02/16/16**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
	06/13/16	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**<0.010**	**--**	**--**	**--**	**--**	**--**	**--**	**<0.031**	**--**	**--**

Notes:
[1]Monitoring well locations are shown on Figure 2.
[2]Analyses by EPA Method 8310 or 8270 (SIM).
[3]WAC 173-340-200 (MTCA).
[4]Numeric sum of detected concentrations. Where no compounds were detected, this figure is equal to the highest reporting limit for an individual compound.
[5]Napthalene detected in the method blank, these data are from the initial extraction of the sample.
[6]Sample was extracted past the holding time.
[7]Sample was re-prepared outside of preparation holding time. Results have been flaged as "H" in the laboratory report.
[8]There was insufficient sample to perform a re-extraction or re-analysis, therefore, the data have been reported.
[9]LCS or LCSD exceeds the control limits/RPD of the LCS exceeds the control limits.
[D]Duplicate of the preceding sample.

Table 4
Summary of Groundwater Analytical Data
Carcinogenic Polycyclic Aromatic Hydrocarbons

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

OFFSITE AREA		Carcinogenic PAHs[2,3] (µg/L)								Noncarcinogenic PAHs[2] (µg/L)								
Monitoring Well[1]	Sample Date	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total CPAHs[4]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Naphthalene[4]	Phenanthrene	Pyrene
RAL		**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**

RAL = Remedial Action Level per Amendments No. 4 and No. 5 to Order on Consent; applicable for Offsite Area only.
There is no cPAH RAL for groundwater in the Upper Yard, Lower Yard or Elliott Avenue.
µg/L = micrograms per liter
NE = not established
"--" not sampled
cPAHs = carcinogenic polycyclic aromatic hydrocarbons.
PAHs = polynuclear aromatic hydrocarbons.
LNAPL = light nonaqueous phase liquid
Laboratory analyses by TestAmerica of Tacoma, Washington and Lancaster Laboratories of Lancaster, Pennsylvania.
Bolded data are for the current reporting period.
Shading indicates concentration greater than the RAL.
NEAR = The sample was collected from the top of the water column within the respective monitoring well.
DL, RA, RE, IN = Indicates a Dilution, Reanalysis, Re-extraction, or additional Intial metals/anion analysis of the sample.

Table 5
Summary of Groundwater Compliance as of First Semi-Annual 2016

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well	Petroleum Constituents and Sheen (BTEX, Gasoline-range, Diesel-range)		cPAHs		Lead	
	Current Sampling Interval	Consecutive Sampling Events in Compliance[1]	Current Sampling Interval	Consecutive Sampling Events in Compliance[1]	Current Sampling Interval	Consecutive Sampling Events in Compliance[1]
Upper Yard						
MW-61A-R	semi-annually	1	none	N/A	none	N/A
Elliott Avenue						
MW-30	semi-annually	0	none	2 [11]	none	N/A
Offsite Area- Amendment No. 4 Point of Compliance monitoring wells						
MW-70R	quarterly	2	quarterly	2	none	N/A
MW-200	semi-annually	13 [7]	semi-annually[2]	24 [4,5,8]	none	13
MW-201	semi-annually	12 [7]	semi-annually[2]	0	none	13
MW-202	semi-annually	24	semi-annually[2]	20 [3, 4, 10]	none	13
MW-203	semi-annually	24	semi-annually[2]	24 [4,8]	none	13
MW-204	semi-annually	1	semi-annually[2]	24 [4,8,10]	none	13
MW-205	semi-annually	10	semi-annually2	10 [4,8]	none	13
MW-206	semi-annually	24	semi-annually2	24 [4,6,8]	none	13
MW-207	semi-annually	24	semi-annually2	0	none	13
MW-209	quarterly	1	quarterly	2	none	N/A
MW-210	quarterly	0	quarterly	0	none	N/A
MW-211	quarterly	2	quarterly	2	none	N/A

Notes:

[1] "Consecutive events" are number of consecutive sampling events prior to and including the current reporting period that are in compliance with the groundwater remediation action levels. Events prior to 3/97 are not counted. Refer to progress reports for results.

[2]Quarterly sampling beginning June 2007. Semi-annual sampling beginning 2010.

[3]Field-Filtered sample below RAL.

[4]Field-Filtered and Un-Filtered samples below RAL

[5]9/3/08 laboratory reporting limit above RAL

[6]Confirmation samples indicate erroneous 9/4/08 field-filtered data

[7]Sheen noted on groundwater during well redevelopment in August 2010

[8]First Semi-Annual 2011 laboratory reporting limit above RAL

[9]First Semi-Annual 2012 laboratory reporting limit above RAL

[10]Second Semi-Annual 2012 laboratory reporting limit above RAL

[11]MW-30 analyzed for cPAHs only during the First Semi-Annual 2013 sampling event

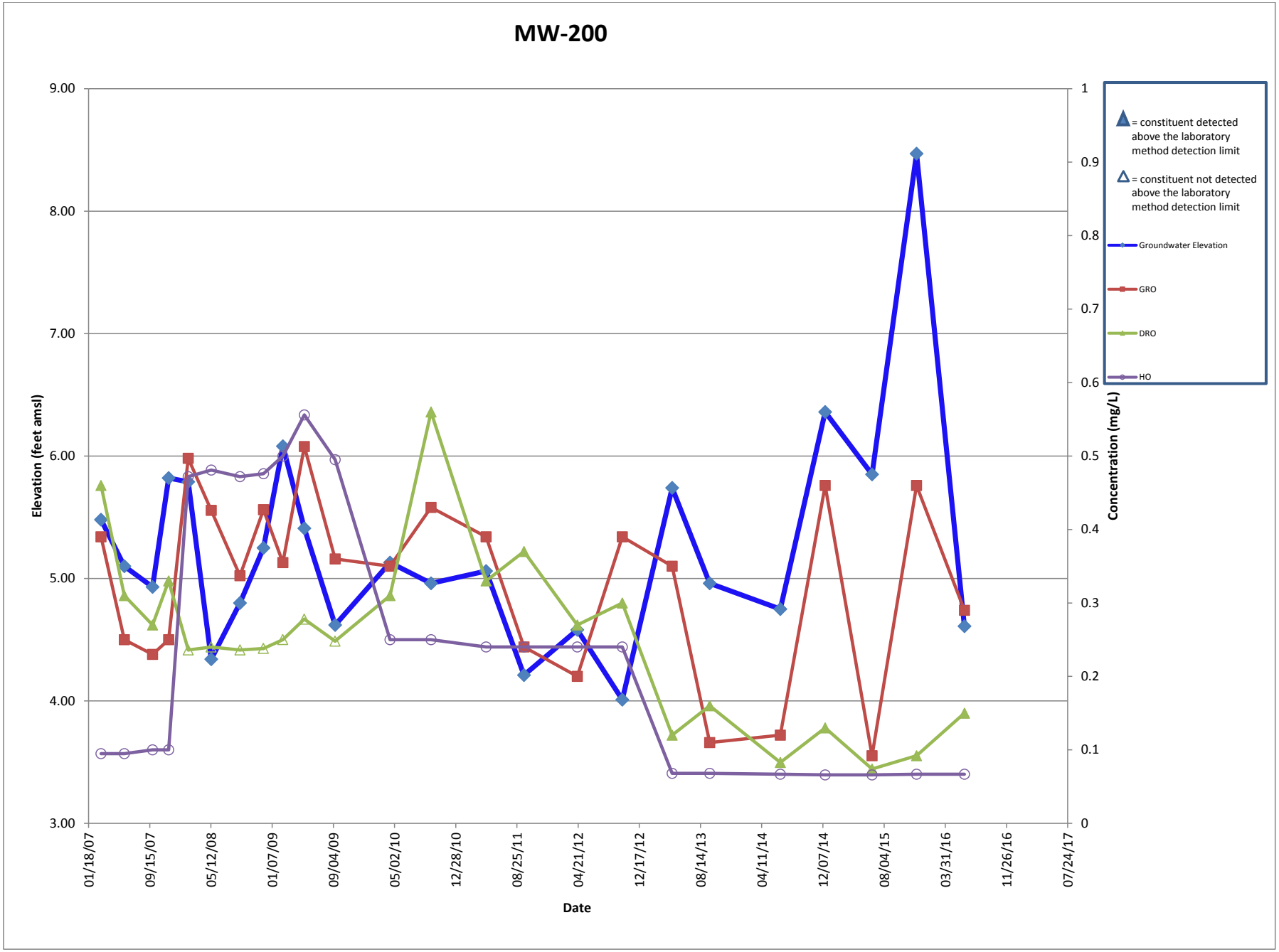
BTEX = benzene, toluene, ethylbenzene, xylenes

cPAHs = carcinogenic polycyclic aromatic hydrocarbons

N/A = not applicable

APPENDIX D

Historical Trends Graphs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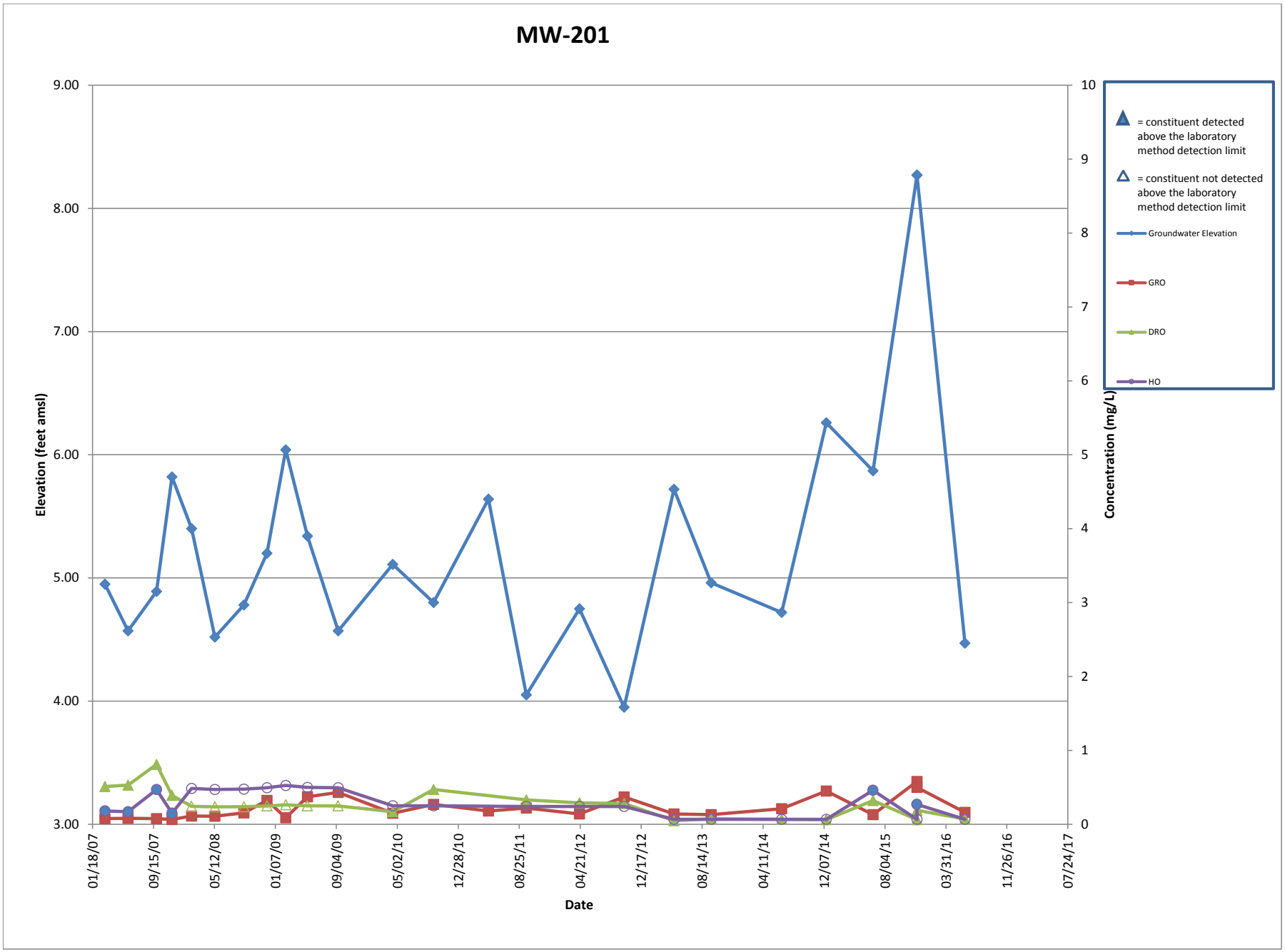
8.00
7.00
6.00
5.00
4.00
3.00
Elevation (feet amsl)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Concentration (mg/L)
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO


MW-201
Elevation (feet amsl)
Concentration (mg/L)
Date
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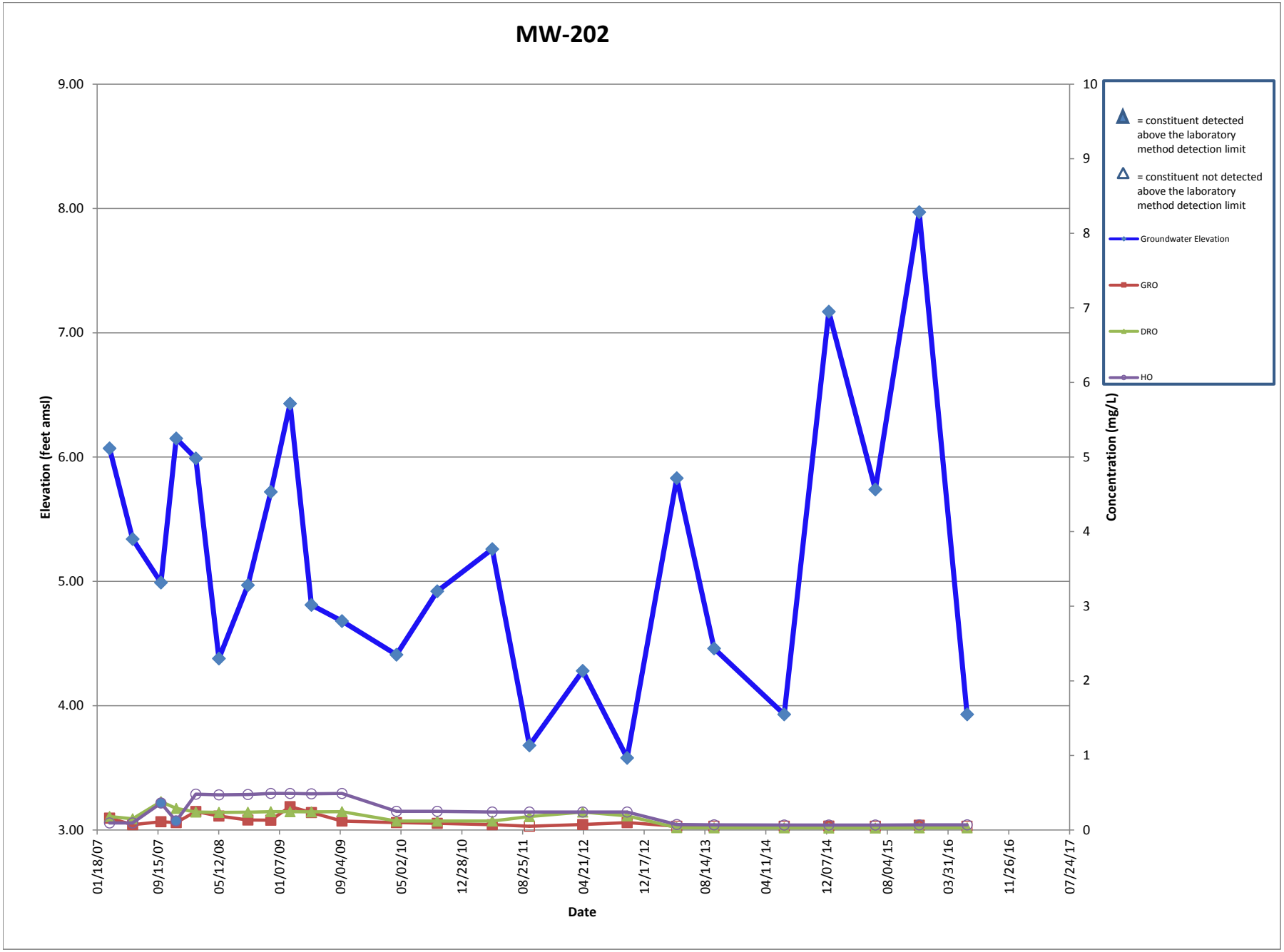
8.00
7.00
6.00
5.00
4.00
3.00
10
9
8
7
6
5
4
3
2
1
0
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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7.00
6.00
5.00
4.00
3.00
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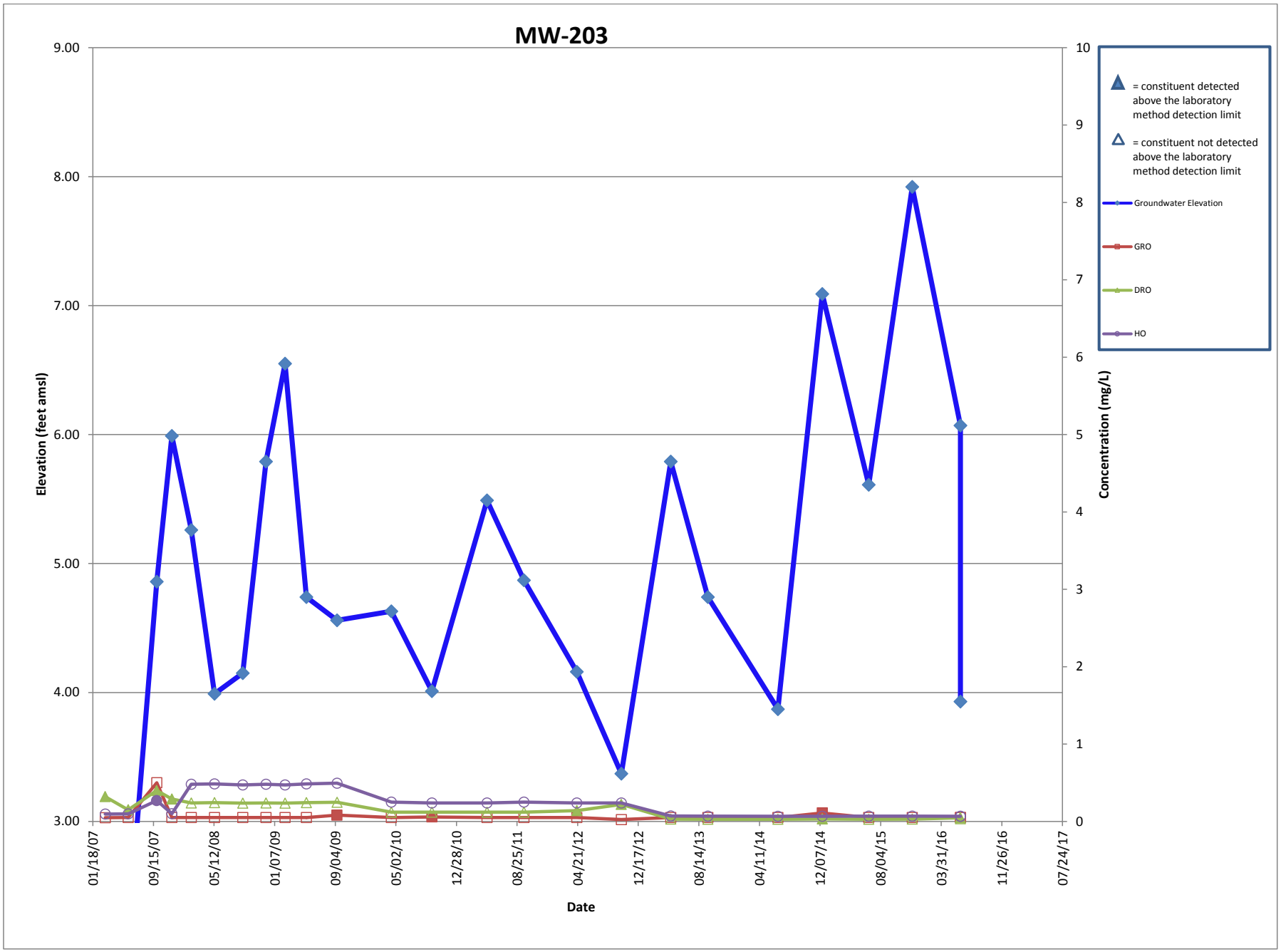
9
8
7
6
5
4
3
2
1
0
Concentration (mg/L)
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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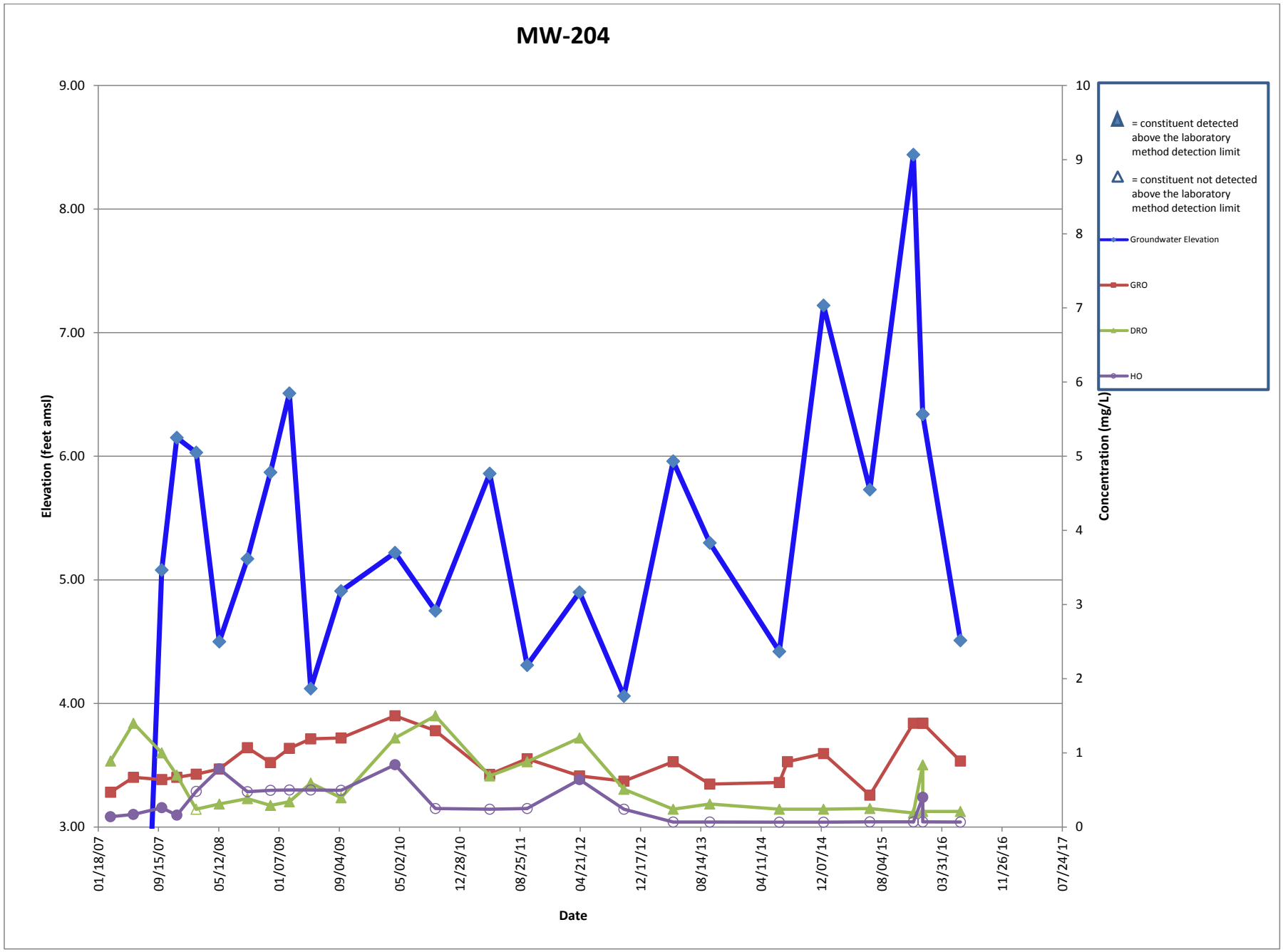
5.00
4.00
3.00
Elevation (feet amsl)
10
9
8
7
6
5
4
3
2
1
0
Concentration (mg/L)
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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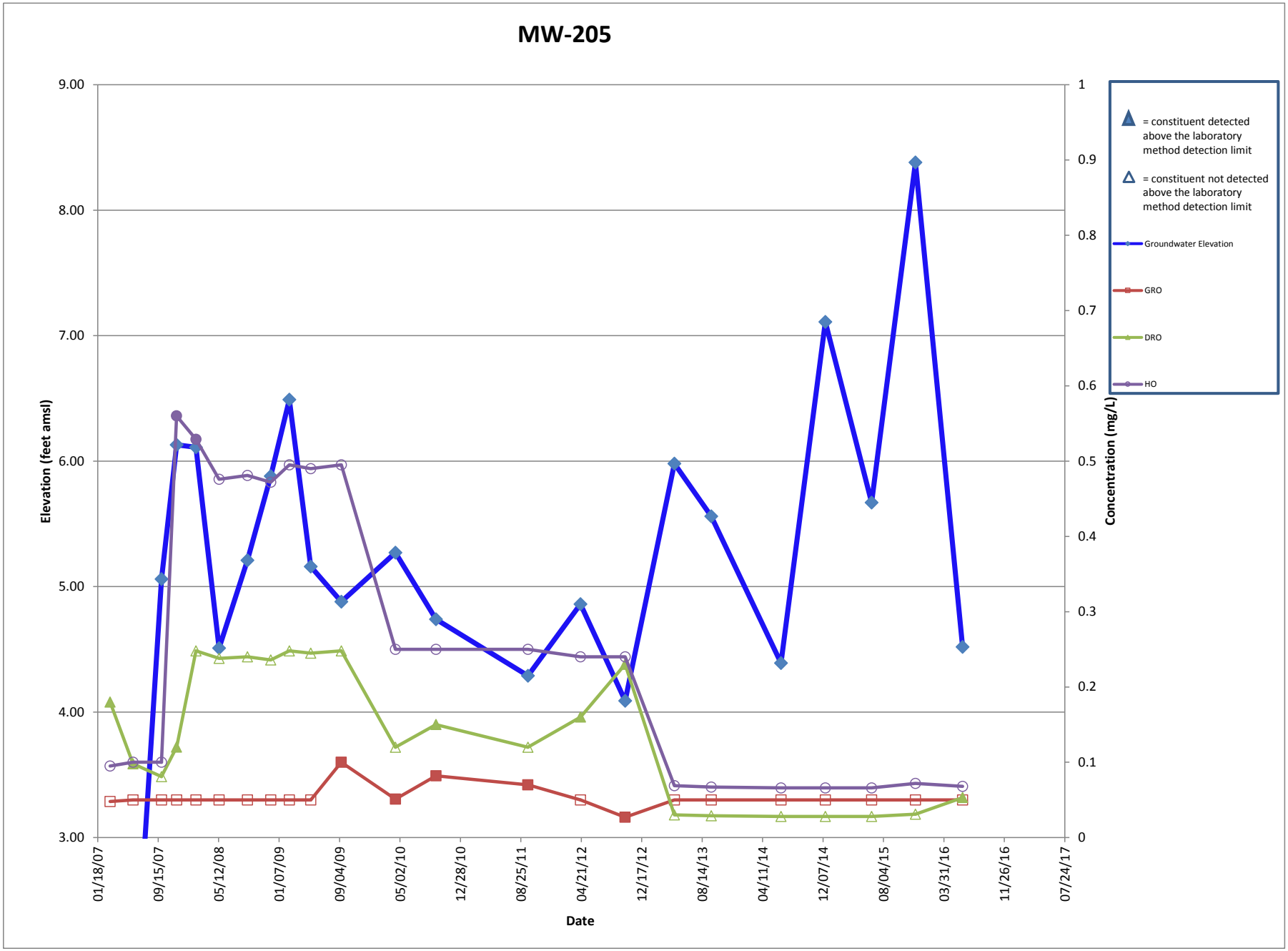
7.00
6.00
5.00
4.00
3.00
Elevation (feet amsl)
10
9
8
7
6
5
4
3
2
1
0
Concentration (mg/L)
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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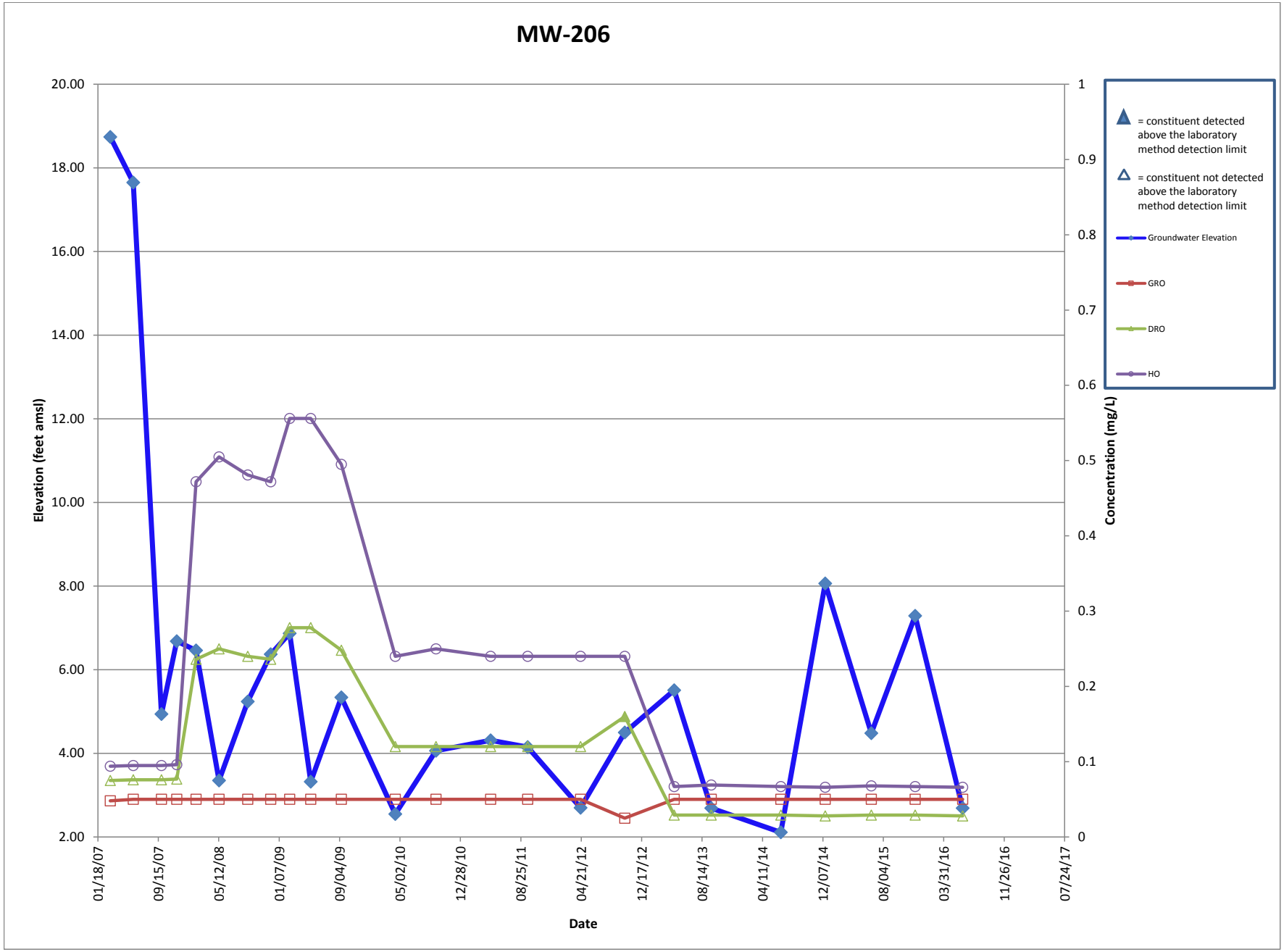
8.00
7.00
6.00
5.00
4.00
3.00
Elevation (feet amsl)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Concentration (mg/L)
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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Concentration (mg/L)
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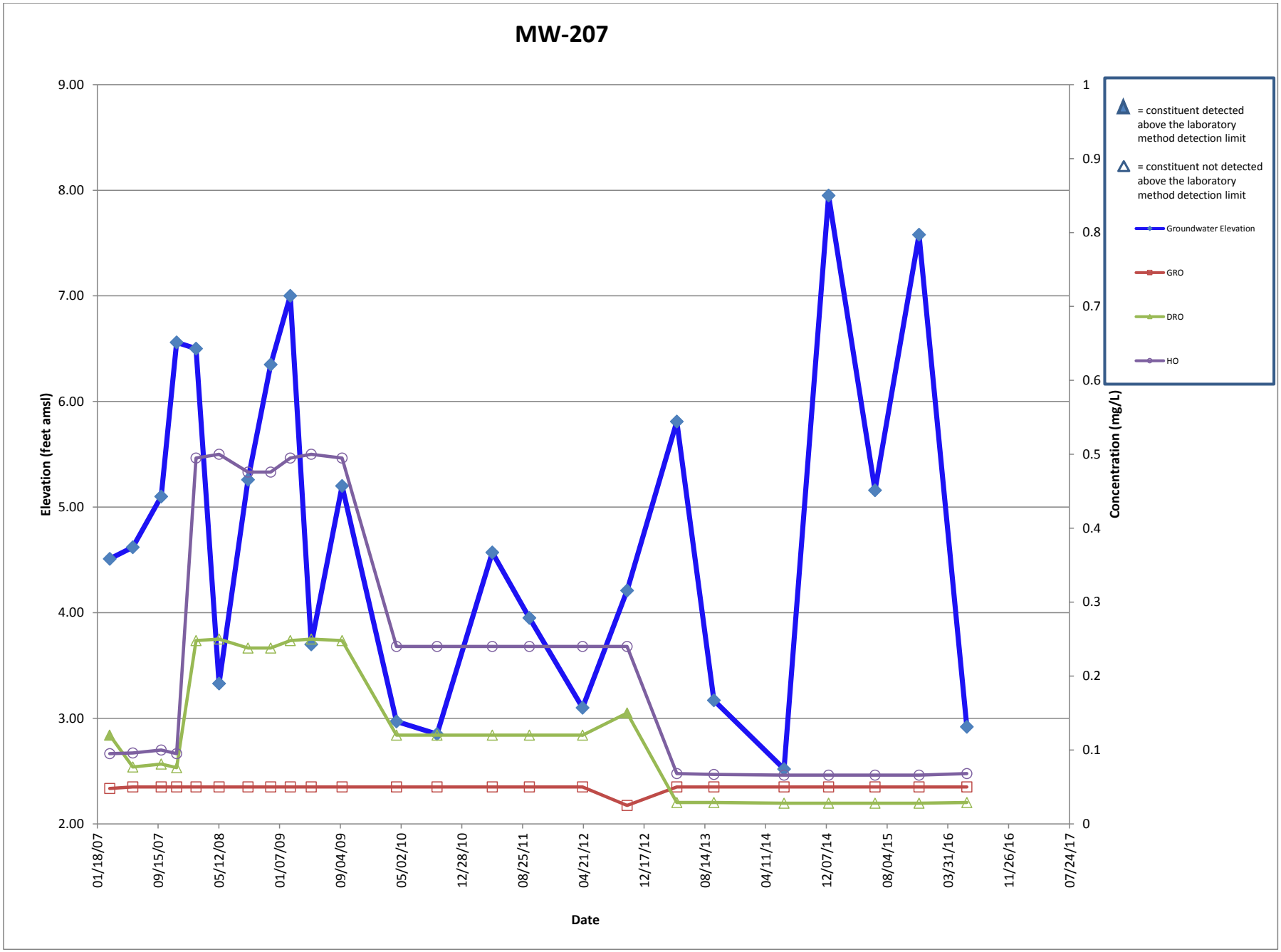
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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Concentration (mg/L)
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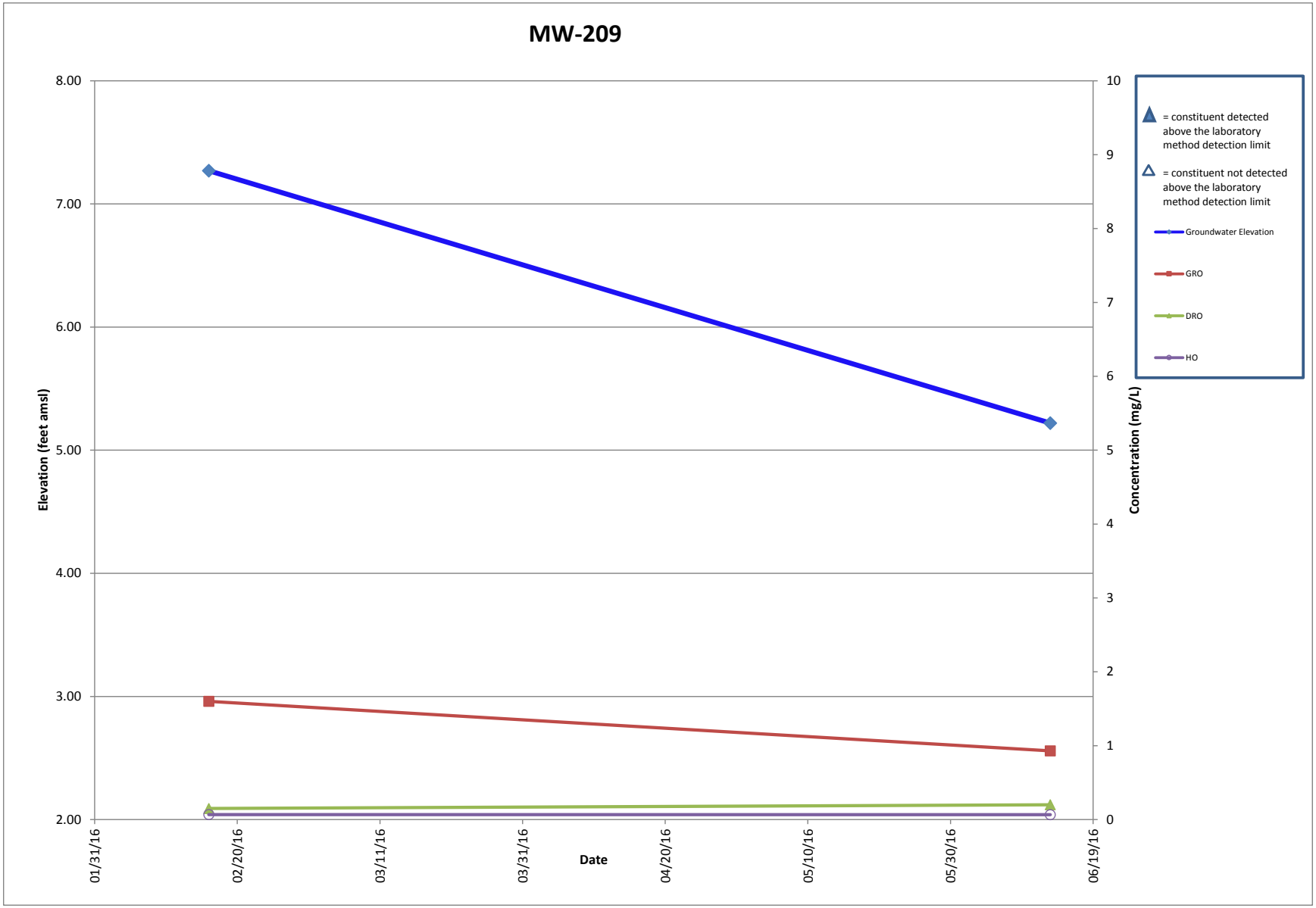
6.00
5.00
4.00
3.00
2.00
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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5.00
4.00
3.00
2.00
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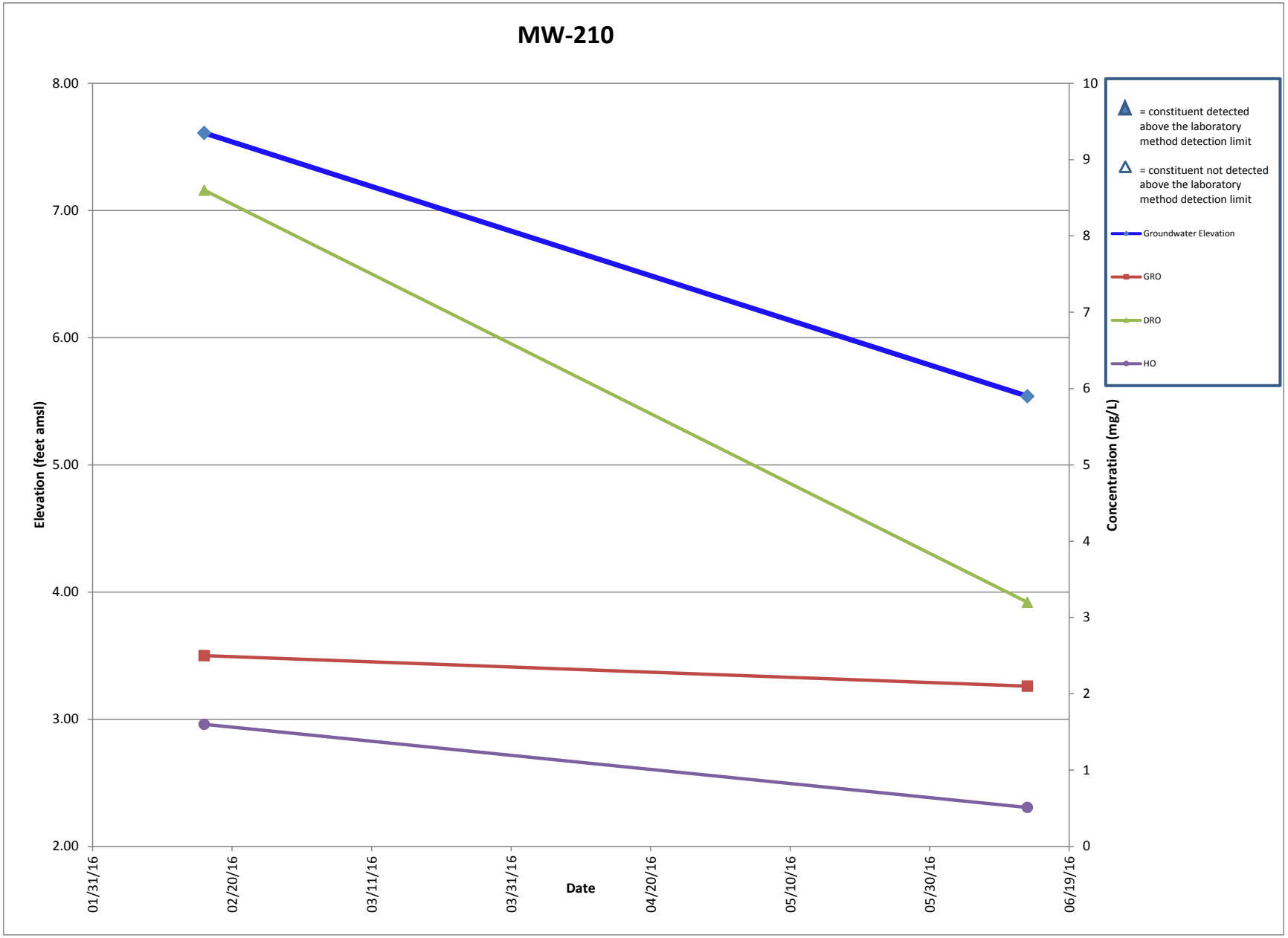
9
8
7
6
5
4
3
2
1
0
Concentration (mg/L)
01/31/16
02/20/16
03/11/16
03/31/16
04/20/16
05/10/16
05/30/16
06/19/16
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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2.00
Elevation (feet amsl)
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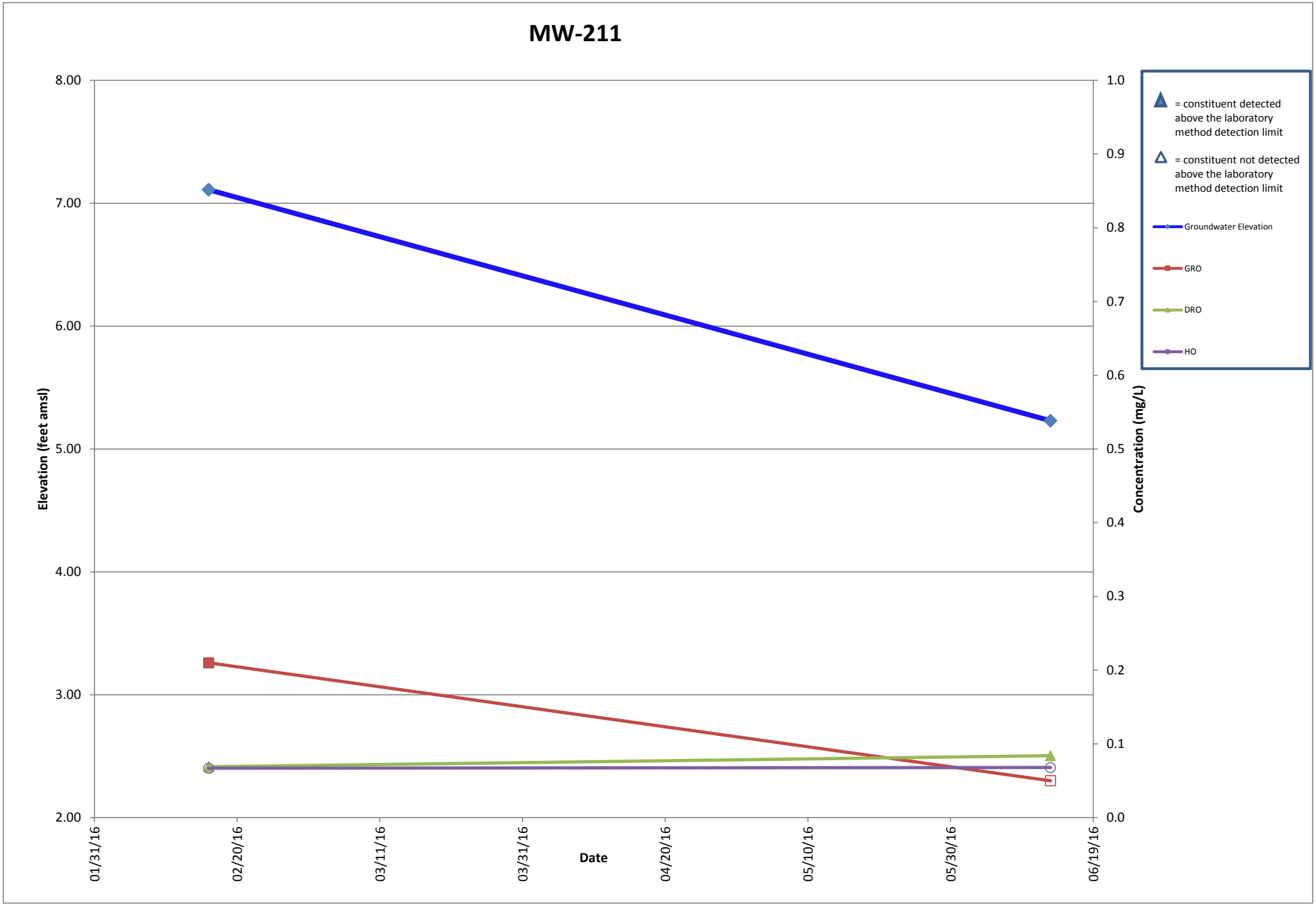
9
8
7
6
5
4
3
2
1
0
Concentration (mg/L)
01/31/16
02/20/16
03/11/16
03/31/16
04/20/16
05/10/16
05/30/16
06/19/16
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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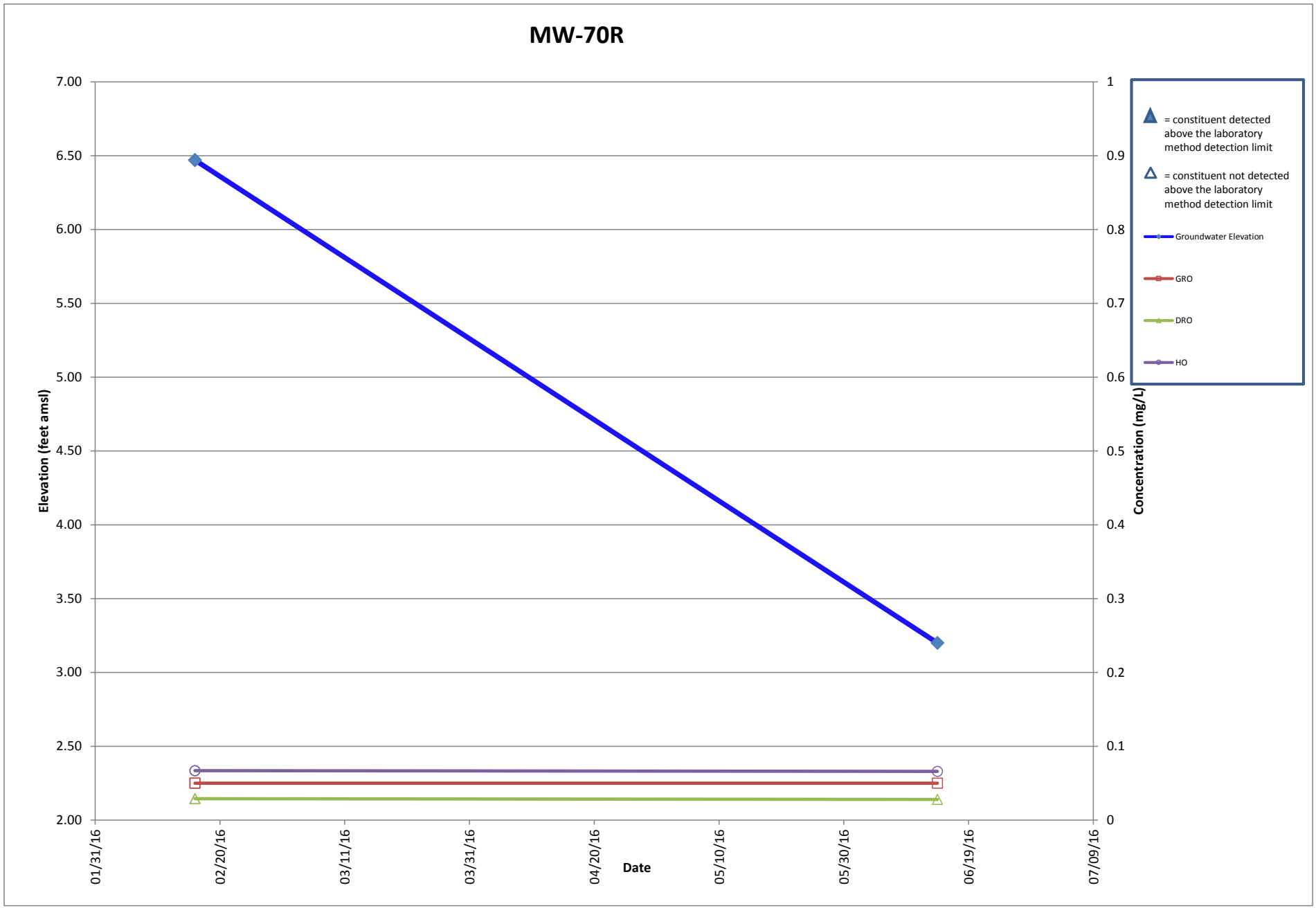
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Concentration (mg/L)
01/31/16
02/20/16
03/11/16
03/31/16
04/20/16
05/10/16
05/30/16
06/19/16
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO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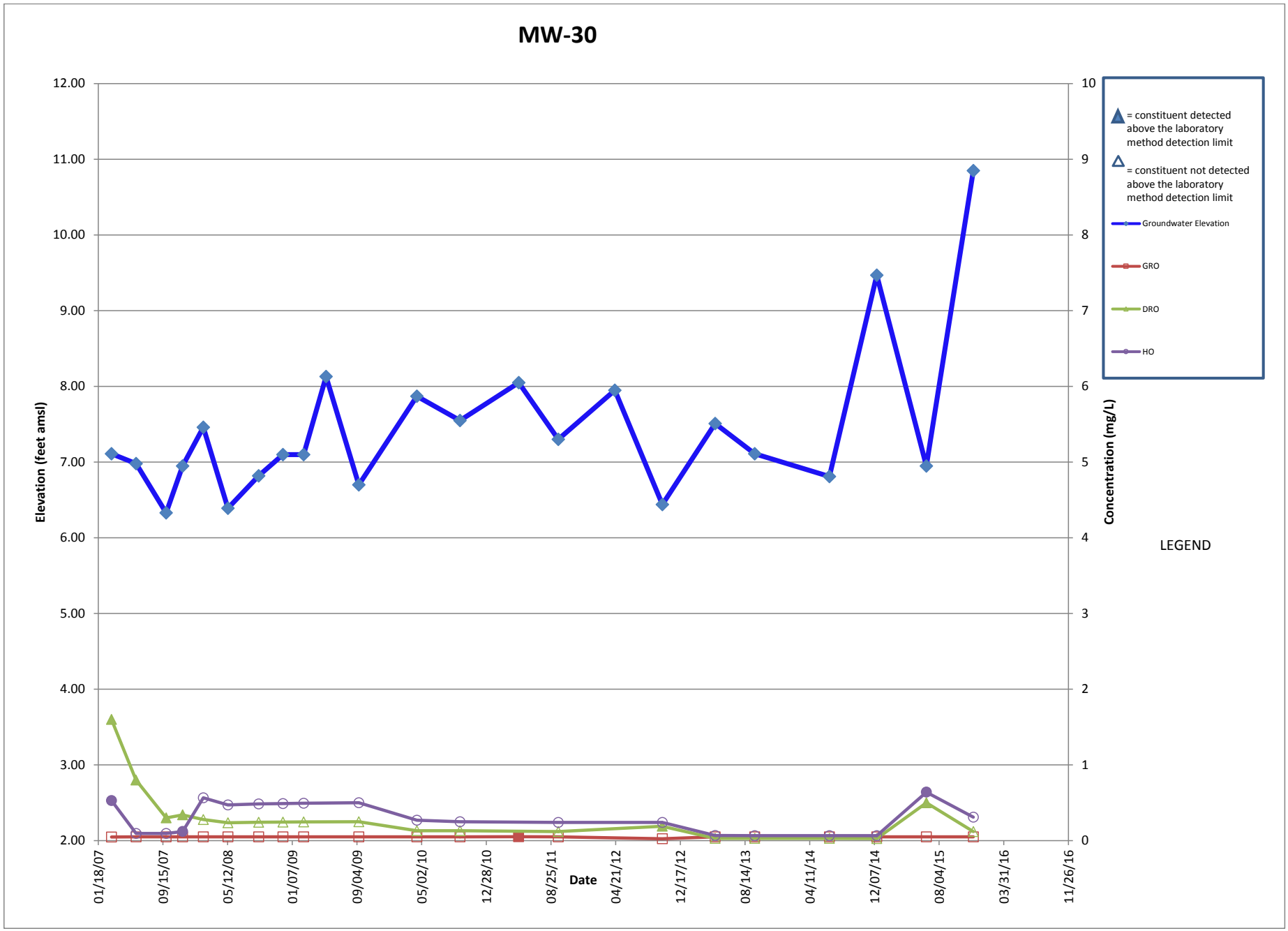
6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
Elevation (feet amsl)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Concentration (mg/L)
01/31/16
02/20/16
03/11/16
03/31/16
04/20/16
05/10/16
05/30/16
06/19/16
07/09/16
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO


MW-30
Elevation (feet amsl)
Concentration (mg/L)
Date
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11.00
10.00
9.00
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7.00
6.00
5.00
4.00
3.00
2.00
10
9
8
7
6
5
4
3
2
1
0
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
LEGEND
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
Groundwater Elevation
GRO
DRO
HO

APPENDIX E

Laboratory Report and Chain of Custody Forms

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

March 02, 2016

Project: Seattle Terminal

Submittal Date: 02/18/2016
Group Number: 1632711
PO Number: 0015190024
Release Number: JOLITZ
State of Sample Origin: WA

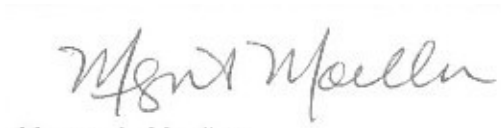
Client Sample Description	Lancaster Labs (LL) #
MW-209 Grab Groundwater	8248319
MW-210 Grab Groundwater	8248320
MW-211 Grab Groundwater	8248321
MW-70R Grab Groundwater	8248322
DUP-1 Grab Groundwater	8248323
Trip Blank NA Water	8248324

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO	ARCADIS U.S., Inc.	Attn: Sam Miles
ELECTRONIC COPY TO	Arcadis	Attn: Rebecca Andresen

Respectfully Submitted,



Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: MW-209 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248319
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 11:27 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES209

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.011	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	1
08357	Chrysene	218-01-9	N.D.	0.011	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.011	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.011	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	1,600	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	1.4	0.5	1
02102	Ethylbenzene	100-41-4	1.3	0.5	1
02102	Toluene	108-88-3	1.2	0.5	1
02102	Total Xylenes	1330-20-7	4.2	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	150	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

General Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16050WAH026	02/27/2016 02:18	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16050WAH026	02/20/2016 16:00	JoElla L Rice	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16050A53A	02/23/2016 04:45	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	16050A53A	02/23/2016 04:45	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16050A53A	02/23/2016 04:45	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	2	16050A53A	02/23/2016 04:45	Jeremy C Giffin	1

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Analysis Report

Sample Description: MW-209 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248319
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 11:27 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES209

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	160560023A	02/27/2016 00:48	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	160560023A	02/26/2016 09:00	Roman Kuropatkin	1

Sample Description: MW-210 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248320
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 12:20 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES210

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	0.10	0.010	1
08357	Benzo(a)pyrene	50-32-8	0.042	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	0.050	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	0.016	0.010	1
08357	Chrysene	218-01-9	0.17	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	0.012	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.021	0.010	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.

GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	2,500	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	1.4	0.5	1
02102	Toluene	108-88-3	1.1	0.5	1
02102	Total Xylenes	1330-20-7	4.7	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	8,600	57	2
12005	HRO C24-C40 w/Si Gel	n.a.	1,600	130	2

Due to the dilution of the sample extract, capric acid recovery can not be determined.

General Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16050WAH026	02/27/2016 02:47	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16050WAH026	02/20/2016 16:00	JoElla L Rice	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16050A53A	02/23/2016 05:13	Marie D Beamenderfer	1

Sample Description: MW-210 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248320
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 12:20 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES210

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	16050A53A	02/23/2016 05:13	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16050A53A	02/23/2016 05:13	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	2	16050A53A	02/23/2016 05:13	Jeremy C Giffin	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	160560023A	02/29/2016 10:46	Christine E Dolman	2
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	160560023A	02/26/2016 09:00	Roman Kuropatkin	1

Sample Description: MW-211 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248321
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 11:15 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES211

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	210	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	69	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

General Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16050WAH026	02/27/2016 03:17	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16050WAH026	02/20/2016 16:00	JoElla L Rice	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16050A53A	02/23/2016 05:41	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	16050A53A	02/23/2016 05:41	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16050A53A	02/23/2016 05:41	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	2	16050A53A	02/23/2016 05:41	Jeremy C Giffin	1

Sample Description: MW-211 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248321
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 11:15 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES211

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	160560023A	02/27/2016 01:09	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	160560023A	02/26/2016 09:00	Roman Kuropatkin	1

Sample Description: MW-70R Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248322
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 14:40 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES70R

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.

GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

General Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16050WAH026	02/27/2016 03:46	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16050WAH026	02/20/2016 16:00	JoElla L Rice	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16050A53A	02/23/2016 06:09	Marie D Beamenderfer	1

Sample Description: MW-70R Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248322
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 14:40 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES70R

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	16050A53A	02/23/2016 06:09	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16050A53A	02/23/2016 06:09	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	2	16050A53A	02/23/2016 06:09	Jeremy C Giffin	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	160560023A	02/27/2016 01:31	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	160560023A	02/26/2016 09:00	Roman Kuropatkin	1

Sample Description: DUP-1 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248323
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ESFD1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

General Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16050WAH026	02/27/2016 04:16	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16050WAH026	02/20/2016 16:00	JoElla L Rice	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16050A53A	02/23/2016 06:36	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	16050A53A	02/23/2016 06:36	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16050A53A	02/23/2016 06:36	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	2	16050A53A	02/23/2016 06:36	Jeremy C Giffin	1

Sample Description: DUP-1 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248323
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016 by RB

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ESFD1

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	160560023A	02/27/2016 01:52	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	160560023A	02/26/2016 09:00	Roman Kuropatkin	1

Sample Description: Trip Blank NA Water
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8248324
LL Group # 1632711
Account # 11964

Project Name: Seattle Terminal

Collected: 02/16/2016

Submitted: 02/18/2016 09:45
Reported: 03/02/2016 16:34

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ESTRB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1

General Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16050A53A	02/22/2016 20:53	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	16050A53A	02/22/2016 20:53	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16050A53A	02/22/2016 20:53	Marie D Beamenderfer	1

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 03/02/2016 16:34

Group Number: 1632711

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 16050WAH026	Sample number(s): 8248319-8248323	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
Batch number: 16050A53A	Sample number(s): 8248319-8248324	
Benzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
NWTPH-Gx water C7-C12	N.D.	50
Toluene	N.D.	0.2
Total Xylenes	N.D.	0.2
Batch number: 160560023A	Sample number(s): 8248319-8248323	
DRO C12-C24 w/Si Gel	N.D.	30
HRO C24-C40 w/Si Gel	N.D.	70

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16050WAH026	Sample number(s): 8248319-8248323								
Benzo(a)anthracene	1.00	1.13	1.00	1.12	113	112	71-118	1	30
Benzo(a)pyrene	1.00	1.11	1.00	1.09	111	109	70-120	1	30
Benzo(b)fluoranthene	1.00	1.14	1.00	1.14	114	114	76-132	1	30
Benzo(k)fluoranthene	1.00	1.07	1.00	1.07	107	107	69-126	0	30
Chrysene	1.00	1.05	1.00	1.06	105	106	66-119	1	30
Dibenz(a,h)anthracene	1.00	1.10	1.00	1.15	110	115	47-136	4	30
Indeno(1,2,3-cd)pyrene	1.00	1.10	1.00	1.13	110	113	52-134	3	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16050A53A	Sample number(s): 8248319-8248324								
Benzene	20	20.46	20	20.79	102	104	80-120	2	30
Ethylbenzene	20.1	19.97	20.1	20.26	99	101	80-120	1	30
NWTPH-Gx water C7-C12	1100	1051.55	1100	1019.56	96	93	79-120	3	30
Toluene	20.2	20.48	20.2	20.72	101	103	80-120	1	30
Total Xylenes	60.2	62.87	60.2	63.94	104	106	80-120	2	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 03/02/2016 16:34

Group Number: 1632711

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 160560023A	Sample number(s): 8248319-8248323								
DRO C12-C24 w/Si Gel	1600	1079.78	1600	1052.36	67	66	32-117	3	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PAHs in waters by SIM
Batch number: 16050WAH026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
8248319	104	97	89
8248320	51	37*	121
8248321	97	89	82
8248322	12*	26*	9*
8248323	97	96	84
Blank	103	105	88
LCS	95	99	86
LCSD	94	98	85
Limits:	50-133	41-137	43-126

Analysis Name: Method 8021 Water Master
Batch number: 16050A53A

	Trifluorotoluene-P	Trifluorotoluene-F
8248319	103	116
8248320	89	107
8248321	98	92
8248322	99	118
8248323	100	97
8248324	100	122
Blank	100	121
LCS	100	108
LCSD	100	106
Limits:	51-120	63-135

Analysis Name: NWTPH-Dx water w/ 10g Si Gel
Batch number: 160560023A

	Orthoterphenyl
8248319	86
8248320	126
8248321	81
8248322	86
8248323	81
Blank	83
LCS	92
LCSD	88

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Group Number: 1632711
Reported: 03/02/2016 16:34

Limits: 50-150

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Chevron Northwest Region Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11964 Group # 1632711 Sample # 8248319-24
Instructions on reverse side correspond with circled numbers.

SCR #: ______

(1) Client Information

- Facility #: Seattle Terminal
- WBS: NWENVPMG 0014100802
- Site Address: 3001 Elliott Ave. Seattle, WA
- Chevron PM: Kim Jolitz
- Lead Consultant: Arcadis
- Consultant/Office: Arcadis - Seattle
- Consultant Project Mgr.: Rebecca Andresen
- Consultant Phone #: 206-325-5257
- Sampler: Ryan Brauchla / Alex Pink

(4) Matrix: Sediment ☐ / Soil ☐; Ground ☒ / Surface ☐; Water: Potable ☐ / NPDES ☐; Air ☐ / Oil ☐

(5) Analyses Requested: BTEX + ~~MTBE~~ 8021 ☒ 8260 ☐ Naphth ☐; 8260 full scan; Oxygenates; NWTPH-Gx; NWTPH-Dx with Chevron Silica Gel Cleanup ☒; NWTPH-Dx without Silica Gel Cleanup ☐; WA VPH ☐; WA EPH ☐; Lead Total ☐ Diss. ☐ Method; cPAHs by 8270 SIM

(2) Sample Identification	Collected Date	Collected Time	(3) Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	cPAHs by 8270 SIM
MW-209	2/16/16	1127	X			X		7	X			X	X					X
MW-210	2/16/16	1220	X			X		7	X			X	X					X
MW-211	2/16/16	1115	X			X		7	X			X	X					X
MW-70R	2/16/16	1440	X			X		7	X			X	X					X
DUP-1	2/16/16	—	X			X		7	X			X	X					X
Trip Blank	—	—						2	X			X						

☐ Results in Dry Weight
☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds
☐ 8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ______ oxy's on highest hit
☐ Run ______ oxy's on all hits

(6) Remarks

(7) Turnaround Time Requested (TAT) (please circle)

(Standard) 5 day 4 day
72 hour 48 hour 24 hour

(8) Data Package (circle if required): Type I - Full; (Type VI (Raw Data))

EDD (circle if required): CVX-RTBU-FI_05 (default); Other: ______

Relinquished by	Date	Time	Received by	Date	Time
Alex Pink	2/17/16	1200	Fed Ex	2/17/16	1230

(9)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____
Received by: Krista Abel Date: 2/18/16 Time: 0945

Temperature Upon Receipt 1.6 - 2.9 °C
Custody Seals Intact? (Yes) No

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The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be given to the SeaTac Courier. The pink copy should be retained by the client.

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Sample Administration Receipt Documentation Log

Doc Log ID: 136780

Group Number(s): 1632711

Client: Seattle

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	02/18/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	WA		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 13:51 on 02/18/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.9	DT	Wet	Y	Bagged	N
2	DT146	1.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: June 27, 2016

Project: Seattle Terminal

Submittal Date: 06/14/2016
Group Number: 1671778
PO Number: 0015190024
Release Number: JOLITZ
State of Sample Origin: WA

Client Sample Description	Lancaster Labs (LL) #
MW-204-W-160613 Grab Groundwater	8424867
MW-205-W-160613 Grab Groundwater	8424868
MW-209-W-160613 Grab Groundwater	8424869
MW-210-W-160613 Grab Groundwater	8424870
MW-211-W-160613 Grab Groundwater	8424871
Trip Blank-T-160613 NA Water	8424872

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	ARCADIS U.S., Inc.	Attn: Sam Miles
Electronic Copy To	Arcadis	Attn: Rebecca Andresen

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: MW-204-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424867
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 14:30 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES204

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.15	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	890	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	1.4	0.5	1
02102	Toluene	108-88-3	1.6	0.5	1
02102	Total Xylenes	1330-20-7	2.9	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	210	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/23/2016 17:58	Holly B Ziegler	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 17:32	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 17:32	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 17:32	Jeremy C Giffin	1

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Analysis Report

Sample Description: MW-204-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424867
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 14:30 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES204

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 18:09	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-205-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424868
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 14:15 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES205

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	53	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/23/2016 18:24	Holly B Ziegler	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 17:58	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 17:58	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 17:58	Jeremy C Giffin	1

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Analysis Report

Sample Description: MW-205-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424868
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 14:15 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES205

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 20:42	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-209-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424869
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 11:00 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES209

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.21	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.030	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	930	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	1.5	0.5	1
02102	Ethylbenzene	100-41-4	1.6	0.5	1
02102	Toluene	108-88-3	1.3	0.5	1
02102	Total Xylenes	1330-20-7	3.7	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	200	28	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	66	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/23/2016 18:51	Holly B Ziegler	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 18:23	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 18:23	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 18:23	Jeremy C Giffin	1

Sample Description: MW-209-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424869
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 11:00 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES209

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 18:31	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-210-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424870
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 11:20 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES210

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	0.11	0.010	1
08357	Benzo(a)pyrene	50-32-8	0.056	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	0.073	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	0.027	0.010	1
08357	Chrysene	218-01-9	0.21	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	0.015	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.024	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	2,100	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	1.6	0.5	1
02102	Total Xylenes	1330-20-7	5.1	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	3,200	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	510	67	1

Due to the dilution of the sample extract, capric acid recovery can not be determined.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/24/2016 19:18	Edward Monborne	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 18:49	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 18:49	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 18:49	Jeremy C Giffin	1

Sample Description: MW-210-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424870
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 11:20 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES210

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 21:26	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-211-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424871
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 12:10 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES211

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	84	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/24/2016 19:45	Edward Monborne	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 19:14	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 19:14	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 19:14	Jeremy C Giffin	1

Sample Description: MW-211-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424871
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 12:10 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES211

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 18:53	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: Trip Blank-T-160613 NA Water
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424872
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ESTRB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 16:16	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 16:16	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 16:16	Jeremy C Giffin	1

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 06/27/2016 21:17

Group Number: 1671778

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 16167WAN026	Sample number(s): 8424867-8424871	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
1-Methylnaphthalene	N.D.	0.010
2-Methylnaphthalene	N.D.	0.010
Naphthalene	N.D.	0.030
Batch number: 16172A94A	Sample number(s): 8424867-8424872	
Benzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
NWTPH-Gx water C7-C12	N.D.	50
Toluene	N.D.	0.2
Total Xylenes	N.D.	0.2
Batch number: 161730022A	Sample number(s): 8424867-8424871	
DRO C12-C24 w/Si Gel	N.D.	30
HRO C24-C40 w/Si Gel	N.D.	70

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16167WAN026	Sample number(s): 8424867-8424871								
Benzo(a)anthracene	1.00	0.966	1.00	0.976	97	98	71-118	1	30
Benzo(a)pyrene	1.00	0.961	1.00	0.997	96	100	70-120	4	30
Benzo(b)fluoranthene	1.00	0.989	1.00	1.01	99	101	76-132	2	30
Benzo(k)fluoranthene	1.00	0.918	1.00	0.975	92	97	69-126	6	30
Chrysene	1.00	0.892	1.00	0.921	89	92	66-119	3	30
Dibenz(a,h)anthracene	1.00	0.951	1.00	1.03	95	103	47-136	8	30
Indeno(1,2,3-cd)pyrene	1.00	0.960	1.00	1.01	96	101	52-134	5	30
1-Methylnaphthalene	1.00	0.982	1.00	1.01	98	101	68-112	3	30
2-Methylnaphthalene	1.00	0.938	1.00	0.966	94	97	59-124	3	30
Naphthalene	1.00	0.906	1.00	0.934	91	93	61-112	3	30
	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Group Number: 1671778
Reported: 06/27/2016 21:17

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16172A94A	Sample number(s): 8424867-8424872								
Benzene	20	20.43	20	20.48	102	102	80-120	0	30
Ethylbenzene	20.1	19.02	20.1	19.03	95	95	80-120	0	30
NWTPH-Gx water C7-C12	1100	1185.34	1100	1193.38	108	108	79-120	1	30
Toluene	20.2	19.81	20.2	19.96	98	99	80-120	1	30
Total Xylenes	60.2	59.12	60.2	59.36	98	99	80-120	0	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 161730022A	Sample number(s): 8424867-8424871								
DRO C12-C24 w/Si Gel	1600	954.92	1600	929.25	60	58	32-117	3	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PAHs in waters by SIM
Batch number: 16167WAN026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
8424867	96	91	96
8424868	78	94	89
8424869	95	99	97
8424870	68	56	107
8424871	89	97	88
Blank	97	102	91
LCS	95	99	89
LCSD	97	103	92
Limits:	50-133	41-137	43-126

Analysis Name: Method 8021 Water Master
Batch number: 16172A94A

	Trifluorotoluene-P	Trifluorotoluene-F
8424867	77	89
8424868	86	98
8424869	84	94
8424870	78	96
8424871	87	82
8424872	86	84
Blank	86	83
LCS	86	90
LCSD	87	89
Limits:	51-120	63-135

Analysis Name: NWTPH-Dx water w/ 10g Si Gel
Batch number: 161730022A

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Group Number: 1671778
Reported: 06/27/2016 21:17

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Orthoterphenyl
8424867	97
8424868	94
8424869	100
8424870	91
8424871	96
Blank	95
LCS	85
LCSD	88
Limits:	50-150

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Chevron Northwest Region Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11964 Group # 1671778 Sample # 8428867-72
Instructions on reverse side correspond with circled numbers.

SCR #: ______

(1) Client Information

- Facility #: BC0045363
- WBS: NWENV-PMC001402802
- Site Address: 3001 Elliot Ave Seattle, WA
- Chevron PM: Kim Jolitz
- Lead Consultant: Arcadis
- Consultant/Office: Arcadis Seattle, 1100 Olive Way, Ste 800, Seattle WA
- Consultant Project Mgr.: Rebecca Andresen
- Consultant Phone #: 509-438-9828
- Sampler: Ryan Brauchla (RB)

(4) Matrix: ☐ Sediment ☒ Ground ☐ Surface; ☐ Potable ☐ NPDES ☐ Air; ☐ Soil, Water, ☐ Oil

(5) Analyses Requested: BTEX + ~~MTBE~~ ☐ 8021 ☒ 8260 ☐ Naphth (MTBE per RB 6/16/16); 8260 full scan; Oxygenates; NWTPH-Gx; NWTPH-Dx with Silica Gel Cleanup ☒ (10 g/L); NWTPH-Dx without Silica Gel Cleanup ☐; WA VPH ☐; WA EPH ☐; Lead Total ☐ Diss. ☐ Method ___; cPAHs + Naphthalenes by 8270 SIM

(2) Sample Identification	Collected Date	Collected Time	(3) Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021/8260	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	cPAHs + Naphthalenes by 8270 SIM			
MW-204	6-13-16	1430	X					7	X			X	X					X			
MW-205	↓	1415	X					7	X			X	X					X			
MW-209	↓	1100	X					7	X			X	X					X			
MW-210	↓	1120	X					7	X			X	X					X			
MW-211	↓	1210	X					7	X			X	X					X			
Trip Blank	—	—	—			—		2				X									

Remarks (6)

☐ Results in Dry Weight
☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds
☐ 8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ______ oxy's on highest hit
☐ Run ______ oxy's on all hits

(7) Turnaround Time Requested (TAT) (please circle)

(Standard) 5 day 4 day
72 hour 48 hour 24 hour

(8) Data Package (circle if required)

Type I - Full
(Type VI (Raw Data))

EDD (circle if required)

CVX-RTBU-FI_05 (default)
Other: ______

Relinquished by	Date	Time	Received by	Date	Time
Ryan Brauchla/Arcadis	6/13/16	1700	UPS	6/13/16	1700

(9)

Relinquished by Commercial Carrier: UPS X FedEx ____ Other ______

Received by: Kristen Abel Date: 6/14/16 Time: 0930

Temperature Upon Receipt 2.0 3.6 °C

Custody Seals Intact? (Yes) No

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 7051 0913

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be given to the SeaTac Courier. The pink copy should be retained by the client.

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Sample Administration Receipt Documentation Log

Doc Log ID: 150203

Group Number(s): 1671718

Client: Chevron

Delivery and Receipt Information

Delivery Method:	UPS	Arrival Timestamp:	06/14/2016 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 10:50 on 06/14/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.0	DT	Wet	Y	Bagged	N
2	DT146	3.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: June 28, 2016

Project: Seattle Terminal

Submittal Date: 06/15/2016
Group Number: 1672231
PO Number: 0015190024
Release Number: JOLITZ
State of Sample Origin: WA

Client Sample Description	Lancaster Labs (LL) #
MW-202-W-160614 Grab Groundwater	8427037
MW-200-W-160614 Grab Groundwater	8427038
MW-201-W-160614 Grab Groundwater	8427039
MW-206-W-160614 Grab Groundwater	8427040
MW-70R-W-160614 Grab Groundwater	8427041
MW-207-W-160614 Grab Groundwater	8427042
Trip Blank-T-160614 NA Water	8427043

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	ARCADIS U.S., Inc.	Attn: Sam Miles
Electronic Copy To	Arcadis	Attn: Rebecca Andresen

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: MW-202-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427037
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 10:20 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST202

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	0.014	0.011	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.011	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	1
08357	Chrysene	218-01-9	N.D.	0.011	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.011	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.011	1
08357	1-Methylnaphthalene	90-12-0	0.27	0.011	1
08357	2-Methylnaphthalene	91-57-6	0.21	0.011	1
08357	Naphthalene	91-20-3	0.50	0.032	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 12:46	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 20:31	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 20:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 20:31	Jeremy C Giffin	1

Sample Description: MW-202-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427037
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 10:20 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST202

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 19:15	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-200-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427038
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 11:50 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST200

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	0.011	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	1.9	0.010	1
08357	2-Methylnaphthalene	91-57-6	0.96	0.010	1
08357	Naphthalene	91-20-3	5.5	0.030	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	290	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	0.6	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	150	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 13:23	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 20:57	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 20:57	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 20:57	Jeremy C Giffin	1

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Analysis Report

Sample Description: MW-200-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427038
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 11:50 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST200

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 19:37	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-201-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427039
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 12:00 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST201

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	0.030	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	0.014	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	0.032	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.36	0.010	1
08357	2-Methylnaphthalene	91-57-6	0.083	0.010	1
08357	Naphthalene	91-20-3	0.42	0.030	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	160	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	72	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 13:55	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 21:22	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 21:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 21:22	Jeremy C Giffin	1

Sample Description: MW-201-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427039
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 12:00 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST201

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 21:04	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-206-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427040
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 10:10 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST206

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	28	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	66	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 14:26	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 21:48	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 21:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 21:48	Jeremy C Giffin	1

Sample Description: MW-206-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427040
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 10:10 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST206

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 19:58	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-70R-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427041
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 08:40 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST070

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.030	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	28	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	66	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 14:57	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 22:13	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 22:13	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 22:13	Jeremy C Giffin	1

Sample Description: MW-70R-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427041
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 08:40 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST070

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 20:20	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-207-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427042
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 09:00 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST207

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	1.0	0.010	1
08357	Benzo(a)pyrene	50-32-8	0.98	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	1.0	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	0.84	0.010	1
08357	Chrysene	218-01-9	0.85	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	0.95	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.93	0.010	1
08357	1-Methylnaphthalene	90-12-0	1.1	0.010	1
08357	2-Methylnaphthalene	91-57-6	0.89	0.010	1
08357	Naphthalene	91-20-3	1.5	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 15:29	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 22:39	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 22:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 22:39	Jeremy C Giffin	1

Sample Description: MW-207-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427042
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 09:00 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST207

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161770020A	06/28/2016 10:38	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161770020A	06/27/2016 08:00	Bradley W VanLeuven	1

Sample Description: Trip Blank-T-160614 NA Water
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427043
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

STTRB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 16:41	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 16:41	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 16:41	Jeremy C Giffin	1

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 06/28/2016 14:33

Group Number: 1672231

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 16171WAD026	Sample number(s): 8427037-8427042	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
1-Methylnaphthalene	N.D.	0.010
2-Methylnaphthalene	N.D.	0.010
Naphthalene	N.D.	0.030
Batch number: 16172A94A	Sample number(s): 8427037-8427043	
Benzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
NWTPH-Gx water C7-C12	N.D.	50
Toluene	N.D.	0.2
Total Xylenes	N.D.	0.2
Batch number: 161730022A	Sample number(s): 8427037-8427041	
DRO C12-C24 w/Si Gel	N.D.	30
HRO C24-C40 w/Si Gel	N.D.	70
Batch number: 161770020A	Sample number(s): 8427042	
DRO C12-C24 w/Si Gel	N.D.	30
HRO C24-C40 w/Si Gel	N.D.	70

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16171WAD026	Sample number(s): 8427037-8427042								
Benzo(a)anthracene	1.00	0.941	1.00	0.938	94	94	71-118	0	30
Benzo(a)pyrene	1.00	0.942	1.00	0.936	94	94	70-120	1	30
Benzo(b)fluoranthene	1.00	0.989	1.00	1.01	99	101	76-132	2	30
Benzo(k)fluoranthene	1.00	0.847	1.00	0.822	85	82	69-126	3	30
Chrysene	1.00	0.829	1.00	0.853	83	85	66-119	3	30
Dibenz(a,h)anthracene	1.00	0.880	1.00	0.938	88	94	47-136	6	30
Indeno(1,2,3-cd)pyrene	1.00	0.892	1.00	0.919	89	92	52-134	3	30
1-Methylnaphthalene	1.00	0.859	1.00	0.865	86	87	68-112	1	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 06/28/2016 14:33

Group Number: 1672231

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
2-Methylnaphthalene	1.00	0.858	1.00	0.861	86	86	59-124	0	30
Naphthalene	1.00	0.856	1.00	0.868	86	87	61-112	1	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16172A94A	Sample number(s): 8427037-8427043								
Benzene	20	20.43	20	20.48	102	102	80-120	0	30
Ethylbenzene	20.1	19.02	20.1	19.03	95	95	80-120	0	30
NWTPH-Gx water C7-C12	1100	1185.34	1100	1193.38	108	108	79-120	1	30
Toluene	20.2	19.81	20.2	19.96	98	99	80-120	1	30
Total Xylenes	60.2	59.12	60.2	59.36	98	99	80-120	0	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 161730022A	Sample number(s): 8427037-8427041								
DRO C12-C24 w/Si Gel	1600	954.92	1600	929.25	60	58	32-117	3	20
Batch number: 161770020A	Sample number(s): 8427042								
DRO C12-C24 w/Si Gel	1600	968.68	1600	1020.44	61	64	32-117	5	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PAHs in waters by SIM
Batch number: 16171WAD026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
8427037	65	87	76
8427038	69	82	80
8427039	67	90	80
8427040	73	83	75
8427041	76	90	80
8427042	73	88	85
Blank	84	88	80
LCS	84	94	84
LCSD	85	95	85
Limits:	50-133	41-137	43-126

Analysis Name: Method 8021 Water Master
Batch number: 16172A94A

	Trifluorotoluene-P	Trifluorotoluene-F
8427037	87	96
8427038	90	94
8427039	90	92
8427040	85	83
8427041	86	84
8427042	87	84

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Group Number: 1672231
Reported: 06/28/2016 14:33

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Trifluorotoluene-P	Trifluorotoluene-F
8427043	86	85
Blank	86	83
LCS	86	90
LCSD	87	89
Limits:	51-120	63-135

Analysis Name: NWTPH-Dx water w/ 10g Si Gel
Batch number: 161730022A

	Orthoterphenyl
8427037	94
8427038	91
8427039	93
8427040	96
8427041	100
Blank	95
LCS	85
LCSD	88
Limits:	50-150

Analysis Name: NWTPH-Dx water w/ 10g Si Gel
Batch number: 161770020A

	Orthoterphenyl
8427042	85
Blank	82
LCS	81
LCSD	82
Limits:	50-150

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Chevron Northwest Region Analysis Request/Chain of Custody

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Acct. # 11964 — For Eurofins Lancaster Laboratories Environmental use only — Group # 1672231 — Sample # 8427037-43

Instructions on reverse side correspond with circled numbers.

SCR #: ______

(1) Client Information

- Facility #: F0045363
- WBS: NWENV-PMC0014000302
- Site Address: 3001 Elliot Ave. Seattle, WA
- Chevron PM: Kim Jolitz
- Lead Consultant: Arcadis
- Consultant/Office: Arcadis, Seattle. 1100 Olive Way, Suite 800, Seattle, WA
- Consultant Project Mgr.: Rebecca Anderson
- Consultant Phone #: 507-438-9828
- Sampler: Ryan Brauchia (RB)

(4) Matrix: Sediment ☐ Ground ☒ Surface ☐; Soil ☐; Water: Potable ☐ NPDES ☐; Oil ☐ Air ☐

(5) Analyses Requested: BTEX + MTBE (~~MTBE~~ RB 6/16/16) 8021 ☐ 8260 ☒ Naphth ☐; 8260 full scan; Oxygenates; NWTPH-Gx; NWTPH-Dx with Silica Gel Cleanup ☒ (10-g/cm); NWTPH-Dx without Silica Gel Cleanup ☐; WA VPH ☐; WA EPH ☐; Lead Total ☐ Diss. ☐ Method ___; cPAHs & Naphthalenes by 8270 SIM

(2) Sample Identification

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	cPAHs & Naphthalenes by 8270 SIM
MW-202	6/14/16	1020	X			X		7	X			X	X					X
MW-200	↓	1150	X			X		7	X			X	X					X
MW-201		1200	X			X		7	X			X	X					X
MW-206		1010	X			X		7	X			X	X					X
MW-702		0840	X			X		7	X			X	X					X
MW-207	↓	0900	X			X		7	X			X	X					X
Trip Blank	—	—	-			X		2				X						

Remarks: ☐ Results in Dry Weight ☐ J value reporting needed ☐ Must meet lowest detection limits possible for 8260 compounds ☐ 8021 MTBE Confirmation ☐ Confirm MTBE + Naphthalene ☐ Confirm highest hit by 8260 ☐ Confirm all hits by 8260 ☐ Run ______ oxy's on highest hit ☐ Run ______ oxy's on all hits

(6) Remarks

(7) Turnaround Time Requested (TAT) (please circle): (Standard) 5 day 4 day 72 hour 48 hour 24 hour

(8) Data Package (circle if required): Type I - Full; (Type VI (Raw Data))

EDD (circle if required): CVX-RTBU-FI_05 (default); Other: ______

(9)

Relinquished by	Date	Time	Received by	Date	Time
Ryan Brauchia/Arcadis	6/14/16	1500	UPS	6/14/16	1500

Relinquished by Commercial Carrier: UPS X FedEx ____ Other ______ — Received by: [signature] — Date: 6/15/16 — Time: 0930

Temperature Upon Receipt 4.9 / 3.0 °C — Custody Seals Intact? (Yes) No

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 — 7051 0913

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be given to the SeaTac Courier. The pink copy should be retained by the client.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 150399

Group Number(s): 1672231

Client: Chevron

Delivery and Receipt Information

Delivery Method:	UPS	Arrival Timestamp:	06/15/2016 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 10:49 on 06/15/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	4.9	DT	Wet	Y	Bagged	N
2	DT146	3.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: June 28, 2016

Project: Seattle Terminal

Submittal Date: 06/16/2016
Group Number: 1672818
PO Number: 0015190024
Release Number: JOLITZ
State of Sample Origin: WA

Client Sample Description	Lancaster Labs (LL) #
MW-61A-R-W-160615 Grab Groundwater	8429404
MW-203-W-160615 Grab Groundwater	8429405
DUP-1-WD-160615 Grab Groundwater	8429406
Trip Blank-T-160615 NA Water	8429407

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	ARCADIS U.S., Inc.	Attn: Sam Miles
Electronic Copy To	Arcadis	Attn: Rebecca Andresen

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: MW-61A-R-W-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429404
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 09:30 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EAS61

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	220	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	120	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 23:04	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 23:04	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 23:04	Jeremy C Giffin	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161770020A	06/28/2016 11:21	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161770020A	06/27/2016 08:00	Bradley W VanLeuven	1

Sample Description: MW-203-W-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429405
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 10:45 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EA203

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.013	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	0.11	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	47	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 20:48	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 23:30	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 23:30	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 23:30	Jeremy C Giffin	1

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Analysis Report

Sample Description: MW-203-W-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429405
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 10:45 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EA203

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161770020A	06/28/2016 11:43	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161770020A	06/27/2016 08:00	Bradley W VanLeuven	1

Sample Description: DUP-1-WD-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429406
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EASFD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.012	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	0.082	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	35	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 21:20	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 23:56	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 23:56	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 23:56	Jeremy C Giffin	1

Sample Description: DUP-1-WD-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429406
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EASFD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161770020A	06/28/2016 12:05	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161770020A	06/27/2016 08:00	Bradley W VanLeuven	1

Sample Description: Trip Blank-T-160615 NA Water
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429407
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EASTB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 17:07	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 17:07	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 17:07	Jeremy C Giffin	1

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 06/28/2016 14:35

Group Number: 1672818

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 16171WAD026	Sample number(s): 8429405-8429406	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
1-Methylnaphthalene	N.D.	0.010
2-Methylnaphthalene	N.D.	0.010
Naphthalene	N.D.	0.030
Batch number: 16172A94A	Sample number(s): 8429404-8429407	
Benzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
NWTPH-Gx water C7-C12	N.D.	50
Toluene	N.D.	0.2
Total Xylenes	N.D.	0.2
Batch number: 161770020A	Sample number(s): 8429404-8429406	
DRO C12-C24 w/Si Gel	N.D.	30
HRO C24-C40 w/Si Gel	N.D.	70

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16171WAD026	Sample number(s): 8429405-8429406								
Benzo(a)anthracene	1.00	0.941	1.00	0.938	94	94	71-118	0	30
Benzo(a)pyrene	1.00	0.942	1.00	0.936	94	94	70-120	1	30
Benzo(b)fluoranthene	1.00	0.989	1.00	1.01	99	101	76-132	2	30
Benzo(k)fluoranthene	1.00	0.847	1.00	0.822	85	82	69-126	3	30
Chrysene	1.00	0.829	1.00	0.853	83	85	66-119	3	30
Dibenz(a,h)anthracene	1.00	0.880	1.00	0.938	88	94	47-136	6	30
Indeno(1,2,3-cd)pyrene	1.00	0.892	1.00	0.919	89	92	52-134	3	30
1-Methylnaphthalene	1.00	0.859	1.00	0.865	86	87	68-112	1	30
2-Methylnaphthalene	1.00	0.858	1.00	0.861	86	86	59-124	0	30
Naphthalene	1.00	0.856	1.00	0.868	86	87	61-112	1	30
	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 06/28/2016 14:35

Group Number: 1672818

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16172A94A	Sample number(s): 8429404-8429407								
Benzene	20	20.43	20	20.48	102	102	80-120	0	30
Ethylbenzene	20.1	19.02	20.1	19.03	95	95	80-120	0	30
NWTPH-Gx water C7-C12	1100	1185.34	1100	1193.38	108	108	79-120	1	30
Toluene	20.2	19.81	20.2	19.96	98	99	80-120	1	30
Total Xylenes	60.2	59.12	60.2	59.36	98	99	80-120	0	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 161770020A	Sample number(s): 8429404-8429406								
DRO C12-C24 w/Si Gel	1600	968.68	1600	1020.44	61	64	32-117	5	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PAHs in waters by SIM
Batch number: 16171WAD026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
8429405	71	92	81
8429406	69	91	81
Blank	84	88	80
LCS	84	94	84
LCSD	85	95	85
Limits:	50-133	41-137	43-126

Analysis Name: Method 8021 Water Master
Batch number: 16172A94A

	Trifluorotoluene-P	Trifluorotoluene-F
8429404	86	82
8429405	86	85
8429406	87	86
8429407	86	85
Blank	86	83
LCS	86	90
LCSD	87	89
Limits:	51-120	63-135

Analysis Name: NWTPH-Dx water w/ 10g Si Gel
Batch number: 161770020A

	Orthoterphenyl
8429404	86
8429405	79
8429406	81
Blank	82

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Group Number: 1672818
Reported: 06/28/2016 14:35

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Orthoterphenyl
LCS	81
LCSD	82
Limits:	50-150

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Chevron Northwest Region Analysis Request/Chain of Custody

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Acct. # 11964 | For Eurofins Lancaster Laboratories Environmental use only: Group # 1670818 Sample # 8429404-07

Instructions on reverse side correspond with circled numbers.

SCR #: _____

1 Client Information

Facility # 9004536 3 | WBS NWENV-PMC001400802

Site Address: 3001 Elliot Avenue, Seattle, WA

Chevron PM: Kim Joltz | Lead Consultant: Arcadis

Consultant/Office: Arcadis - Seattle, 1100 Olive Way, Suite 800, Seattle, WA 98101

Consultant Project Mgr.: Rebecca Andresen

Consultant Phone #: 509-438-9828

Sampler: Ryan Brandt (RB)

4 Matrix

Soil ☐ | Sediment ☐ | Water ☒ Ground ☐ Potable ☐ NPDES ☐ Surface | Oil ☐ Air ☐

5 Analyses Requested

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total Number of Containers	BTEX + MTBE 8021 ☐ 8260 ☒	Naphth ☐	8260 full scan	Oxygenates ____	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup ☒	NWTPH-Dx without Silica Gel Cleanup ☐	WA VPH ☐	WA EPH ☐	Lead Total ☐ Diss. ☐ Method ____	cPAH/Naphthalenes by 8270 SIM		
MW-61A-R	6-15-16	0930	X		5	X				X	X					X	no	
MW-203	6-15-16	1045	X		7	X				X	X					X		
DUP-1	6-15-16	—	X		7	X				X	X					X		
Trip Blank	—	—	—		2					X								

6 Remarks

cPAHs/Naphthalenes
- Naphthalene
- 1-Methylnaphthalene
- 2-Methylnaphthalene
- benzo[a]pyrene
- benzo[a]anthracene
- benzo[b]fluoranthene
- chrysene
- dibenz[a,h]anthracene
- ideno[1,2,3-c,d]pyrene

- ☐ Results in Dry Weight
- ☐ J value reporting needed
- ☐ Must meet lowest detection limits possible for 8260 compounds
- ☐ 8021 MTBE Confirmation
- ☐ Confirm MTBE + Naphthalene
- ☐ Confirm highest hit by 8260
- ☐ Confirm all hits by 8260
- ☐ Run _____ oxy's on highest hit
- ☐ Run _____ oxy's on all hits

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package (circle if required)

Type I - Full | Type VI (Raw Data)

EDD (circle if required): CVX-RTBU-FI_05 (default) | Other: _____

9

Relinquished by	Date	Time	Received by	Date	Time
Ryan Brandt/Arcadis	6/15/16	1400	UPS	6/15/16	1400

Relinquished by Commercial Carrier: UPS X | FedEx ____ | Other ____

Received by | Date 6/16/16 | Time 920

Temperature Upon Receipt _____ °C

Custody Seals Intact? Yes | No

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Sample Administration Receipt Documentation Log

Doc Log ID: 150690

Group Number(s): 1670818

Client: Chevron

Delivery and Receipt Information

Delivery Method:	UPS	Arrival Timestamp:	06/16/2016 9:20
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 14:36 on 06/16/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	6.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

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www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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APPENDIX F

Data Review Report

ARCADIS Design & Consultancy for natural and built assets

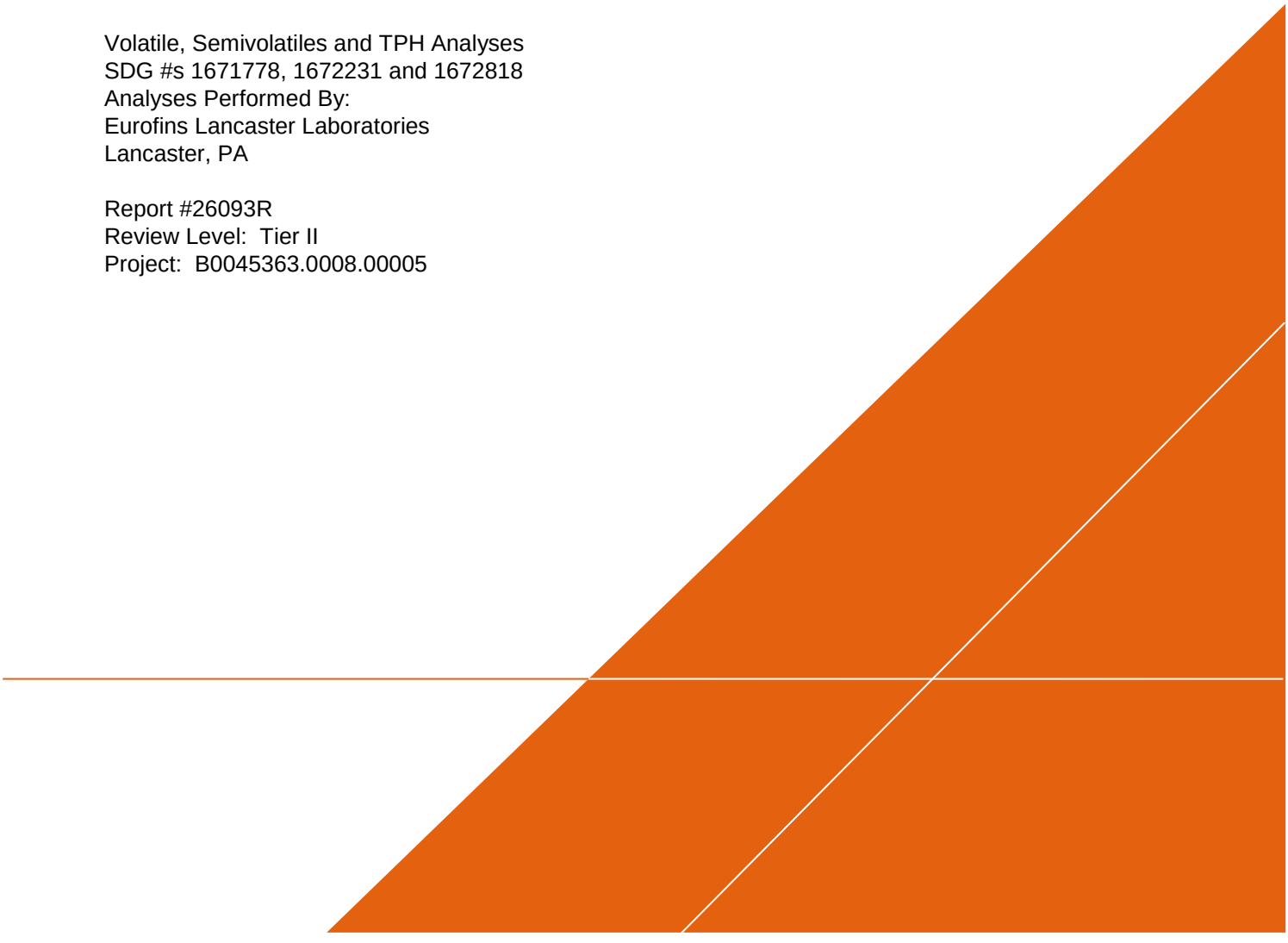
Chevron Environmental Mgmt. Company

DATA REVIEW

Seattle Terminal

Volatile, Semivolatiles and TPH Analyses
SDG #s 1671778, 1672231 and 1672818
Analyses Performed By:
Eurofins Lancaster Laboratories
Lancaster, PA

Report #26093R
Review Level: Tier II
Project: B0045363.0008.00005



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #s 1671778, 1672231 and 1672818 for samples collected in association with the Chevron Seattle Terminal. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	TPH	MET	MISC
1671778	MW-204-W-160613	8424867	Water	06/13/16		X	X	X		
	MW-205-W-160613	8424868	Water	06/13/16		X	X	X		
	MW-209-W-160613	8424869	Water	06/13/16		X	X	X		
	MW-210-W-160613	8424870	Water	06/13/16		X	X	X		
	MW-211-W-160613	8424871	Water	06/13/16		X	X	X		
	Trip Blank-T-160613	8424872	Water	06/13/16		X		X		
1672231	MW-202-W-160614	8427037	Water	06/14/16		X	X	X		
	MW-200-W-160614	8427038	Water	06/14/16		X	X	X		
	MW-201-W-160614	8427039	Water	06/14/16		X	X	X		
	MW-206-W-160614	8427040	Water	06/14/16		X	X	X		
	MW-70R-W-160614	8427041	Water	06/14/16		X	X	X		
	MW-207-W-160614	8427042	Water	06/14/16		X	X	X		
	Trip Blank-T-160614	8427043	Water	06/14/16		X		X		
1672818	MW-61A-R-W-160615	8429404	Water	06/15/16		X	X			
	MW-203-W-160615	8429405	Water	06/15/16		X	X	X		
	DUP-1-WD-160615	8429406	Water	06/15/16	MW-203-W-160615	X	X	X		
	Trip Blank-T-160615	8429407	Water	06/15/16		X		X		

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:
QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8021B, 8270 (SIM) and ECY 97-602. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8021B	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:
s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not included in the data packages.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-203-W-160615/DUP-1-WD-160615	All VOCs	U	U	AC

Notes:
AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8021B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)	X				X
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270 (SIM)	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/SMD was not included in the data packages.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-203-W-160615/DUP-1-WD-160615	1-Methylnaphthalene	0.013	0.012	AC
	Naphthalene	0.11	0.082	AC

Notes:
AC Acceptable
NC Not compliant

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
D. Method blanks		X		X	
E. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:
%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

DIESEL RANGE ORGANICS (DRO) – GAS RANGE ORGANICS (GRO) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
DRO, ERO ECY 97-602	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
GRO ECY 97-602	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not included in the data packages.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-203-W-160615/DUP-1-WD-160615	DRO C12-C24	47	35	17.1%

Notes:
ND = Not detected.
AC = Acceptable.
NC = Not compliant.

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR DRO - GRO

DRO/GRO; ECY 97-602	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
F. Method blanks		X		X	
G. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:
%RSD – relative standard deviation
%R - percent recovery
RPD - relative percent difference
%D – difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Rachelle Borne

SIGNATURE: 

DATE: August 24, 2016

PEER REVIEW: Dennis Capria

DATE: August 25, 2016

CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA SHEETS

Chevron Northwest Region Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 11964 — For Eurofins Lancaster Laboratories Environmental use only — Group # 1671778 — Sample # 8428867-72

Instructions on reverse side correspond with circled numbers.

① Client Information

- Facility #: 80045363
- WBS: NWENV-PMC00140802
- Site Address: 3001 Elliot Ave Seattle, WA
- Chevron PM: Kim Jolitz
- Lead Consultant: Arcadis
- Consultant/Office: Arcadis Seattle, 1100 Olive Way, Ste 800, Seattle WA
- Consultant Project Mgr.: Rebecca Andresen
- Consultant Phone #: 507-438-9828
- Sampler: Ryan Brauchla (RB)

④ Matrix: ☐ Sediment ☒ Ground ☐ Surface; ☐ Potable ☐ NPDES ☐ Air; ☐ Soil, Water, ☐ Oil

⑤ Analyses Requested: BTEX + MTBE ☐ (MTBE per RB 6/16/16) 8021 ☒ 8260 ☐ Naphth; 8260 full scan; Oxygenates; NWTPH-Gx; NWTPH-Dx with Silica Gel Cleanup ☒ (Low-level); NWTPH-Dx without Silica Gel Cleanup ☐; WA VPH ☐ WA EPH ☐; Lead Total ☐ Diss. ☐ Method; cPAHs + Naphthalenes by 8270 SIM

SCR #:

② Sample Identification	Collected Date	Collected Time	③ Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH / WA EPH	Lead	cPAHs + Naphthalenes by 8270 SIM
MW-204	6-13-16	1430	X					7	X			X	X				X
MW-205	↓	1415	X					7	X			X	X				X
MW-209	↓	1100	X					7	X			X	X				X
MW-210	↓	1120	X					7	X			X	X				X
MW-211	↓	1210	X					7	X			X	X				X
Trip Blank	—	—	—			—		2				X					

Remarks / Options
- ☐ Results in Dry Weight
- ☐ J value reporting needed
- ☐ Must meet lowest detection limits possible for 8260 compounds
- ☐ 8021 MTBE Confirmation
- ☐ Confirm MTBE + Naphthalene
- ☐ Confirm highest hit by 8260
- ☐ Confirm all hits by 8260
- ☐ Run ______ oxy's on highest hit
- ☐ Run ______ oxy's on all hits

⑥ Remarks

⑦ Turnaround Time Requested (TAT) (please circle): (Standard) 5 day 4 day 72 hour 48 hour 24 hour

Relinquished by	Date	Time	Received by	Date	Time
Ryan Brauchle/Arcadis	6/13/16	1700	UPS	6/13/16	1700

Relinquished by Commercial Carrier: UPS X FedEx ____ Other ______ — Received by: Kristen Abel — Date: 6/14/16 — Time: 0930

Temperature Upon Receipt 2.0 / 3.6 °C — Custody Seals Intact? (Yes) No

⑧ Data Package (circle if required): Type I - Full; (Type VI (Raw Data))

EDD (circle if required): CVX-RTBU-FI_05 (default); Other: ______

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 — 7051 0913

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be given to the SeaTac Courier. The pink copy should be retained by the client.

Chevron Northwest Region Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11964 Group # 1672231 Sample # 8427037-43
Instructions on reverse side correspond with circled numbers.

SCR #: ____

① Client Information

- Facility #: FOO45363
- WBS: NWENV-PMC0014000302
- Site Address: 3001 Elliot Ave. Seattle, WA
- Chevron PM: Kim Jolitz
- Lead Consultant: Arcadis
- Consultant/Office: Arcadis, Seattle. 1100 Olive Way, Suite 800, Seattle, WA
- Consultant Project Mgr.: Rebecca Anderson
- Consultant Phone #: 507-438-9828
- Sampler: Ryan Brauchla (RB)

④ Matrix

Sediment ☐ | Ground ☒ | Surface ☐ — Water
Potable ☐ | NPDES ☐ | Air ☐
Soil ☐ | Oil ☐

⑤ Analyses Requested

BTEX + ~~MTBE~~ (NA per RB 6/16/16) 8021 ☐ 8260 ☒ Naphth ☐; 8260 full scan (3); Oxygenates; NWTPH-Gx; NWTPH-Dx with Silica Gel Cleanup ☒ (10-9-ssm); NWTPH-Dx without Silica Gel Cleanup ☐; WA VPH ☐; WA EPH ☐; Lead Total ☐ Diss. ☐ Method ___; cPAH & Naphthalenes by 8270 SIM

☐ Results in Dry Weight
☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds
☐ 8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ______ oxy's on highest hit
☐ Run ______ oxy's on all hits

② Sample Identification

Sample Identification	Date Collected	Time Collected	③ Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX 8260	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	cPAH & Naphthalenes by 8270 SIM	⑥ Remarks
MW-202	6/14/16	1020	X			X		7	X			X	X					X	
MW-200	↓	1150	X			X		7	X			X	X					X	
MW-201		1200	X			X		7	X			X	X					X	
MW-206		1010	X			X		7	X			X	X					X	
MW-702		0840	X			X		7	X			X	X					X	
MW-207	↓	0900	X			X		7	X			X	X					X	
Trip Blank	—	—	-			X		2				X							

⑦ Turnaround Time Requested (TAT) (please circle)

(Standard) circled · 5 day · 4 day · 72 hour · 48 hour · 24 hour

⑧ Data Package (circle if required)

Type I - Full
(Type VI (Raw Data)) circled

EDD (circle if required)
CVX-RTBU-FI_05 (default)
Other: ____

⑨ Custody

Relinquished by	Date	Time	Received by	Date	Time
Ryan Brauchla/Arcadis	6/14/16	1500	UPS	6/14/16	1500
Relinquished by	Date	Time	Received by	Date	Time

Relinquished by Commercial Carrier: UPS X FedEx ____ Other ____
Received by: Kristen Abel — Date 6/15/16 — Time 0930

Temperature Upon Receipt ~~4.9~~ 3.0 °C — Custody Seals Intact? (Yes) No

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be given to the SeaTac Courier. The pink copy should be retained by the client.

Chevron Northwest Region Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 11964 | For Eurofins Lancaster Laboratories Environmental use only: Group # 1670818 Sample # 8429404-07

Instructions on reverse side correspond with circled numbers.

SCR #: _____

1 Client Information

Facility # 9004536 3 | WBS NWENV-PMC001400802

Site Address: 3001 Elliot Avenue, Seattle, WA

Chevron PM: Kim Joltz | Lead Consultant: Arcadis

Consultant/Office: Arcadis - Seattle, 1100 Olive Way, Suite 800, Seattle, WA 98101

Consultant Project Mgr.: Rebecca Andresen

Consultant Phone #: 509-438-9828

Sampler: Ryan Brandt (RB)

4 Matrix

Soil ☐ | Sediment ☐ | Water ☒ Ground ☐ Potable ☐ NPDES ☐ Surface | Oil ☐ Air ☐

5 Analyses Requested

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total Number of Containers	BTEX + MTBE 8021 ☐ 8260 ☒	Naphth ☐	8260 full scan	Oxygenates ____	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup ☒	NWTPH-Dx without Silica Gel Cleanup ☐	WA VPH ☐	WA EPH ☐	Lead Total ☐ Diss. ☐ Method ____	cPAH/Naphthalenes by 8270 SIM		
MW-61A-R	6-15-16	0930	X		5	X				X	X					X	no	
MW-203	6-15-16	1045	X		7	X				X	X					X		
DUP-1	6-15-16	—	X		7	X				X	X					X		
Trip Blank	—	—	—		2					X								

6 Remarks

cPAHs/Naphthalenes
- Naphthalene
- 1-Methylnaphthalene
- 2-Methylnaphthalene
- benzo[a]pyrene
- benzo[a]anthracene
- benzo[b]fluoranthene
- chrysene
- dibenz[a,h]anthracene
- ideno[1,2,3-c,d]pyrene

- ☐ Results in Dry Weight
- ☐ J value reporting needed
- ☐ Must meet lowest detection limits possible for 8260 compounds
- ☐ 8021 MTBE Confirmation
- ☐ Confirm MTBE + Naphthalene
- ☐ Confirm highest hit by 8260
- ☐ Confirm all hits by 8260
- ☐ Run _____ oxy's on highest hit
- ☐ Run _____ oxy's on all hits

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package (circle if required)

Type I - Full | Type VI (Raw Data)

EDD (circle if required): CVX-RTBU-FI_05 (default) | Other: _____

9

Relinquished by	Date	Time	Received by	Date	Time
Ryan Brandt/Arcadis	6/15/16	1400	UPS	6/15/16	1400

Relinquished by Commercial Carrier: UPS X | FedEx ____ | Other ____

Received by | Date 6/16/16 | Time 920

Temperature Upon Receipt _____ °C

Custody Seals Intact? Yes | No

Sample Description: MW-204-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424867
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 14:30 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES204

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.15	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	890	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	1.4	0.5	1
02102	Toluene	108-88-3	1.6	0.5	1
02102	Total Xylenes	1330-20-7	2.9	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	210	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/23/2016 17:58	Holly B Ziegler	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 17:32	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 17:32	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 17:32	Jeremy C Giffin	1

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Analysis Report

Sample Description: MW-204-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424867
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 14:30 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES204

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 18:09	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-205-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424868
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 14:15 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES205

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	53	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/23/2016 18:24	Holly B Ziegler	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 17:58	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 17:58	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 17:58	Jeremy C Giffin	1

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Analysis Report

Sample Description: MW-205-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424868
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 14:15 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES205

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 20:42	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-209-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424869
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 11:00 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES209

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.21	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.030	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	930	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	1.5	0.5	1
02102	Ethylbenzene	100-41-4	1.6	0.5	1
02102	Toluene	108-88-3	1.3	0.5	1
02102	Total Xylenes	1330-20-7	3.7	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	200	28	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	66	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/23/2016 18:51	Holly B Ziegler	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 18:23	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 18:23	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 18:23	Jeremy C Giffin	1

Sample Description: MW-209-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424869
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 11:00 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES209

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 18:31	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-210-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424870
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 11:20 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES210

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	0.11	0.010	1
08357	Benzo(a)pyrene	50-32-8	0.056	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	0.073	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	0.027	0.010	1
08357	Chrysene	218-01-9	0.21	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	0.015	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.024	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	2,100	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	1.6	0.5	1
02102	Total Xylenes	1330-20-7	5.1	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	3,200	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	510	67	1

Due to the dilution of the sample extract, capric acid recovery can not be determined.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/24/2016 19:18	Edward Monborne	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 18:49	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 18:49	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 18:49	Jeremy C Giffin	1

Sample Description: MW-210-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424870
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 11:20 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES210

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 21:26	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-211-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424871
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 12:10 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES211

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	84	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16167WAN026	06/24/2016 19:45	Edward Monborne	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16167WAN026	06/16/2016 09:00	Jessica M Cook	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 19:14	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 19:14	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 19:14	Jeremy C Giffin	1

Sample Description: MW-211-W-160613 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424871
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016 12:10 by RB

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ES211

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 18:53	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: Trip Blank-T-160613 NA Water
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8424872
LL Group # 1671778
Account # 11964

Project Name: Seattle Terminal

Collected: 06/13/2016

Submitted: 06/14/2016 09:30
Reported: 06/27/2016 21:17

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ESTRB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 16:16	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 16:16	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 16:16	Jeremy C Giffin	1

Sample Description: MW-202-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427037
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 10:20 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST202

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	0.014	0.011	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.011	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	1
08357	Chrysene	218-01-9	N.D.	0.011	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.011	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.011	1
08357	1-Methylnaphthalene	90-12-0	0.27	0.011	1
08357	2-Methylnaphthalene	91-57-6	0.21	0.011	1
08357	Naphthalene	91-20-3	0.50	0.032	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 12:46	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 20:31	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 20:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 20:31	Jeremy C Giffin	1

Sample Description: MW-202-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427037
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 10:20 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST202

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 19:15	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-200-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427038
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 11:50 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST200

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	0.011	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	1.9	0.010	1
08357	2-Methylnaphthalene	91-57-6	0.96	0.010	1
08357	Naphthalene	91-20-3	5.5	0.030	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	290	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	0.6	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	150	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 13:23	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 20:57	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 20:57	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 20:57	Jeremy C Giffin	1

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Analysis Report

Sample Description: MW-200-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427038
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 11:50 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST200

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 19:37	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-201-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427039
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 12:00 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST201

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	0.030	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	0.014	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	0.032	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.36	0.010	1
08357	2-Methylnaphthalene	91-57-6	0.083	0.010	1
08357	Naphthalene	91-20-3	0.42	0.030	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	160	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	72	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 13:55	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 21:22	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 21:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 21:22	Jeremy C Giffin	1

Sample Description: MW-201-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427039
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 12:00 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
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6101 Bollinger Canyon Road
San Ramon CA 94583

ST201

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 21:04	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-206-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427040
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 10:10 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST206

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	28	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	66	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 14:26	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 21:48	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 21:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 21:48	Jeremy C Giffin	1

Sample Description: MW-206-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427040
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 10:10 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST206

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 19:58	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-70R-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427041
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 08:40 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST070

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.030	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	28	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	66	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 14:57	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 22:13	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 22:13	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 22:13	Jeremy C Giffin	1

Sample Description: MW-70R-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427041
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 08:40 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST070

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161730022A	06/22/2016 20:20	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161730022A	06/22/2016 09:00	Bradley W VanLeuven	1

Sample Description: MW-207-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427042
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 09:00 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST207

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	1.0	0.010	1
08357	Benzo(a)pyrene	50-32-8	0.98	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	1.0	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	0.84	0.010	1
08357	Chrysene	218-01-9	0.85	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	0.95	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.93	0.010	1
08357	1-Methylnaphthalene	90-12-0	1.1	0.010	1
08357	2-Methylnaphthalene	91-57-6	0.89	0.010	1
08357	Naphthalene	91-20-3	1.5	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	68	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 15:29	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 22:39	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 22:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 22:39	Jeremy C Giffin	1

Sample Description: MW-207-W-160614 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427042
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016 09:00 by RB

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

ST207

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161770020A	06/28/2016 10:38	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161770020A	06/27/2016 08:00	Bradley W VanLeuven	1

Sample Description: Trip Blank-T-160614 NA Water
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8427043
LL Group # 1672231
Account # 11964

Project Name: Seattle Terminal

Collected: 06/14/2016

Submitted: 06/15/2016 09:30
Reported: 06/28/2016 14:33

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

STTRB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 16:41	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 16:41	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 16:41	Jeremy C Giffin	1

Sample Description: MW-61A-R-W-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429404
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 09:30 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EAS61

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	220	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	120	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 23:04	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 23:04	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 23:04	Jeremy C Giffin	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161770020A	06/28/2016 11:21	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161770020A	06/27/2016 08:00	Bradley W VanLeuven	1

Sample Description: MW-203-W-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429405
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 10:45 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EA203

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.013	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	0.11	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	47	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 20:48	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 23:30	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 23:30	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 23:30	Jeremy C Giffin	1

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Analysis Report

Sample Description: MW-203-W-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429405
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 10:45 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EA203

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161770020A	06/28/2016 11:43	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161770020A	06/27/2016 08:00	Bradley W VanLeuven	1

Sample Description: DUP-1-WD-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429406
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EASFD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
08357	Chrysene	218-01-9	N.D.	0.010	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
08357	1-Methylnaphthalene	90-12-0	0.012	0.010	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	1
08357	Naphthalene	91-20-3	0.082	0.031	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	35	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16171WAD026	06/25/2016 21:20	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16171WAD026	06/21/2016 09:00	Andrea J Kramer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 23:56	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 23:56	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 23:56	Jeremy C Giffin	1

Sample Description: DUP-1-WD-160615 Grab Groundwater
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429406
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016 by RB

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EASFD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	161770020A	06/28/2016 12:05	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	161770020A	06/27/2016 08:00	Bradley W VanLeuven	1

Sample Description: Trip Blank-T-160615 NA Water
Seattle Terminal
3001 Elliott Ave - Seattle, WA

LL Sample # WW 8429407
LL Group # 1672818
Account # 11964

Project Name: Seattle Terminal

Collected: 06/15/2016

Submitted: 06/16/2016 09:20
Reported: 06/28/2016 14:35

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

EASTB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16172A94A	06/23/2016 17:07	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	16172A94A	06/23/2016 17:07	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16172A94A	06/23/2016 17:07	Jeremy C Giffin	1

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