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Chevron Environmental Management Company

PROGRESS REPORT NO. 128
FIRST SEMI-ANNUAL 2020

Former Unocal Seattle

Marketing Terminal 0724

3001 Elliott Avenue

Seattle, Washington

November 5, 2020

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FIRST SEMI-ANNUAL 2020

Former Unocal Seattle Marketing Terminal 0724

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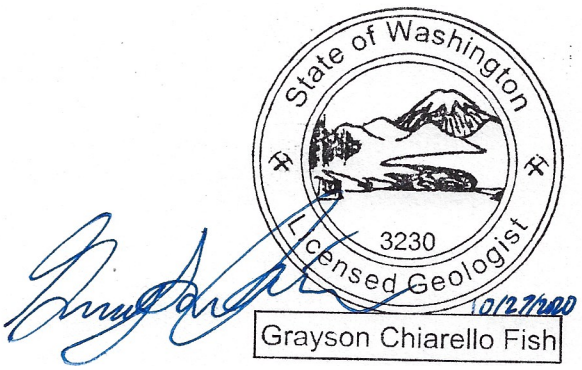

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1 INTRODUCTION

On behalf of Chevron Environmental Management Company (Chevron), Arcadis U.S., Inc. (Arcadis) has prepared this report to document the first semi-annual 2020 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 March 24 and 25, and June 16 and 17, 2020 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 October 2009 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.

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, 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 responses from Ecology:

- 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 quarterly gauging of Trench D extraction wells through 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 as part of the quarterly gauging program ending in 2014.

- 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.
- Decommissioned 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.
- Decommissioned of piezometers installed in 2010 (PZ-61A-R, PZ-203, and PZ-204).
- Disposed of waste materials generated by the above activities.

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 on 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 March 24, and June 17, 2020. During both events, monitoring wells MW-30, MW-61A-R, MW-70R, MW-200 through MW-207, and MW-209 through MW-211 were gauged to determine the presence of LNAPL. LNAPL was observed in wells MW-30 and MW-61A-R during the June 17, 2020 gauging event. During both 2020 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 2020 Groundwater Monitoring

3.2.1 First Quarter 2020 Groundwater Monitoring

On March 24 and 25 2020, Arcadis conducted a groundwater gauging and sampling event at the site. During the gauging event, monitoring wells MW-30, MW-61A-R, MW-70R, MW-200 through MW-207, and MW-209 through MW-211 were gauged with an oil/water interface probe to determine depth to water and LNAPL thickness. No measurable LNAPL thickness was observed during this event. Gauging is summarized in **Table 2.**

Monitoring wells MW-70R, and MW-209 through MW-211 were sampled during this event. Monitoring wells 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 polyethylene tubing was used for sampling. Water quality parameters including temperature, pH, electrical conductivity, dissolved oxygen oxidation/reduction potential, and turbidity were measured approximately every three minutes using an In-Situ® Aqua Troll 600 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 shipped via overnight delivery, under chain-of-custody procedures, to Eurofins Lancaster Laboratories in Lancaster, Pennsylvania. Groundwater samples from the March 2020 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 8260C; and

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

3.2.2 Second Quarter 2020 Groundwater Monitoring

On June 16 and 17, 2020 Arcadis conducted a groundwater gauging and sampling event at the site. During the gauging event, monitoring wells MW-30, MW-61A-R, MW-70R, MW-200 through MW-207, and MW-209 through MW-211 were gauged with an oil/water interface probe to determine depth to water and LNAPL thickness. LNAPL was observed in wells MW-30 and MW-61A-R and were not sampled during this event. Gauging is summarized in **Table 2.**

Monitoring wells MW-70R, MW-200 through MW-207, and MW-209 through 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 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 polyethylene tubing was used for sampling. Water quality parameters including temperature, pH, electrical conductivity, dissolved oxygen, oxidation/reduction potential, and turbidity were measured approximately every three minutes using an In-Situ® Aqua Troll 600 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 shipped via overnight delivery, under chain-of-custody procedures, to Eurofins Lancaster Laboratories in Lancaster, Pennsylvania. Groundwater samples from the June 2020 event were analyzed for the following:

- TPH-G by Northwest Method NWTPH-Gx extended range;
- TPH-D and TPH-O by Northwest Method NWTPH-Dx extended range with silica gel cleanup;
- BTEX by USEPA Method 8260C; and
- cPAHs by USEPA Method 8270D SIM.

3.2.3 Groundwater Monitoring Results

Depths to groundwater measured during the first quarter 2020 groundwater monitoring event ranged from 9.22 feet below top of casing (btoc) in monitoring well MW-200 to 22.84 feet btoc in monitoring well MW-205. Groundwater elevations ranged from 3.05 feet above mean sea level in monitoring well MW-206 to 8.85 feet above mean sea level in monitoring well MW-61A-R. Depths to groundwater measured during the second quarter 2020 groundwater monitoring event ranged from 9.24 feet btoc in monitoring well MW-210 to 22.94 feet btoc in monitoring well MW-205. Groundwater elevations ranged from 2.76 feet above mean sea level in monitoring well MW-206 to 8.03 feet above mean sea level in monitoring well MW-61A-R. These measurements indicate groundwater is generally flowing in a southwesterly direction, towards Elliott Bay, and

is consistent with historical data. Groundwater gauging was conducted at low tide during both 2020 events and water levels were within screened intervals for all wells. 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 2020 sampling event are shown on **Figure 3a** and groundwater elevations and contours from the second quarter 2020 sampling event are shown on **Figure 3b**.

During the first quarter 2020 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 sample collected from monitoring wells MW-70R and MW-209 through MW-211.

During the second quarter 2020 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-30, MW-61A-R, MW-70R, MW-200 through MW-207, and MW-209 through MW-211.

Historical trend 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**.

As of the June 2020 event, five monitoring wells (MW-70R, MW-202, MW-203, MW-205, and MW-206) have met a minimum of fifteen consecutive sampling events in compliance with the RALs established for the site. A summary of groundwater compliance as of the June 2020 event is included in **Table 4.**

3.2.4 Laboratory Data Verification Results

A trip blank sample for BTEX and TPH-G analysis was submitted with the groundwater samples for the first quarter 2020 and second quarter 2020 sampling events. Analyte concentrations did not exceed their respective method detection limits (MDLs) in the trip blanks.

During the first quarter and second quarter 2020 sampling events, a duplicate sample was collected from monitoring well MW-70R for quality assurance purposes. The duplicate samples were submitted for the same analyses as the parent sample. The duplicate analytical results were comparable to the parent samples collected from MW-70R.

All coolers were received in good condition within temperature requirements. The laboratory report and chains of custody are provided 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 measurable 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-61A-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 March 2020 and June 2020 gauging and sampling events with an oil/water interface probe to determine if LNAPL was present. LNAPL was detected in both wells during the June event. An absorbent sock was replaced in MW-61A-R and MW-30 during both the 1st and 2nd quarter events.

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.

4.2 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 the first or second quarter 2020 gauging and groundwater monitoring activities.

5 CONCLUSIONS

Gauging and groundwater monitoring were conducted on March 24, to 25, and June 16, to 17, 2020. During the first quarter sampling event, there were no exceedances of BTEX, TPH-G, TPH-D, TPH-O, or cPAH RALs in the samples collected from MW-70R, or wells MW-209 through MW-211. During the second quarter sampling event, there were no exceedances of BTEX, TPH-G, TPH-D, TPH-O, or cPAH RALs in the samples collected from monitoring wells MW-70R, MW-200 through MW-207, and MW-209 through MW-211. LNAPL was observed in wells MW-30 and MW-61A-R during the second quarter 2020 event and were not sampled. Analytical results are summarized in **Table 3**, **Figure 4**, and **Figure 5**. Historical analytical results are presented in **Appendix C**.

As of the June 2020 event, five monitoring wells (MW-70R, MW-202, MW-203, MW-205, and MW-206) have met a minimum of fifteen consecutive sampling events in compliance with the RALs established for the site. Monitoring wells MW-202, MW-203, MW-206, and MW-207 have met thirty-two consecutive sampling events in compliance with the petroleum hydrocarbon constituent RALs. MW-70R has met seventeen consecutive sampling events in compliance with the RALs established for the site. A summary of groundwater compliance as of the June 2020 event is included in **Table 4**.

6 REFERENCES

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TABLES

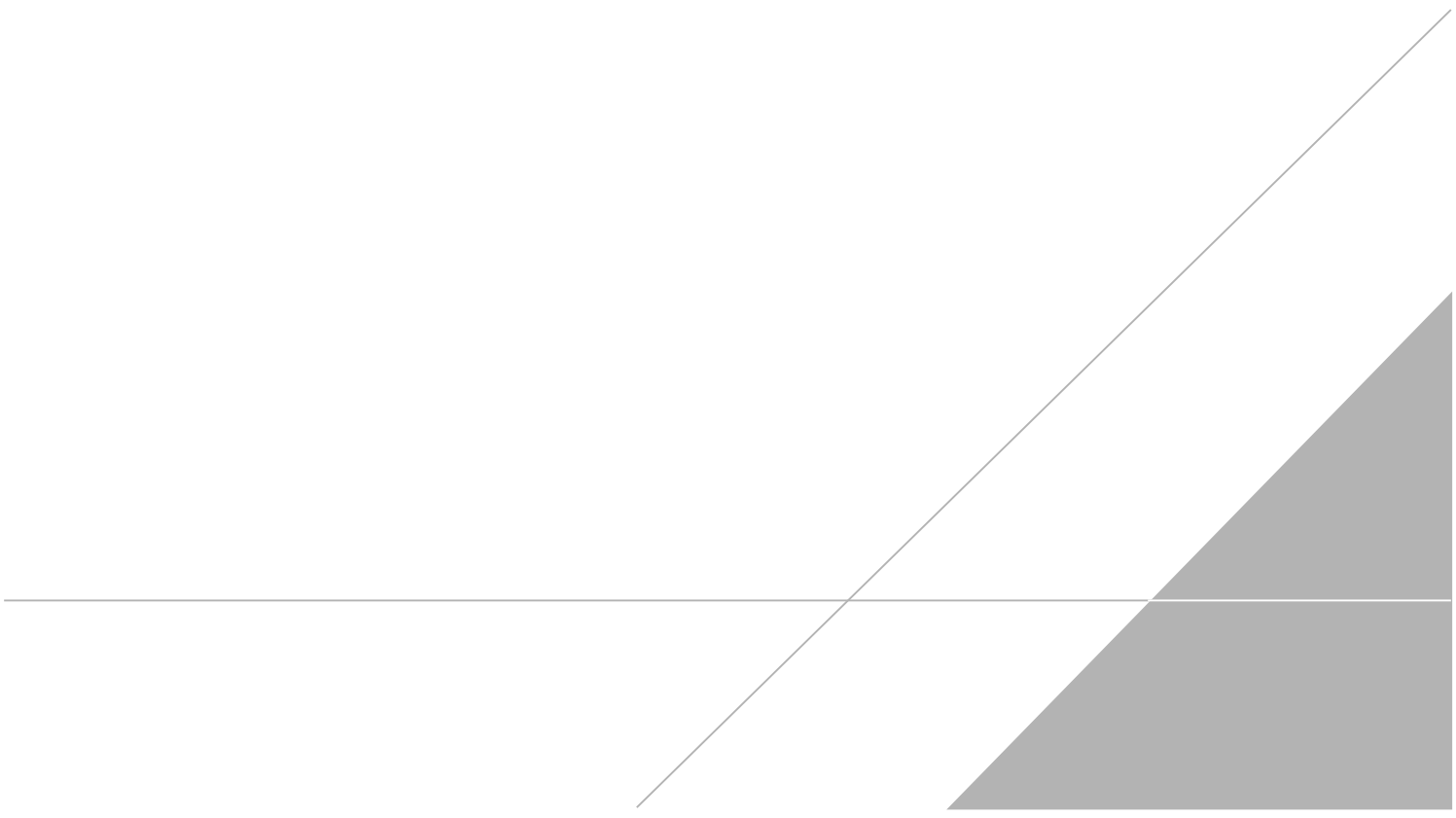


Table 1

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**		**not 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)**	**not sampled**
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 (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	**09/2016**		**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-11)**	**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	**09/2016**		**sampled**
MW-210	**09/2016**		**sampled**
MW-211	**09/2016**		**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	03/25/20	14:19	13.19	--	--	7.66	15.85
	06/17/20	9:51	13.80	13.79	0.01	7.06	15.85
MW-61A-R	03/25/20	14:04	13.59	--	--	8.85	--
	06/17/20	21:33	14.48	14.46	0.02	8.03	--
MW-200	03/25/20	13:01	9.22	--	--	5.14	9.86
	06/17/20	8:59	9.31	--	--	5.05	9.86
MW-201	03/25/20	13:10	9.94	--	--	4.92	9.86
	06/17/20	9:03	9.94	--	--	4.92	9.86
MW-202	03/25/20	12:47	9.89	--	--	4.69	6.78
	06/17/20	8:57	10.37	--	--	4.21	6.78
MW-203	03/25/20	13:15	12.95	--	--	4.60	7.05
	06/17/20	9:10	13.05	--	--	4.50	7.05
MW-204	03/25/20	13:25	18.88	--	--	5.05	6.58
	06/17/20	9:13	19.00	--	--	4.93	6.58
MW-205	03/25/20	13:31	22.84	--	--	5.05	9.89
	06/17/20	9:17	22.94	--	--	4.95	9.89
MW-206	03/25/20	12:44	12.10	--	--	3.05	4.15
	06/17/20	8:55	12.39	--	--	2.76	4.15
MW-207	03/25/20	12:38	11.82	--	--	3.58	5.90
	06/17/20	8:53	12.25	--	--	3.15	5.90
MW-209	03/25/20	13:54	9.80	--	--	5.73	12.53
	06/17/20	10:20	10.09	--	--	5.44	12.53
MW-210	03/25/20	13:50	9.47	--	--	5.66	12.13
	06/17/20	10:18	9.24	--	--	5.89	12.13
MW-211	03/25/20	13:46	9.28	--	--	5.74	12.02
	06/17/20	10:16	9.58	--	--	5.44	12.02
MW-70R	03/25/20	12:33	11.58	--	--	4.03	11.61
	06/17/20	8:51	11.93	--	--	3.68	11.61

Notes:

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

[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.

If LNAPL is present, GW Elevation is corrected according to the following formula (TOC elevation - DTW) + (0.8 x LNAPL thickness)

"--" = not measured or not obtainable

NG = Monitoring wells MW-209 through MW-211 were not gauged during the 3rd quarter 2019 event due to access limitations

Table 3
Summary of Groundwater Analytical Data

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

		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)
Remedial Action Levels		0.03	0.03	0.03	0.03	0.03	0.03	0.03	NE	1	10	15	40	1,400	14,300	4,400
Location	Sample Date	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
MW-200	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/16/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.21 J	0.072 J * *1	<0.110	<0.2	<0.4	<0.2	<1
MW-201	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/16/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.25	0.052 J * *1	<0.110	<0.2	<0.4	<0.2	<1
MW-202	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/16/2020	0.021 J	<0.01	<0.01	<0.01	0.015 J	<0.02	<0.01	--	0.0047 J	<0.047 * *1	<0.100	<0.2	<0.4	<0.2	<1
MW-203	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/16/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.065 J	<0.046 * *1	<0.100	<0.2	<0.4	<0.2	<1
MW-204	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/16/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.95	0.19 * *1	<0.100	<0.2	<0.4	0.4 J	<1
MW-205	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/16/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.082 J	0.053 J * *1	<0.100	<0.2	<0.4	<0.2	<1
MW-206	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/16/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	<0.019	<0.047 * *1	<0.100	<0.2	<0.4	<0.2	<1
MW-207	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/16/2020	0.018 J	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	<0.019	<0.048 * *1	<0.110	<0.2	<0.4	<0.2	<1
MW-209	3/25/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.69	0.054 J	<0.100	<0.2	<0.4	0.4 J	<1
	6/17/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.59	0.58	0.18 J	<0.2	<0.4	0.3 J	<1
MW-210	3/25/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.041 J	<0.047	<0.100	<0.2	<0.4	<0.2	<1
	6/17/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.019 J	<0.046	<0.100	<0.2	<0.4	<0.2	<1
MW-211	3/25/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.041 J	<0.047	<0.110	<0.2	<0.4	<0.2	<1
	6/17/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	0.044 J	<0.047	<0.100	<0.2	<0.4	<0.2	<1
MW-30	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/17/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-61A-R	3/25/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/17/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-70-R	3/24/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	<0.019	<0.047	<0.100	<0.2	<0.4	<0.2	<1
MW-70-R (Dup)	3/24/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	<0.019	<0.048	<0.110	<0.2	<0.4	<0.2	<1
MW-70-R	6/16/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	<0.019	<0.046 * *1	<0.100	<0.2	<0.4	<0.2	<1
MW-70-R (Dup)	6/16/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	--	<0.019	<0.0047 * *1	<0.100	<0.2	<0.4	<0.2	<1

Notes:
-- = Not analyzed/ Not Sampled
Bold = Value exceeds laboratory Method Detection Limit (MDL)
<0.5 = Not detected at or above the MDL
µg/L = Micrograms per liter
mg/L = Miligrams per liter
DUP = duplicate
NE = Not Established
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
* = LCS or LCSD is outside acceptance limits.
*1 = LCS/LCSD RPD exceeds control limits.

Table 4
Summary of Groundwater Compliance as of First Semi-Annual 2020

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	0	none	N/A [11]	none	N/A
Elliott Avenue						
MW-30	semi-annually	0	none	N/A [12]	none	N/A
Offsite Area- Amendment No. 4 Point of Compliance monitoring wells						
MW-70R	quarterly	17	quarterly	17	none	N/A
MW-200	semi-annually	20 [7]	semi-annually[2]	5 [4,5,8]	none	13
MW-201	semi-annually	20 [7]	semi-annually[2]	8	none	13
MW-202	semi-annually	32	semi-annually[2]	28 [3, 4, 10]	none	13
MW-203	semi-annually	32	semi-annually[2]	32 [4,8]	none	13
MW-204	semi-annually	4	semi-annually[2]	32 [4,8,10]	none	13
MW-205	semi-annually	18	semi-annually [2]	18 [4,8]	none	13
MW-206	semi-annually	32	semi-annually [2]	32 [4,6,8]	none	13
MW-207	semi-annually	32	semi-annually [2]	8	none	13
MW-209	quarterly	3	quarterly	9	none	N/A
MW-210	quarterly	3	quarterly	3	none	N/A
MW-211	quarterly	9	quarterly	9	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-61A-R analyzed for cPAHs during the second semi-annual 2018 sampling event

[12] MW-30 analyzed for cPAHs during three sampling events (first semi annual 2013, second semi annual 2018, first semi annual 2019)

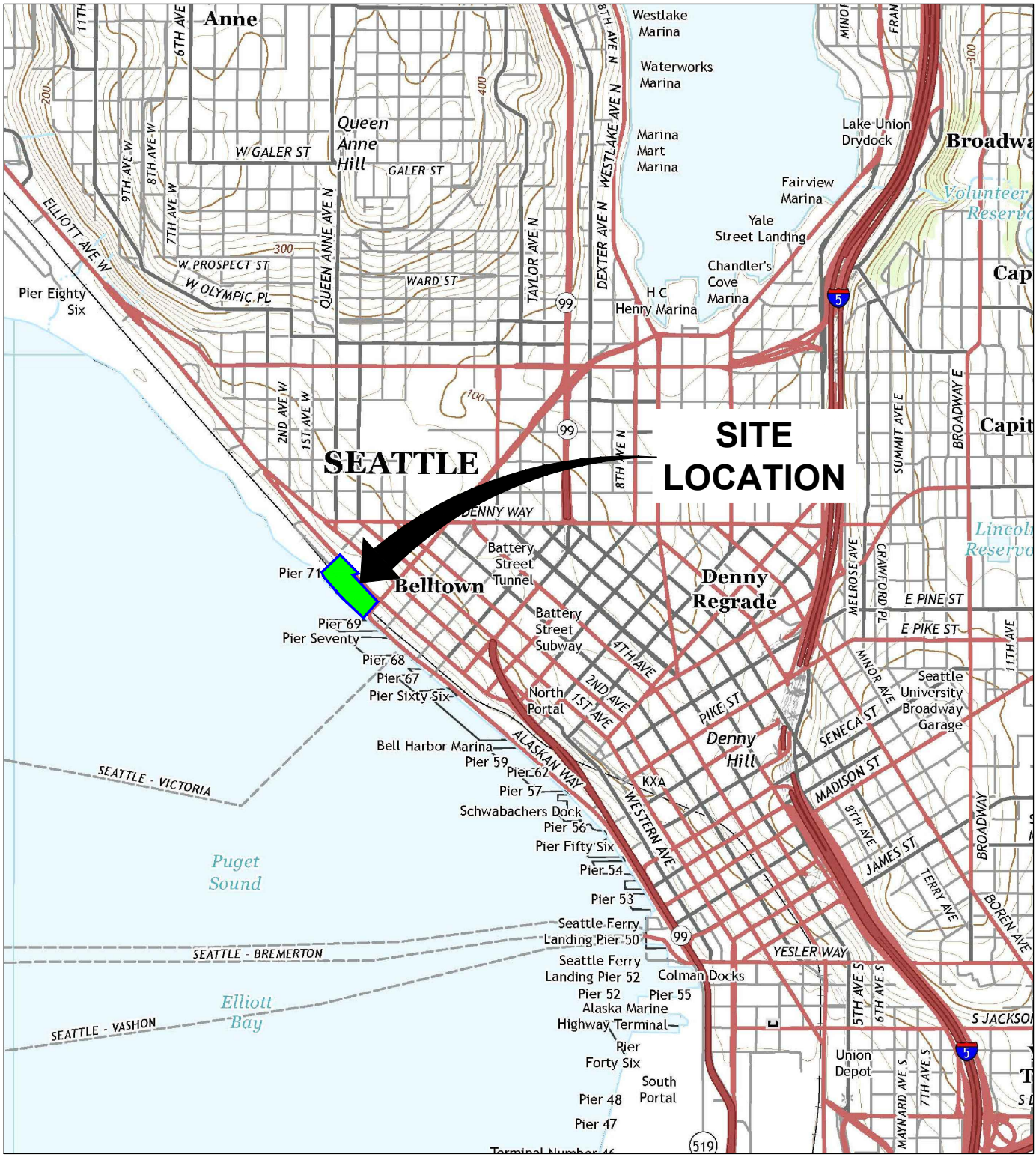
BTEX = benzene, toluene, ethylbenzene, xylenes

cPAHs = carcinogenic polycyclic aromatic hydrocarbons

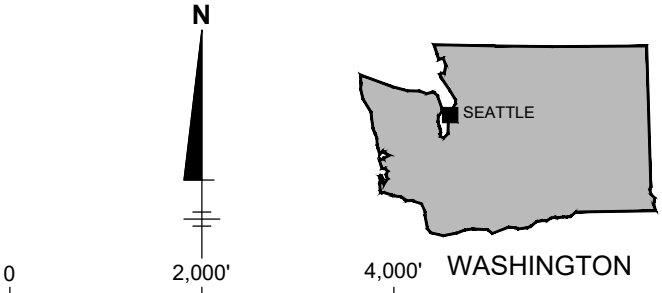
N/A = not applicable

RAL = Remedial Action Level

FIGURES



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

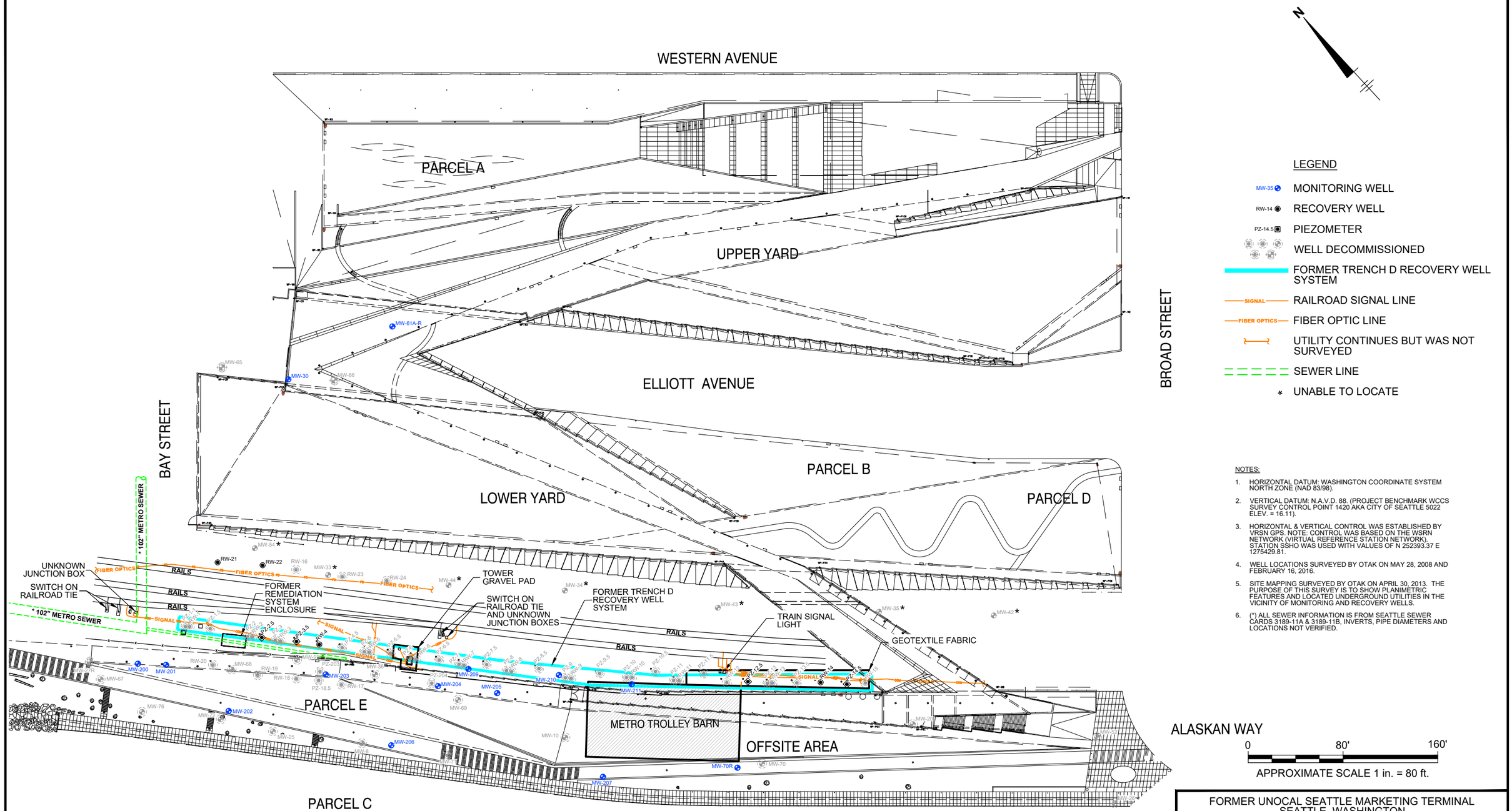


FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
GROUNDWATER MONITORING REPORT
FIRST SEMI-ANNUAL 2020

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1



LEGEND

- MW-35 — MONITORING WELL
- RW-14 — RECOVERY WELL
- PZ-14.5 — PIEZOMETER
- WELL DECOMMISSIONED
- FORMER TRENCH D RECOVERY WELL SYSTEM
- SIGNAL — RAILROAD SIGNAL LINE
- FIBER OPTICS — FIBER OPTIC LINE
- UTILITY CONTINUES BUT WAS NOT SURVEYED
- SEWER LINE
- * UNABLE TO LOCATE

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.

0 80' 160'

APPROXIMATE SCALE 1 in. = 80 ft.

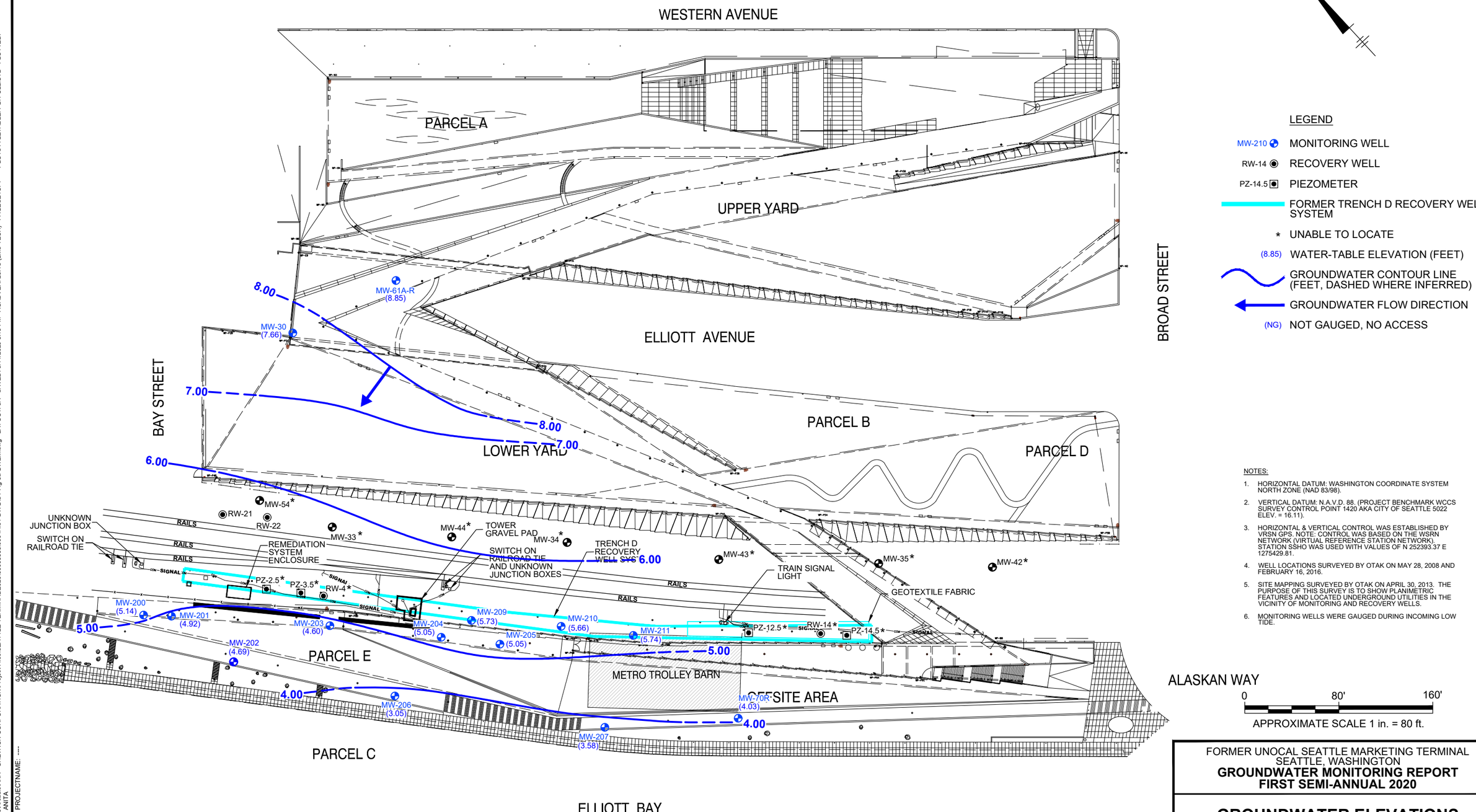
FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
GROUNDWATER MONITORING REPORT
FIRST SEMI-ANNUAL 2020

SITE MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS LD: E. MURESAN
C:\Users\ARI\00071\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\SEATTLE TERMINAL\2020\30005538.0004A01-DWG\ST Fig 2 SP.dwg LAYOUT: 2 SAVED: 9/11/2020 11:13 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 9/11/2020 11:20 AM BY: R, ANITA



LEGEND

- MW-210 — MONITORING WELL
- RW-14 — RECOVERY WELL
- PZ-14.5 — PIEZOMETER
- FORMER TRENCH D RECOVERY WELL SYSTEM
- * — UNABLE TO LOCATE
- (8.85) — WATER-TABLE ELEVATION (FEET)
- GROUNDWATER CONTOUR LINE (FEET, DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- (NG) — NOT GAUGED, NO ACCESS

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. MONITORING WELLS WERE GAUGED DURING INCOMING LOW TIDE.

FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
GROUNDWATER MONITORING REPORT
FIRST SEMI-ANNUAL 2020

GROUNDWATER ELEVATIONS MARCH 25, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE **3a**

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS LD: E. MURESAN
C:\Users\AR00071\BIM 360\Acadis\ANA - CHEVRON CORPORATION\Project Files\SEATTLE TERMINAL\2020\3000553\8.0004\A\01-DWG\ST Fig 3a GWEM.dwg LAYOUT: 3A SAVED: 9/11/2020 8:15 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 9/11/2020 8:16 PM BY: R, ANITA
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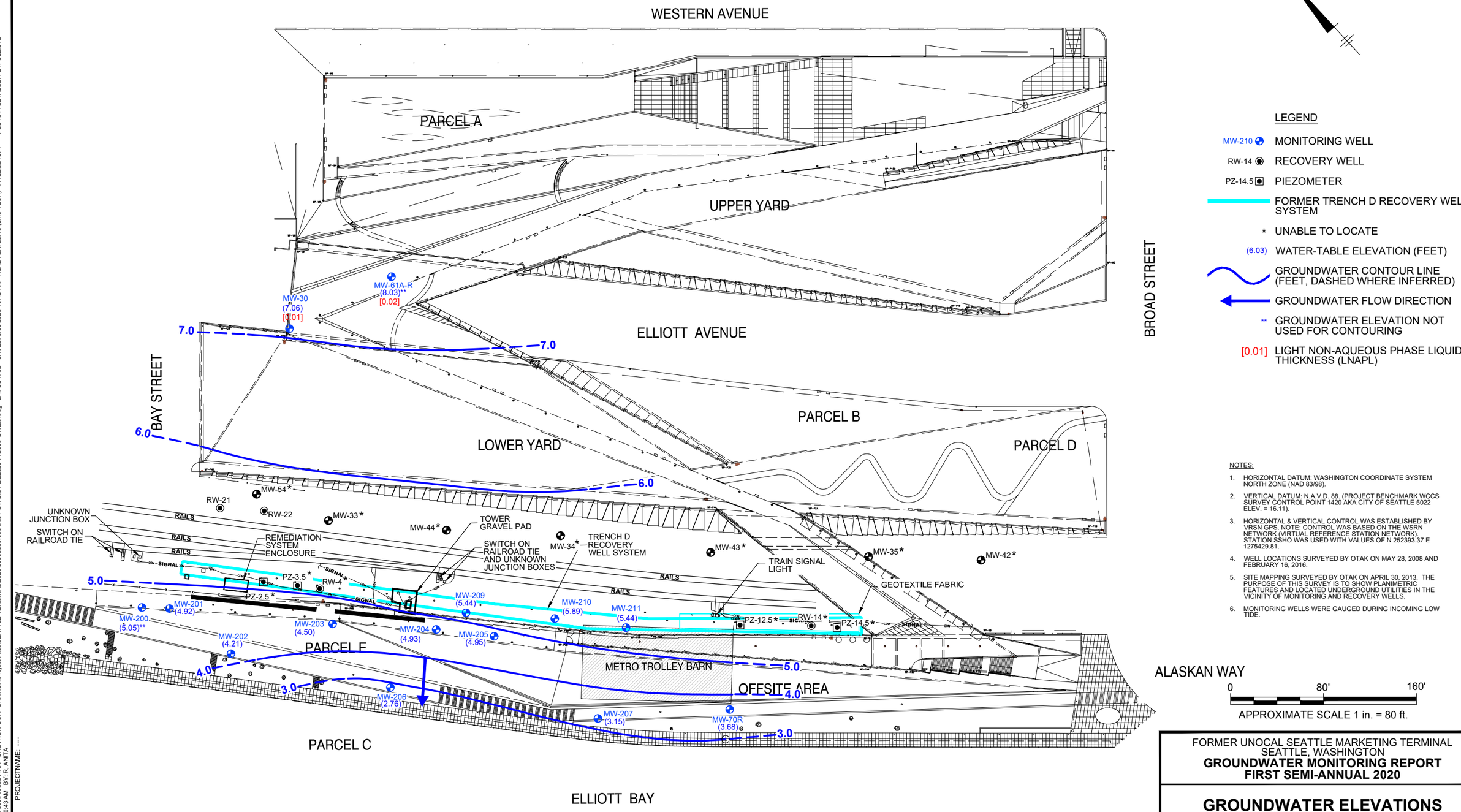

LEGEND

- MW-210 — MONITORING WELL
- RW-14 — RECOVERY WELL
- PZ-14.5 — PIEZOMETER
- FORMER TRENCH D RECOVERY WELL SYSTEM
- * UNABLE TO LOCATE
- (6.03) WATER-TABLE ELEVATION (FEET)
- GROUNDWATER CONTOUR LINE (FEET, DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- ** GROUNDWATER ELEVATION NOT USED FOR CONTOURING
- [0.01] LIGHT NON-AQUEOUS PHASE LIQUID THICKNESS (LNAPL)

NOTES:

1. HORIZONTAL DATUM: WASHINGTON COORDINATE SYSTEM NORTH ZONE (NAD 83/98).
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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 LOW TIDE.

0 80' 160'

APPROXIMATE SCALE 1 in. = 80 ft.

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GROUNDWATER ELEVATIONS JUNE 17, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE **3b**

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS LD: E. MURESAN
C:\Users\ARI\00071BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\SEATTLE TERMINAL\2020\30005538.0004A01-DWGST-2Q2020-FIG03b-GWEM.dwg LAYOUT: 3B SAVED: 9/30/2020 10:42 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
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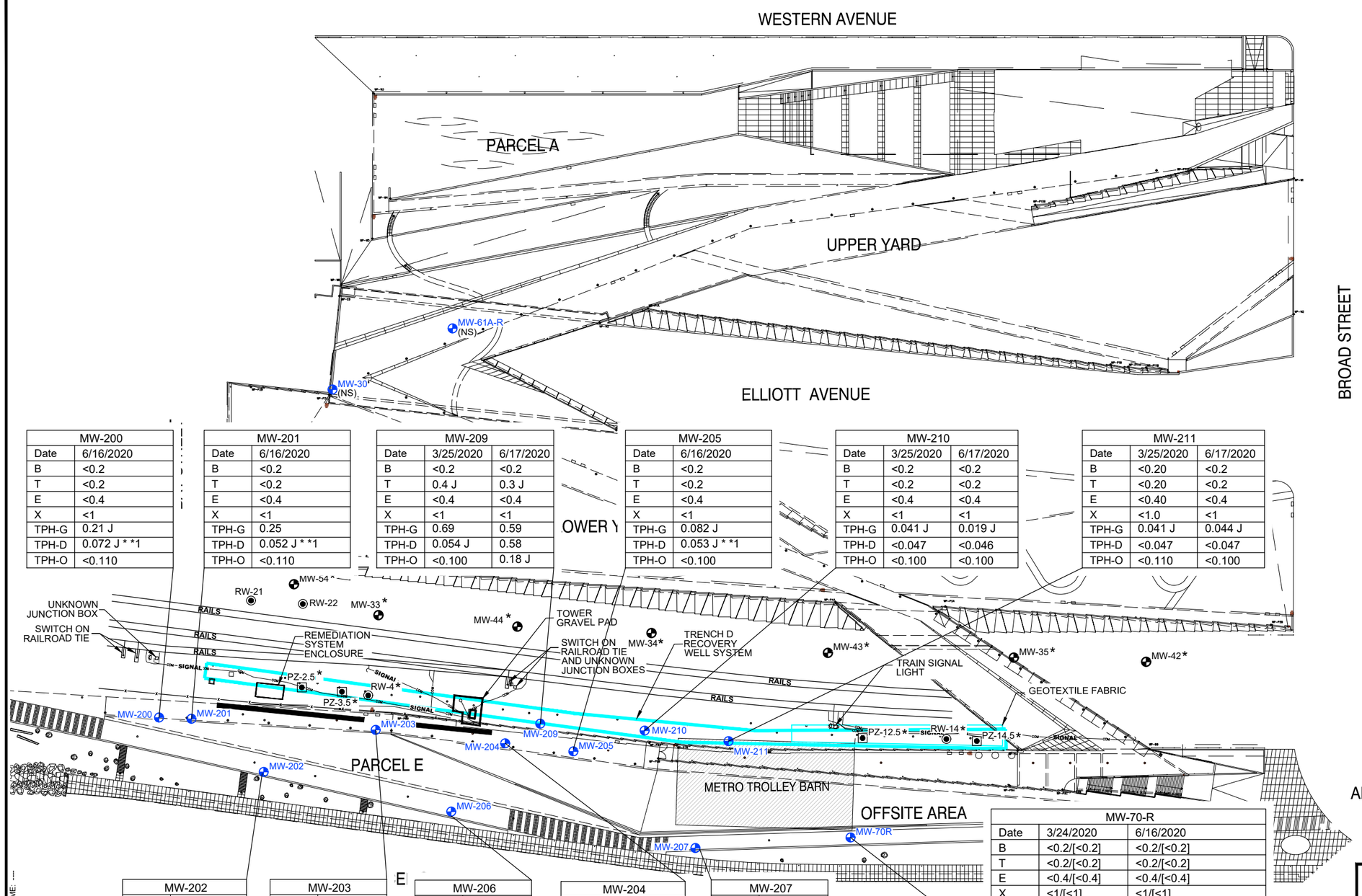
IMAGES:
PROJECTNAME: ----
X-Base



MW-200	
Date	6/16/2020
B	<0.2
T	<0.2
E	<0.4
X	<1
TPH-G	0.21 J
TPH-D	0.072 J * *1
TPH-O	<0.110

MW-201	
Date	6/16/2020
B	<0.2
T	<0.2
E	<0.4
X	<1
TPH-G	0.25
TPH-D	0.052 J * *1
TPH-O	<0.110

MW-209		
Date	3/25/2020	6/17/2020
B	<0.2	<0.2
T	0.4 J	0.3 J
E	<0.4	<0.4
X	<1	<1
TPH-G	0.69	0.59
TPH-D	0.054 J	0.58
TPH-O	<0.100	0.18 J

MW-205	
Date	6/16/2020
B	<0.2
T	<0.2
E	<0.4
X	<1
TPH-G	0.082 J
TPH-D	0.053 J * *1
TPH-O	<0.100

MW-210		
Date	3/25/2020	6/17/2020
B	<0.2	<0.2
T	<0.2	<0.2
E	<0.4	<0.4
X	<1	<1
TPH-G	0.041 J	0.019 J
TPH-D	<0.047	<0.046
TPH-O	<0.100	<0.100

MW-211		
Date	3/25/2020	6/17/2020
B	<0.20	<0.2
T	<0.20	<0.2
E	<0.40	<0.4
X	<1.0	<1
TPH-G	0.041 J	0.044 J
TPH-D	<0.047	<0.047
TPH-O	<0.110	<0.100

MW-202	
Date	6/16/2020
B	<0.2
T	<0.2
E	<0.4
X	<1
TPH-G	0.0047 J
TPH-D	<0.047 * *1
TPH-O	<0.100

MW-203	
Date	6/16/2020
B	<0.2
T	<0.2
E	<0.4
X	<1
TPH-G	0.065 J
TPH-D	<0.046 * *1
TPH-O	<0.100

MW-206	
Date	6/16/2020
B	<0.2
T	<0.2
E	<0.4
X	<1
TPH-G	<0.019
TPH-D	<0.047 * *1
TPH-O	<0.100

MW-204	
Date	6/16/2020
B	<0.2
T	0.4 J
E	<0.4
X	<1
TPH-G	0.95
TPH-D	0.19 * *1
TPH-O	<0.100

MW-207	
Date	6/16/2020
B	<0.2
T	<0.2
E	<0.4
X	<1
TPH-G	<0.019
TPH-D	<0.048 * *1
TPH-O	<0.110

MW-70-R		
Date	3/24/2020	6/16/2020
B	<0.2/[<0.2]	<0.2/[<0.2]
T	<0.2/[<0.2]	<0.2/[<0.2]
E	<0.4/[<0.4]	<0.4/[<0.4]
X	<1/[<1]	<1/[<1]
TPH-G	<0.019 [<0.019]	<0.019 [<0.019]
TPH-D	<0.047[<0.048]	<0.046 * *1[<0.047 * *1]
TPH-O	<0.01[0.11]	<0.10/[<0.10]

0 80' 160'

APPROXIMATE SCALE 1 in. = 80 ft.

LEGEND

- MW-210 — MONITORING WELL
- RW-14 — RECOVERY WELL
- PZ-14.5 — PIEZOMETER
- FORMER TRENCH D RECOVERY WELL SYSTEM
- * UNABLE TO LOCATE
- (NS) NOT SAMPLED, NO ACCESS

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).

TPH = TOTAL PETROLEUM HYDROCARBON

BOLD = CONSTITUENT DETECTED ABOVE METHOD DETECTION LIMITS (MDL)

<1/ [<1] = DUPLICATE SAMPLE

J = RESULT IS LESS THAN THE REPORTING LIMIT (RL) BUT GREATER THAN OR EQUAL TO THE MDL AND THE CONCENTRATION IS AN APPROXIMATE VALUE.

<0.5 = NOT DETECTED AT OR ABOVE THE MDL

* = LCS OR LCSD IS OUTSIDE ACCEPTANCE LIMITS

*1 = LCS/LCSD RPD EXCEEDS CONTROL LIMITS.

NOTES:

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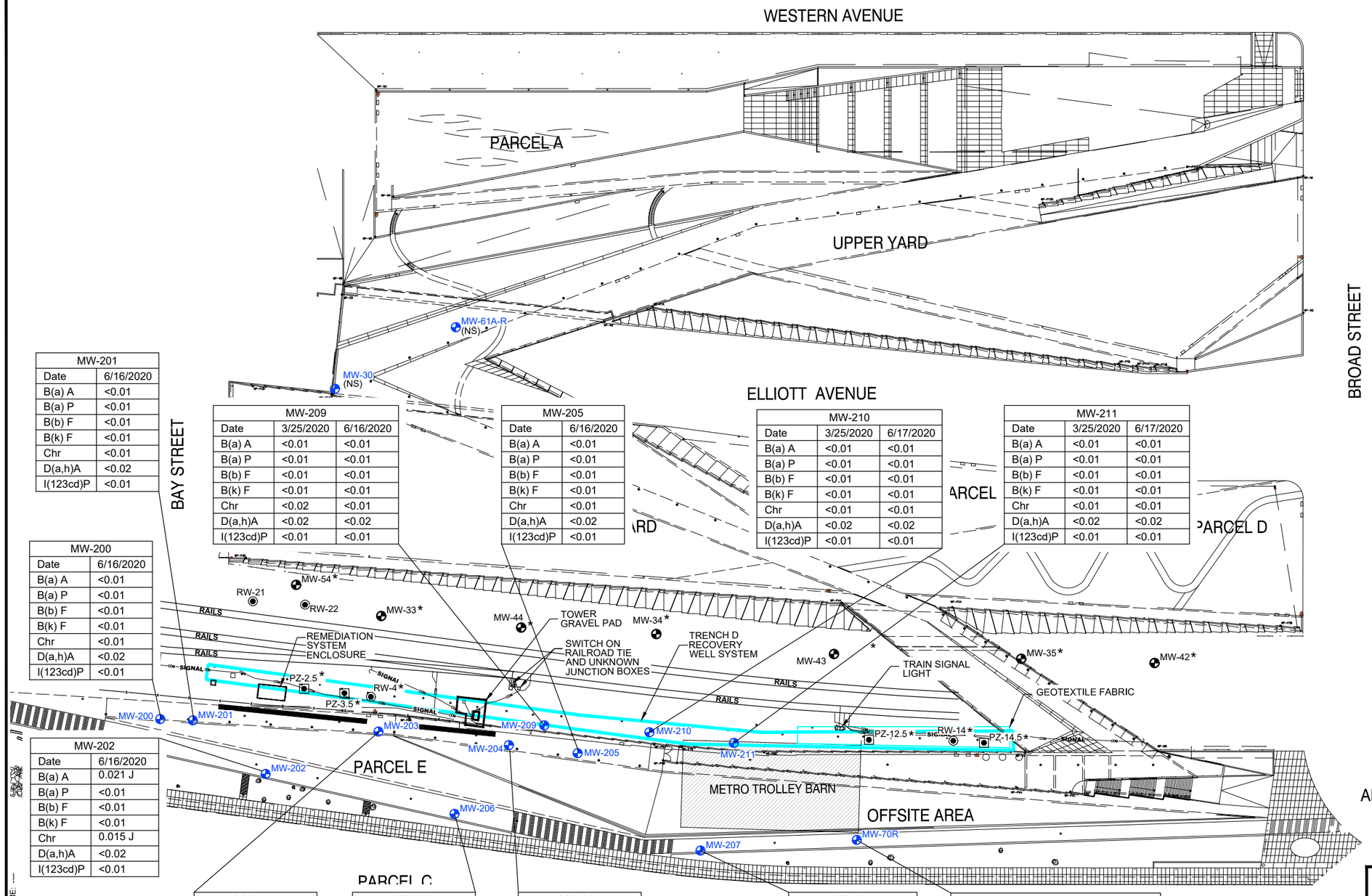
FIRST SEMI-ANNUAL 2020

GROUNDWATER ANALYTICAL SUMMARY MAP MARCH AND JUNE, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4a



MW-201	
Date	6/16/2020
B(a) A	<0.01
B(a) P	<0.01
B(b) F	<0.01
B(k) F	<0.01
Chr	<0.01
D(a,h)A	<0.02
I(123cd)P	<0.01

MW-209		
Date	3/25/2020	6/16/2020
B(a) A	<0.01	<0.01
B(a) P	<0.01	<0.01
B(b) F	<0.01	<0.01
B(k) F	<0.01	<0.01
Chr	<0.02	<0.01
D(a,h)A	<0.02	<0.02
I(123cd)P	<0.01	<0.01

MW-205	
Date	6/16/2020
B(a) A	<0.01
B(a) P	<0.01
B(b) F	<0.01
B(k) F	<0.01
Chr	<0.01
D(a,h)A	<0.02
I(123cd)P	<0.01

MW-210		
Date	3/25/2020	6/17/2020
B(a) A	<0.01	<0.01
B(a) P	<0.01	<0.01
B(b) F	<0.01	<0.01
B(k) F	<0.01	<0.01
Chr	<0.01	<0.01
D(a,h)A	<0.02	<0.02
I(123cd)P	<0.01	<0.01

MW-211		
Date	3/25/2020	6/17/2020
B(a) A	<0.01	<0.01
B(a) P	<0.01	<0.01
B(b) F	<0.01	<0.01
B(k) F	<0.01	<0.01
Chr	<0.01	<0.01
D(a,h)A	<0.02	<0.02
I(123cd)P	<0.01	<0.01

MW-200	
Date	6/16/2020
B(a) A	<0.01
B(a) P	<0.01
B(b) F	<0.01
B(k) F	<0.01
Chr	<0.01
D(a,h)A	<0.02
I(123cd)P	<0.01

MW-202	
Date	6/16/2020
B(a) A	0.021 J
B(a) P	<0.01
B(b) F	<0.01
B(k) F	<0.01
Chr	0.015 J
D(a,h)A	<0.02
I(123cd)P	<0.01

MW-203	
Date	6/16/2020
B(a) A	<0.01
B(a) P	<0.01
B(b) F	<0.01
B(k) F	<0.01
Chr	<0.01
D(a,h)A	<0.02
I(123cd)P	<0.01

MW-206	
Date	6/16/2020
B(a) A	<0.01
B(a) P	<0.01
B(b) F	<0.01
B(k) F	<0.01
Chr	<0.01
D(a,h)A	<0.02
I(123cd)P	<0.01

MW-204	
Date	6/16/2020
B(a) A	<0.01
B(a) P	<0.01
B(b) F	<0.01
B(k) F	<0.01
Chr	<0.01
D(a,h)A	<0.02
I(123cd)P	<0.01

MW-207	
Date	6/16/2020
B(a) A	0.018 J
B(a) P	<0.01
B(b) F	<0.01
B(k) F	<0.01
Chr	<0.01
D(a,h)A	<0.02
I(123cd)P	<0.01

MW-70-R		
Date	3/24/2020	6/16/2020
B(a) A	<0.01[<0.01]	<0.01[<0.01]
B(a) P	<0.01[<0.01]	<0.01[<0.01]
B(b) F	<0.01[<0.01]	<0.01[<0.01]
B(k) F	<0.01[<0.01]	<0.01[<0.01]
Chr	<0.01[<0.01]	<0.01[<0.01]
D(a,h)A	<0.02[0.02]	<0.02[0.02]
I(123cd)P	<0.01[0.01]	<0.01[0.01]

LEGEND

- MW-210 MONITORING WELL
- RW-14 RECOVERY WELL
- PZ-14.5 PIEZOMETER
- FORMER TRENCH D RECOVERY WELL SYSTEM
- * UNABLE TO LOCATE
- (NS) NOT SAMPLED, NO ACCESS

SAMPLE LOCATION	
DATE	SAMPLE DATE
B(a)A	Benzo(a)anthracene
B(a)P	Benzo(a)pyrene
B(b)F	Benzo(b)fluoranthene
B(k)F	Benzo(k)fluoranthene
Chr	Chrysene
D(a,h)A	Dibenzo(a,h)anthracene
I(123cd)P	Indeno(1,2,3-cd)pyrene

RESULTS REPORTED IN MICROGRAMS PER LITER (µg/L)

<0.01 / [<0.01] = DUPLICATE SAMPLE

cPAH = CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

BOLD = CONSTITUENT DETECTED ABOVE METHOD DETECTION LIMITS

J = RESULT IS LESS THAN THE REPORTING LIMIT (RL) BUT GREATER THAN OR EQUAL TO THE MDL AND THE CONCENTRATION IS AN APPROXIMATE VALUE.

<0.01 = NOT DETECTED AT OR ABOVE THE MDL

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SEATTLE, WASHINGTON
GROUNDWATER MONITORING REPORT
FIRST SEMI-ANNUAL 2020

GROUNDWATER cPAH DATA MARCH AND JUNE, 2020

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FIGURE **4b**

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\AR80071\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\SEATTLE TERMINAL\2020\30005538.0004A\01-DWG\ST-2\2020-FIG04b-GWAM.dwg LAYOUT: 4B SAVED: 9/30/2020 11:06 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 9/30/2020 11:08 AM BY: R. ANITA
XREFS: IMAGES: PROJECTNAME: ----
X-Base

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

Low-Flow Test Report:

Test Date / Time: 3/24/2020 1:36:32 PM
Project: 1Q20 Seattle Terminal MW-70R
Operator Name: Daniel Gilbert

Location Name: MW-70R **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 4 ft** **Total Depth: 19 ft** **Initial Depth to Water: 11.88 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 12 ft** **Estimated Total Volume Pumped: 9000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.05 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 466689**

Test Notes:

Weather Conditions:
Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
3/24/2020 1:36 PM	00:00	7.08 pH	15.17 °C	14,357 µS/cm	8.45 mg/L	17.25 NTU	145.1 mV	11.88 ft	200.00 ml/min
3/24/2020 1:39 PM	03:00	7.19 pH	12.71 °C	17,870 µS/cm	2.59 mg/L	87.53 NTU	250.0 mV	11.88 ft	200.00 ml/min
3/24/2020 1:42 PM	06:00	7.20 pH	12.44 °C	17,367 µS/cm	2.50 mg/L	92.22 NTU	268.7 mV	11.88 ft	200.00 ml/min
3/24/2020 1:45 PM	09:00	7.21 pH	12.39 °C	17,007 µS/cm	1.63 mg/L	109.94 NTU	272.8 mV	11.88 ft	200.00 ml/min
3/24/2020 1:48 PM	12:00	7.21 pH	12.37 °C	16,326 µS/cm	1.60 mg/L	129.59 NTU	271.6 mV	11.88 ft	200.00 ml/min
3/24/2020 1:51 PM	15:00	7.24 pH	12.38 °C	10,236 µS/cm	2.03 mg/L	167.17 NTU	286.8 mV	11.88 ft	200.00 ml/min
3/24/2020 1:54 PM	18:00	7.25 pH	12.35 °C	13,719 µS/cm	2.03 mg/L	9.53 NTU	283.7 mV	11.88 ft	200.00 ml/min
3/24/2020 1:57 PM	21:00	7.24 pH	12.37 °C	13,237 µS/cm	1.76 mg/L	125.18 NTU	269.6 mV	11.88 ft	200.00 ml/min
3/24/2020 2:00 PM	24:00	7.24 pH	12.36 °C	10,928 µS/cm	1.85 mg/L	57.68 NTU	253.9 mV	11.88 ft	200.00 ml/min
3/24/2020 2:03 PM	27:00	7.24 pH	12.45 °C	9,539.2 µS/cm	1.91 mg/L	75.54 NTU	239.9 mV	11.88 ft	200.00 ml/min
3/24/2020 2:06 PM	30:00	7.24 pH	12.47 °C	15,200 µS/cm	1.88 mg/L	3.06 NTU	228.2 mV	11.88 ft	200.00 ml/min
3/24/2020 2:09 PM	33:00	7.24 pH	12.36 °C	12,641 µS/cm	1.92 mg/L	4.90 NTU	210.6 mV	11.88 ft	200.00 ml/min
3/24/2020 2:12 PM	36:00	7.24 pH	12.40 °C	11,441 µS/cm	1.80 mg/L	3.61 NTU	187.0 mV	11.88 ft	200.00 ml/min

3/24/2020 2:15 PM	39:00	7.23 pH	12.41 °C	7,930.3 µS/cm	1.53 mg/L	2.74 NTU	109.8 mV	11.88 ft	200.00 ml/min
3/24/2020 2:18 PM	42:00	7.23 pH	12.41 °C	12,131 µS/cm	1.43 mg/L	3.09 NTU	65.2 mV	11.88 ft	200.00 ml/min
3/24/2020 2:21 PM	45:00	7.23 pH	12.41 °C	11,154 µS/cm	1.38 mg/L	2.92 NTU	21.2 mV	11.88 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-70R	Sample Time: 14:40 Final DTW: 11.93

Low-Flow Test Report:

Test Date / Time: 3/25/2020 10:44:53 AM
Project: 1Q20 Seattle Terminal MW-209
Operator Name: Daniel Gilbert

Location Name: MW-209 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 3 ft** **Total Depth: 18 ft** **Initial Depth to Water: 9.5 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.08 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 466689**

Test Notes:

Weather Conditions:
Rainy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
3/25/2020 10:44 AM	00:00	7.03 pH	11.44 °C	549.12 µS/cm	5.20 mg/L	26.93 NTU	-0.3 mV	9.50 ft	150.00 ml/min
3/25/2020 10:47 AM	03:00	7.07 pH	11.06 °C	521.60 µS/cm	0.90 mg/L	10.88 NTU	-38.9 mV	9.50 ft	150.00 ml/min
3/25/2020 10:50 AM	06:00	7.07 pH	11.01 °C	501.06 µS/cm	0.49 mg/L	9.96 NTU	-37.4 mV	9.50 ft	150.00 ml/min
3/25/2020 10:53 AM	09:00	7.07 pH	11.08 °C	392.08 µS/cm	0.39 mg/L	11.75 NTU	-53.8 mV	9.50 ft	150.00 ml/min
3/25/2020 10:56 AM	12:00	7.07 pH	11.05 °C	346.82 µS/cm	0.23 mg/L	15.24 NTU	-53.2 mV	9.50 ft	150.00 ml/min
3/25/2020 10:59 AM	15:00	7.08 pH	11.14 °C	3.32 µS/cm	0.16 mg/L	11.95 NTU	-62.9 mV	9.50 ft	150.00 ml/min
3/25/2020 11:02 AM	18:00	7.08 pH	11.22 °C	3.12 µS/cm	0.13 mg/L	12.61 NTU	-60.0 mV	9.50 ft	150.00 ml/min
3/25/2020 11:05 AM	21:00	7.07 pH	11.32 °C	2.43 µS/cm	0.11 mg/L	13.73 NTU	-65.7 mV	9.50 ft	150.00 ml/min
3/25/2020 11:08 AM	24:00	7.08 pH	11.34 °C	185.26 µS/cm	0.11 mg/L	12.50 NTU	-66.3 mV	9.50 ft	150.00 ml/min
3/25/2020 11:11 AM	27:00	7.08 pH	11.39 °C	220.75 µS/cm	0.10 mg/L	12.11 NTU	-69.1 mV	9.50 ft	150.00 ml/min
3/25/2020 11:14 AM	30:00	7.06 pH	11.46 °C	229.19 µS/cm	0.09 mg/L	12.11 NTU	-68.8 mV	9.50 ft	150.00 ml/min
3/25/2020 11:17 AM	33:00	7.06 pH	11.49 °C	226.11 µS/cm	0.08 mg/L	11.74 NTU	-70.1 mV	9.50 ft	150.00 ml/min
3/25/2020 11:20 AM	36:00	7.06 pH	11.48 °C	158.19 µS/cm	0.07 mg/L	11.23 NTU	-71.6 mV	9.50 ft	150.00 ml/min

3/25/2020 11:23 AM	39:00	7.05 pH	11.48 °C	2.26 µS/cm	0.07 mg/L	11.70 NTU	-69.8 mV	9.50 ft	150.00 ml/min
3/25/2020 11:26 AM	42:00	7.05 pH	11.41 °C	0.53 µS/cm	0.07 mg/L	13.33 NTU	-71.1 mV	9.50 ft	150.00 ml/min
3/25/2020 11:29 AM	45:00	7.05 pH	11.55 °C	0.48 µS/cm	0.06 mg/L	13.34 NTU	-69.4 mV	9.50 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-209	Sample Time: 11:40 Final DTW: 9.58 ft btoc Specific Conductiity, dissolved oxygen, turbidity did not stabilize after 45 mins

Low-Flow Test Report:

Test Date / Time: 3/25/2020 9:23:50 AM
Project: 1Q20 Seattle Terminal MW-210
Operator Name: Daniel Gilbert

Location Name: MW-210 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 3 ft** **Total Depth: 18 ft** **Initial Depth to Water: 8.93 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 9 ft** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 2.9 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 466689**

Test Notes:

Weather Conditions:
Rainy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
3/25/2020 9:23 AM	00:00	7.06 pH	10.24 °C	328.05 µS/cm	7.44 mg/L	14.49 NTU	200.5 mV	8.93 ft	150.00 ml/min
3/25/2020 9:26 AM	03:00	6.42 pH	10.00 °C	237.79 µS/cm	4.38 mg/L	461.25 NTU	155.7 mV	8.93 ft	150.00 ml/min
3/25/2020 9:29 AM	06:00	6.45 pH	9.49 °C	320.58 µS/cm	5.25 mg/L	226.76 NTU	147.9 mV	8.93 ft	150.00 ml/min
3/25/2020 9:32 AM	09:00	6.46 pH	9.19 °C	201.19 µS/cm	6.31 mg/L	46.56 NTU	148.6 mV	8.93 ft	150.00 ml/min
3/25/2020 9:35 AM	12:00	6.48 pH	8.95 °C	342.38 µS/cm	6.77 mg/L	430.05 NTU	149.7 mV	8.93 ft	150.00 ml/min
3/25/2020 9:38 AM	15:00	6.51 pH	8.76 °C	366.35 µS/cm	7.03 mg/L	61.64 NTU	149.2 mV	8.93 ft	150.00 ml/min
3/25/2020 9:41 AM	18:00	6.50 pH	10.80 °C	328.00 µS/cm	0.45 mg/L	50.10 NTU	85.6 mV	8.93 ft	150.00 ml/min
3/25/2020 9:44 AM	21:00	6.51 pH	10.92 °C	337.65 µS/cm	0.25 mg/L	68.44 NTU	51.8 mV	8.93 ft	150.00 ml/min
3/25/2020 9:47 AM	24:00	6.55 pH	10.39 °C	318.75 µS/cm	4.37 mg/L	7.02 NTU	64.9 mV	8.93 ft	150.00 ml/min
3/25/2020 9:50 AM	27:00	6.57 pH	9.85 °C	305.01 µS/cm	6.19 mg/L	98.86 NTU	76.3 mV	8.93 ft	150.00 ml/min
3/25/2020 9:53 AM	30:00	6.57 pH	9.65 °C	210.80 µS/cm	6.83 mg/L	80.52 NTU	85.0 mV	8.93 ft	150.00 ml/min
3/25/2020 9:56 AM	33:00	6.50 pH	11.16 °C	323.66 µS/cm	0.89 mg/L	227.55 NTU	89.4 mV	8.93 ft	150.00 ml/min
3/25/2020 9:59 AM	36:00	6.48 pH	11.45 °C	303.83 µS/cm	0.25 mg/L	234.64 NTU	87.6 mV	8.93 ft	150.00 ml/min

3/25/2020 10:02 AM	39:00	6.47 pH	11.66 °C	300.28 µS/cm	0.18 mg/L	35.30 NTU	97.2 mV	8.93 ft	150.00 ml/min
3/25/2020 10:05 AM	42:00	6.50 pH	11.65 °C	300.31 µS/cm	0.16 mg/L	128.20 NTU	101.8 mV	8.93 ft	150.00 ml/min
3/25/2020 10:08 AM	45:00	6.50 pH	11.79 °C	303.51 µS/cm	0.17 mg/L	356.01 NTU	105.7 mV	8.93 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-210	Sample Time: 10:15 Final DTW: 11.83 ft btoc Turbidity did not stabilize

Low-Flow Test Report:

Test Date / Time: 3/25/2020 9:31:52 AM
Project: 1Q20 Seattle Terminal
Operator Name: Riku Kusakabe

Location Name: MW-211 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 3 ft** **Total Depth: 18 ft** **Initial Depth to Water: 9.07 ft**	**Pump Type: Peristaltic** **Tubing Type: Poly** **Pump Intake From TOC: 9.6 ft** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 466586**

Test Notes:
Sample time 1020

Weather Conditions:
Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
3/25/2020 9:31 AM	00:00	7.92 pH	11.31 °C	1.79 µS/cm	11.73 mg/L	0.00 NTU	-28.2 mV	9.07 ft	150.00 ml/min
3/25/2020 9:34 AM	03:00	7.65 pH	11.81 °C	621.95 µS/cm	0.47 mg/L	0.00 NTU	-170.4 mV	9.07 ft	150.00 ml/min
3/25/2020 9:37 AM	06:00	7.61 pH	11.83 °C	622.70 µS/cm	0.23 mg/L	0.00 NTU	-196.5 mV	9.07 ft	150.00 ml/min
3/25/2020 9:40 AM	09:00	7.59 pH	11.95 °C	622.84 µS/cm	0.17 mg/L	0.00 NTU	-209.0 mV	9.07 ft	150.00 ml/min
3/25/2020 9:43 AM	12:00	7.57 pH	12.06 °C	622.15 µS/cm	0.17 mg/L	0.00 NTU	-215.9 mV	9.07 ft	150.00 ml/min
3/25/2020 9:46 AM	15:00	7.56 pH	12.12 °C	621.80 µS/cm	0.21 mg/L	0.00 NTU	-220.1 mV	9.07 ft	150.00 ml/min
3/25/2020 9:49 AM	18:00	7.55 pH	12.03 °C	620.72 µS/cm	0.16 mg/L	0.00 NTU	-223.0 mV	9.07 ft	150.00 ml/min
3/25/2020 9:52 AM	21:00	7.55 pH	12.11 °C	621.18 µS/cm	0.23 mg/L	0.00 NTU	-225.9 mV	9.07 ft	150.00 ml/min
3/25/2020 9:55 AM	24:00	7.55 pH	12.32 °C	620.57 µS/cm	0.18 mg/L	0.00 NTU	-228.1 mV	9.07 ft	150.00 ml/min
3/25/2020 9:58 AM	27:00	7.55 pH	12.52 °C	620.06 µS/cm	0.07 mg/L	0.00 NTU	-231.1 mV	9.07 ft	150.00 ml/min
3/25/2020 10:01 AM	30:00	7.56 pH	12.56 °C	618.97 µS/cm	0.11 mg/L	0.00 NTU	-233.7 mV	9.07 ft	150.00 ml/min
3/25/2020 10:04 AM	33:00	7.57 pH	12.64 °C	618.48 µS/cm	0.09 mg/L	0.00 NTU	-235.7 mV	9.07 ft	150.00 ml/min

3/25/2020 10:07 AM	36:00	7.59 pH	12.69 °C	617.34 µS/cm	0.10 mg/L	0.00 NTU	-237.7 mV	9.07 ft	150.00 ml/min
3/25/2020 10:10 AM	39:00	7.59 pH	12.74 °C	616.77 µS/cm	0.15 mg/L	0.00 NTU	-237.2 mV	9.07 ft	150.00 ml/min
3/25/2020 10:13 AM	42:00	7.60 pH	12.79 °C	616.45 µS/cm	0.12 mg/L	0.66 NTU	-237.5 mV	9.07 ft	150.00 ml/min
3/25/2020 10:16 AM	45:00	7.60 pH	12.72 °C	615.69 µS/cm	0.11 mg/L	0.10 NTU	-237.0 mV	9.07 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-211	Did not stabilize after 45min. DO did not stabilize, turbidity sensor malfunction and did not read turbidity until minute 42. Final DTW 9.07 Sample time 1020

Low-Flow Test Report:

Test Date / Time: 6/16/2020 9:47:03 AM
Project: 2Q20 Seattle Terminal MW-70R
Operator Name: Ryan Brauchla

Location Name: MW-70R **Latitude: 47.6157175669854** **Longitude: -122.356295026839** **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 12 ft** **Top of Screen: 4 ft** **Total Depth: 16 ft** **Initial Depth to Water: 12.22 ft**	**Pump Type: peristaltic** **Tubing Type: 0.17-inch** **Pump Intake From TOC: 12.6 ft** **Estimated Total Volume Pumped: 2403.333 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.18 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697450**

Test Notes:
Collected DUP-1

Weather Conditions:
6F mostly Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/16/2020 9:47 AM	00:00	7.07 pH	15.35 °C	15,167 µS/cm	4.77 mg/L	0.44 NTU	115.8 mV	12.22 ft	200.00 ml/min
6/16/2020 9:50 AM	03:00	7.07 pH	15.75 °C	15,205 µS/cm	3.78 mg/L	0.29 NTU	108.5 mV	12.22 ft	200.00 ml/min
6/16/2020 9:53 AM	06:01	7.08 pH	14.85 °C	15,035 µS/cm	3.54 mg/L	0.00 NTU	114.5 mV	12.22 ft	200.00 ml/min
6/16/2020 9:56 AM	09:01	7.08 pH	14.69 °C	15,081 µS/cm	3.55 mg/L	0.00 NTU	119.9 mV	12.22 ft	200.00 ml/min
6/16/2020 9:59 AM	12:01	7.10 pH	14.54 °C	15,353 µS/cm	3.55 mg/L	0.00 NTU	123.5 mV	12.22 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-70R	Sample Time: 1000 Final DTW: 12.38 ft bgs Final RDO: 0.00 mg/L DUP-1 collected

Low-Flow Test Report:

Test Date / Time: 6/16/2020 12:57:55 PM
Project: 2Q20 Seattle Terminal MW-200
Operator Name: Ryan Brauchla

Location Name: MW-200 **Latitude: 47.6167768630895** **Longitude: -122.357518784702** **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 18.9 ft** **Top of Screen: 5 ft** **Total Depth: 23.9 ft** **Initial Depth to Water: 9.78 ft**	**Pump Type: peristaltic** **Tubing Type: 0.17-inch** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 9100 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.07 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697450**

Test Notes:
Parameters did not stabilize after 45 minutes

Weather Conditions:
68F, mostly clear

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/16/2020 12:57 PM	00:00	7.23 pH	15.77 °C	2,258.8 µS/cm	0.35 mg/L	23.15 NTU	-135.0 mV	9.78 ft	200.00 ml/min
6/16/2020 1:00 PM	03:00	7.23 pH	16.06 °C	2,236.5 µS/cm	0.17 mg/L	2.12 NTU	-146.1 mV	9.78 ft	200.00 ml/min
6/16/2020 1:03 PM	06:00	7.24 pH	15.86 °C	2,221.7 µS/cm	0.14 mg/L	1.23 NTU	-151.1 mV	9.78 ft	200.00 ml/min
6/16/2020 1:06 PM	09:00	7.24 pH	15.79 °C	2,208.5 µS/cm	0.14 mg/L	2.16 NTU	-154.4 mV	9.78 ft	200.00 ml/min
6/16/2020 1:09 PM	12:00	7.23 pH	15.95 °C	2,195.0 µS/cm	0.19 mg/L	0.92 NTU	-157.0 mV	9.78 ft	200.00 ml/min
6/16/2020 1:12 PM	15:02	7.23 pH	15.97 °C	2,141.7 µS/cm	0.16 mg/L	0.72 NTU	-158.8 mV	9.78 ft	200.00 ml/min
6/16/2020 1:19 PM	21:29	7.19 pH	16.11 °C	2,058.4 µS/cm	0.12 mg/L	5.63 NTU	-161.3 mV	9.78 ft	200.00 ml/min
6/16/2020 1:22 PM	24:29	7.18 pH	15.77 °C	2,035.8 µS/cm	0.12 mg/L	1.71 NTU	-161.7 mV	9.78 ft	200.00 ml/min
6/16/2020 1:25 PM	27:29	7.17 pH	15.71 °C	2,036.6 µS/cm	0.11 mg/L	2.15 NTU	-162.3 mV	9.78 ft	200.00 ml/min
6/16/2020 1:28 PM	30:29	7.16 pH	15.93 °C	2,051.7 µS/cm	0.14 mg/L	5.89 NTU	-163.9 mV	9.78 ft	200.00 ml/min
6/16/2020 1:31 PM	33:29	7.14 pH	15.95 °C	2,002.9 µS/cm	0.17 mg/L	2.98 NTU	-164.6 mV	9.78 ft	200.00 ml/min
6/16/2020 1:34 PM	36:29	7.13 pH	15.65 °C	1,948.5 µS/cm	0.17 mg/L	5.71 NTU	-165.3 mV	9.78 ft	200.00 ml/min
6/16/2020 1:37 PM	39:29	7.11 pH	15.88 °C	1,904.4 µS/cm	0.13 mg/L	0.70 NTU	-165.5 mV	9.78 ft	200.00 ml/min

6/16/2020 1:40 PM	42:29	7.10 pH	15.73 °C	1,847.5 µS/cm	0.13 mg/L	0.19 NTU	-166.2 mV	9.78 ft	200.00 ml/min
6/16/2020 1:43 PM	45:30	7.09 pH	15.89 °C	1,927.8 µS/cm	0.13 mg/L	0.89 NTU	-167.0 mV	9.78 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-200	Sample Time: 1350 Final DTW: 9.82 ft btoc Parameters did not stabilize after 45 minutes.

Low-Flow Test Report:

Test Date / Time: 6/16/2020 12:33:06 PM
Project: 2Q20 Seattle Terminal MW-201
Operator Name: Daniel Gilbert

Location Name: MW-201 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 14.8 ft** **Top of Screen: 5 ft** **Total Depth: 19.8 ft** **Initial Depth to Water: 10.6 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 11 ft** **Estimated Total Volume Pumped: 4082.5 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.1 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 467545**

Test Notes:
Initial DTW 10.60
Final DTW 10.70
Sample Time 13:05
Final depth of tubing 11.0 ft

Weather Conditions:
Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/16/2020 12:33 PM	00:00	6.84 pH	18.14 °C	854.64 µS/cm	1.55 mg/L	7.06 NTU	-4.1 mV	10.60 ft	150.00 ml/min
6/16/2020 12:33 PM	00:13	6.83 pH	17.99 °C	857.75 µS/cm	1.51 mg/L	5.37 NTU	-5.2 mV	10.60 ft	150.00 ml/min
6/16/2020 12:36 PM	03:13	6.80 pH	16.93 °C	898.48 µS/cm	0.39 mg/L	3.10 NTU	-15.3 mV	10.60 ft	150.00 ml/min
6/16/2020 12:39 PM	06:13	6.81 pH	16.54 °C	906.53 µS/cm	0.24 mg/L	1.81 NTU	-15.1 mV	10.60 ft	150.00 ml/min
6/16/2020 12:42 PM	09:13	6.81 pH	16.33 °C	903.98 µS/cm	0.20 mg/L	1.81 NTU	-12.7 mV	10.60 ft	150.00 ml/min
6/16/2020 12:45 PM	12:13	6.82 pH	16.19 °C	898.76 µS/cm	0.27 mg/L	1.81 NTU	-8.1 mV	10.60 ft	150.00 ml/min
6/16/2020 12:48 PM	15:13	6.82 pH	16.12 °C	903.16 µS/cm	0.12 mg/L	1.81 NTU	-14.3 mV	10.60 ft	150.00 ml/min
6/16/2020 12:51 PM	18:13	6.82 pH	16.15 °C	913.52 µS/cm	0.13 mg/L	4.63 NTU	-17.8 mV	10.60 ft	150.00 ml/min
6/16/2020 12:54 PM	21:13	6.82 pH	16.14 °C	918.36 µS/cm	0.13 mg/L	1.30 NTU	-19.8 mV	10.60 ft	150.00 ml/min
6/16/2020 12:57 PM	24:13	6.82 pH	16.18 °C	906.69 µS/cm	0.14 mg/L	1.23 NTU	-20.4 mV	10.60 ft	150.00 ml/min
6/16/2020 1:00 PM	27:13	6.83 pH	16.39 °C	892.40 µS/cm	0.14 mg/L	1.33 NTU	-21.9 mV	10.60 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-201	

Low-Flow Test Report:

Test Date / Time: 6/16/2020 11:03:56 AM
Project: 2Q20 Seattle Terminal MW-202
Operator Name: Daniel Gilbert

Location Name: MW-202 **Well Diameter: 2 ft** **Casing Type: PVC** **Screen Length: 19.55 ft** **Top of Screen: 7.8 ft** **Total Depth: 27.35 ft** **Initial Depth to Water: 10.71 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 6300 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.15 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 467545**

Test Notes:
Initial DTW 10.71 ft btoc
Final DTW 10.86 ft btoc
Final depth of tubing 11ft btoc

Weather Conditions:
Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/16/2020 11:03 AM	00:00	7.05 pH	16.67 °C	18,295 µS/cm	1.90 mg/L	1.27 NTU	-99.0 mV	10.71 ft	150.00 ml/min
6/16/2020 11:06 AM	03:00	7.16 pH	15.66 °C	17,751 µS/cm	0.19 mg/L	3.99 NTU	-150.7 mV	10.71 ft	150.00 ml/min
6/16/2020 11:09 AM	06:00	7.19 pH	15.32 °C	16,994 µS/cm	0.09 mg/L	3.81 NTU	-153.9 mV	10.71 ft	150.00 ml/min
6/16/2020 11:12 AM	09:00	7.21 pH	15.17 °C	16,286 µS/cm	0.06 mg/L	3.94 NTU	-156.7 mV	10.71 ft	150.00 ml/min
6/16/2020 11:15 AM	12:00	7.22 pH	15.11 °C	15,648 µS/cm	0.06 mg/L	4.45 NTU	-160.8 mV	10.71 ft	150.00 ml/min
6/16/2020 11:18 AM	15:00	7.23 pH	15.00 °C	15,000 µS/cm	0.05 mg/L	4.06 NTU	-161.2 mV	10.71 ft	150.00 ml/min
6/16/2020 11:21 AM	18:00	7.24 pH	14.90 °C	14,451 µS/cm	0.06 mg/L	62.34 NTU	-160.8 mV	10.71 ft	150.00 ml/min
6/16/2020 11:24 AM	21:00	7.27 pH	15.18 °C	13,355 µS/cm	0.67 mg/L	459.83 NTU	-81.1 mV	10.71 ft	150.00 ml/min
6/16/2020 11:27 AM	24:00	7.26 pH	16.37 °C	17,729 µS/cm	0.23 mg/L	392.71 NTU	-74.1 mV	10.71 ft	150.00 ml/min
6/16/2020 11:30 AM	27:00	7.26 pH	15.19 °C	12,338 µS/cm	0.08 mg/L	496.35 NTU	-71.8 mV	10.71 ft	150.00 ml/min
6/16/2020 11:33 AM	30:00	7.27 pH	15.02 °C	11,719 µS/cm	0.06 mg/L	510.98 NTU	-72.4 mV	10.71 ft	150.00 ml/min
6/16/2020 11:36 AM	33:00	7.27 pH	14.93 °C	11,312 µS/cm	0.05 mg/L	762.89 NTU	-77.7 mV	10.71 ft	150.00 ml/min

6/16/2020 11:39 AM	36:00	7.28 pH	14.87 °C	10,917 µS/cm	0.04 mg/L	526.11 NTU	-82.1 mV	10.71 ft	150.00 ml/min
6/16/2020 11:42 AM	39:00	7.28 pH	14.86 °C	10,634 µS/cm	0.03 mg/L	520.16 NTU	-83.9 mV	10.71 ft	150.00 ml/min
6/16/2020 11:45 AM	42:00	7.28 pH	14.64 °C	10,492 µS/cm	0.03 mg/L	530.75 NTU	-85.5 mV	10.71 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-202	Specific conductivity did not stabilize after 42 mins

Low-Flow Test Report:

Test Date / Time: 6/16/2020 1:41:27 PM
Project: 2Q20 Seattle Terminal MW-203
Operator Name: Daniel Gilbert

Location Name: MW-203 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 10.5 ft** **Total Depth: 25.5 ft** **Initial Depth to Water: 13.7 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 14 ft** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 467545**

Test Notes:
Initial DTW 13.70 ft btoc
Final DTW 13.58 ft btoc
Final depth of tubing 14.0 ft btoc
Sample Time 14:30

Weather Conditions:
Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/16/2020 1:41 PM	00:00	7.21 pH	19.45 °C	958.89 µS/cm	1.26 mg/L	17.22 NTU	21.3 mV	13.70 ft	150.00 ml/min
6/16/2020 1:44 PM	03:00	7.21 pH	18.30 °C	992.63 µS/cm	0.26 mg/L	5.62 NTU	6.2 mV	13.70 ft	150.00 ml/min
6/16/2020 1:47 PM	06:00	7.22 pH	18.13 °C	1,036.2 µS/cm	0.31 mg/L	7.14 NTU	-30.9 mV	13.70 ft	150.00 ml/min
6/16/2020 1:50 PM	09:00	7.23 pH	17.83 °C	1,049.4 µS/cm	0.24 mg/L	27.07 NTU	-39.4 mV	13.70 ft	150.00 ml/min
6/16/2020 1:53 PM	12:00	7.24 pH	17.65 °C	1,056.6 µS/cm	0.18 mg/L	36.23 NTU	-50.1 mV	13.70 ft	150.00 ml/min
6/16/2020 1:56 PM	15:00	7.25 pH	17.56 °C	1,053.5 µS/cm	0.16 mg/L	56.65 NTU	-56.4 mV	13.70 ft	150.00 ml/min
6/16/2020 1:59 PM	18:00	7.26 pH	17.71 °C	1,045.4 µS/cm	0.14 mg/L	74.67 NTU	-57.9 mV	13.70 ft	150.00 ml/min
6/16/2020 2:02 PM	21:00	7.27 pH	17.73 °C	1,044.0 µS/cm	0.12 mg/L	92.56 NTU	-54.3 mV	13.70 ft	150.00 ml/min
6/16/2020 2:05 PM	24:00	7.27 pH	17.63 °C	1,038.7 µS/cm	0.12 mg/L	112.15 NTU	-59.0 mV	13.70 ft	150.00 ml/min
6/16/2020 2:08 PM	27:00	7.28 pH	17.28 °C	1,043.9 µS/cm	0.14 mg/L	115.37 NTU	-64.6 mV	13.70 ft	150.00 ml/min
6/16/2020 2:11 PM	30:00	7.28 pH	17.22 °C	1,054.3 µS/cm	0.06 mg/L	115.17 NTU	-67.3 mV	13.70 ft	150.00 ml/min
6/16/2020 2:14 PM	33:00	7.29 pH	17.18 °C	1,072.8 µS/cm	0.03 mg/L	146.55 NTU	-65.4 mV	13.70 ft	150.00 ml/min

6/16/2020 2:17 PM	36:00	7.29 pH	17.15 °C	1,084.4 µS/cm	0.02 mg/L	162.69 NTU	-66.0 mV	13.70 ft	150.00 ml/min
6/16/2020 2:20 PM	39:00	7.30 pH	17.16 °C	1,082.7 µS/cm	0.02 mg/L	196.32 NTU	-64.2 mV	13.70 ft	150.00 ml/min
6/16/2020 2:23 PM	42:00	7.30 pH	17.11 °C	1,080.9 µS/cm	0.01 mg/L	200.83 NTU	-64.3 mV	13.70 ft	150.00 ml/min
6/16/2020 2:26 PM	45:00	7.31 pH	17.13 °C	1,087.5 µS/cm	0.01 mg/L	253.23 NTU	-64.7 mV	13.70 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-203	Specific conductivity and turbidity did not stabilize after 42 minutes

Low-Flow Test Report:

Test Date / Time: 6/16/2020 2:18:46 PM
Project: 2Q20 Seattle Terminal MW-204
Operator Name: Ryan Brauchla

Location Name: MW-204 **Latitude: 47.6162672193601** **Longitude: -122.356766425073** **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 13.55 ft** **Top of Screen: 17.35 ft** **Total Depth: 30.9 ft** **Initial Depth to Water: 19.3 ft**	**Pump Type: peristaltic** **Tubing Type: 0.17-inch** **Pump Intake From TOC: 19.5 ft** **Estimated Total Volume Pumped: 8903.333 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: -0.1 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697450**

Test Notes:
Turbidity did not stabilize after 45 minutes

Weather Conditions:
70F, clear

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/16/2020 2:18 PM	00:00	6.86 pH	14.78 °C	502.89 µS/cm	0.99 mg/L	68.98 NTU	-74.5 mV	19.30 ft	200.00 ml/min
6/16/2020 2:21 PM	03:00	6.86 pH	14.62 °C	488.75 µS/cm	0.25 mg/L	3.40 NTU	-95.9 mV	19.30 ft	200.00 ml/min
6/16/2020 2:24 PM	06:00	6.85 pH	14.66 °C	488.56 µS/cm	0.19 mg/L	1.69 NTU	-99.3 mV	19.30 ft	200.00 ml/min
6/16/2020 2:27 PM	09:00	6.84 pH	14.43 °C	487.34 µS/cm	0.16 mg/L	1.64 NTU	-100.5 mV	19.30 ft	200.00 ml/min
6/16/2020 2:30 PM	12:00	6.83 pH	14.39 °C	486.69 µS/cm	0.13 mg/L	3.98 NTU	-100.8 mV	19.30 ft	200.00 ml/min
6/16/2020 2:33 PM	15:00	6.81 pH	14.73 °C	489.49 µS/cm	0.11 mg/L	1.37 NTU	-100.8 mV	19.30 ft	200.00 ml/min
6/16/2020 2:36 PM	18:00	6.79 pH	14.31 °C	487.19 µS/cm	0.09 mg/L	16.42 NTU	-100.2 mV	19.30 ft	200.00 ml/min
6/16/2020 2:39 PM	21:00	6.79 pH	14.11 °C	486.79 µS/cm	0.16 mg/L	11.30 NTU	-99.9 mV	19.30 ft	200.00 ml/min
6/16/2020 2:42 PM	24:00	6.79 pH	14.04 °C	486.54 µS/cm	0.16 mg/L	1.48 NTU	-100.1 mV	19.30 ft	200.00 ml/min
6/16/2020 2:45 PM	27:00	6.78 pH	14.10 °C	485.89 µS/cm	0.15 mg/L	67.42 NTU	-99.9 mV	19.30 ft	200.00 ml/min
6/16/2020 2:48 PM	30:00	6.78 pH	14.15 °C	486.81 µS/cm	0.12 mg/L	0.95 NTU	-100.0 mV	19.30 ft	200.00 ml/min
6/16/2020 2:51 PM	33:00	6.77 pH	14.21 °C	485.85 µS/cm	0.15 mg/L	36.57 NTU	-99.5 mV	19.30 ft	200.00 ml/min
6/16/2020 2:54 PM	36:01	6.76 pH	14.53 °C	485.76 µS/cm	0.20 mg/L	39.95 NTU	-98.9 mV	19.30 ft	200.00 ml/min

6/16/2020 2:57 PM	39:01	6.77 pH	14.69 °C	483.41 µS/cm	0.23 mg/L	36.88 NTU	-98.5 mV	19.30 ft	200.00 ml/min
6/16/2020 3:00 PM	41:31	6.77 pH	14.62 °C	484.58 µS/cm	0.22 mg/L	32.98 NTU	-98.4 mV	19.30 ft	200.00 ml/min
6/16/2020 3:03 PM	44:31	6.78 pH	14.48 °C	481.30 µS/cm	0.22 mg/L	34.72 NTU	-98.5 mV	19.30 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-204	Sample Time:1505 Final DTW: 19.20 ft bgs Parameters (turbidity) did not stabilize after 45 minutes

Low-Flow Test Report:

Test Date / Time: 6/16/2020 3:27:28 PM
Project: 2Q20 Seattle Terminal MW-203 (2)
Operator Name: Daniel Gilbert

Location Name: MW-205 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 20.5 ft** **Top of Screen: 18 ft** **Total Depth: 38.5 ft** **Initial Depth to Water: 23.05 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 23.5 ft** **Estimated Total Volume Pumped: 6300 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.08 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 467545**

Test Notes:
Initial DTW 23.05
Final DTW 23.13
Final depth of tubing 23.5 ft btoc
Sample Time 16:20

Weather Conditions:
Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/16/2020 3:27 PM	00:00	6.93 pH	18.53 °C	619.09 µS/cm	0.49 mg/L	287.54 NTU	-45.0 mV	23.05 ft	150.00 ml/min
6/16/2020 3:30 PM	03:00	6.86 pH	17.27 °C	631.42 µS/cm	0.22 mg/L	1,955.8 NTU	-57.6 mV	23.05 ft	150.00 ml/min
6/16/2020 3:33 PM	06:00	6.83 pH	16.36 °C	639.74 µS/cm	0.16 mg/L	23.65 NTU	-74.4 mV	23.05 ft	150.00 ml/min
6/16/2020 3:36 PM	09:00	6.79 pH	16.23 °C	644.14 µS/cm	0.09 mg/L	19.74 NTU	-78.9 mV	23.05 ft	150.00 ml/min
6/16/2020 3:39 PM	12:00	6.78 pH	15.98 °C	638.77 µS/cm	0.07 mg/L	1,048.1 NTU	-92.1 mV	23.05 ft	150.00 ml/min
6/16/2020 3:42 PM	15:00	6.80 pH	15.88 °C	634.67 µS/cm	0.07 mg/L	18.79 NTU	-96.1 mV	23.05 ft	150.00 ml/min
6/16/2020 3:45 PM	18:00	6.82 pH	15.92 °C	629.94 µS/cm	0.08 mg/L	170.00 NTU	-90.6 mV	23.05 ft	150.00 ml/min
6/16/2020 3:48 PM	21:00	6.84 pH	16.00 °C	597.65 µS/cm	0.14 mg/L	1,300.0 NTU	-95.1 mV	23.05 ft	150.00 ml/min
6/16/2020 3:51 PM	24:00	6.88 pH	16.04 °C	590.88 µS/cm	0.13 mg/L	20.87 NTU	-101.5 mV	23.05 ft	150.00 ml/min
6/16/2020 3:54 PM	27:00	6.89 pH	15.93 °C	589.08 µS/cm	0.07 mg/L	127.76 NTU	-104.2 mV	23.05 ft	150.00 ml/min
6/16/2020 3:57 PM	30:00	6.92 pH	15.91 °C	584.71 µS/cm	0.04 mg/L	18.59 NTU	-110.6 mV	23.05 ft	150.00 ml/min
6/16/2020 4:00 PM	33:00	6.94 pH	15.83 °C	578.86 µS/cm	0.02 mg/L	26.37 NTU	-105.4 mV	23.05 ft	150.00 ml/min

6/16/2020 4:03 PM	36:00	6.97 pH	15.80 °C	573.35 µS/cm	0.01 mg/L	487.81 NTU	-108.5 mV	23.05 ft	150.00 ml/min
6/16/2020 4:06 PM	39:00	6.99 pH	15.75 °C	566.59 µS/cm	0.00 mg/L	26.09 NTU	-109.6 mV	23.05 ft	150.00 ml/min
6/16/2020 4:09 PM	42:00	7.01 pH	15.90 °C	559.76 µS/cm	0.00 mg/L	33.68 NTU	-108.7 mV	23.05 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-205	Turbidity did not stabilize after 42 minutes

Low-Flow Test Report:

Test Date / Time: 6/16/2020 10:55:27 AM
Project: 2Q20 Seattle Terminal MW-206
Operator Name: Ryan Brauchla

Location Name: MW-206 **Latitude: 47.6162120735767** **Longitude: -122.356990389526** **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 14.8 ft** **Top of Screen: 11 ft** **Total Depth: 25.8 ft** **Initial Depth to Water: 12.75 ft**	**Pump Type: peristaltic** **Tubing Type: 0.17-inch** **Pump Intake From TOC: 13 ft** **Estimated Total Volume Pumped: 8740 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: -0.15 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697450**

Test Notes:
Parameters did not stabilize after 45 minutes.

Weather Conditions:
63F, mostly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/16/2020 10:55 AM	00:00	6.96 pH	14.17 °C	34,047 µS/cm	1.76 mg/L	0.49 NTU	37.4 mV	12.75 ft	200.00 ml/min
6/16/2020 10:57 AM	01:38	6.96 pH	14.15 °C	34,064 µS/cm	1.64 mg/L	0.00 NTU	-1.5 mV	12.75 ft	200.00 ml/min
6/16/2020 11:00 AM	04:40	6.96 pH	14.18 °C	34,265 µS/cm	1.46 mg/L	0.00 NTU	-46.9 mV	12.75 ft	200.00 ml/min
6/16/2020 11:03 AM	07:40	6.96 pH	14.26 °C	34,255 µS/cm	1.36 mg/L	0.00 NTU	-71.0 mV	12.75 ft	200.00 ml/min
6/16/2020 11:06 AM	10:40	6.96 pH	14.45 °C	34,068 µS/cm	1.33 mg/L	0.00 NTU	-78.3 mV	12.75 ft	200.00 ml/min
6/16/2020 11:09 AM	13:40	6.96 pH	15.01 °C	33,574 µS/cm	1.45 mg/L	0.00 NTU	-74.0 mV	12.75 ft	200.00 ml/min
6/16/2020 11:12 AM	16:40	6.96 pH	15.42 °C	32,851 µS/cm	1.77 mg/L	0.00 NTU	-38.0 mV	12.75 ft	200.00 ml/min
6/16/2020 11:15 AM	19:40	6.96 pH	15.56 °C	32,713 µS/cm	1.82 mg/L	0.00 NTU	-8.7 mV	12.75 ft	200.00 ml/min
6/16/2020 11:18 AM	22:40	6.96 pH	15.80 °C	32,573 µS/cm	1.87 mg/L	0.00 NTU	5.6 mV	12.75 ft	200.00 ml/min
6/16/2020 11:21 AM	25:40	6.97 pH	14.89 °C	32,617 µS/cm	1.91 mg/L	0.00 NTU	39.0 mV	12.75 ft	200.00 ml/min
6/16/2020 11:24 AM	28:40	6.97 pH	14.70 °C	32,955 µS/cm	1.65 mg/L	0.00 NTU	-37.4 mV	12.75 ft	200.00 ml/min
6/16/2020 11:27 AM	31:40	6.97 pH	15.03 °C	32,680 µS/cm	1.76 mg/L	0.00 NTU	-33.4 mV	12.75 ft	200.00 ml/min
6/16/2020 11:30 AM	34:40	6.98 pH	14.40 °C	33,501 µS/cm	1.40 mg/L	0.00 NTU	-62.8 mV	12.75 ft	200.00 ml/min

6/16/2020 11:33 AM	37:41	6.96 pH	14.48 °C	36,195 µS/cm	0.63 mg/L	1.47 NTU	-98.1 mV	12.75 ft	200.00 ml/min
6/16/2020 11:36 AM	40:41	6.99 pH	14.90 °C	35,312 µS/cm	0.31 mg/L	12.25 NTU	-116.3 mV	12.75 ft	200.00 ml/min
6/16/2020 11:39 AM	43:42	6.99 pH	14.75 °C	34,195 µS/cm	1.03 mg/L	2.80 NTU	-104.9 mV	12.75 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-206	Sample Time :1140 Final DTW: 12.60 ft btoc Parameters did not stabilize after 45 minutes.

Low-Flow Test Report:

Test Date / Time: 6/16/2020 9:48:06 AM
Project: 2Q20 Seattle Terminal MW-207
Operator Name: Daniel Gilbert

Location Name: MW-207 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 13.77 ft** **Top of Screen: 9.5 ft** **Total Depth: 23.27 ft** **Initial Depth to Water: 12.51 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 6300 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.4 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 467545**

Test Notes:
Initial DTW 12.51

Weather Conditions:
Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/16/2020 9:48 AM	00:00	7.03 pH	16.61 °C	24,087 µS/cm	3.64 mg/L	11.33 NTU	-59.3 mV	12.51 ft	150.00 ml/min
6/16/2020 9:51 AM	03:00	6.99 pH	15.17 °C	24,150 µS/cm	0.43 mg/L	3.50 NTU	-112.5 mV	12.51 ft	150.00 ml/min
6/16/2020 9:54 AM	06:00	7.01 pH	14.57 °C	24,299 µS/cm	0.39 mg/L	4.40 NTU	-117.7 mV	12.51 ft	150.00 ml/min
6/16/2020 9:57 AM	09:00	7.02 pH	14.35 °C	24,424 µS/cm	0.41 mg/L	4.72 NTU	-118.6 mV	12.51 ft	150.00 ml/min
6/16/2020 10:00 AM	12:00	7.03 pH	14.21 °C	24,029 µS/cm	0.39 mg/L	3.33 NTU	-122.3 mV	12.51 ft	150.00 ml/min
6/16/2020 10:03 AM	15:00	7.03 pH	14.26 °C	23,817 µS/cm	0.72 mg/L	5.15 NTU	-117.9 mV	12.51 ft	150.00 ml/min
6/16/2020 10:06 AM	18:00	7.04 pH	14.21 °C	23,638 µS/cm	0.71 mg/L	3.56 NTU	-115.6 mV	12.51 ft	150.00 ml/min
6/16/2020 10:09 AM	21:00	7.05 pH	14.22 °C	23,554 µS/cm	1.05 mg/L	5.33 NTU	-120.9 mV	12.51 ft	150.00 ml/min
6/16/2020 10:12 AM	24:00	7.05 pH	14.18 °C	23,385 µS/cm	1.09 mg/L	5.34 NTU	-121.7 mV	12.51 ft	150.00 ml/min
6/16/2020 10:15 AM	27:00	7.06 pH	14.16 °C	22,748 µS/cm	1.12 mg/L	4.72 NTU	-118.7 mV	12.51 ft	150.00 ml/min
6/16/2020 10:18 AM	30:00	7.07 pH	14.13 °C	22,430 µS/cm	0.81 mg/L	5.23 NTU	-119.0 mV	12.51 ft	150.00 ml/min
6/16/2020 10:21 AM	33:00	7.07 pH	14.12 °C	22,218 µS/cm	0.49 mg/L	5.26 NTU	-122.9 mV	12.51 ft	150.00 ml/min
6/16/2020 10:24 AM	36:00	7.08 pH	14.09 °C	21,821 µS/cm	0.59 mg/L	5.41 NTU	-121.7 mV	12.51 ft	150.00 ml/min

6/16/2020 10:27 AM	39:00	7.08 pH	14.17 °C	21,614 µS/cm	0.51 mg/L	4.75 NTU	-124.7 mV	12.51 ft	150.00 ml/min
6/16/2020 10:30 AM	42:00	7.09 pH	14.11 °C	21,314 µS/cm	0.39 mg/L	5.18 NTU	-123.9 mV	12.51 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-207	Sample Time 10:40 Final DTW 12.91 ft btoc Final depth of tubing 13.0 ft btoc

Low-Flow Test Report:

Test Date / Time: 6/17/2020 10:42:13 AM
Project: 2Q20 Seattle Terminal MW-209
Operator Name: Daniel Gilbert

Location Name: MW-209 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 3 ft** **Total Depth: 18 ft** **Initial Depth to Water: 10.09 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 10.5 ft** **Estimated Total Volume Pumped: 7792.5 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.15 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 467545**

Test Notes:
Initial DTW 10.09 ft btoc
Final DTW 10.24
Final depth of tubing 10.50
Sample Time 11:30

Weather Conditions:
Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/17/2020 10:42 AM	00:00	6.84 pH	14.92 °C	539.39 µS/cm		8.77 NTU	59.6 mV	10.09 ft	150.00 ml/min
6/17/2020 11:34 AM	51:57	7.10 pH	19.72 °C	0.29 µS/cm	9.86 mg/L	2.37 NTU	47.3 mV	10.09 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-209	Aqua troll technical issue did not allow for logging of parameters due to faulty sensors. Continued purging for 45 minutes before collecting sample

Low-Flow Test Report:

Test Date / Time: 6/17/2020 11:42:43 AM
Project: 2Q20 Seattle Terminal MW-210
Operator Name: Ryan Brauchla

Location Name: MW-210 **Latitude: 47.6161354570024** **Longitude: -122.356478758156** **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 3 ft** **Total Depth: 18 ft** **Initial Depth to Water: 9.48 ft**	**Pump Type: peristaltic** **Tubing Type: 0.17-inch** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 8656.667 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 3 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697450**

Test Notes:
Parameters did not stabilize after 45 minutes

Weather Conditions:
69F, clear

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/17/2020 11:42 AM	00:00	6.77 pH	18.53 °C	397.80 µS/cm	0.84 mg/L	17.89 NTU	-113.4 mV	9.48 ft	200.00 ml/min
6/17/2020 11:43 AM	01:09	6.47 pH	15.42 °C	339.99 µS/cm	0.73 mg/L	7.56 NTU	-65.8 mV	9.48 ft	200.00 ml/min
6/17/2020 11:46 AM	04:09	6.45 pH	15.82 °C	360.66 µS/cm	1.24 mg/L	117.79 NTU	-43.7 mV	9.48 ft	200.00 ml/min
6/17/2020 11:49 AM	07:09	6.43 pH	16.97 °C	407.17 µS/cm	2.81 mg/L	5.61 NTU	-9.4 mV	9.48 ft	200.00 ml/min
6/17/2020 11:52 AM	10:09	6.42 pH	17.76 °C	404.81 µS/cm	3.80 mg/L	5.76 NTU	13.4 mV	9.48 ft	200.00 ml/min
6/17/2020 11:55 AM	13:09	6.47 pH	14.88 °C	404.35 µS/cm	0.58 mg/L	8.13 NTU	0.8 mV	9.48 ft	200.00 ml/min
6/17/2020 11:58 AM	16:09	6.49 pH	15.19 °C	412.31 µS/cm	0.25 mg/L	4.91 NTU	-18.7 mV	9.48 ft	200.00 ml/min
6/17/2020 12:01 PM	19:09	6.46 pH	15.37 °C	419.26 µS/cm	1.16 mg/L	4.72 NTU	-18.3 mV	9.48 ft	200.00 ml/min
6/17/2020 12:04 PM	22:09	6.50 pH	15.27 °C	402.39 µS/cm	0.91 mg/L	2.45 NTU	-8.7 mV	9.48 ft	200.00 ml/min
6/17/2020 12:07 PM	25:13	6.52 pH	14.49 °C	407.71 µS/cm	0.17 mg/L	4.64 NTU	-21.8 mV	9.48 ft	200.00 ml/min
6/17/2020 12:10 PM	28:13	6.47 pH	15.15 °C	403.55 µS/cm	1.36 mg/L	4.72 NTU	-13.7 mV	9.48 ft	200.00 ml/min
6/17/2020 12:13 PM	31:13	6.47 pH	16.20 °C	403.91 µS/cm	2.62 mg/L	2.46 NTU	3.2 mV	9.48 ft	200.00 ml/min
6/17/2020 12:16 PM	34:14	6.45 pH	14.64 °C	385.90 µS/cm	0.24 mg/L	1.53 NTU	-2.6 mV	9.48 ft	200.00 ml/min

6/17/2020 12:19 PM	37:15	6.50 pH	14.57 °C	406.29 µS/cm	0.14 mg/L	4.67 NTU	-21.0 mV	9.48 ft	200.00 ml/min
6/17/2020 12:22 PM	40:16	6.48 pH	14.42 °C	395.29 µS/cm	0.27 mg/L	2.93 NTU	-25.4 mV	9.48 ft	200.00 ml/min
6/17/2020 12:26 PM	43:17	6.40 pH	15.40 °C	387.35 µS/cm	1.92 mg/L	2.19 NTU	2.9 mV	9.48 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-210	Sample Time:1230 Final DTW: 12.75 ft btoc Parameters did not stabilize after 45 minutes

Low-Flow Test Report:

Test Date / Time: 6/17/2020 10:30:16 AM
Project: 2Q20 Seattle Terminal MW-211
Operator Name: Ryan Brauchla

Location Name: MW-211 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 3 ft** **Total Depth: 18 ft** **Initial Depth to Water: 9.6 ft**	**Pump Type: peristaltic** **Tubing Type: 0.17-inch** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 9000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.15 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697450**

Test Notes:
DO did not stabilize after 45 minutes

Weather Conditions:
65F overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10		
6/17/2020 10:30 AM	00:00	7.40 pH	14.40 °C	551.95 µS/cm	1.56 mg/L	2.62 NTU	86.3 mV	9.60 ft	200.00 ml/min
6/17/2020 10:33 AM	03:00	7.50 pH	14.13 °C	558.21 µS/cm	0.37 mg/L	0.79 NTU	-5.4 mV	9.60 ft	200.00 ml/min
6/17/2020 10:36 AM	06:00	7.52 pH	14.06 °C	558.69 µS/cm	0.28 mg/L	0.53 NTU	-47.1 mV	9.60 ft	200.00 ml/min
6/17/2020 10:39 AM	09:00	7.54 pH	14.06 °C	558.52 µS/cm	0.26 mg/L	0.00 NTU	-73.6 mV	9.60 ft	200.00 ml/min
6/17/2020 10:42 AM	12:00	7.57 pH	14.10 °C	558.49 µS/cm	0.24 mg/L	0.00 NTU	-91.5 mV	9.60 ft	200.00 ml/min
6/17/2020 10:45 AM	15:00	7.57 pH	14.15 °C	559.00 µS/cm	0.19 mg/L	0.00 NTU	-102.9 mV	9.60 ft	200.00 ml/min
6/17/2020 10:48 AM	18:00	7.56 pH	14.19 °C	558.63 µS/cm	0.23 mg/L	0.00 NTU	-109.5 mV	9.60 ft	200.00 ml/min
6/17/2020 10:51 AM	21:00	7.58 pH	14.21 °C	558.70 µS/cm	0.20 mg/L	0.00 NTU	-117.9 mV	9.60 ft	200.00 ml/min
6/17/2020 10:54 AM	24:00	7.58 pH	14.22 °C	558.82 µS/cm	0.16 mg/L	0.00 NTU	-124.2 mV	9.60 ft	200.00 ml/min
6/17/2020 10:57 AM	27:00	7.58 pH	14.29 °C	558.68 µS/cm	0.18 mg/L	0.00 NTU	-128.3 mV	9.60 ft	200.00 ml/min
6/17/2020 11:00 AM	30:00	7.57 pH	14.54 °C	558.78 µS/cm	0.22 mg/L	0.00 NTU	-131.2 mV	9.60 ft	200.00 ml/min
6/17/2020 11:03 AM	33:00	7.59 pH	14.41 °C	558.86 µS/cm	0.18 mg/L	0.00 NTU	-138.0 mV	9.60 ft	200.00 ml/min
6/17/2020 11:06 AM	36:00	7.59 pH	14.25 °C	558.91 µS/cm	0.15 mg/L	0.00 NTU	-141.2 mV	9.60 ft	200.00 ml/min

6/17/2020 11:09 AM	39:00	7.59 pH	14.25 °C	558.33 µS/cm	0.14 mg/L	0.00 NTU	-144.3 mV	9.60 ft	200.00 ml/min
6/17/2020 11:12 AM	42:00	7.58 pH	14.35 °C	558.78 µS/cm	0.15 mg/L	0.00 NTU	-146.6 mV	9.60 ft	200.00 ml/min
6/17/2020 11:15 AM	45:00	7.59 pH	14.26 °C	558.36 µS/cm	0.13 mg/L	0.00 NTU	-149.8 mV	9.60 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-211	Sample Time: 1115 Final DTW: 9.75 ft btoc Parameters (DO) did not stabilize after 45 minutes

3/24/2020 1Q20 Seattle Terminal GWM

Daniel Sly Gilbert
Ophélie Encelle

1300 - ANA onsite. Don PPE, conduct Health and safety tailgate meeting

1330 - Prep for sampling round

1345 - Begin sampling round

1440 - Sample MW-70R, DUP-1 collected

1500 - Begin packing up

1530 - ANA offsite

Methodology: Groundwater samples were collected using LFP techniques with dedicated tubing, a peristaltic pump; and an Aquatroll 600 Multimeter. All wells were gauged with an oil / water interface probe. Wells were sampled within the screened interval. The polyethylene tubing was in each well such that the intake depth was 6" below the water level. All samples were stored on ice. Wells were sampled for GRO, DRO/HO, BTEX, and cPAHs.

3/25/2020 1Q 20 Seattle Terminal GWM

Daniel Sly Gi...
Riku Kusakabe

7:45 - Arrive onsite, don PPE

8:00 - complete Health and Safety tailgate

8:30 - Remove socks from MW-61A-R, MW-30

9:15 - prepared for sampling round, Met BNSF Flagger

9:25 - Begin sampling round

10:15 - Sample MW-210

10:20 - Sample MW-211

11:40 - Sample MW-209, return to vehicle

12:30 - Begin gauging Round

well ID	time	DTW (ft)	DTP (ft)	PID	Notes
MW-70R	1233	11.58	—	0.0	water in well box
MW-207	1238	11.82	—	0.0	water in well box
MW-206	1244	12.10	—	0.0	water in well box
MW-202	1247	9.89	—	0.0	3plug loose water in well box
MW-200	1301	9.22	—	0.0	water in well box
MW-201	1310	9.94	—	0.0	water in well box
MW-203	1315	12.95	—	0.0	water in well box
MW-204	1325	18.88	—	1.8	water in well box
MW-205	1331	22.84	—	0.0	water in well box
MW-211	1346	9.28	—	0.0	
MW-210	1350	9.47	—	0.0	

Gauging continued

Well ID	Time	DTW (ft)	DTP (ft)	PID	Notes
MW-209	1354	9.80	–	0.0	
MW-61A-R	1404	13.59	–	63.7	
MW-30	1419	13.19	–	1.9	Evidence of product in well black, tar like substance non-measurable thickness

1425 - socks added to MW-61A-R and MW-30

1445 - pack field vehicles

1500 - ANA offsite

Methodology: Groundwater samples were collected using low flow purge techniques with dedicated tubing, a peristaltic pump, and an Aquatroll 600 Multimeter. All wells were sampled within their screened interval. The polyethylene tubing was in each well such that intake depth was within 6 inches of the water level. All samples were immediately stored on ice. Wells were sampled for GRO, DRO/HO, BTEX, and cPAHs.

Drum Inventory: During sampling approximately 12 gallons of purge water was produced during 1Q20 GWM activities. Purged groundwater was stored in a 30-gallon steel drum (new), and was accepted by Emerald services in Seattle for disposal on 3/25.

David S G Grant 3/26

6/16/20 2Q20 Seattle Terminal GWM

Daniel Sly, Gilbert
Ryan Brantley
70°F partly cloudy

830	Arrive on site, don PPE, complete H+S Tailgate prepare for sampling round
930	Begin sampling round
1000	Sample MW-70R, Dup-1 collected
1040	Sample MW-207
1140	Sample MW-206
1146	Sample MW-202
1305	Sample MW-201
1350	Sample MW-200
1430	Sample MW-203
1505	Sample MW-~~205~~ DSG 204
1620	Sample MW-205, begin packing up
1700	Remove socks from MW-30, MW-61-A-R
1720	~~A~~N/A offsite

Daniel Sly

6/17/20 2Q20 Seattle Terminal GWM

Daniel Sly Gilbert
Ryan Brawnlia
70°F Partly cloudy

815 Arrive on site, don PPE, Health and Safety tailgate

850 Begin gauging round

Well ID	Time	DTW (ft)	DTP (ft)	PID	Notes
MW-70R	8:51	11.93	—	0.0	
MW-207	8:53	12.25	—	0.0	
MW-206 DSG	8:55	12.39	—	0.1	
MW-202 DSG	8:57	10.37	—	0.0	
MW-200 DSG	8:59	9.31	—	0.0	
MW-203 DSG	9:10	8.05	—	0.0	
MW-204	9:13	19.00	—	2.8	
MW-205	9:17	22.94	—	0.9	
MW-201	9:03	9.94	—	0.0	
MW-61A-R	9:33	14.48	14.46	245	Unable to verify with bailer
MW-30	9:51	13.80	13.79	0.0	tar on interface probe
MW-211	10:16	9.58	—	0.0	
MW-210	10:18	9.24	—	0.6	
MW-209	10:20	10.09	—	0.0	

1025 Begin Groundwater samping round

1115 Sample MW-211

1130 sample MW-209

1230 sample MW-210

1300 Packed up and left site

Methodology: Groundwater samples were collected using low flow purge techniques with dedicated tubing, a peristaltic pump, and an Aquatroll 600 Multimeter. The polyethylene tubing was in each well such that intake depth was within 6 inches of the water level. All wells were sampled within their screened interval. Samples were immediately stored on ice to be analyzed for BTEX, DRO, HO, and cPAHs.

Drum Inventory: Approximately 25 gallons of purge water was produced during the 2Q20 event. Groundwater was stored in a new 30 gallon steel drum, and removed from site

Daniel S Gilbert

APPENDIX C

Historical Groundwater Analytical Results

Appendix C
Summary of Historical 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	-3.20	--
(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	-3.94	--
(11.29)	03/20/03	13:00	12.59	NR	NR	-1.30	--
	07/03/03	11:18	14.30	NR	NR	-3.01	--
	09/18/03	10:36	14.70	NR	NR	-3.41	--
	12/02/03	11:23	12.20	NR	NR	-0.91	--
	03/09/04	10:58	13.81	NR	NR	-2.52	--
	06/03/04	11:44	14.60	NR	NR	-3.31	--
	09/03/04	13:42	9.85	NR	NR	1.44	--
	12/06/04	9:37	15.27	NR	NR	-3.98	--
	03/04/05	14:08	14.33	NR	NR	-3.04	--
	06/03/05	--	14.47	NR	NR	-3.18	--
	09/01/05	10:05	15.05	NR	NR	-3.76	--
	12/01/05	11:23	11.98	NR	NR	-0.69	--
	03/02/06	11:28	14.53	NR	NR	-3.24	--
	06/06/06	8:20	14.16	NR	NR	-2.87	--
	09/15/06	--	14.10	NR	NR	-2.81	--
	03/07/07	8:55	13.74	Sheen	--	-2.45	--
	06/07/07	8:43	13.87	--	--	-2.58	--
	07/10/07	9:45	14.21	--	--	-2.92	--
	07/25/07	11:35	13.94	--	--	-2.65	--
	08/22/07	9:35	14.15	--	--	-2.86	--
	09/06/07	9:50	14.25	--	--	-2.96	--
	09/26/07	9:30	14.52	--	--	-3.23	--
	10/11/07	7:55	14.22	--	--	-2.93	--
	11/01/07	9:50	14.29	--	--	-3.00	--
	11/16/07	15:25	13.85	--	--	-2.56	--
	11/26/07	13:40	13.90	--	--	-2.61	--
	12/19/07	9:30	12.59	--	--	-1.30	--
	01/03/08	8:30	12.60	--	--	-1.31	--
	01/17/08	8:48	12.53	--	--	-1.24	--
	01/30/08	9:30	13.10	Sheen	--	-1.81	--
	02/12/08	9:28	13.39	Sheen	--	-2.10	--
	03/03/08	9:31	13.80	--	--	-2.51	--
	03/17/08	9:29	13.99	--	--	-2.70	--
	04/01/08	9:13	13.78	--	--	-2.49	--
	04/14/08	9:14	13.97	--	--	-2.68	--
	04/28/08	9:56	14.18	--	--	-2.89	--
(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	--

Appendix C
Summary of Historical 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)	08/20/09	8:41	14.18	--	--	6.67	--
(20.85)[8]	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	--
	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	--
	09/22/16	13:13	14.35	--	--	6.50	--
	01/12/17	12:44	--	LNAPL	--	--	--
	03/27/17	13:13	10.71	LNAPL	--	10.14	15.85
	06/16/17	9:46	13.39	13.38	--	7.46	15.85
	11/07/17	13:18	13.97	--	--	6.88	15.85
	03/26/18	8:46	13.48	--	--	7.37	15.85
	06/19/18	16:05	13.90	LNAPL	--	6.95	15.85
	09/27/18	12:49	14.01	--	--	6.84	15.85
	12/12/18	15:28	12.87	--	--	7.98	15.85
	03/25/19	15:40	13.05	LNAPL	--	7.80	15.85
	06/24/19	17:21	13.50	LNAPL	--	7.35	15.85
	09/25/19	9:26	13.69	--	--	7.16	15.85
	12/16/19	13:57	13.66	--	--	7.19	15.85
	03/25/20	**14:19**	**13.19**	**--**	**--**	**7.66**	**15.85**
	06/17/20	**9:51**	**13.80**	**13.79**	**0.01**	**7.06**	**15.85**
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	--

Appendix C
Summary of Historical 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-42 (continued)	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	--
(5.20)	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	--	--
	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	-1.81	1.91
(13.35)	06/06/06	8:00	14.96	NR	NR	-1.61	--
	09/15/06	--	14.26	NR	NR	-0.91	--
	03/07/07	8:44	14.04	--	NR	-0.69	--
	06/07/07	9:15	14.36	--	NR	-1.01	--
	07/10/07	9:50	14.84	--	NR	-1.49	--
	07/25/07	11:40	14.55	--	NR	-1.20	--
	08/22/07	9:40	14.72	--	NR	-1.37	--
	09/06/07	9:55	14.90	--	NR	-1.55	--
	09/26/07	9:16	15.09	--	NR	-1.74	--
	10/11/07	8:00	14.82	--	NR	-1.47	--
	11/01/07	9:55	14.81	--	NR	-1.46	--
	11/16/07	15:30	14.59	--	NR	-1.24	--
	11/26/07	13:48	14.40	--	NR	-1.05	--
	12/19/07	9:35	13.83	--	NR	-0.48	--
	01/03/08	8:41	12.93	--	NR	0.42	--
	01/17/08	9:00	12.76	--	NR	0.59	--
	02/12/08	9:24	13.65	--	NR	-0.30	--
	03/03/08	9:24	14.14	--	NR	-0.79	--
	03/17/08	9:23	14.49	--	NR	-1.14	--
	04/01/08	9:10	14.22	14.21	0.01	-0.87	--
	04/14/08	9:06	14.41	14.39	0.02	-1.06	--
	04/28/08	9:36	14.70	14.64	0.06	-1.35	--
(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	--
(22.44)[8]	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	--

Appendix C
Summary of Historical 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)	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	--
	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	--
	09/22/16	13:21	15.00	--	--	7.44	--
	01/12/17	13:09	12.26	--	--	10.18	--
	03/27/17	13:22	10.62	--	--	11.82	--
	06/16/17	9:41	14.73	13.84	0.89	7.71	--
	11/07/17	13:21	14.93	14.84	0.09	7.51	--
	03/26/18	8:41	13.68	--	--	8.76	--
	06/19/18	15:55	14.45	--	--	7.99	--
	09/27/18	12:36	15.21	15.10	0.11	7.31	--
	12/12/18	15:23	13.65	--	--	8.79	--
	03/25/19	15:33	13.49	--	--	8.95	--
	06/24/19	17:09	14.42	--	--	8.02	--
	09/25/19	9:01	14.59	--	--	7.85	--
	12/16/19	13:50	14.55	--	--	7.89	--
	03/25/20	**14:04**	**13.59**	**--**	**--**	**8.85**	**--**
	06/17/20	**21:33**	**14.48**	**14.46**	**0.02**	**8.03**	**--**
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	--

Appendix C
Summary of Historical 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)
PZ-203[11] (continued)	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	--
	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	--	--	-4.10	-0.22
(4.78)	06/07/07	15:53	9.26	--	--	-4.48	--
	07/06/07	10:00	9.76	--	--	-4.98	--
	09/26/07	8:08	9.43	--	--	-4.65	--
	11/26/07	14:48	8.54	--	--	-3.76	--
	02/13/08	11:15	8.57	--	--	-3.79	--
(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	--
(14.36)[8]	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	--

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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)	09/15/10	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	--
	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	--
	09/22/16	12:42	9.20	--	--	5.16	--
	01/12/17	11:15	8.06	--	--	6.30	--
	03/27/17	12:55	8.58	--	--	5.78	9.36
	06/16/17	8:44	8.90	--	--	5.46	9.36
	11/07/17	12:51	8.69	--	--	5.67	9.36
	03/26/18	8:20	8.68	--	--	5.68	9.36
	06/19/18	15:20	9.42	--	--	4.94	9.36
	09/27/18	11:27	9.41	--	--	4.95	9.36
	12/12/18	14:50	8.15	--	--	6.21	9.36
	03/25/19	14:40	8.84	--	--	5.52	9.36
	06/24/19	16:33	9.92	--	--	4.44	9.36
	09/25/19	8:28	9.58	--	--	4.78	9.36
	12/16/19	14:48	8.32	--	--	6.04	9.36
	12/16/19	14:48	8.32	--	--	6.04	9.36
	03/25/20	**13:01**	**9.22**	**--**	**--**	**5.64**	**9.36**
	06/16/20	**8:59**	**9.31**	**--**	**--**	**5.05**	**9.36**
MW-201[6] (5.28)	03/07/07	9:55	9.41	Sheen	--	-4.13	0.28
	06/07/07	16:35	9.79	--	--	-4.51	--
	07/06/07	11:00	10.27	--	--	-4.99	--
	09/26/07	8:20	9.97	--	--	-4.69	--
	11/27/07	14:38	9.04	--	--	-3.76	--
	02/12/08	10:24	9.65	--	--	-4.37	--
(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	--
	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	--
(14.86)[8]	09/22/16	12:45	9.86	--	--	5.00	--
	01/12/17	11:37	9.72	--	--	5.14	--
	03/27/17	12:52	9.25	--	--	5.61	9.86
	06/16/17	8:42	9.55	--	--	5.31	9.86
	11/07/17	12:46	9.32	--	--	5.54	9.86
	03/26/18	8:25	9.29	--	--	5.57	9.86
	06/19/18	15:27	10.06	--	--	4.80	9.86

Appendix C
Summary of Historical 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-201 (continued)	09/27/18	11:36	10.00	--	--	4.86	9.86
	12/12/18	14:55	8.77	--	--	6.09	9.86
	03/25/19	14:29	9.39	--	--	5.47	9.86
	06/24/19	16:38	9.73	--	--	5.13	9.86
	09/25/19	8:23	10.22	--	--	4.64	9.86
	12/16/19	14:51	9.00	--	--	5.86	9.86
	03/25/20	**13:10**	**9.94**	**--**	**--**	**4.92**	**9.86**
	06/17/20	**9:03**	**9.94**	**--**	**--**	**4.92**	**9.86**
MW-202[b]	03/07/07	9:25	8.79	--	--	-3.78	-2.74
(5.01)	06/07/07	14:53	9.52	--	--	-4.51	--
	07/06/07	10:05	10.16	--	--	-5.15	--
	09/26/07	7:48	9.59	--	--	-4.58	--
	11/26/07	15:16	8.43	--	--	-3.42	--
	02/12/08	10:26	8.59	--	--	-3.58	--
(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	--
	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	--
	09/22/16	12:38	9.21	--	--	5.37	--
	01/12/17	10:32	8.32	--	--	6.26	--
	03/27/17	12:56	9.44	--	--	5.14	6.78
	06/16/17	8:47	9.43	--	--	5.15	6.78
	11/07/17	12:55	9.00	--	--	5.58	6.78
	03/26/18	8:15	8.95	--	--	5.63	6.78
	06/19/18	15:33	10.55	--	--	4.03	6.78
	09/27/18	12:05	10.00	--	--	4.58	6.78
	12/12/18	14:57	8.54	--	--	6.04	6.78
	03/25/19	14:52	9.42	--	--	5.16	6.78
	06/24/19	16:26	10.85	--	--	3.73	6.78
	09/25/19	8:31	10.63	--	--	3.95	6.78
	12/16/19	14:41	8.68	--	--	5.90	6.78
	03/25/20	**12:47**	**8.89**	**--**	**--**	**5.69**	**6.78**
	06/17/20	**8:57**	**10.37**	**--**	**--**	**4.21**	**6.78**
MW-203[b]	03/07/07	--	11.86	--	--	-3.88	-2.52
(7.98)	06/07/07	13:54	12.45	--	--	-4.47	--
	07/06/07	11:01	13.07	--	--	-5.09	--
	09/26/07	8:30	12.69	--	--	-4.71	--
	11/26/07	14:33	11.56	--	--	-3.58	--
	02/12/08	10:05	12.29	--	--	-4.31	--
	05/13/08	10:32	13.56	--	--	3.99	7.05
(17.55)[8]	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	--

Appendix C
Summary of Historical 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-203[a] (continued)	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	--
(17.55)[s]	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	--
	09/22/16	12:50	12.01	--	--	5.54	--
	01/12/17	11:50	11.40	--	--	6.15	--
	03/27/17	12:50	12.41	--	--	5.14	7.05
	06/16/17	8:38	12.31	--	--	5.24	7.05
	11/07/17	12:40	11.86	--	--	5.69	7.05
	03/26/18	8:30	11.89	--	--	5.66	7.05
	06/19/18	15:10	13.15	--	--	4.40	7.05
	09/27/18	11:43	12.79	--	--	4.76	7.05
	12/12/18	14:39	11.37	--	--	6.18	7.05
	03/25/19	14:22	12.25	--	--	5.30	7.05
	06/24/19	16:51	13.87	--	--	3.68	7.05
	09/25/19	8:19	13.45	--	--	4.10	7.05
	12/16/19	14:57	11.61	--	--	5.94	7.05
	03/25/20	**13:15**	**12.95**			**4.60**	**7.05**
	06/17/20	**9:10**	**13.05**	**--**	**--**	**4.50**	**7.05**
MW-204[b]	03/07/07	10:15	18.12	--	--	-3.74	-2.87
(14.38)	06/07/07	14:50	18.52	--	--	-4.14	--
	07/06/07	11:40	19.03	--	--	-4.65	--
	09/26/07	8:37	18.85	--	--	-4.47	--
	11/26/07	14:29	17.78	--	--	-3.40	--
	02/12/08	10:03	18.00	--	--	-3.62	--
(23.93)[s]	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	--
	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	--

Appendix C
Summary of Historical 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 Continued	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	--
(23.93)[8]	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	--
	09/22/16	12:53	18.41	--	--	5.52	--
	01/12/17	12:09	17.43	--	--	6.50	--
	03/27/17	12:45	17.99	--	--	5.94	6.58
	06/16/17	8:27	18.39	--	--	5.54	6.58
	11/07/17	12:04	17.98	--	--	5.95	6.58
	03/26/18	8:34	18.00	--	--	5.93	6.58
	06/19/18	15:06	19.00	--	--	4.93	6.58
	09/27/18	11:51	18.99	--	--	4.94	6.58
	12/12/18	14:17	17.46	--	--	6.47	6.58
	03/25/19	14:16	18.22	--	--	5.71	6.58
	06/24/19	16:55	19.66	--	--	4.27	6.58
	09/25/19	8:11	19.23	--	--	4.70	6.58
	12/16/19	15:03	17.82	--	--	6.11	6.58
	03/25/20	**13:25**	**18.85**	**--**	**--**	**9.04**	**6.58**
	06/17/20	**9:13**	**19.00**	**--**	**--**	**4.93**	**6.58**
MW-205[b]	03/07/07	10:30	22.20	Sheen	--	-3.77	0.43
(18.43)	06/07/07	15:45	22.45	--	--	-4.02	--
	07/06/07	11:47	22.93	--	--	-4.50	--
	09/26/07	8:46	22.83	--	--	-4.40	--
	11/26/07	14:23	21.76	--	--	-3.33	--
	02/12/08	10:01	21.78	--	--	-3.35	--
(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	--
	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	--

Appendix C
Summary of Historical 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 (continued)	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	--
(27.89)[8]	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	--
	09/22/16	12:58	22.31	--	--	5.58	--
	01/12/17	12:29	21.34	--	--	6.55	--
	03/27/17	12:40	19.89	--	--	8.00	9.89
	06/16/17	8:22	22.33	--	--	5.56	9.89
	11/07/17	11:59	21.89	--	--	6.00	9.89
	03/26/18	8:36	21.91	--	--	5.98	9.89
	06/19/18	15:02	22.80	--	--	5.09	9.89
	09/27/18	12:00	22.88	--	--	5.01	9.89
	12/12/18	14:15	21.38	--	--	6.51	9.89
	03/25/19	14:12	22.11	--	--	5.78	9.89
	06/24/19	16:58	23.66	--	--	4.23	9.89
	09/25/19	8:03	23.12	--	--	4.77	9.89
	12/16/19	15:14	21.75	--	--	6.14	9.89
	03/25/20	**13:31**	**22.84**			**5.05**	**9.89**
	06/17/20	**9:17**	**22.94**	**--**	**--**	**4.95**	**9.89**
MW-206[6]	03/07/07	9:15	9.15	--	--	-3.56	-5.41
(5.59)	06/07/07	13:26	10.24	--	--	-4.65	--
	07/06/07	9:22	10.84	--	--	-5.25	--
	09/26/07	7:35	10.21	--	--	-4.62	--
	11/26/07	15:08	8.47	--	--	-2.88	--
	02/12/08	10:28	8.69	--	--	-3.10	--
(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	--
	09/22/16	12:34	8.90	--	--	6.25	--
	01/12/17	10:24	9.45	--	--	5.70	--
	03/27/17	12:58	11.59	--	--	3.56	4.15
	06/16/17	8:50	11.59	--	--	3.56	4.15
	11/07/17	12:59	10.18	--	--	4.97	4.15
	03/26/18	8:08	10.00	--	--	5.15	4.15
	06/19/18	15:38	12.92	--	--	2.23	4.15
	09/27/18	12:20	11.99	--	--	3.16	4.15
	12/12/18	15:06	9.79	--	--	5.36	4.15
	03/25/19	15:00	12.00	--	--	3.15	4.15
	06/24/19	16:20	12.80	--	--	2.35	4.15
	09/25/19	8:36	13.07	--	--	2.08	4.15
	12/16/19	14:38	9.65	--	--	5.50	4.15
	03/25/20	**12:44**	**12:10**	**--**	**--**	**3.05**	**4.15**
	06/17/20	**8:55**	**12.39**	**--**	**--**	**2.76**	**4.15**
MW-207[6]	03/07/07	10:40	10.64	--	--	-4.82	-3.68
(5.82)	06/07/07	17:10	10.53	--	--	-4.71	--
	07/06/07	9:10	11.20	--	--	-5.38	--
	09/26/07	7:25	10.30	--	--	-4.48	--
	11/26/07	15:03	8.84	--	--	-3.02	--
	02/12/08	10:31	8.90	--	--	-3.08	--
(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	--

Appendix C
Summary of Historical 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	--
(15.40)[8]	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	--
	09/22/16	12:27	9.36	--	--	6.04	--
	01/12/17	10:11	9.24	--	--	6.16	--
	03/27/17	13:00	11.49	--	--	3.91	5.90
	06/16/17	8:53	10.25	--	--	5.15	5.90
	11/07/17	13:04	10.21	--	--	5.19	5.90
	03/26/18	8:00	10.01	--	--	5.39	5.90
	06/19/18	15:42	13.06	--	--	2.34	5.90
	09/27/18	12:13	11.70	--	--	3.70	5.90
	12/12/18	15:08	9.79	--	--	5.61	5.90
	03/25/19	15:09	11.69	--	--	3.71	5.90
	06/24/19	16:16	12.90	--	--	2.50	5.90
	09/25/19	8:43	13.27	--	--	2.13	5.90
	12/16/19	14:31	9.66	--	--	5.74	5.90
	03/25/20	**12:38**	**11.82**			**3.58**	**5.90**
	06/17/20	**8:53**	**12.25**	**--**	**--**	**3.15**	**5.90**
MW-209	02/16/16	9:45	8.26	--	--	7.27	--
(15.53)	06/13/16	9:50	10.31	--	--	5.22	--
	09/22/16	12:12	10.21	--	--	5.32	--
	01/12/17	11:51	8.01	--	--	7.52	--
	03/27/17	12:35	8.46	--	--	7.07	12.53
	06/16/17	9:26	9.59	--	--	5.94	12.53
	12/16/19	14:07	8.84	--	--	6.69	12.53
	03/25/20	**13:54**	**9.80**			**5.73**	**12.53**
	06/17/20	**10:20**	**10.09**	**--**	**--**	**5.04**	**12.53**
MW-210	02/16/16	9:50	7.52	--	--	7.61	--
(15.13)	06/13/16	9:45	9.59	--	--	5.54	--
	09/22/16	12:08	9.71	--	--	5.42	--
	01/12/17	11:56	8.31	--	--	6.82	--
	03/27/17	12:30	8.61	--	--	6.52	12.13
	06/16/17	9:24	8.94	--	--	6.19	12.13
	12/16/19	14:12	9.73	--	--	5.40	12.13
	03/25/20	**9:23**	**8.93**	**--**	**--**	**6.09**	**12.13**
	06/17/20	**10:18**	**9.24**	**--**	**--**	**5.78**	**12.13**
MW-211	02/16/16	9:55	7.91	--	--	7.11	--
(15.02)	06/13/16	9:40	9.79	--	--	5.23	--
	09/22/16	12:05	9.77	--	--	5.25	--
	01/12/17	11:59	8.18	--	--	6.84	--
	03/27/17	12:25	8.04	--	--	6.98	12.02
	06/16/17	9:20	9.55	--	--	5.47	12.02
	12/16/19	14:18	9.28	--	--	5.74	12.02
	03/25/20	**13:46**	**9.28**	**--**	**--**	**6.33**	**12.02**
	06/17/20	**10:16**	**9.58**	**--**	**--**	**6.03**	**12.02**
MW-70R	02/16/16	9:05	9.14	--	--	6.47	--
(15.61)	06/13/16	8:50	12.41	--	--	3.20	--
	09/22/16	12:30	9.69	--	--	5.92	--
	01/12/17	9:48	9.25	--	--	6.36	--
	03/27/17	13:05	11.41	--	--	4.20	11.61
	06/16/17	8:59	10.42	--	--	5.19	11.61
	11/07/17	13:09	10.32	--	--	5.29	11.61
	03/26/18	7:51	10.09	--	--	5.52	11.61
	06/19/18	15:45	12.64	--	--	2.97	11.61
	09/27/18	12:16	11.66	--	--	3.95	11.61
	12/12/18	15:15	9.88	--	--	5.73	11.61
	03/25/19	15:15	11.54	--	--	4.07	11.61
	06/24/19	16:12	12.63	--	--	2.98	11.61
	09/25/19	8:47	12.88	--	--	2.73	11.61
	12/16/19	14:26	9.76	--	--	5.85	11.61
	03/25/20	**12:33**	**11.58**	**--**	**--**	**4.03**	**11.61**
	06/17/20	**8:51**	**11.93**	**--**	**--**	**3.68**	**11.61**
RW-1	09/13/07	--	9.12	--	--	-4.47	--
(4.65)	11/01/07	10:45	9.60	--	--	-4.95	--
	11/26/07	11:57	8.43	--	--	-3.78	--
	12/07/07	11:55	7.00	--	--	-2.35	--

Appendix C
Summary of Historical 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)	12/19/07	9:25	7.75	--	--	-3.10	--
	01/03/08	9:05	7.78	--	--	-3.13	--
	01/30/07	8:34	8.22	--	--	-3.57	--
	02/12/08	9:00	8.55	--	--	-3.90	--
	03/03/08	8:58	8.88	--	--	-4.23	--
	03/17/08	8:52	8.80	--	--	-4.15	--
	04/01/08	8:49	8.79	--	--	-4.14	--
	04/14/08	8:51	8.85	--	--	-4.20	--
	04/28/08	9:01	8.90	--	--	-4.25	--
	05/13/08	9:10	9.25	--	--	-4.60	--
(14.20)[8]	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	--
(14.20)[8]	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	--
	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	--	--	6.40	--
	05/05/14	8:45	7.30	--	--	6.90	--
	06/12/14	Well Decommissioned					
RW-2	04/28/08	9:10	9.98	--	--	-5.51	--
(4.47)	05/13/08	9:08	8.29	--	--	-3.82	--
(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	--

Appendix C
Summary of Historical 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)	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	--
(14.3)[6]	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	
	06/12/14	Well Decommissioned					
RW-3	09/13/07	--	9.45	--	--	-4.75	--
(4.70)	11/01/07	10:52	10.00	--	--	-5.30	--
	11/26/07	12:00	8.60	--	--	-3.90	--
	12/07/07	11:50	7.10	--	--	-2.40	--
	12/19/07	9:20	7.63	--	--	-2.93	--
	01/03/08	9:07	7.49	--	--	-2.79	--
	01/30/08	8:38	8.44	--	--	-3.74	--
	02/12/08	9:30	8.84	--	--	-4.14	--
	03/03/08	9:02	9.11	--	--	-4.41	--
	03/17/08	8:58	8.91	--	--	-4.21	--
	04/01/08	8:43	9.01	--	--	-4.31	--
	04/14/08	8:44	9.16	--	--	-4.46	--
	04/28/08	9:16	9.10	--	--	-4.40	--
(14.3)[6]	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	--
	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	--

Appendix C
Summary of Historical 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-3 (continued)	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	--	--	5.30	--
(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	--
(13.9)[8]	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	--
	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	05/13/08[7]	8:58	8.35	--	--	5.55	--
(13.9)[8]	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	--	--	6.92	--
	05/05/14	09:36	7.02	--	--	6.88	--
	06/11/14			Well Decommissioned			
RW-7	09/13/07	--	8.75	--	--	5.45	--
(14.2)[8]	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	--	--	6.80	--

Appendix C
Summary of Historical 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-7 (continued)	05/05/14	09:46	7.40	--	--	6.80	--
	06/11/14			Well Decommissioned			
RW-8	09/13/07	--	8.75	--	--	5.15	--
(13.9)[6]	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	--
(13.9)[6]	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	--	--	6.90	--
	05/05/14	10:04	7.11	--	--	6.79	--
	06/11/14			Well Decommissioned			
RW-9	09/13/07	--	8.45	--	--	5.65	--
(14.1)[6]	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	--	--	7.82	--
	05/05/14	10:18	6.70	--	--	7.40	--
	06/10/14			Well Decommissioned			
RW-10	09/13/07	--	8.9	--	--	5.40	--
(14.3)[6]	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	--	--	7.23	--
	05/05/14	10:33	7.22	--	--	7.08	--
	06/10/14			Well Decommissioned			
RW-11	12/07/07	11:14	6.5	--	--	7.60	--
(14.1)[6]	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	--

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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-11 (continued)	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	--
(14.1)[x]	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	--	--	7.22	--
(14.0)[8]	12/19/07	8:40	7.88	--	--	6.12	--
	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	--
	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	--	--	5.07	--
(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					
(13.9)[8]	04/30/13	UNABLE TO LOCATE					
	09/15/13	UNABLE TO LOCATE					

Appendix C
Summary of Historical 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-15 (continued)	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	--
	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.

Appendix C
Historical 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)	
			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*
Upper Yard										
MW-37	06/01/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	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	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
MW-39	01/17/91	--	<0.5	0.5	0.6	2.2	--	<1	<1	--
	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	--	--	--
	10/16/90	--	<0.5	1.0	0.6	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	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
	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
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
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
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
	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
	01/13/17	ND	<0.5	<0.5	0.5	2	--	1.000	0.490	<0.074
	06/16/17	LNAPL	--	--	--	--	--	--	--	--
	11/08/17	LNAPL	--	--	--	--	--	--	--	--
	06/20/18	LNAPL	--	--	--	--	--	--	--	--
	09/27/18	LNAPL	--	--	--	--	--	--	--	--
	12/14/18	ND	<0.5	0.8	<0.5	<1.5	--	0.680	0.190	<0.100
	06/25/19	ND	<0.2	<0.2	<0.4	<1	--	0.250 J	<0.046	<0.100
	12/17/19	ND	<0.2	<0.2	<0.4	<1	--	0.38	0.16	<0.100
	06/16/20	**LNAPL**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
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
	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
	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
	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
	09/25/01	ND	<0.500	<0.500	<0.500	1.57	--	<0.0500	0.373/<0.250	<0.750/<0.250
	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
	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
	12/14/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
MW-63A (continued)	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
	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
	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
	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
	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
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
	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
	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[6]	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[8]	ND	<0.500	1.39	0.654	5.39	--	0.0908	0.315/<0.487	<0.750/<1.46
	07/25/00	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<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	0.298/<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
	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
	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*
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	--	--	--
	01/17/91	--	<0.5	<0.5	0.6	3.5	24	2	13	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	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
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
	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
	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
	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

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
MW-30 (continued)	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	--	--	--	--	--	--	--	--
	01/12/17	LNAPL	--	--	--	--	--	--	--	--
	03/27/17	LNAPL	--	--	--	--	--	--	--	--
	06/16/17	LNAPL	--	--	--	--	--	--	--	--
	11/08/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.25	<0.100
	06/20/18	LNAPL	--	--	--	--	--	--	--	--
	12/14/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.045	<0.100
	06/24/19	LNAPL	--	--	--	--	--	--	--	--
	12/17/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	0.23	0.220 J
	06/16/20	**LNAPL**	--	--	--	--	--	--	--	--
MW-31	08/10/89	--	<0.5	1.4	2.1	5.9	4.1	--	--	--
	10/26/89	--	7.1	<0.5	1.0	3.3	5.5	--	--	--
	01/16/90	--	4.2	<0.5	<0.5	<0.5	2.2	--	--	--
	04/16/90	--	5.2	1.5	1.9	4.5	<1	--	--	--
	07/25/90	--	2.0	<0.5	2.2	1.8	6	--	--	--
	10/16/90	--	0.7	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/90	--	1.6	0.6	1.6	4.4	--	2	<1	--
	04/16/91	--	1.8	0.6	1.9	4.5	--	<1	<1	--
	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
	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
	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[8]	ND	<0.500	5.05	1.39	15.0	--	0.167	<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	--	0.0576	<0.250	<0.750
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	1.08/<0.250[10]	<0.750/<0.750[10]
	06/20/02	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.568/<0.250	<0.750/<0.750
	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	--	--	--
	10/26/89	--	<0.5	1.7	<0.5	0.7	2.1	--	--	--
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	0.76	--	--	--
	04/16/90	--	<0.5	1.0	<0.5	<0.5	<1	--	--	--
	07/25/90	--	<0.5	<0.5	1.1	<0.5	1	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	0.5	1.5	--	<1	<1	--
	04/16/91	--	<0.5	0.6	0.6	1.6	--	<1	<1	--
	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
	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
	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
	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
	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
	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
	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
	09/25/01	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.584/0.225	<0.750/<0.750
	12/18/01	ND	<0.500	<2.00	<1.00	<1.50	--	<0.100	0.675/<0.250[10]	0.779/<0.750[10]
	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
	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
	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
	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
	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
	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

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
MW-66 (continued)	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	--	--	--	--	--	--	--	--	--
Lower Yard RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*
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
	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[9]	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
	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[9]	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
	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[9]	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
	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
	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

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
MW-86 (continued)	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
Offsite Area RALs		*No visible sheen*	*40*	*14,300*	*1,400*	*4,400*	--	*1*	*10*	*15*
Offsite Area										
MW-8	01/31/89	--	0.6	<0.5	<0.5	<0.5	0.21	--	--	--
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	1.1	--	--	--
	07/25/89	--	4.3	2.1	<0.5	<0.5	0.17	--	--	--
	10/26/89	--	<0.5	<0.5	<0.5	<0.5	0.94	--	--	--
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	0.35	--	--	--
	04/16/90	--	2.8	<0.5	<0.5	<0.5	<1	--	--	--
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	2	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	06/25/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750
	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	--	--	--
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	2.2	--	--	--
	07/25/89	--	<0.5	<0.5	<0.5	<0.5	0.45	--	--	--
	10/26/89	--	<0.5	<0.5	<0.5	<0.5	3.4	--	--	--
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	0.35	--	--	--
	04/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	6	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	06/25/98	ND	<0.500	<0.500	<0.500	<1.00	--	0.0593	<0.250	<0.750
	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	--	--	--
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	1.6	--	--	--
	07/25/89	--	1.0	<0.5	<0.5	<0.5	0.31	--	--	--
	10/26/89	--	0.7	<0.5	<0.5	<0.5	3.2	--	--	--
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	1.4	--	--	--
	04/16/90	--	0.6	<0.5	<0.5	<0.5	<1	--	--	--
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	06/25/98	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	0.287/<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	--	--	--
	04/27/89	--	7.2	1.2	1.6	<0.5	0.93	--	--	--
	07/25/89	--	1.4	0.8	<0.5	1.2	3.4	--	--	--
	10/26/89	--	<0.5	<0.5	<0.5	<0.5	7.8	--	--	--
	01/16/90	--	1.3	<0.5	<0.5	<0.5	4.9	--	--	--
	04/16/90	--	6.6	1.4	0.8	2.7	<1	--	--	--
	07/25/90	--	2.5	0.6	0.6	0.8	<1	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	0.8	<1	--	--	--
	01/17/91	--	1.0	0.7	<0.5	1.4	<1	<1	<1	--
	04/16/91	--	0.9	<0.5	<0.5	<0.5	--	<1	<1	--
	09/19/91	--	<0.5	<0.5	<0.5	0.6	--	<1	<1	--
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	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
	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
	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
	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
	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]

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
MW-25 (continued)	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
	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
MW-26	01/31/89	--	<0.5	<0.5	<0.5	<0.5	0.64	--	--	--
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	0.08	--	--	--
	07/25/89	--	<0.5	<0.5	<0.5	<0.5	1.4	--	--	--
	10/26/89	--	<0.5	<0.5	<0.5	<0.5	0.94	--	--	--
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	1.8	--	--	--
	04/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	2	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	09/19/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	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	--	--	--
	04/27/89	--	<0.5	<0.5	<0.5	<0.5	0.23	--	--	--
	07/25/89	--	1.0	<0.5	<0.5	<0.5	0.68	--	--	--
	10/26/89	--	1.3	0.7	<0.5	0.7	1.1	--	--	--
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	1.3	--	--	--
	04/16/90	--	<0.5	<0.5	<0.5	0.6	<1	--	--	--
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	2	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	0.6	<0.5	<0.5	<0.5	--	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	0.9	--	<1	<1	--
	09/19/91	--	<0.5	<0.5	<0.5	1.1	--	<1	<1	--
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	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
	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
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.080	<0.100
MW-34	10/26/89	--	1.7	3	<0.5	2.1	0.27	--	--	--
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	0.08	--	--	--
	04/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	12/01/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
MW-35	10/26/89	--	33	1.1	<0.5	1.4	<0.5	--	--	--
	01/16/90	--	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	04/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	07/25/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	12/01/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
MW-36	10/26/89	--	330	1.9	2.5	8.0	2	--	--	--
	01/16/90	--	95	3.1	<0.5	9.4	0.39	--	--	--
	04/16/90	--	140	7.8	<0.5	<5.0	3.2	--	--	--
	07/25/90	--	<0.5	<0.5	3.4	17	4	--	--	--
	10/16/90	--	8.0	<0.5	<0.5	4.8	8	--	--	--
	01/17/91	--	1.2	5.6	12	58	6	11	20	--
	04/16/91	--	1.7	6.4	<0.5	4.9	--	<1	<1	--
	09/17/91	--	<0.5	<0.5	1.1	3.2	--	15	29	--
	12/01/91	--	<0.5	<0.5	2.5	6.5	--	<1	<1	--
	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
	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

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
MW-36 (continued)	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]
	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
	06/19/03[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	--	--	--
	10/16/90	--	<0.5	<0.5	<0.5	<0.5	<1	--	--	--
	01/17/91	--	<0.5	<0.5	1.2	3.9	<1	1	<1	--
	04/16/91	--	3.5	0.9	4.5	1.4	--	<1	<1	--
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	4	--
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	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	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	04/16/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
MW-43	10/16/90	--	2.9	<0.5	17	5.3	<1	--	--	--
	01/17/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
	04/16/91	--	<0.5	<0.5	0.7	0.6	--	<1	<1	--
	09/17/91	--	<0.5	<0.5	<0.5	<0.5	--	3	9	--
	12/10/91	--	<0.5	<0.5	<0.5	<0.5	--	<1	<1	--
MW-52	06/25/98	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	0.522/<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
	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
	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
	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
	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
	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
	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
	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]
	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
	09/22/16	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.030	<0.070
	01/12/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.046	<0.070
Duplicate	01/12/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.046	<0.070
	03/27/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067
	06/16/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.068
	11/08/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.047	<0.100
	03/26/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067
Duplicate	03/26/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067
	06/20/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067
Duplicate	06/20/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.066
	09/27/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.030	<0.070
Duplicate	09/27/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.031	<0.072
	12/13/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.045	<0.100
	03/25/19	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.046	<0.100
Duplicate	03/25/19	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.046	<0.100
	06/25/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	<0.046	<0.100
	09/26/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	<0.120	<0.280
Duplicate	09/26/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	<0.044	<0.099
	12/18/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	<0.055	<0.120
Duplicate	12/18/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	<0.048	<0.110
	03/24/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	**--**	**<0.019**	**<0.047**	**<0.10**
Duplicate	**03/24/20**	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	**--**	**<0.019**	**<0.048**	**<0.11**
	06/16/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	**--**	**<0.019**	**<0.046**	**<0.10**
Duplicate	**06/16/20**	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	**--**	**<0.019**	**<0.047**	**<0.10**
MW-71	06/25/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750
	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
	12/16/99	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	0.430[15]	<0.904[15]

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
MW-71 (continued)	06/22/00[8]	ND	<0.500	0.980	0.522	3.08	--	0.0746	<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	<1.00	--	<0.0500	<0.250	<0.750
	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
	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-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
	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
	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
	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
	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
	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
	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
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
	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
	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
	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
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
	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
	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
	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
	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
MW-76	06/24/98	ND	<0.500	<0.500	<0.500	<1.00	--	<0.0500	<0.250	<0.750
	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
	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
	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

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
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
	09/26/07	ND	1.6	<0.5	0.9	<1.5	--	0.230	0.270	<0.100
Duplicate	09/26/07	ND	1.7	<0.5	0.8	<1.5	--	0.230	0.310	0.120
	11/28/07	ND	2.0	<0.5	1.2	2.1	--	0.250	0.330	<0.100
	02/13/08	ND	3.44	<0.500	1.19	1.79	--	0.497	<0.236	<0.472
	05/13/08	ND	2.70	<0.500	1.15	2.07	--	0.426	<0.240	<0.481
	09/03/08	ND	<0.500	0.883	1.46	<1.00	--	0.337	<0.236	<0.472
	12/04/08	ND	3.19	<0.500	0.975	2.01	--	0.427	<0.238	<0.476
	02/18/09	ND	2.54	<0.500	0.619	1.14	--	0.355	<0.250	<0.500
	05/13/09	ND	3.43	<0.500	1.12	1.91	--	0.513	<0.278	<0.556
	09/11/09	ND	<0.500	<0.500	0.52	<1.00	--	0.360	<0.248	<0.495
	04/14/10	ND	<0.50	<0.50	0.54	<2.0	--	0.35	0.31	<0.25
	08/12/10	Sheen	--	--	--	--	--	--	--	--
	09/22/10	ND	<0.50	<0.50	0.56	1.2	--	0.43	0.56	<0.25
	04/26/11	ND	6.2	<0.50	0.59	1.5	--	0.39	--	--
	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
Duplicate	09/22/11	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
	01/13/17	ND	4.2	0.5	0.9	2.2	--	0.490	0.140	<0.067
	06/13/17	ND	2.0	<0.5	0.6	<1.5	--	0.340	0.080	<0.067
	11/08/17	ND	<4.0	<0.5	<0.5	<1.5	--	0.530	0.076	<0.110
	06/20/18	ND	<0.5	<0.5	<0.5	<1.5	--	0.370	0.110	<0.073
	12/13/18	ND	<0.5	0.6	<0.5	<1.5	--	0.230	0.130	0.130
	06/25/19	ND	<0.2	<0.2	<0.4	<1	--	0.240 J	0.057 J	<0.110
	12/18/19	ND	<0.2	<0.2	<0.4	<1	--	0.190 J	0.130	<0.110
	06/16/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	**--**	**0.21 J**	**0.072 J**	**<0.110**
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
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
	11/27/07	ND	0.6	<0.5	<0.5	<1.5	--	0.065	0.390	0.150
	02/12/08	ND	0.813	<0.500	<0.500	<1.00	--	0.111	<0.243	<0.485
	05/14/08	Sheen	0.616	<0.500	<0.500	<1.00	--	0.110	<0.236	<0.472
	09/05/08	ND	<0.500	0.517	<0.500	<1.00	--	0.153	<0.238	<0.476
	12/05/08	ND	2.24	0.511	<0.500	1.87	--	0.323	<0.248	<0.495
	02/17/09	ND	0.552	<0.500	<0.500	<1.00	--	0.0887	<0.263	<0.526
	05/13/09	ND	2.42	<0.500	<0.500	1.76	--	0.372	<0.250	<0.500
	09/11/09	ND	<0.500	<0.500	<0.500	1.4	--	0.43	<0.248	<0.495
	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.15	0.17	<0.25
	08/11/10	Sheen	--	--	--	--	--	--	--	--
	09/22/10	ND	<0.50	<0.50	<0.50	1.1	--	0.27	0.47	<0.25
	04/26/11	ND	1.6	<0.50	<0.50	<1.0	--	0.18	--	--
	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
	01/13/17	ND	2.6	<0.5	0.6	<1.5	--	0.400	0.062	<0.067
	06/13/17	ND	1.3	0.9	<0.5	<1.5	--	0.350	0.260	0.350
	11/08/17	ND	<3.0	0.5	<0.5	<1.5	--	0.370	0.053	<0.110
	06/20/18	ND	<0.5	<0.5	<0.5	<1.5	--	0.340	0.063	<0.067
	12/13/18	ND	<0.5	<0.5	<0.5	<1.5	--	0.220	0.054	<0.100
	06/25/19	ND	<0.2	<0.2	<0.4	<1	--	0.300	<0.047	<0.110
	12/18/19	ND	<0.2	<0.2	<0.4	<1	--	0.200 J	<0.048	<0.110
	06/16/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	**--**	**0.25**	**0.052 J**	**<0.110**
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 [16]	0.9	<1.5	--	0.072	0.150	<0.095
	09/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	0.110	0.380	0.360
	11/26/07	ND	<0.5	<0.5	0.8	<1.5	--	0.100	0.290	0.120
	02/12/08	ND	<0.500	<0.500	0.751	<1.00	--	0.249	<0.240	<0.481
	05/13/08	ND	<0.500	<0.500	0.620	<1.00	--	0.188	<0.236	<0.472
	09/04/08	ND	<0.500	<0.500	1.55	<1.00	--	0.135	<0.238	<0.476
	12/04/08	ND	<0.500	<0.500	<0.500	1.34	--	0.132	<0.245	<0.490
	02/18/09	ND	<0.500	<0.500	0.583	<1.00	--	0.314	<0.245	<0.490
	05/13/09	ND	<0.500	<0.500	<0.500	<1.00	--	0.233	<0.243	<0.485
	09/11/09	ND	<0.500	<0.500	<0.500	<1.00	--	0.120	<0.245	<0.490
	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.10	<0.12	<0.25
	09/22/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.090	<0.12	<0.25
	04/27/11	ND	<0.50	<0.50	<0.50	<1.0	--	0.072	--	--
	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
	01/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.030	<0.070
	06/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066
	11/08/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.046	<0.100
	06/20/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.031	<0.072
	12/13/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.046	<0.100
Duplicate	12/13/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.045	<0.100
	06/25/19	ND	<0.2	<0.2	<0.4	<1	--	0.047 J	<0.047	<0.110
	12/17/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	0.055 J	<0.110
	06/16/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	**--**	**0.0047 J**	**<0.47**	**<0.110**
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
	09/28/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.500	0.400	0.270
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.290	<0.100
	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481
Duplicate	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472
	05/14/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.243	<0.485
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
	12/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481
	02/17/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472
	05/13/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.243	<0.485
	09/11/09	ND	<0.500	<0.500	<1.00	<1.00	--	0.082	<0.248	<0.495

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
MW-203 (continued)	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.12	<0.25
	09/22/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.058	<0.12	<0.24
	04/27/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	--	--
	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
	01/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.069
	06/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067
	11/08/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.046	<0.100
	06/20/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.037	<0.068
	12/13/18	ND	<0.5	<0.5	<0.5	<1.5	--	0.032	0.054	<0.100
	06/25/19	ND	<0.2	<0.2	<0.4	<1	--	0.051 J	<0.046	<0.100
	12/17/19	ND	<0.2	<0.2	<0.4	<1	--	0.021 J	<0.046	<0.100
	06/16/20	**ND**	**<0.2**	**<0.4**	**<0.2**	**<1**	--	**0.065 J**	**<0.46**	**<0.100**
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
	09/28/07	ND	0.70	0.9	<0.5	1.6	--	0.640	1.000	0.260
	11/27/07	ND	0.9	0.8	0.9	<5.0 [16]	--	0.670	0.700	0.160
	02/12/08	ND	1.76	1.09	<0.500	2.12	--	0.713	<0.240	<0.481
	05/14/08	ND	1.32	1.71	<0.500	4.17	--	0.782	0.310	0.784
	09/03/08	ND	4.42	1.06	3.07	1.47	--	1.070	0.384	<0.476
	10/01/08	ND	--	--	--	--	--	0.796	--	--
	12/04/08	ND	1.45	1.20	1.05	4.22	--	0.869	0.291	<0.495
	02/17/09	ND	1.48	1.32	1.82	7.50	--	1.060	0.341	<0.500
Duplicate	02/17/09	ND	1.54	1.30	1.81	7.45	--	1.120	0.332	<0.556
	05/13/09	ND	1.93	1.55	1.86	4.79	--	1.190	0.593	<0.500
Duplicate	05/13/09	ND	1.82	1.58	1.88	7.70	--	1.230	0.553	<0.556
	09/11/09	ND	<0.500	1.10	<0.500	1.8	--	1.200	0.396	<0.495
Duplicate	09/11/09	ND	<0.500	1.10	<0.500	1.8	--	1.100	0.393	<0.495
	04/14/10	ND	1.1	2.1	<0.50	3.6	--	1.5	1.2	0.84
Duplicate	04/14/10	ND	1.1	2.1	<0.50	3.7	--	1.5	1.1	<0.25
	09/22/10	ND	<0.50	1.5	<0.50	3.2	--	1.3	1.5	<0.25
	04/26/11	ND	1.6	1.5	<0.50	3.9	--	0.71	--	--
Duplicate	04/26/11	ND	1.9	1.7	<0.50	5.0	--	1.0	--	--
	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	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	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
	01/13/17	ND	<0.5	1.4	1.3	3.3	--	1.400	0.260	<0.068
	06/13/17	ND	0.7	1.1	<0.5	2.3	--	1.200	0.170	<0.067
	11/08/17	ND	<0.9	1.2	1.2	2.3	--	1.000	0.160	<0.100
	06/20/18	ND	<0.5	1.2	1.2	2.4	--	1.200	0.230	<0.066
	12/13/18	ND	<0.5	1.1	0.9	2.0	--	0.830	0.075	<0.100
	06/24/19	ND	<0.2	0.5 J	<0.4	<1	--	0.890	0.130	<0.110
Duplicate	06/24/19	ND	<0.2	0.4 J	<0.4	<1	--	0.900	1.000	<0.110
	12/17/19	ND	<0.2	0.3 J	<0.4	<1	--	0.590	<0.047	<0.100
	06/16/20	**ND**	**<0.2**	**0.4 J**	**<0.4**	**<1**	--	**0.950**	**0.19**	**<0.100**
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
	09/28/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.081	<0.100
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.120	0.560
	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	0.529
	05/14/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.238	<0.476
	09/03/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481
	12/05/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472
	02/17/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495
	05/13/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.245	<0.490
	09/11/09	ND	<0.500	<0.500	<0.500	<1.00	--	0.1	<0.248	<0.495
	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.051	<0.12	<0.25
	09/22/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.082	0.15	<0.25
	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	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	0.05	<0.068
	01/13/17	MD	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.089	<0.071
	06/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	0.28	<0.029	<0.067
	11/08/17	ND	<0.5	<0.5	<0.5	<1.5	--	0.071	<0.046	<0.100
	06/20/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.035	<0.070
	12/13/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.045	<0.100
	06/24/19	ND	<0.2	<0.2	<0.4	<1	--	0.130 J	0.068 J	<0.100
	12/17/19	ND	<0.2	<0.2	<0.4	<1	--	0.040 J	<0.047	<0.100
	06/16/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	--	**0.082 J**	**0.053 J**	<0.100

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}
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
	09/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.076	<0.095
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.077	<0.096
	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472
	05/13/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	<0.505
	09/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481
Duplicate	09/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.240	<0.481
	12/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472
Duplicate	12/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.236	<0.472
	02/18/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.278	<0.556
	05/12/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.278	<0.556
	09/11/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495
	04/13/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	--	--
	04/14/10	ND	--	--	--	--	--	--	<0.12	<0.24
	09/22/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.12	<0.25
	04/27/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	--	--
	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
	01/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066
	06/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067
Duplicate	06/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.030	<0.069
	11/08/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.048	<0.110
	06/20/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066
	12/13/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	0.050	<0.100
	06/25/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	<0.049	<0.110
	12/17/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	<0.046	<0.100
	06/16/20	**ND**	**<0.2**	**<0.2**	**<0.2**	**<1**	--	**<0.019**	**<0.047**	**<0.10**
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
	09/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.081	<0.10
	11/27/07	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.076	<0.095
	02/12/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495
	05/13/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	<0.500
	09/04/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.238	<0.476
	12/03/08	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.238	<0.476
	02/18/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495
	05/12/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.250	<0.500
	09/11/09	ND	<0.500	<0.500	<0.500	<1.00	--	<0.050	<0.248	<0.495
	04/14/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.12	<0.24
	09/21/10	ND	<0.50	<0.50	<0.50	<2.0	--	<0.050	<0.12	<0.24
Duplicate	09/21/10	ND	<0.50	<0.50	<0.50	<2.0	--	0.092	<0.12	<0.25
	04/27/11	ND	<0.50	<0.50	<0.50	<1.0	--	<0.050	--	--
	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
	01/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.029	<0.067
Duplicate	01/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.130	1.700
	06/13/17	ND	<0.5	<0.5	<0.5	<1.5	--	0.071	0.031	<0.067
	11/08/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.046	<0.110
Duplicate	11/08/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.046	<0.110
	06/20/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	<0.028	<0.066
	12/13/18	ND	<0.5	<0.5	<0.5	<1.5	--	<0.019	<0.046	<0.100
	06/25/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	<0.048	<0.110
	12/17/19	ND	<0.2	<0.2	<0.4	<1	--	<0.019	<0.046	<0.100
	06/16/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	--	**<0.019**	**<0.048**	**<0.100**
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
	09/22/16	ND	0.9	0.9	<1.1	2.9	--	0.990	0.140	<0.072
	01/12/17	ND	1.3	1.3	1.4	3.6	--	1.400	0.140	<0.072
	03/27/17	ND	1.5	1.4	1.5	3.3	--	0.920	0.190	<0.068
	06/16/17	ND	1.1	0.8	<0.5	2.4	--	1.300	0.730	0.230
	12/16/19	ND	<0.2	0.3 J	<0.4	<1	--	0.590	<0.048	<0.110
	03/25/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	--	**0.690**	**<0.10**	**0.05 J**
	06/16/20	**ND**	**<0.2**	**0.3 J**	**<0.4**	**<1**	--	**0.590**	**0.580**	**0.18 J**
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
	09/22/16	ND	1.3	1.1	1.3	4.7	--	2.100	2.300	0.390
	01/12/17	ND	<0.5	1.1	<0.5	<1.5	--	0.130	0.037	<0.070
	03/27/17	ND	<0.5	<0.5	<0.5	<1.5	--	0.220	1.500	0.320
Duplicate	03/27/17	ND	<0.5	<0.5	<0.5	<1.5	--	0.160	0.200	<0.066
	06/16/17	ND	<0.5	0.5	0.6	2.6	--	1.200	2.800	0.550
	12/16/19	ND	<0.2	<0.2	<0.4	<1	--	0.072 J	<0.047	<0.100
	03/25/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	--	**0.04 J**	**<0.10**	**<0.05**
	06/17/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	--	**0.019 J**	**<0.46**	**<0.100**
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
	09/22/16	ND	<0.5	<0.5	<0.5	<1.5	--	0.100	0.062	<0.069
	01/12/17	ND	<0.5	<0.5	<0.5	<1.5	--	0.065	0.049	<0.070
	03/27/17	ND	<0.5	<0.5	<0.5	<1.5	--	<0.050	0.061	<0.067
	06/16/17	ND	<0.5	<0.5	<0.5	<1.5	--	0.130	0.081	<0.066
Duplicate	06/16/17	ND	<0.5	<0.5	<0.5	<1.5	--	0.130	0.072	<0.067
	12/16/19	ND	<0.2	<0.2	<0.4	<1	--	0.031 J	<0.049	<0.110
	03/25/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	--	**0.031 J**	**<0.049**	**<0.110**
	06/17/20	**ND**	**<0.2**	**<0.2**	**<0.4**	**<1**	--	**0.044 J**	**<0.047**	**<0.100**

Appendix C
Historical 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)	
			B	T	E	X		Gasoline C_7 - C_{12}	Diesel C_{12} - C_{24}	Heavy Oil >C_{24}

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 sulfuric 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]BTEX 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.
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.

Appendix C
Historical 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	--	--	--	--	--	--	--	--	--
	12/14/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
MW-61A-R	12/14/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/25/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
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	--	--
	09/22/16	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	<0.033	--	--
	01/12/17	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
Duplicate	01/12/17	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
	03/27/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	11/08/17	0.018	0.015	0.026	0.018	0.019	0.019	0.015	0.13	--	--	--	--	--	--	--	--	--
	03/26/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--
Duplicate	03/26/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--
	06/20/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	--	--	--	--	--	--	--	--	--
Duplicate	06/20/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	--	--	--	--	--	--	--	--	--
	09/27/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
Duplicate	09/27/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/13/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	03/25/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
Duplicate	03/25/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/25/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	09/26/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	<0.03	--	--
Duplicate	09/26/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	<0.03	--	--
	12/18/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
Duplicate	12/18/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	03/24/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
Duplicate	**03/24/20**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
	06/16/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
Duplicate	**06/16/20**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--

Appendix C
Historical 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-200 (continued) Filtered	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
	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
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	--	--
	01/13/17	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.008	--	--	--	--	--	--	--	--	--
	06/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	11/08/17	0.064	0.037	0.11	0.096	0.072	0.081	0.088	0.548	--	--	--	--	--	--	--	--	--
	06/20/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/13/18	0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	0.010	--	--	--	--	--	--	--	--	--
	06/25/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/18/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/16/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.02**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
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	--	--
	01/13/17	0.017	<0.010	<0.010	<0.010	0.017	<0.010	<0.010	0.009	--	--	--	--	--	--	--	--	--
	06/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	11/08/17	0.018	<0.010	<0.010	<0.010	0.019	<0.010	<0.010	0.027	--	--	--	--	--	--	--	--	--
	06/20/18	0.010	<0.01	<0.01	<0.01	0.010	<0.02	<0.01	0.020	--	--	--	--	--	--	--	--	--
	12/13/18	0.020	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	0.020	--	--	--	--	--	--	--	--	--
	06/25/19	0.01 J	<0.01	<0.01	<0.01	0.02 J	<0.02	<0.01	0.02 J	--	--	--	--	--	--	--	--	--
	12/18/19	<0.01	0.02 J	0.02 J	<0.01	<0.01	<0.02	0.03 J	0.07 J	--	--	--	--	--	--	--	--	--
	06/16/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**0.080**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**

Appendix C
Historical 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	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
	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
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	--	--
	01/13/17	0.023	<0.011	<0.011	<0.011	0.017	<0.011	<0.011	0.023	--	--	--	--	--	--	--	--	--
	06/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	11/08/17	<0.010	<0.010	<0.010	<0.010	<0.010	0.021	<0.010	0.021	--	--	--	--	--	--	--	--	--
	06/20/18	0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	0.01	--	--	--	--	--	--	--	--	--
	12/13/18	0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	0.01	--	--	--	--	--	--	--	--	--
Duplicate	12/13/18	0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/25/19	0.03 J	<0.01	<0.01	<0.01	0.02 J	<0.02	<0.01	0.02 J	--	--	--	--	--	--	--	--	--
	12/17/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/16/20	**0.021 J**	**<0.01**	**<0.01**	**<0.01**	**0.015 J**	**<0.02**	**<0.01**	**<0.231**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
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	--	--	--	--	--	--	--	--	--

Appendix C
Historical 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-203 (continued)	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	--	--
	01/13/17	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
	06/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	11/08/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/20/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/13/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/25/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/17/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/16/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
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	07/06/07	<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	--	--	--	--	--	--	--	--	--
	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	09/22/11[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	09/22/11	<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	09/22/11[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	09/22/11[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	09/22/11	<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	09/22/11[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	09/22/11[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	09/22/11[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

Appendix C
Historical 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)	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	--	--
	01/13/17	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
	06/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	11/08/17	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
	06/20/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/13/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/24/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
Duplicate	06/24/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/17/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/16/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
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	--	--	--	--	--	--	--	--	--
	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

Appendix C
Historical 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) 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	--	--
	01/13/17	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
	06/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	11/08/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/20/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/13/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/24/19	<0.01	<0.01	<0.01	<0.01	0.02 J	<0.02	<0.01	0.02 J	--	--	--	--	--	--	--	--	--
	12/17/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/16/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
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
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	--	--
	01/13/17	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
	06/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	11/08/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/20/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/13/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/25/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/17/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/16/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
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

Appendix C
Historical 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-207 (continued)	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	--	--
	01/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
Duplicate	01/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/13/17	0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	11/08/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
Duplicate	11/08/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/20/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/13/18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/25/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	12/17/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	06/16/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
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	--	--
	09/22/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	<0.030	--	--
	01/12/17	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--	--
	03/27/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/16/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	03/25/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
	06/17/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
MW-210	02/16/16	0.100	0.042	0.050	0.016	0.170	0.012	0.021	0.411	--	--	--	--	--	--	--	--	--
	06/13/16	0.110	0.056	0.073	0.027	0.210	0.015	0.024	0.515	--	--	--	--	--	--	<0.031	--	--
	09/22/16	0.016	0.014	0.016	<0.012	0.029	<0.012	<0.012	0.019	--	--	--	--	--	--	<0.037	--	--
	01/12/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	03/27/17	0.016	<0.010	0.011	<0.010	0.020	<0.010	<0.010	0.009	--	--	--	--	--	--	--	--	--
Duplicate	03/27/17	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	0.008	--	--	--	--	--	--	--	--	--
	06/16/17	0.075	0.042	0.044	0.020	0.130	0.017	0.034	0.060	--	--	--	--	--	--	--	--	--
	12/16/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	03/25/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
	06/17/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
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	--	--
	09/22/16	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	--	--	--	--	--	--	<0.033	--	--
	01/12/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	03/27/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	06/16/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--
	12/16/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	--	--	--	--	--	--	--	--	--
	03/25/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--
	06/17/20	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.01**	**<0.08**	--	--	--	--	--	--	--	--	--

Appendix C
Historical Summary of Groundwater Analytical Data
Carcinogenic Polycyclic Aromatic Hydrocarbons

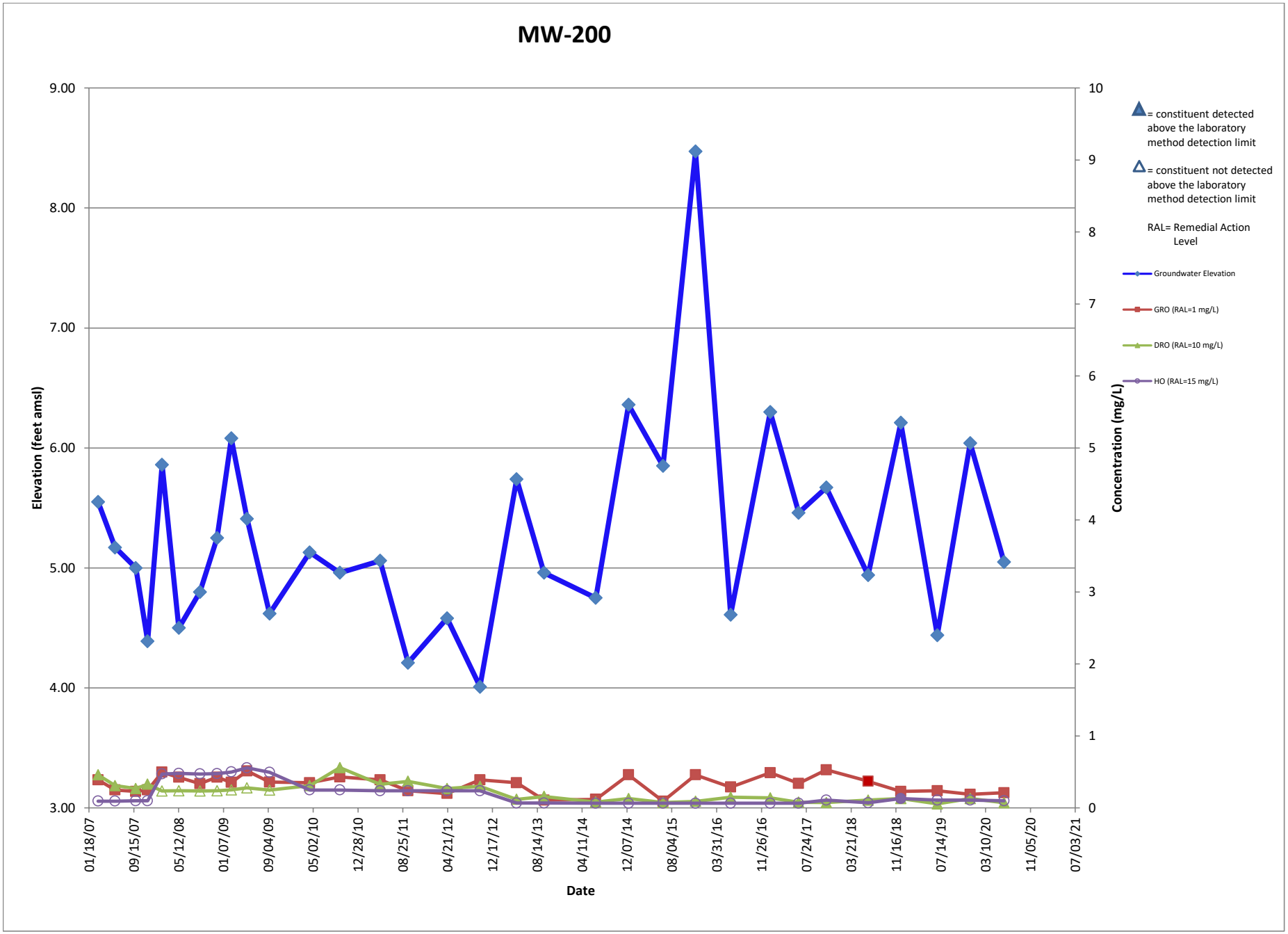
Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

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

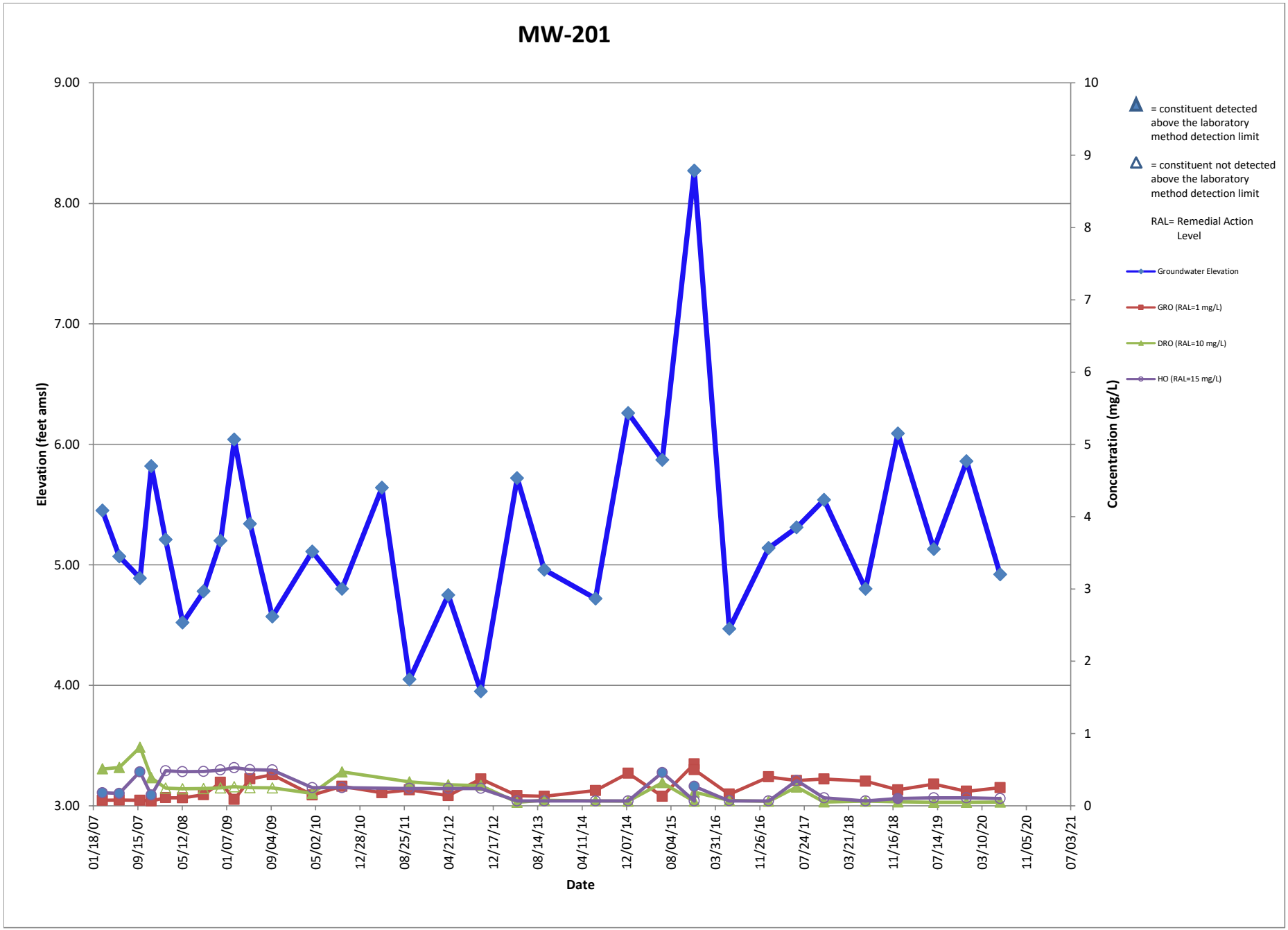
Notes:
[1]Monitoring well locations are shown on Figure 2.
[2]Analyses by EPA Method 8310 or 8270 (SIM).
[3]WAC 173-340-200 (MTCA).
[4]Numeric sum of detected concentrations. Where no compounds were detected, this figure is equal to the highest reporting limit for an individual compound.
[5]Napthalene 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.
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.

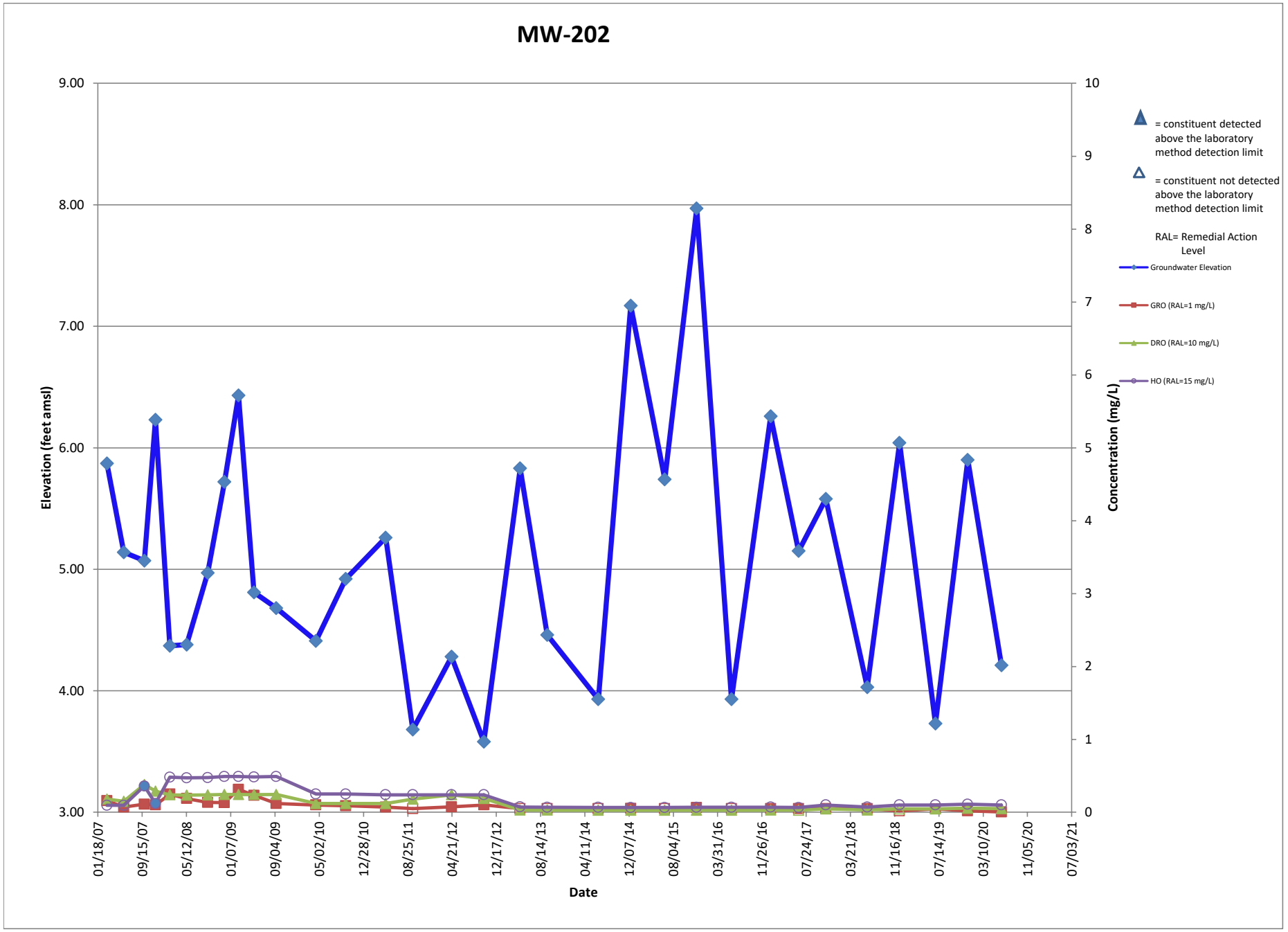
APPENDIX D

Historical Trends Graphs


MW-200
Elevation (feet amsl)
Concentration (mg/L)
Date
9.00
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
03/21/18
11/16/18
07/14/19
03/10/20
11/05/20
07/03/21
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)

MW-201


9.00
8.00
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
03/21/18
11/16/18
07/14/19
03/10/20
11/05/20
07/03/21
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)


MW-202
Elevation (feet amsl)
Concentration (mg/L)
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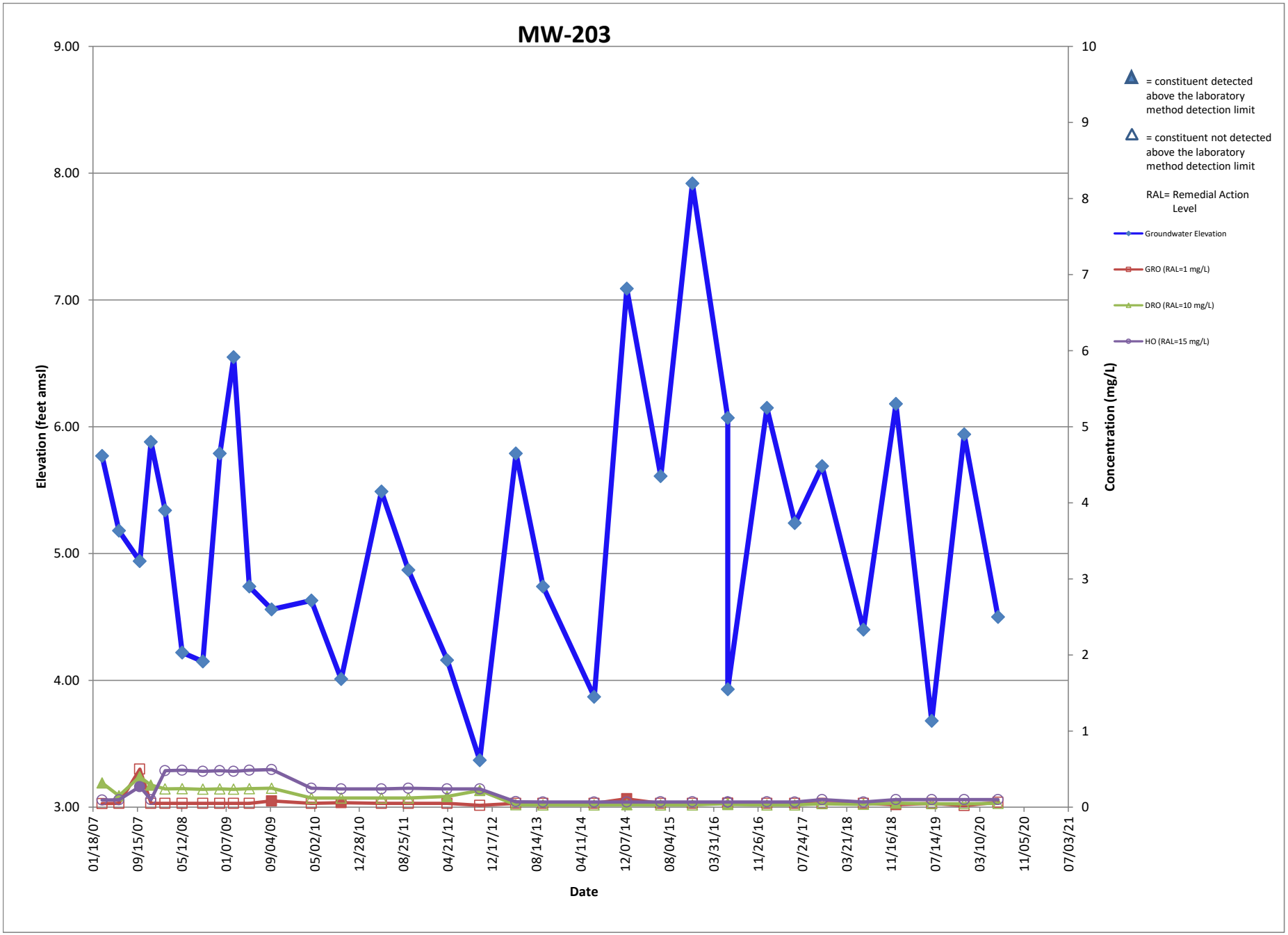
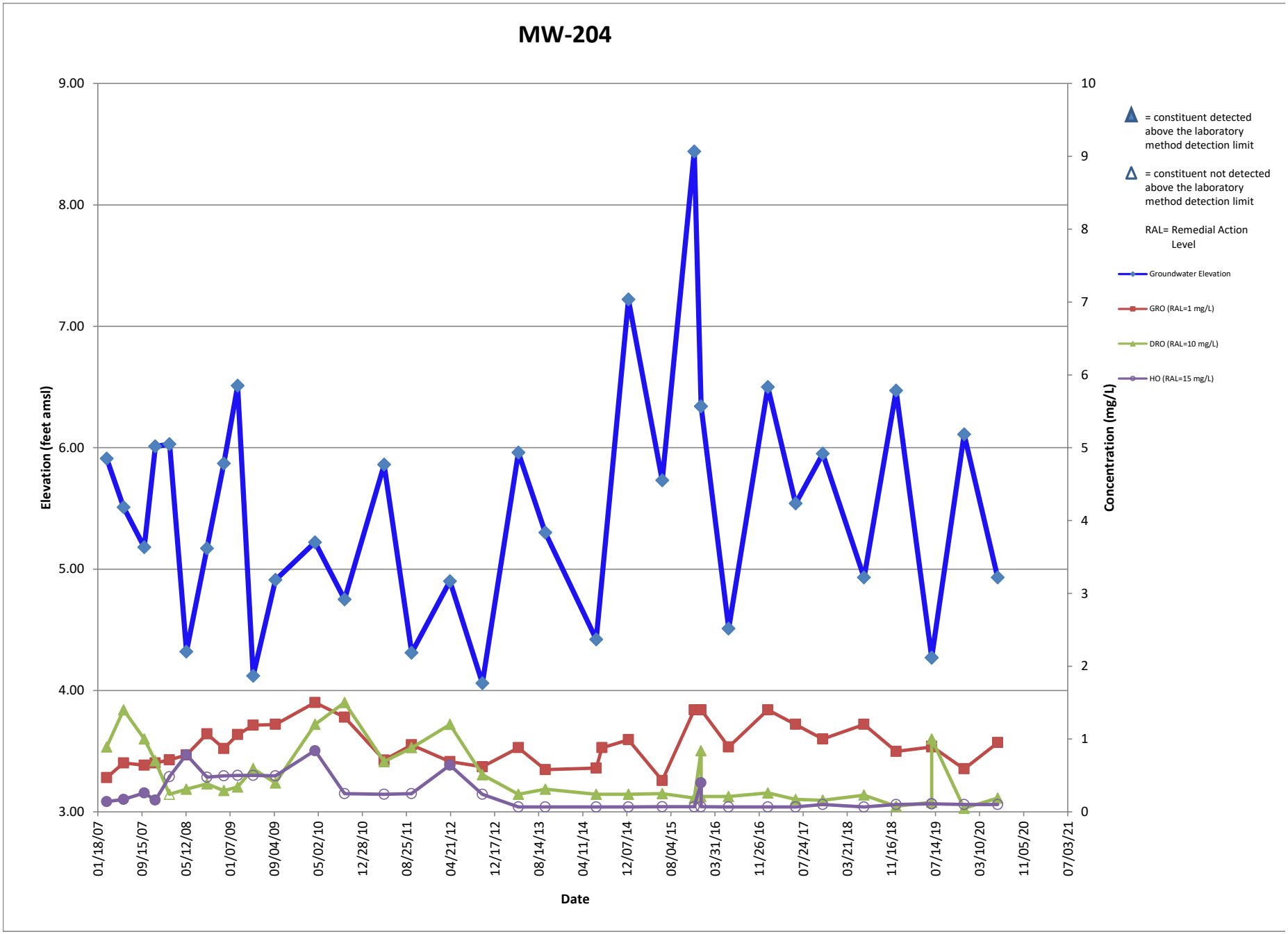
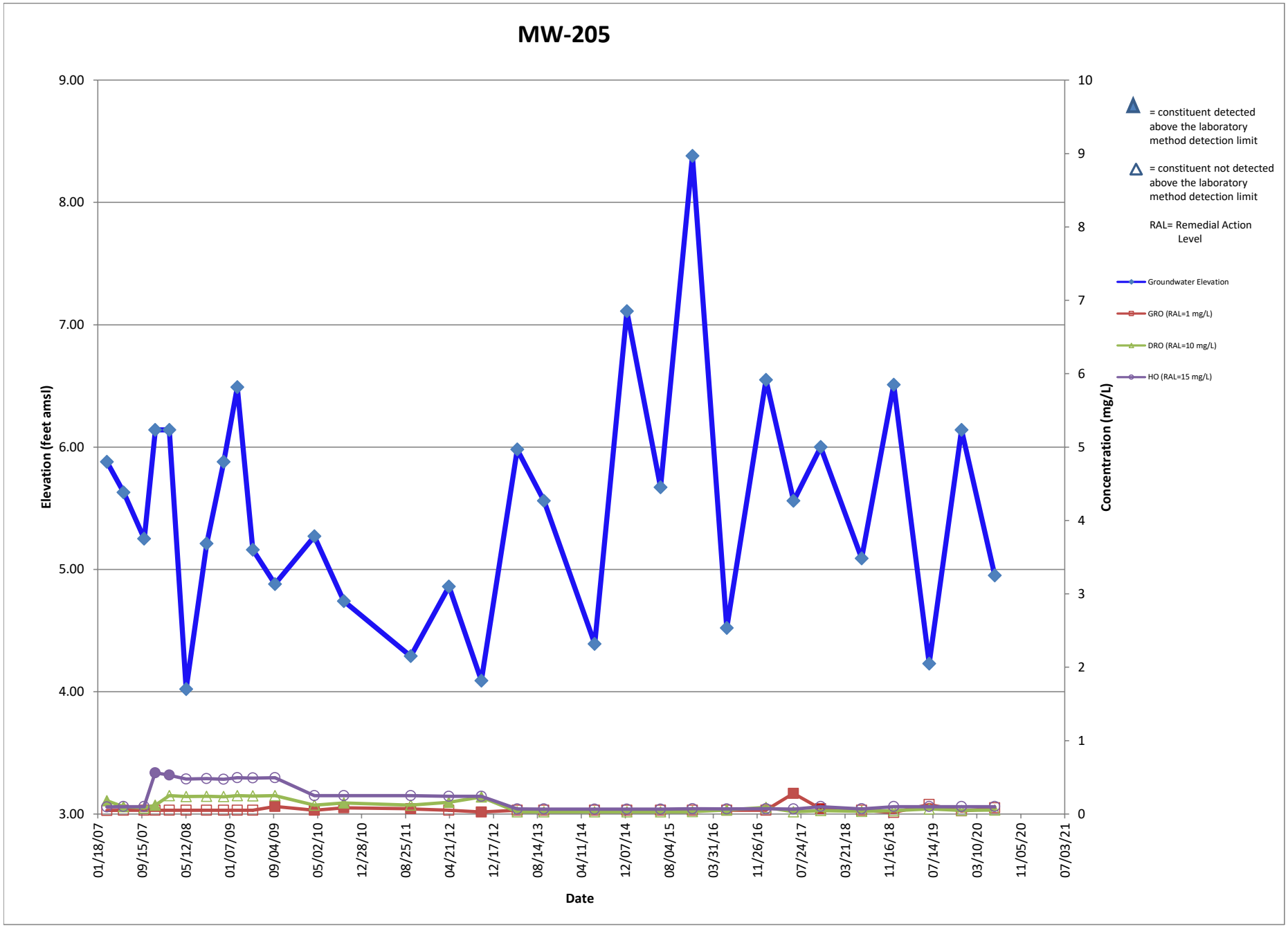
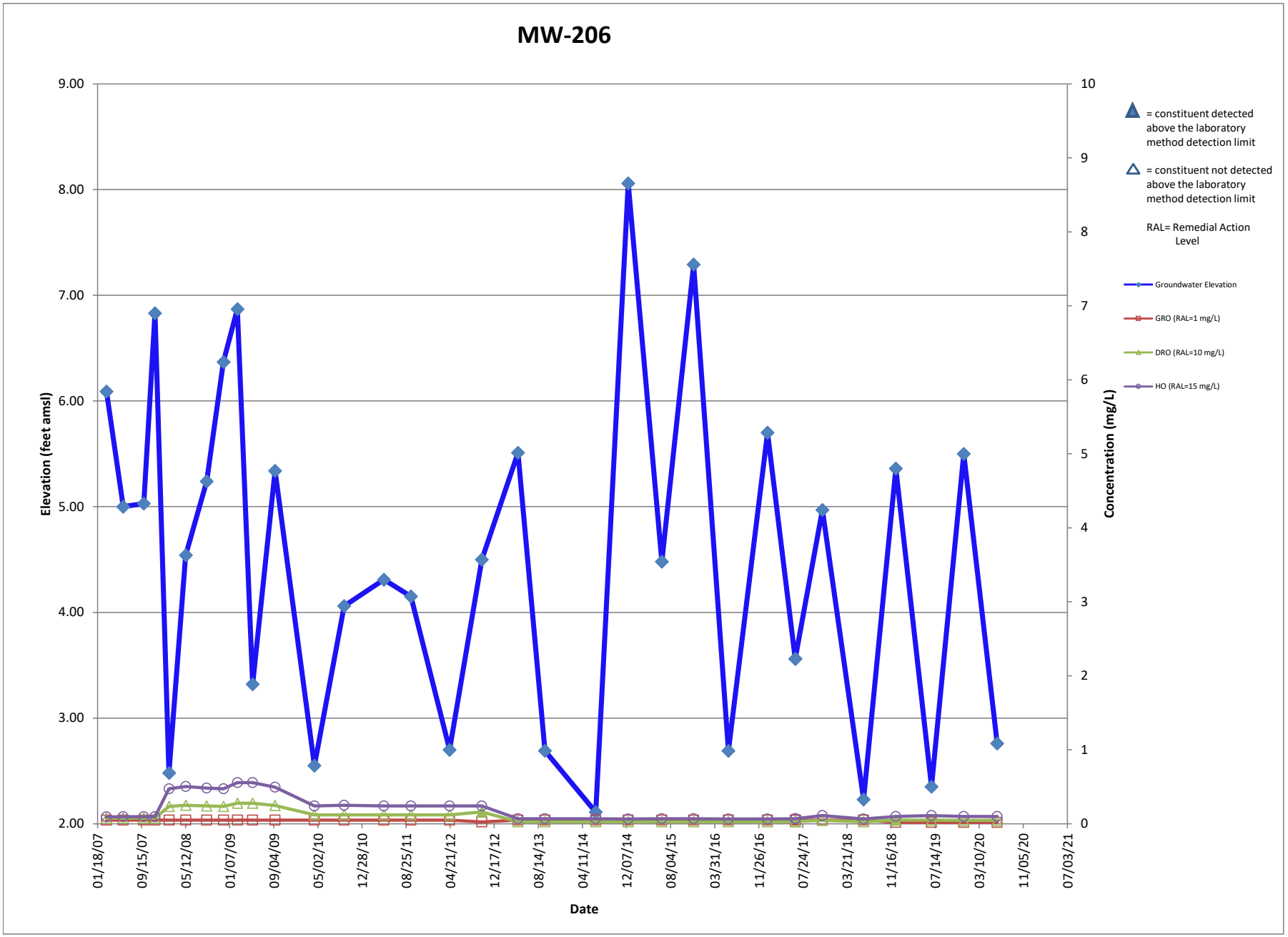
7.00
6.00
5.00
4.00
3.00
10
9
8
7
6
5
4
3
2
1
0
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
03/21/18
11/16/18
07/14/19
03/10/20
11/05/20
07/03/21
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)


MW-203
Elevation (feet amsl)
Concentration (mg/L)
Date
9.00
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
03/21/18
11/16/18
07/14/19
03/10/20
11/05/20
07/03/21
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)


MW-204
Elevation (feet amsl)
Concentration (mg/L)
Date
9.00
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
03/21/18
11/16/18
07/14/19
03/10/20
11/05/20
07/03/21
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)


MW-205
Elevation (feet amsl)
Concentration (mg/L)
Date
9.00
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
03/21/18
11/16/18
07/14/19
03/10/20
11/05/20
07/03/21
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)


MW-206
Elevation (feet amsl)
Concentration (mg/L)
Date
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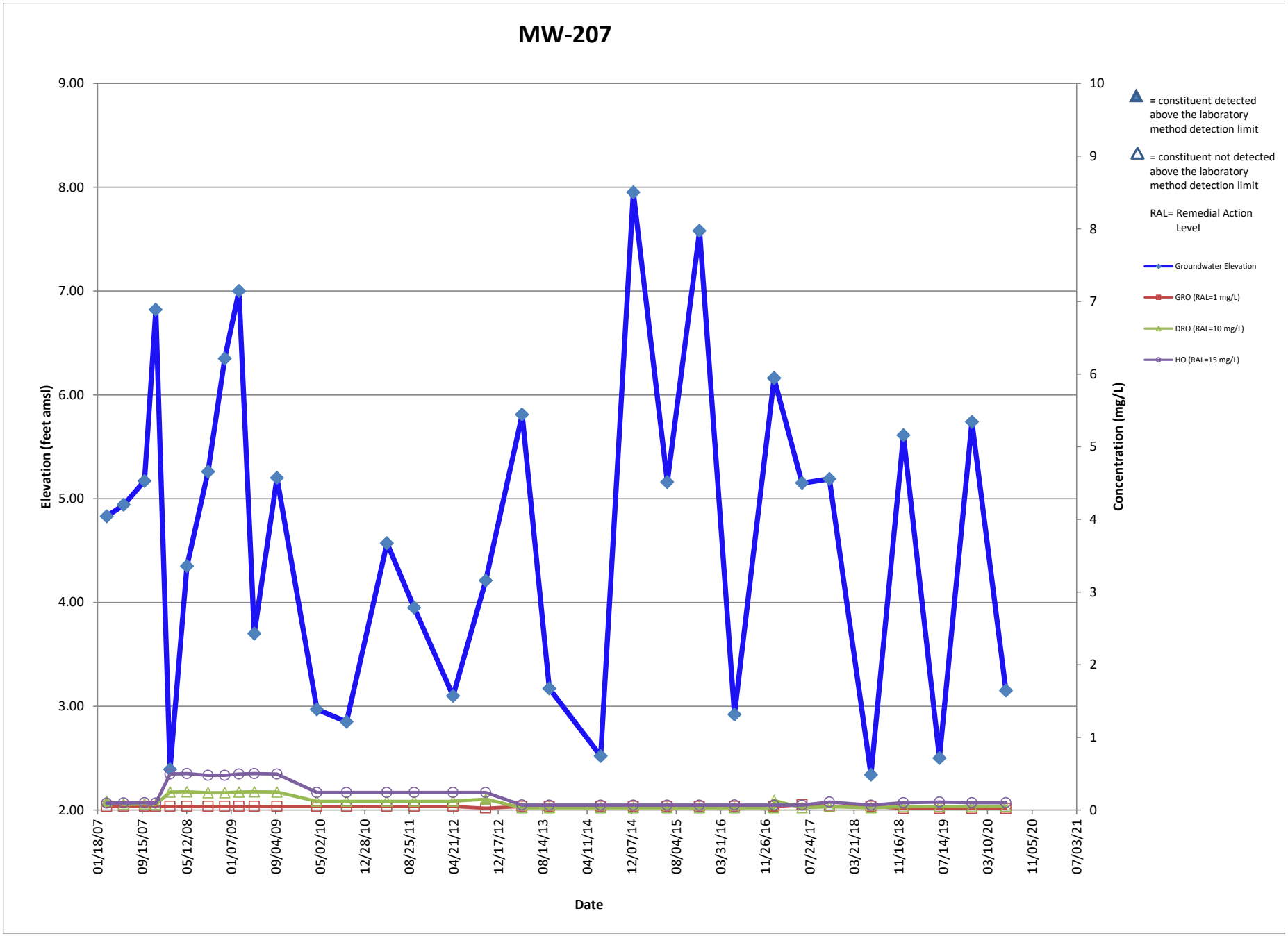
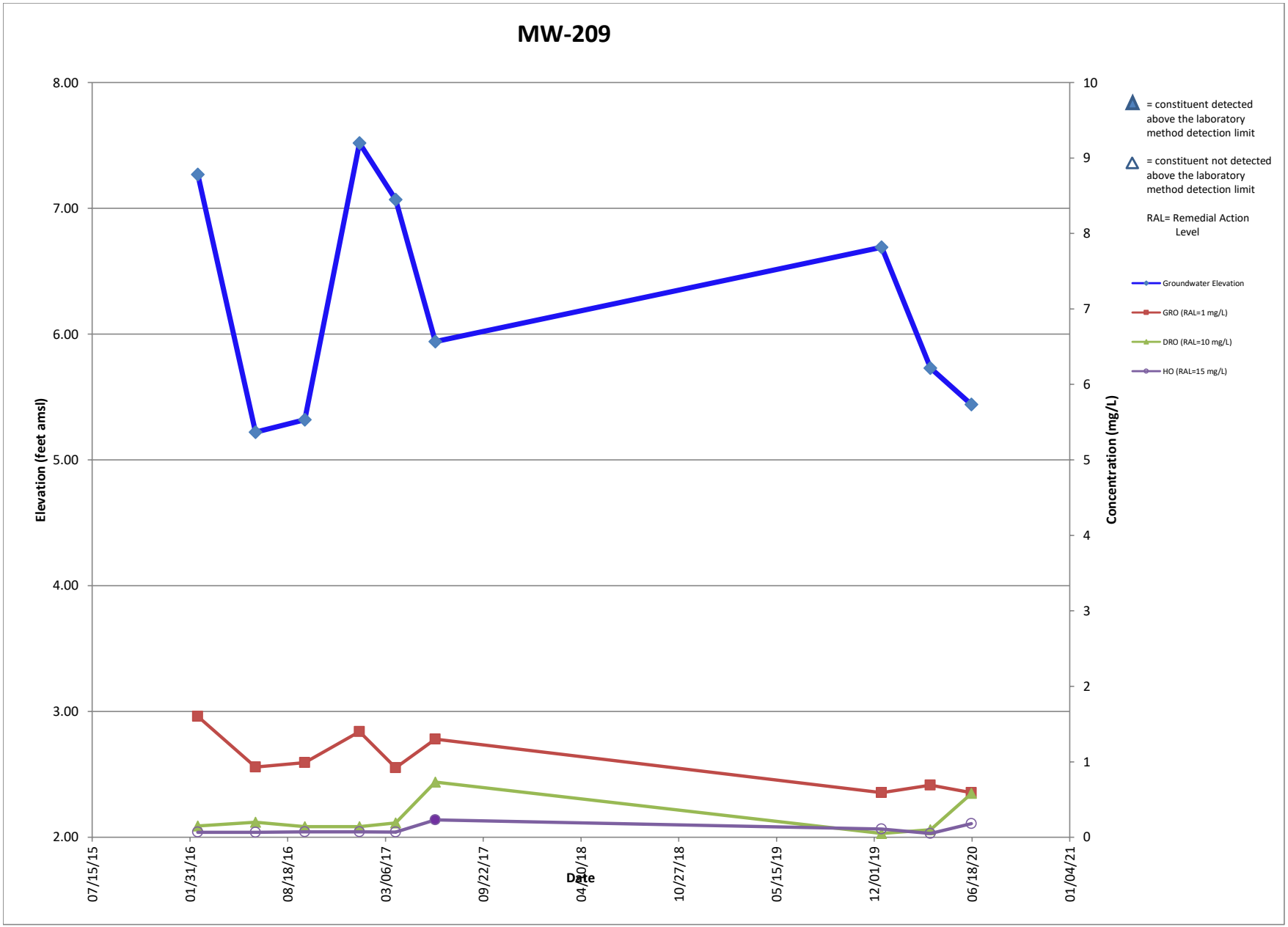
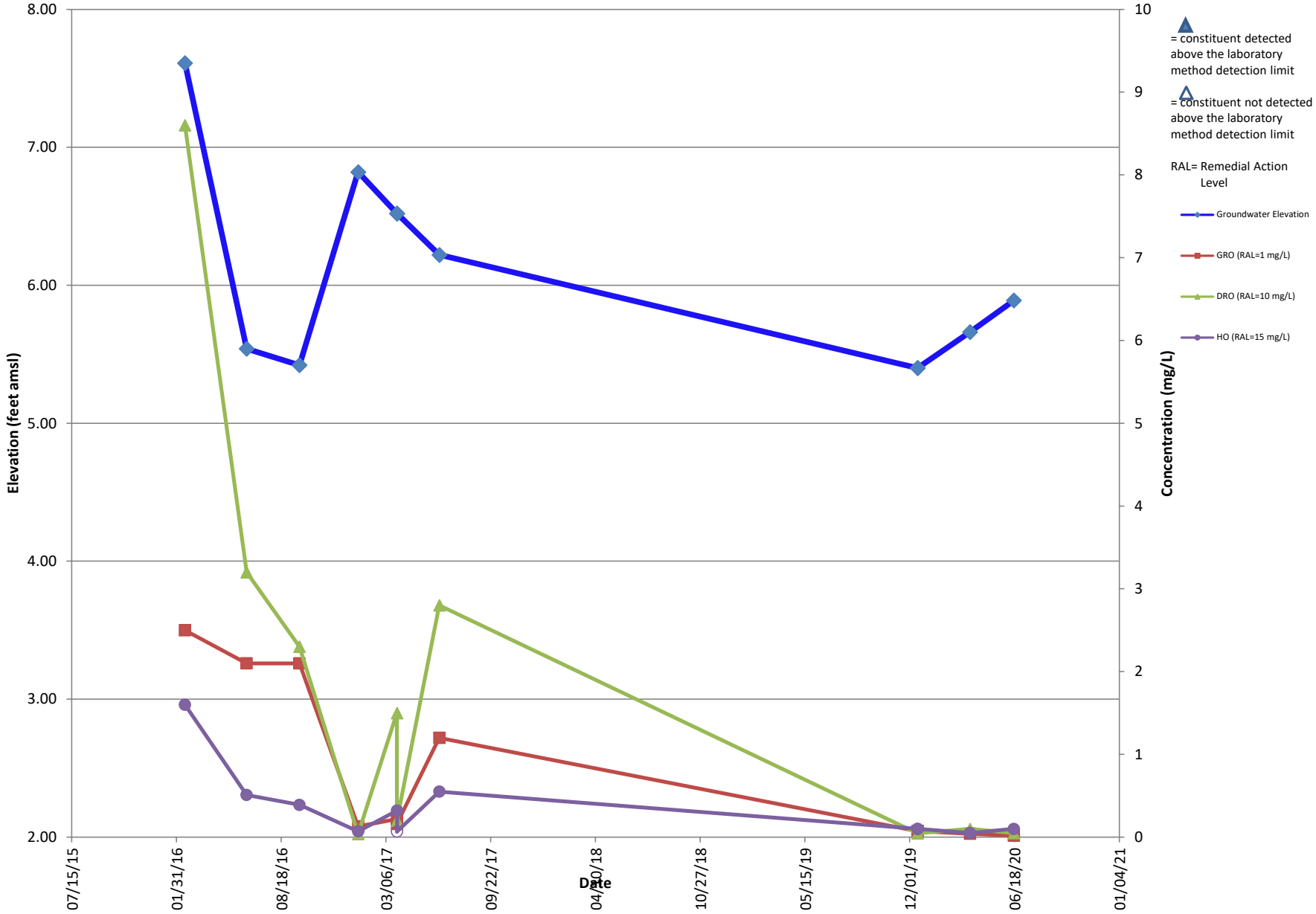
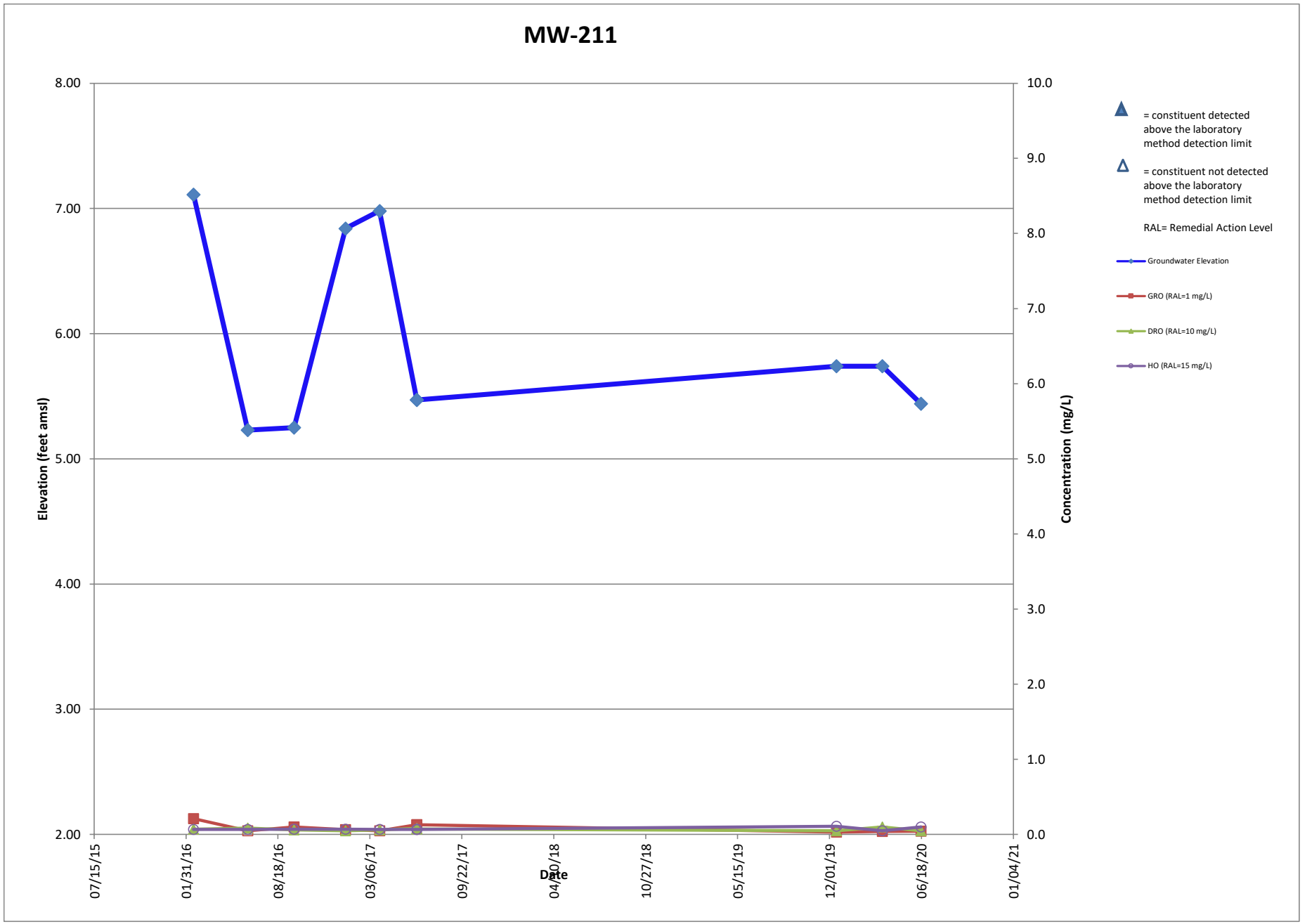
8.00
7.00
6.00
5.00
4.00
3.00
2.00
10
9
8
7
6
5
4
3
2
1
0
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
03/21/18
11/16/18
07/14/19
03/10/20
11/05/20
07/03/21
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)

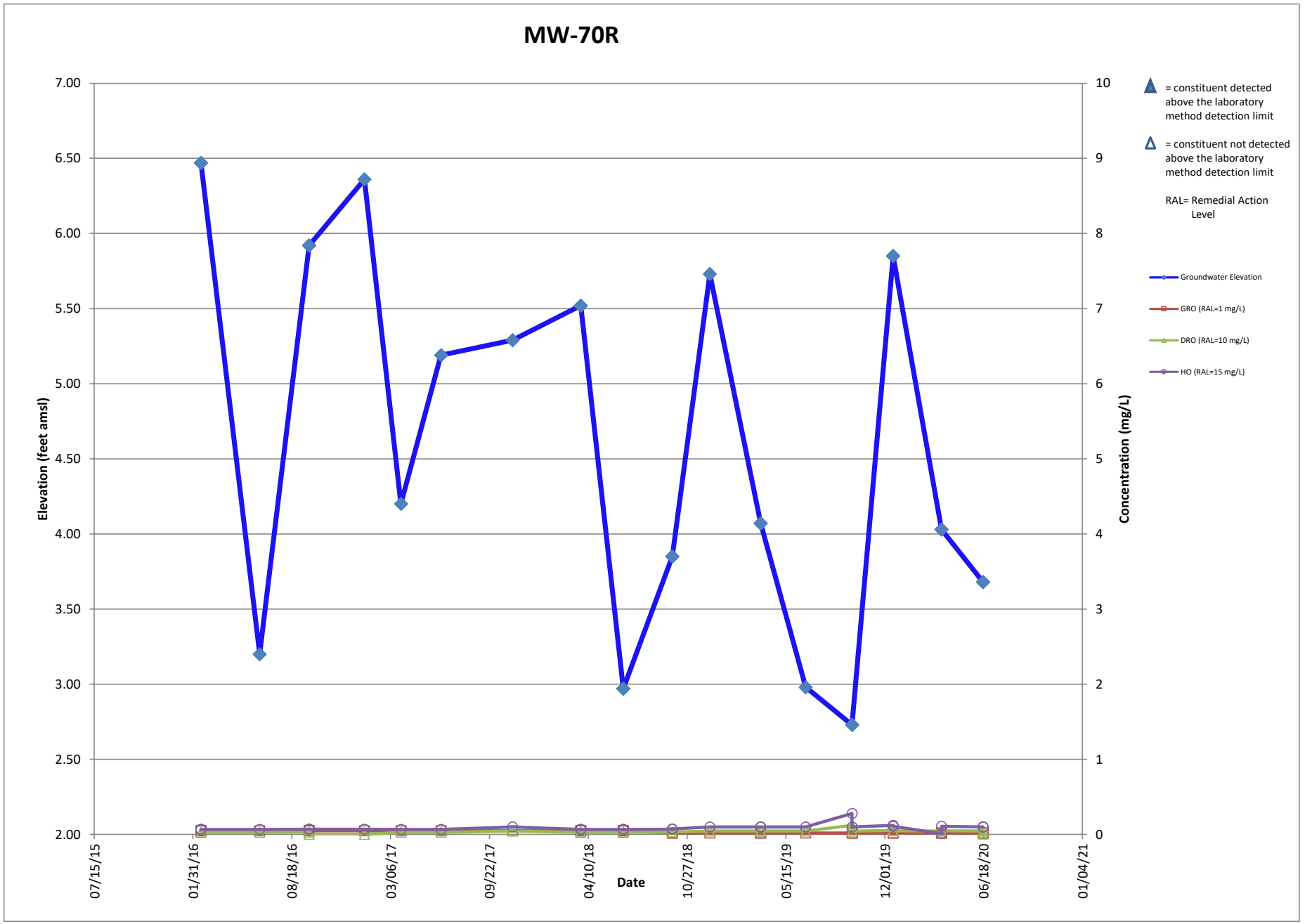

MW-207
Elevation (feet amsl)
Concentration (mg/L)
Date
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
10
9
8
7
6
5
4
3
2
1
0
01/18/07
09/15/07
05/12/08
01/07/09
09/04/09
05/02/10
12/28/10
08/25/11
04/21/12
12/17/12
08/14/13
04/11/14
12/07/14
08/04/15
03/31/16
11/26/16
07/24/17
03/21/18
11/16/18
07/14/19
03/10/20
11/05/20
07/03/21
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)

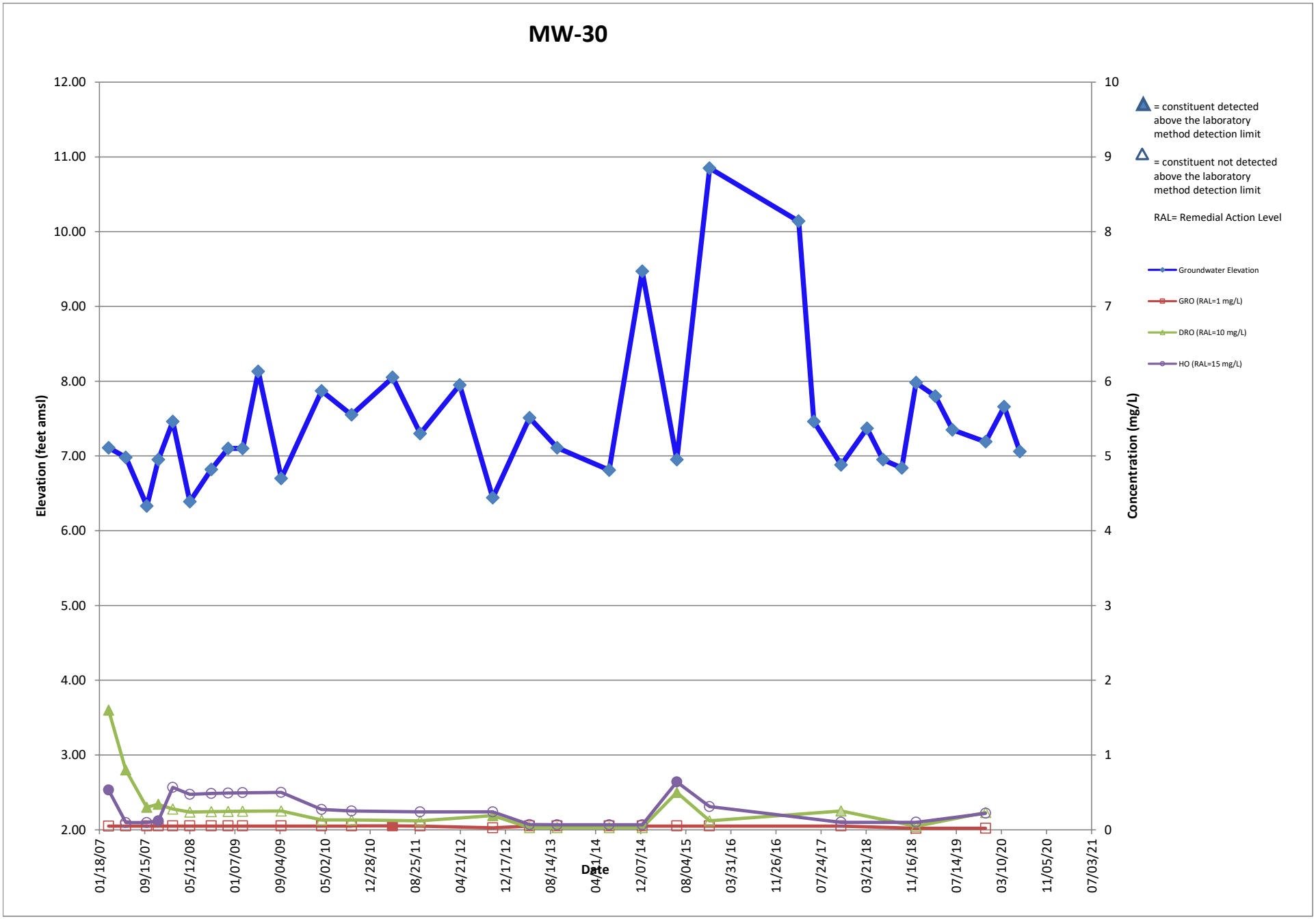

MW-209
8.00
7.00
6.00
5.00
4.00
3.00
2.00
Elevation (feet amsl)
10
9
8
7
6
5
4
3
2
1
0
Concentration (mg/L)
07/15/15
01/31/16
08/18/16
03/06/17
09/22/17
04/10/18
10/27/18
05/15/19
12/01/19
06/18/20
01/04/21
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)

MW-210


8.00
7.00
6.00
5.00
4.00
3.00
2.00
Elevation (feet amsl)
10
9
8
7
6
5
4
3
2
1
0
Concentration (mg/L)
07/15/15
01/31/16
08/18/16
03/06/17
09/22/17
04/10/18
10/27/18
05/15/19
12/01/19
06/18/20
01/04/21
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)


MW-211
8.00
7.00
6.00
5.00
4.00
3.00
2.00
Elevation (feet amsl)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (mg/L)
07/15/15
01/31/16
08/18/16
03/06/17
09/22/17
04/10/18
10/27/18
05/15/19
12/01/19
06/18/20
01/04/21
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)


MW-70R
7.00
6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
Elevation (feet amsl)
10
9
8
7
6
5
4
3
2
1
0
Concentration (mg/L)
07/15/15
01/31/16
08/18/16
03/06/17
09/22/17
04/10/18
10/27/18
05/15/19
12/01/19
06/18/20
01/04/21
Date
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)


MW-30
Elevation (feet amsl)
Concentration (mg/L)
Date
12.00
11.00
10.00
9.00
8.00
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
07/24/17
03/21/18
11/16/18
07/14/19
03/10/20
11/05/20
07/03/21
= constituent detected above the laboratory method detection limit
= constituent not detected above the laboratory method detection limit
RAL= Remedial Action Level
Groundwater Elevation
GRO (RAL=1 mg/L)
DRO (RAL=10 mg/L)
HO (RAL=15 mg/L)

APPENDIX E

Laboratory report and Chain of Custody Forms

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ANALYSIS REPORT

Prepared by:

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

Prepared for:

Chevron c/o Arcadis
630 Plaza Drive
Suite 600
Highlands Ranch CO 80129

Report Date: April 06, 2020 07:27

Project: Seattle Terminal

Account #: 10847
Group Number: 2093868
PO Number: 30047028
State of Sample Origin: WA

Electronic Copy To	ARCADIS U.S., Inc.	Attn: Sam Miles
Electronic Copy To	ARCADIS	Attn: Ophelie Encelle
Electronic Copy To	Arcadis	Attn: Daniel Gilbert

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/ . Historical copies may be requested through your project manager.

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
MW-70R-W-200324 Grab Groundwater	03/24/2020 14:40	1288332
MW-209-W-200325 Grab Groundwater	03/25/2020 11:40	1288333
MW-210-W-200325 Grab Groundwater	03/25/2020 10:15	1288334
MW-211-W-200325 Grab Groundwater	03/25/2020 10:20	1288335
DUP-1-WD-200324 Grab Groundwater	03/24/2020	1288336
TripBlank-T-200324 NA Water	03/24/2020	1288337

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

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Project Name: Seattle Terminal
ELLE Group #: 2093868

General Comments:

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client. The compliance signature is located on the cover page of the Analysis Reports.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if 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.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

ECY 97-602 NWTPH-Dx modified, GC Petroleum Hydrocarbons w/Si

Batch #: 200870019A (Sample number(s): 1288332, 1288334-1288336)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: DX DRO C12-C24 w/ SiGel

Batch #: 200920009A (Sample number(s): 1288333)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: DX DRO C12-C24 w/ SiGel

Sample Description: **MW-70R-W-200324 Grab Groundwater**
Seattle Terminal
3001 Elliott Ave - Seattle, WA

Project Name: **Seattle Terminal**

Submittal Date/Time: 03/26/2020 10:23
Collection Date/Time: 03/24/2020 14:40

Chevron c/o Arcadis
ELLE Sample #: WW 1288332
ELLE Group #: 2093868
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
13130	Benzene	71-43-2	N.D.	0.2	1	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1	1
13130	Toluene	108-88-3	N.D.	0.2	1	1
13130	Xylene (Total)	1330-20-7	N.D.	1	6	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	**ug/l**	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	**ug/l**	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE 8260C	SW-846 8260C	1	Z200922AA	04/01/2020 10:40	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200922AA	04/01/2020 10:39	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	20087WAL026	03/30/2020 11:53	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20087WAL026	03/29/2020 03:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	20086C20A	03/27/2020 02:25	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	20086C20A	03/27/2020 02:24	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	200870019A	03/31/2020 11:36	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	200870019A	03/29/2020 03:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: **MW-209-W-200325 Grab Groundwater**
Seattle Terminal
3001 Elliott Ave - Seattle, WA

Project Name: **Seattle Terminal**

Submittal Date/Time: 03/26/2020 10:23
Collection Date/Time: 03/25/2020 11:40

Chevron c/o Arcadis
ELLE Sample #: WW 1288333
ELLE Group #: 2093868
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
13130	Benzene	71-43-2	N.D.	0.2	1	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1	1
13130	Toluene	108-88-3	0.4 J	0.2	1	1
13130	Xylene (Total)	1330-20-7	N.D.	1	6	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	**ug/l**	
08273	NWTPH-Gx water C7-C12	n.a.	690	19	250	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	**ug/l**	
12917	DX DRO C12-C24 w/ SiGel	n.a.	54 J	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE 8260C	SW-846 8260C	1	Z200922AA	04/01/2020 11:05	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200922AA	04/01/2020 11:04	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	20087WAL026	03/30/2020 12:23	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20087WAL026	03/29/2020 03:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	20086C20A	03/27/2020 02:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	20086C20A	03/27/2020 02:47	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	200920009A	04/03/2020 11:39	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	2	200920009A	04/01/2020 17:30	Osvaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: **MW-210-W-200325 Grab Groundwater**
Seattle Terminal
3001 Elliott Ave - Seattle, WA

Project Name: **Seattle Terminal**

Submittal Date/Time: 03/26/2020 10:23
Collection Date/Time: 03/25/2020 10:15

Chevron c/o Arcadis
ELLE Sample #: WW 1288334
ELLE Group #: 2093868
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
13130	Benzene	71-43-2	N.D.		0.2	1	1
13130	Ethylbenzene	100-41-4	N.D.		0.4	1	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.2	1	1
13130	Toluene	108-88-3	N.D.		0.2	1	1
13130	Xylene (Total)	1330-20-7	N.D.		1	6	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14244	Benzo(a)anthracene	56-55-3	N.D.		0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.		0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.		0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.		0.01	0.05	1
14244	Chrysene	218-01-9	N.D.		0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.		0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.01	0.05	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**		**ug/l**	**ug/l**	
08273	NWTPH-Gx water C7-C12	n.a.	41	J	19	250	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**		**ug/l**	**ug/l**	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.		47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.		100	260	1

Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE 8260C	SW-846 8260C	1	Z200922AA	04/01/2020 12:18	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200922AA	04/01/2020 12:17	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	20087WAL026	03/30/2020 12:53	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20087WAL026	03/29/2020 03:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	20086C20A	03/27/2020 03:12	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	20086C20A	03/27/2020 03:11	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	200870019A	03/31/2020 12:21	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	200870019A	03/29/2020 03:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: **MW-211-W-200325 Grab Groundwater**
Seattle Terminal
3001 Elliott Ave - Seattle, WA

Project Name: **Seattle Terminal**

Submittal Date/Time: 03/26/2020 10:23
Collection Date/Time: 03/25/2020 10:20

Chevron c/o Arcadis
ELLE Sample #: WW 1288335
ELLE Group #: 2093868
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
13130	Benzene	71-43-2	N.D.		0.2	1	1
13130	Ethylbenzene	100-41-4	N.D.		0.4	1	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.2	1	1
13130	Toluene	108-88-3	N.D.		0.2	1	1
13130	Xylene (Total)	1330-20-7	N.D.		1	6	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14244	Benzo(a)anthracene	56-55-3	N.D.		0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.		0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.		0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.		0.01	0.05	1
14244	Chrysene	218-01-9	N.D.		0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.		0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.01	0.05	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**		**ug/l**	**ug/l**	
08273	NWTPH-Gx water C7-C12	n.a.	41	J	19	250	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**		**ug/l**	**ug/l**	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.		47	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.		110	260	1

Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE 8260C	SW-846 8260C	1	Z200922AA	04/01/2020 12:42	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200922AA	04/01/2020 12:41	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	20087WAL026	03/30/2020 13:24	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20087WAL026	03/29/2020 03:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	20086C20A	03/27/2020 03:36	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	20086C20A	03/27/2020 03:35	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	200870019A	03/31/2020 12:44	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	200870019A	03/29/2020 03:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: **DUP-1-WD-200324 Grab Groundwater**
Seattle Terminal
3001 Elliott Ave - Seattle, WA

Project Name: **Seattle Terminal**

Submittal Date/Time: 03/26/2020 10:23
Collection Date/Time: 03/24/2020

Chevron c/o Arcadis
ELLE Sample #: WW 1288336
ELLE Group #: 2093868
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
13130	Benzene	71-43-2	N.D.	0.2	1	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1	1
13130	Toluene	108-88-3	N.D.	0.2	1	1
13130	Xylene (Total)	1330-20-7	N.D.	1	6	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	**ug/l**	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	**ug/l**	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1

Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE 8260C	SW-846 8260C	1	Z200922AA	04/01/2020 13:06	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200922AA	04/01/2020 13:05	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	20087WAL026	03/30/2020 13:54	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20087WAL026	03/29/2020 03:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	20086C20A	03/27/2020 03:59	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	20086C20A	03/27/2020 03:58	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	200870019A	03/31/2020 13:07	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	200870019A	03/29/2020 03:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: **TripBlank-T-200324 NA Water**
Seattle Terminal
3001 Elliott Ave - Seattle, WA

Project Name: **Seattle Terminal**

Submittal Date/Time: 03/26/2020 10:23
Collection Date/Time: 03/24/2020

Chevron c/o Arcadis
ELLE Sample #: WW 1288337
ELLE Group #: 2093868
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
13130	Benzene	71-43-2	N.D.	0.2	1	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1	1
13130	Toluene	108-88-3	N.D.	0.2	1	1
13130	Xylene (Total)	1330-20-7	N.D.	1	6	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**ug/l**	**ug/l**	**ug/l**	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE 8260C	SW-846 8260C	1	Z200922AA	04/01/2020 13:30	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200922AA	04/01/2020 13:29	Alexander D Sechrist	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	20086C20A	03/27/2020 02:02	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	20086C20A	03/27/2020 02:01	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: Chevron c/o Arcadis
Reported: 04/06/2020 07:27

Group Number: 2093868

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**	LOQ
	ug/l	ug/l	ug/l
Batch number: Z200922AA	Sample number(s): 1288332-1288337		
Benzene	N.D.	0.2	1
Ethylbenzene	N.D.	0.4	1
Methyl Tertiary Butyl Ether	N.D.	0.2	1
Toluene	N.D.	0.2	1
Xylene (Total)	N.D.	1	6
Batch number: 20087WAL026	Sample number(s): 1288332-1288336		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 20086C20A	Sample number(s): 1288332-1288337		
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 200870019A	Sample number(s): 1288332,1288334-1288336		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	330	100	250
Batch number: 200920009A	Sample number(s): 1288333		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

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: Z200922AA	Sample number(s): 1288332-1288337								
Benzene	20	22.17			111		80-120		
Ethylbenzene	20	21.95			110		80-120		
Methyl Tertiary Butyl Ether	20	21.3			106		69-122		
Toluene	20	22.38			112		80-120		
Xylene (Total)	60	68.91			115		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Quality Control Summary

Client Name: Chevron c/o Arcadis
Reported: 04/06/2020 07:27

Group Number: 2093868

LCS/LCSD (continued)

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: 20087WAL026	Sample number(s): 1288332-1288336								
Benzo(a)anthracene	1.00	0.837	1.00	0.814	84	81	61-117	3	30
Benzo(a)pyrene	1.00	0.916	1.00	0.876	92	88	63-135	4	30
Benzo(b)fluoranthene	1.00	0.930	1.00	0.893	93	89	66-138	4	30
Benzo(k)fluoranthene	1.00	0.898	1.00	0.873	90	87	58-142	3	30
Chrysene	1.00	0.879	1.00	0.842	88	84	61-117	4	30
Dibenz(a,h)anthracene	1.00	0.869	1.00	0.822	87	82	51-139	6	30
Indeno(1,2,3-cd)pyrene	1.00	0.929	1.00	0.860	93	86	56-147	8	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 20086C20A	Sample number(s): 1288332-1288337								
NWTPH-Gx water C7-C12	1100	1052.29	1100	1042.95	96	95	64-131	1	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 200870019A	Sample number(s): 1288332,1288334-1288336								
DX DRO C12-C24 w/ SiGel	600.15	255.07	600.15	388.22	43	65	10-115	41*	20
Batch number: 200920009A	Sample number(s): 1288333								
DX DRO C12-C24 w/ SiGel	600.15	236.26	600.15	145.44	39	24	10-115	48*	20

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: Z200922AA	Sample number(s): 1288332-1288337 UNSPK: 1288333									
Benzene	N.D.	20	21.68	20	22.16	108	111	80-120	2	30
Ethylbenzene	N.D.	20	21.82	20	22.29	109	111	80-120	2	30
Methyl Tertiary Butyl Ether	N.D.	20	19.63	20	20.06	98	100	69-122	2	30
Toluene	0.407	20	21.71	20	22.24	107	109	80-120	2	30
Xylene (Total)	N.D.	60	67.51	60	68.07	113	113	80-120	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Quality Control Summary

Client Name: Chevron c/o Arcadis
Reported: 04/06/2020 07:27

Group Number: 2093868

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: BTEX/MTBE 8260C
Batch number: Z200922AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1288332	104	101	101	93
1288333	99	97	104	101
1288334	104	103	102	95
1288335	103	101	102	95
1288336	104	101	102	95
1288337	104	100	103	95
Blank	103	104	101	93
LCS	99	101	102	103
MS	99	99	103	101
MSD	99	100	104	102
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 20087WAL026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1288332	87	74	60
1288333	73	57	67
1288334	101	66	75
1288335	105	31	75
1288336	100	60	68
Blank	104	84	71
LCS	98	84	75
LCSD	97	81	65
Limits:	34-125	10-138	15-121

Analysis Name: NWTPH-Gx water C7-C12
Batch number: 20086C20A

	Trifluorotoluene-F
1288332	73
1288333	88
1288334	77
1288335	79
1288336	73
1288337	75
Blank	75
LCS	80
LCSD	84

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Quality Control Summary

Client Name: Chevron c/o Arcadis
Reported: 04/06/2020 07:27

Group Number: 2093868

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.

Analysis Name: NWTPH-Gx water C7-C12
Batch number: 20086C20A

Limits: 50-150

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 200870019A

	Orthoterphenyl	Capric Acid
1288332	65	0
1288334	61	0
1288335	59	0
1288336	60	0
Blank	70	0
LCS	71	0
LCSD	67	0
Limits:	50-150	0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 200920009A

	Orthoterphenyl	Capric Acid
1288333	62	0
Blank	60	0
LCS	60	0
LCSD	50	0
Limits:	50-150	0-1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Chevron Northwest Region Analysis Request/Chain of Custody

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Acct. # 11964 Group # 2093968 Sample # 1288332 - 1288337

For Lancaster Laboratories use only

Instructions on reverse side correspond with circled numbers.

1 Client Information

Facility # Seattle Terminal WBS

Site Address 3001 Elliott Ave, seattle WA

Chevron PM Kim Jolitz Lead Consultant Arcadis

Consultant/Office 1100 Olive way, Suite 800, seattle, WA

Consultant Project Mgr. Sam Miles

Consultant Phone #

Sampler Daniel Sly Gilbert, Riku Iwasaki

4 Matrix

Soil ☐ Sediment ☐ Water ☒ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Oil ☐ Air ☐

5 Analyses Requested

2 Sample Identification	Collected Date	Collected Time	3 Grab	3 Composite	Total Number of Containers	BTEX + MTBE	8260 full scan	Oxygenates	NWTPH GX	NWTPH DX	Lead	WAVPH	cPAHs 8270 SIM
MW-70R	3/24	1440	X		10	X			X	X			X
MW-209	3/25	1140	X		10	X			X	X			X
MW-210	3/25	1015	X		10	X			X	X			X
MW-211	3/25	1020	X		10	X			X	X			X
Dup-1	3/24	—	X		10	X			X	X			X
Trip Blank	—	—				X			X				

NWTPH GX GRO; NWTPH DX ☒ Silica Gel Cleanup; Lead ☐ Total ☐ Diss. ☐ Method ____; WAVPH ☐ WAEPH ☐

SCR #: ____

- ☐ 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

Chevron Silica gel cleanup

7 Turnaround Time Requested (TAT) (please circle)

Standard 5 day 4 day

72 hour 48 hour 24 hour

8 Data Package Options (please circle if required)

Type I - Full Type VI (Raw Data)

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Received by: Chi Lee Date: 3/26/20 Time: 10:23

Temperature Upon Receipt 12 | 13 °C

Custody Seals Intact? Yes No

9

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Issued by Dept. 40 Management

7051.01

The white copy should accompany samples to Lancaster Laboratories. The yellow copy should be retained by the client.

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Sample Administration Receipt Documentation Log

Doc Log ID: 280160

Group Number(s):

Client: CHEVRON NORTHWEST REGION

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Date:	03/26/2020
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	Total Trip Blank Qty:	4
Samples Chilled:	Yes	Trip Blank Type:	HCl
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Jessenia Colon Martinez

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	1.6	DT	Wet	Y	Bagged	N
2	DT146	1.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
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Explanation of Symbols and Abbreviations

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

BMQL	Below Minimum Quantitation Level	**mL**	milliliter(s)
C	degrees Celsius	**MPN**	Most Probable Number
cfu	colony forming units	**N.D.**	non-detect
CP Units	cobalt-chloroplatinate units	**ng**	nanogram(s)
F	degrees Fahrenheit	**NTU**	nephelometric turbidity units
g	gram(s)	**pg/L**	picogram/liter
IU	International Units	**RL**	Reporting Limit
kg	kilogram(s)	**TNTC**	Too Numerous To Count
L	liter(s)	**µg**	microgram(s)
lb.	pound(s)	**µL**	microliter(s)
m3	cubic meter(s)	**umhos/cm**	micromhos/cm
meq	milliequivalents	**MCL**	Maximum Contamination Limit
mg	milligram(s)		

<	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.

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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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is less than the LOQ
K2	Continuing Calibration Blank is above the QC limit and the sample result is less than the LOQ
K3	Initial Calibration Verification is above the QC limit and the sample result is less than the LOQ
K4	Continuing Calibration Verification is above the QC limit and the sample result is less than the LOQ
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.
P^	Concentration difference between the primary and confirmation column > 40%. The higher 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.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

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.

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ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-4890-1
Client Project/Site: Seattle Terminal

For:
ARCADIS U.S., Inc.
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Mr. Samuel Miles

Authorized for release by:
7/22/2020 12:04:56 PM

Amek Carter, Project Manager
(717)556-7252
amekcarter@eurofinsus.com

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments. QC data that exceed the upper limits and are associated with non-detect samples are qualified but no further narration is needed since the bias is high and does not change a non-detect result. Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

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

Test 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" and tested in the laboratory are not performed within 15 minutes of collection.

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 LANACASTER 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.

Amek Carter
Project Manager
7/22/2020 12:04:56 PM

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-4890-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-4890-1

Comments
No additional comments.

Receipt
The samples were received on 6/18/2020 10:28 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.8º C, 4.0º C and 5.8º C.

Receipt Exceptions

One or more containers for the following samples were received broken or leaking: 3 HCl Trip Blanks, 1 HCl 250 ml amber glass ID: MW-207, & 1 HCl 250 ml amber glass ID: MW-200. MW-70R (410-4890-1), MW-200 (410-4890-2), MW-201 (410-4890-3), MW-202 (410-4890-4), MW-203 (410-4890-5), MW-204 (410-4890-6), MW-205 (410-4890-7), MW-206 (410-4890-8), MW-207 (410-4890-9), MW-209 (410-4890-10), MW-210 (410-4890-11), MW-211 (410-4890-12), DUP-1 (410-4890-13) and Trip Blank (410-4890-14).

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method NWTPH-Dx: The laboratory control sample (LCS) for preparation batch 410-15607 and 410-16933 and analytical batch 410-17257 recovered outside control limits for the following analytes: C12-C24. These analytes were biased high in the LCS and were not detected in the following samples: MW-70R (410-4890-1), MW-200 (410-4890-2), MW-201 (410-4890-3), MW-202 (410-4890-4), MW-203 (410-4890-5), MW-204 (410-4890-6), MW-205 (410-4890-7), MW-206 (410-4890-8), MW-207 (410-4890-9) and DUP-1 (410-4890-13). Samples with detections were re-extracted past hold. The LCS/LCSD was within QC limits in the re-extract batch. Since the hold time expired prior to re-analysis, all results are reported from the first trial.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Client Sample ID: MW-70R — Lab Sample ID: 410-4890-1

No Detections.

Client Sample ID: MW-200 — Lab Sample ID: 410-4890-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	210	J	250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	72	J * *1	110	47	ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-201 — Lab Sample ID: 410-4890-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	250		250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	52	J * *1	110	48	ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-202 — Lab Sample ID: 410-4890-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.021	J	0.054	0.011	ug/L	1		8270D SIM	Total/NA
Chrysene	0.015	J	0.054	0.011	ug/L	1		8270D SIM	Total/NA
C7-C12 (1C)	47	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

Client Sample ID: MW-203 — Lab Sample ID: 410-4890-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	65	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

Client Sample ID: MW-204 — Lab Sample ID: 410-4890-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.37	J	1.0	0.20	ug/L	1		8260C	Total/NA
C7-C12 (1C)	950		250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	190	* *1	100	47	ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-205 — Lab Sample ID: 410-4890-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	82	J	250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	53	J * *1	100	47	ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-206 — Lab Sample ID: 410-4890-8

No Detections.

Client Sample ID: MW-207 — Lab Sample ID: 410-4890-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.018	J	0.060	0.012	ug/L	1		8270D SIM	Total/NA

Client Sample ID: MW-209 — Lab Sample ID: 410-4890-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.30	J	1.0	0.20	ug/L	1		8260C	Total/NA
C7-C12 (1C)	590		250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	580		100	46	ug/L	1		NWTPH-Dx	Total/NA
C24-C40	180	J	260	100	ug/L	1		NWTPH-Dx	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Client Sample ID: MW-210 — Lab Sample ID: 410-4890-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	19	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

Client Sample ID: MW-211 — Lab Sample ID: 410-4890-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	44	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

Client Sample ID: DUP-1 — Lab Sample ID: 410-4890-13

No Detections.

Client Sample ID: Trip Blank — Lab Sample ID: 410-4890-14

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-70R

Date Collected: 06/16/20 10:00
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/29/20 17:09	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/29/20 17:09	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/29/20 17:09	1
Toluene	ND		1.0	0.20	ug/L			06/29/20 17:09	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/29/20 17:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*06/29/20 17:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/29/20 17:09*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*06/29/20 17:09*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*06/29/20 17:09*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		06/22/20 17:21	06/23/20 13:38	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		06/22/20 17:21	06/23/20 13:38	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		06/22/20 17:21	06/23/20 13:38	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		06/22/20 17:21	06/23/20 13:38	1
Chrysene	ND		0.055	0.011	ug/L		06/22/20 17:21	06/23/20 13:38	1
Dibenz(a,h)anthracene	ND		0.076	0.022	ug/L		06/22/20 17:21	06/23/20 13:38	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.011	ug/L		06/22/20 17:21	06/23/20 13:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*68*		*10 - 138*	*06/22/20 17:21*	*06/23/20 13:38*	*1*
1-Methylnaphthalene-d10 (Surr)	*80*		*15 - 121*	*06/22/20 17:21*	*06/23/20 13:38*	*1*
Fluoranthene-d10 (Surr)	*107*		*34 - 125*	*06/22/20 17:21*	*06/23/20 13:38*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			06/27/20 22:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*73*		*50 - 150*		*06/27/20 22:31*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* *1	100	46	ug/L		06/23/20 09:30	06/27/20 04:11	1
C24-C40	ND		260	100	ug/L		06/23/20 09:30	06/27/20 04:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.0002*		*0 - 1*	*06/23/20 09:30*	*06/27/20 04:11*	*1*
o- terphenyl (Surr)	*67*		*50 - 150*	*06/23/20 09:30*	*06/27/20 04:11*	*1*

Client Sample ID: MW-200

Date Collected: 06/16/20 13:50
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/29/20 17:33	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/29/20 17:33	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/29/20 17:33	1

Client Sample ID: MW-200

Date Collected: 06/16/20 13:50
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.20	ug/L			06/29/20 17:33	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/29/20 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*06/29/20 17:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*		*06/29/20 17:33*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*06/29/20 17:33*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*06/29/20 17:33*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 14:09	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 14:09	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 14:09	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 14:09	1
Chrysene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 14:09	1
Dibenz(a,h)anthracene	ND		0.074	0.021	ug/L		06/22/20 17:21	06/23/20 14:09	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 14:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*55*		*10 - 138*	*06/22/20 17:21*	*06/23/20 14:09*	*1*
1-Methylnaphthalene-d10 (Surr)	*83*		*15 - 121*	*06/22/20 17:21*	*06/23/20 14:09*	*1*
Fluoranthene-d10 (Surr)	*113*		*34 - 125*	*06/22/20 17:21*	*06/23/20 14:09*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	**210**	**J**	250	19	ug/L			06/27/20 22:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*82*		*50 - 150*		*06/27/20 22:58*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	**72**	**J * *1**	110	47	ug/L		06/23/20 09:30	06/27/20 04:34	1
C24-C40	ND		260	110	ug/L		06/23/20 09:30	06/27/20 04:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.01*		*0 - 1*	*06/23/20 09:30*	*06/27/20 04:34*	*1*
o- terphenyl (Surr)	*66*		*50 - 150*	*06/23/20 09:30*	*06/27/20 04:34*	*1*

Client Sample ID: MW-201

Date Collected: 06/16/20 13:05
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/29/20 17:57	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/29/20 17:57	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/29/20 17:57	1
Toluene	ND		1.0	0.20	ug/L			06/29/20 17:57	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/29/20 17:57	1

Client Sample ID: MW-201

Date Collected: 06/16/20 13:05
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-3

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*06/29/20 17:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*06/29/20 17:57*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*06/29/20 17:57*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*06/29/20 17:57*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 14:40	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 14:40	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 14:40	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 14:40	1
Chrysene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 14:40	1
Dibenz(a,h)anthracene	ND		0.075	0.022	ug/L		06/22/20 17:21	06/23/20 14:40	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 14:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*58*		*10 - 138*	*06/22/20 17:21*	*06/23/20 14:40*	*1*
1-Methylnaphthalene-d10 (Surr)	*77*		*15 - 121*	*06/22/20 17:21*	*06/23/20 14:40*	*1*
Fluoranthene-d10 (Surr)	*101*		*34 - 125*	*06/22/20 17:21*	*06/23/20 14:40*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	**250**		250	19	ug/L			06/27/20 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*89*		*50 - 150*		*06/27/20 23:26*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	**52**	**J * *1**	110	48	ug/L		06/23/20 09:30	06/27/20 04:57	1
C24-C40	ND		270	110	ug/L		06/23/20 09:30	06/27/20 04:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.02*		*0 - 1*	*06/23/20 09:30*	*06/27/20 04:57*	*1*
o- terphenyl (Surr)	*72*		*50 - 150*	*06/23/20 09:30*	*06/27/20 04:57*	*1*

Client Sample ID: MW-202

Date Collected: 06/16/20 11:48
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/29/20 18:20	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/29/20 18:20	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/29/20 18:20	1
Toluene	ND		1.0	0.20	ug/L			06/29/20 18:20	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/29/20 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*06/29/20 18:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*06/29/20 18:20*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*06/29/20 18:20*	*1*

Client Sample ID: MW-202

Date Collected: 06/16/20 11:48
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*80 - 120*		*06/29/20 18:20*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	**0.021**	**J**	0.054	0.011	ug/L		06/22/20 17:21	06/23/20 15:10	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 15:10	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 15:10	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 15:10	1
Chrysene	**0.015**	**J**	0.054	0.011	ug/L		06/22/20 17:21	06/23/20 15:10	1
Dibenz(a,h)anthracene	ND		0.075	0.022	ug/L		06/22/20 17:21	06/23/20 15:10	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*67*		*10 - 138*	*06/22/20 17:21*	*06/23/20 15:10*	*1*
1-Methylnaphthalene-d10 (Surr)	*64*		*15 - 121*	*06/22/20 17:21*	*06/23/20 15:10*	*1*
Fluoranthene-d10 (Surr)	*102*		*34 - 125*	*06/22/20 17:21*	*06/23/20 15:10*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	**47**	**J**	250	19	ug/L			06/27/20 23:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*79*		*50 - 150*		*06/27/20 23:54*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* *1	110	47	ug/L		06/23/20 09:30	06/27/20 05:19	1
C24-C40	ND		260	110	ug/L		06/23/20 09:30	06/27/20 05:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.003*		*0 - 1*	*06/23/20 09:30*	*06/27/20 05:19*	*1*
o- terphenyl (Surr)	*58*		*50 - 150*	*06/23/20 09:30*	*06/27/20 05:19*	*1*

Client Sample ID: MW-203

Date Collected: 06/16/20 14:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-5

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/30/20 02:10	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/20 02:10	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/30/20 02:10	1
Toluene	ND		1.0	0.20	ug/L			06/30/20 02:10	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/30/20 02:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*80 - 120*		*06/30/20 02:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*06/30/20 02:10*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*06/30/20 02:10*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*06/30/20 02:10*	*1*

Client Sample ID: MW-203

Date Collected: 06/16/20 14:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-5

Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		06/22/20 17:21	06/23/20 15:41	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		06/22/20 17:21	06/23/20 15:41	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		06/22/20 17:21	06/23/20 15:41	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		06/22/20 17:21	06/23/20 15:41	1
Chrysene	ND		0.056	0.011	ug/L		06/22/20 17:21	06/23/20 15:41	1
Dibenz(a,h)anthracene	ND		0.078	0.022	ug/L		06/22/20 17:21	06/23/20 15:41	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.011	ug/L		06/22/20 17:21	06/23/20 15:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*43*		*10 - 138*	*06/22/20 17:21*	*06/23/20 15:41*	*1*
1-Methylnaphthalene-d10 (Surr)	*68*		*15 - 121*	*06/22/20 17:21*	*06/23/20 15:41*	*1*
Fluoranthene-d10 (Surr)	*95*		*34 - 125*	*06/22/20 17:21*	*06/23/20 15:41*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	**65**	**J**	250	19	ug/L			06/28/20 00:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*84*		*50 - 150*		*06/28/20 00:21*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* *1	100	46	ug/L		06/23/20 09:30	06/27/20 05:42	1
C24-C40	ND		260	100	ug/L		06/23/20 09:30	06/27/20 05:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.01*		*0 - 1*	*06/23/20 09:30*	*06/27/20 05:42*	*1*
o- terphenyl (Surr)	*76*		*50 - 150*	*06/23/20 09:30*	*06/27/20 05:42*	*1*

Client Sample ID: MW-204

Date Collected: 06/16/20 15:05
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-6

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/30/20 02:32	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/20 02:32	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/30/20 02:32	1
Toluene	**0.37**	**J**	1.0	0.20	ug/L			06/30/20 02:32	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/30/20 02:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*106*		*80 - 120*		*06/30/20 02:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*06/30/20 02:32*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*06/30/20 02:32*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*06/30/20 02:32*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.059	0.012	ug/L		06/22/20 17:21	06/23/20 16:12	1
Benzo[a]pyrene	ND		0.059	0.012	ug/L		06/22/20 17:21	06/23/20 16:12	1
Benzo[b]fluoranthene	ND		0.059	0.012	ug/L		06/22/20 17:21	06/23/20 16:12	1

Client Sample ID: MW-204

Date Collected: 06/16/20 15:05
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-6

Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.059	0.012	ug/L		06/22/20 17:21	06/23/20 16:12	1
Chrysene	ND		0.059	0.012	ug/L		06/22/20 17:21	06/23/20 16:12	1
Dibenz(a,h)anthracene	ND		0.082	0.023	ug/L		06/22/20 17:21	06/23/20 16:12	1
Indeno[1,2,3-cd]pyrene	ND		0.059	0.012	ug/L		06/22/20 17:21	06/23/20 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*50*		*10 - 138*	*06/22/20 17:21*	*06/23/20 16:12*	*1*
1-Methylnaphthalene-d10 (Surr)	*95*		*15 - 121*	*06/22/20 17:21*	*06/23/20 16:12*	*1*
Fluoranthene-d10 (Surr)	*120*		*34 - 125*	*06/22/20 17:21*	*06/23/20 16:12*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	**950**		250	19	ug/L			06/28/20 00:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*83*		*50 - 150*		*06/28/20 00:48*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	**190**	***1**	100	47	ug/L		06/23/20 09:30	06/27/20 06:05	1
C24-C40	ND		260	100	ug/L		06/23/20 09:30	06/27/20 06:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.1*		*0 - 1*	*06/23/20 09:30*	*06/27/20 06:05*	*1*
o- terphenyl (Surr)	*74*		*50 - 150*	*06/23/20 09:30*	*06/27/20 06:05*	*1*

Client Sample ID: MW-205

Date Collected: 06/16/20 16:20
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-7

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/30/20 02:53	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/20 02:53	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/30/20 02:53	1
Toluene	ND		1.0	0.20	ug/L			06/30/20 02:53	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/30/20 02:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*109*		*80 - 120*		*06/30/20 02:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*06/30/20 02:53*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*06/30/20 02:53*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*06/30/20 02:53*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		06/22/20 17:21	06/23/20 16:42	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/22/20 17:21	06/23/20 16:42	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/22/20 17:21	06/23/20 16:42	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/22/20 17:21	06/23/20 16:42	1
Chrysene	ND		0.051	0.010	ug/L		06/22/20 17:21	06/23/20 16:42	1
Dibenz(a,h)anthracene	ND		0.072	0.020	ug/L		06/22/20 17:21	06/23/20 16:42	1

Client Sample ID: MW-205

Date Collected: 06/16/20 16:20
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-7

Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		0.051	0.010	ug/L		06/22/20 17:21	06/23/20 16:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*57*		*10 - 138*	*06/22/20 17:21*	*06/23/20 16:42*	*1*
1-Methylnaphthalene-d10 (Surr)	*82*		*15 - 121*	*06/22/20 17:21*	*06/23/20 16:42*	*1*
Fluoranthene-d10 (Surr)	*106*		*34 - 125*	*06/22/20 17:21*	*06/23/20 16:42*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	**82**	**J**	250	19	ug/L			06/28/20 01:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*82*		*50 - 150*		*06/28/20 01:43*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	**53**	**J * *1**	100	47	ug/L		06/23/20 09:30	06/27/20 06:28	1
C24-C40	ND		260	100	ug/L		06/23/20 09:30	06/27/20 06:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.01*		*0 - 1*	*06/23/20 09:30*	*06/27/20 06:28*	*1*
o- terphenyl (Surr)	*68*		*50 - 150*	*06/23/20 09:30*	*06/27/20 06:28*	*1*

Client Sample ID: MW-206

Date Collected: 06/16/20 11:40
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-8

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/30/20 03:16	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/20 03:16	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/30/20 03:16	1
Toluene	ND		1.0	0.20	ug/L			06/30/20 03:16	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/30/20 03:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*110*		*80 - 120*		*06/30/20 03:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*06/30/20 03:16*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*06/30/20 03:16*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*06/30/20 03:16*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 17:13	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 17:13	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 17:13	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 17:13	1
Chrysene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 17:13	1
Dibenz(a,h)anthracene	ND		0.075	0.021	ug/L		06/22/20 17:21	06/23/20 17:13	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.011	ug/L		06/22/20 17:21	06/23/20 17:13	1

Client Sample ID: MW-206

Date Collected: 06/16/20 11:40
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-8

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*57*		*10 - 138*	*06/22/20 17:21*	*06/23/20 17:13*	*1*
1-Methylnaphthalene-d10 (Surr)	*73*		*15 - 121*	*06/22/20 17:21*	*06/23/20 17:13*	*1*
Fluoranthene-d10 (Surr)	*103*		*34 - 125*	*06/22/20 17:21*	*06/23/20 17:13*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			06/28/20 02:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*83*		*50 - 150*		*06/28/20 02:11*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* *1	100	47	ug/L		06/23/20 09:30	06/27/20 06:50	1
C24-C40	ND		260	100	ug/L		06/23/20 09:30	06/27/20 06:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.0004*		*0 - 1*	*06/23/20 09:30*	*06/27/20 06:50*	*1*
o- terphenyl (Surr)	*66*		*50 - 150*	*06/23/20 09:30*	*06/27/20 06:50*	*1*

Client Sample ID: MW-207

Date Collected: 06/16/20 10:40
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-9

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/30/20 03:38	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/20 03:38	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/30/20 03:38	1
Toluene	ND		1.0	0.20	ug/L			06/30/20 03:38	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/30/20 03:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*80 - 120*		*06/30/20 03:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*		*06/30/20 03:38*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*06/30/20 03:38*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*06/30/20 03:38*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	**0.018**	**J**	0.060	0.012	ug/L		06/22/20 17:21	06/23/20 17:44	1
Benzo[a]pyrene	ND		0.060	0.012	ug/L		06/22/20 17:21	06/23/20 17:44	1
Benzo[b]fluoranthene	ND		0.060	0.012	ug/L		06/22/20 17:21	06/23/20 17:44	1
Benzo[k]fluoranthene	ND		0.060	0.012	ug/L		06/22/20 17:21	06/23/20 17:44	1
Chrysene	ND		0.060	0.012	ug/L		06/22/20 17:21	06/23/20 17:44	1
Dibenz(a,h)anthracene	ND		0.084	0.024	ug/L		06/22/20 17:21	06/23/20 17:44	1
Indeno[1,2,3-cd]pyrene	ND		0.060	0.012	ug/L		06/22/20 17:21	06/23/20 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*66*		*10 - 138*	*06/22/20 17:21*	*06/23/20 17:44*	*1*
1-Methylnaphthalene-d10 (Surr)	*77*		*15 - 121*	*06/22/20 17:21*	*06/23/20 17:44*	*1*
Fluoranthene-d10 (Surr)	*117*		*34 - 125*	*06/22/20 17:21*	*06/23/20 17:44*	*1*

Client Sample ID: MW-207

Date Collected: 06/16/20 10:40
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-9

Matrix: Water

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			06/28/20 02:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*86*		*50 - 150*		*06/28/20 02:38*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* *1	110	48	ug/L		06/23/20 09:30	06/27/20 07:13	1
C24-C40	ND		260	110	ug/L		06/23/20 09:30	06/27/20 07:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.002*		*0 - 1*	*06/23/20 09:30*	*06/27/20 07:13*	*1*
o- terphenyl (Surr)	*56*		*50 - 150*	*06/23/20 09:30*	*06/27/20 07:13*	*1*

Client Sample ID: MW-209

Date Collected: 06/17/20 11:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-10

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/01/20 17:38	1
Ethylbenzene	ND		1.0	0.40	ug/L			07/01/20 17:38	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			07/01/20 17:38	1
Toluene	**0.30**	**J**	1.0	0.20	ug/L			07/01/20 17:38	1
Xylenes, Total	ND		6.0	1.4	ug/L			07/01/20 17:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*07/01/20 17:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*07/01/20 17:38*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*07/01/20 17:38*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*07/01/20 17:38*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 18:14	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 18:14	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 18:14	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 18:14	1
Chrysene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 18:14	1
Dibenz(a,h)anthracene	ND		0.073	0.021	ug/L		06/22/20 17:21	06/23/20 18:14	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*59*		*10 - 138*	*06/22/20 17:21*	*06/23/20 18:14*	*1*
1-Methylnaphthalene-d10 (Surr)	*95*		*15 - 121*	*06/22/20 17:21*	*06/23/20 18:14*	*1*
Fluoranthene-d10 (Surr)	*109*		*34 - 125*	*06/22/20 17:21*	*06/23/20 18:14*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	**590**		250	19	ug/L			06/28/20 03:06	1

Client Sample ID: MW-209

Date Collected: 06/17/20 11:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-10

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*84*		*50 - 150*		*06/28/20 03:06*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	580		100	46	ug/L		06/23/20 09:30	06/26/20 00:04	1
C24-C40	180	J	260	100	ug/L		06/23/20 09:30	06/26/20 00:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.07*		*0 - 1*	*06/23/20 09:30*	*06/26/20 00:04*	*1*
o- terphenyl (Surr)	*81*		*50 - 150*	*06/23/20 09:30*	*06/26/20 00:04*	*1*

Client Sample ID: MW-210

Date Collected: 06/17/20 12:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-11

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/01/20 17:55	1
Ethylbenzene	ND		1.0	0.40	ug/L			07/01/20 17:55	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			07/01/20 17:55	1
Toluene	ND		1.0	0.20	ug/L			07/01/20 17:55	1
Xylenes, Total	ND		6.0	1.4	ug/L			07/01/20 17:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*07/01/20 17:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*		*07/01/20 17:55*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*07/01/20 17:55*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*07/01/20 17:55*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 18:45	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 18:45	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 18:45	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 18:45	1
Chrysene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 18:45	1
Dibenz(a,h)anthracene	ND		0.075	0.021	ug/L		06/22/20 17:21	06/23/20 18:45	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*62*		*10 - 138*	*06/22/20 17:21*	*06/23/20 18:45*	*1*
1-Methylnaphthalene-d10 (Surr)	*82*		*15 - 121*	*06/22/20 17:21*	*06/23/20 18:45*	*1*
Fluoranthene-d10 (Surr)	*103*		*34 - 125*	*06/22/20 17:21*	*06/23/20 18:45*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	19	J	250	19	ug/L			06/28/20 03:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*84*		*50 - 150*		*06/28/20 03:33*	*1*

Client Sample ID: MW-210

Date Collected: 06/17/20 12:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-11

Matrix: Water

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		06/23/20 09:30	06/26/20 00:26	1
C24-C40	ND		260	100	ug/L		06/23/20 09:30	06/26/20 00:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.006*		*0 - 1*	*06/23/20 09:30*	*06/26/20 00:26*	*1*
o- terphenyl (Surr)	*70*		*50 - 150*	*06/23/20 09:30*	*06/26/20 00:26*	*1*

Client Sample ID: MW-211

Date Collected: 06/17/20 11:15
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-12

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/01/20 18:17	1
Ethylbenzene	ND		1.0	0.40	ug/L			07/01/20 18:17	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			07/01/20 18:17	1
Toluene	ND		1.0	0.20	ug/L			07/01/20 18:17	1
Xylenes, Total	ND		6.0	1.4	ug/L			07/01/20 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*07/01/20 18:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*07/01/20 18:17*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*07/01/20 18:17*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*07/01/20 18:17*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 19:16	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 19:16	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 19:16	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 19:16	1
Chrysene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 19:16	1
Dibenz(a,h)anthracene	ND		0.072	0.021	ug/L		06/22/20 17:21	06/23/20 19:16	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.010	ug/L		06/22/20 17:21	06/23/20 19:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*36*		*10 - 138*	*06/22/20 17:21*	*06/23/20 19:16*	*1*
1-Methylnaphthalene-d10 (Surr)	*80*		*15 - 121*	*06/22/20 17:21*	*06/23/20 19:16*	*1*
Fluoranthene-d10 (Surr)	*102*		*34 - 125*	*06/22/20 17:21*	*06/23/20 19:16*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	**44**	**J**	250	19	ug/L			06/28/20 04:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*84*		*50 - 150*		*06/28/20 04:00*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		06/23/20 09:30	06/26/20 00:49	1
C24-C40	ND		260	100	ug/L		06/23/20 09:30	06/26/20 00:49	1

Client Sample ID: MW-211

Date Collected: 06/17/20 11:15
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-12
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.01*		*0 - 1*	*06/23/20 09:30*	*06/26/20 00:49*	*1*
o- terphenyl (Surr)	*66*		*50 - 150*	*06/23/20 09:30*	*06/26/20 00:49*	*1*

Client Sample ID: DUP-1

Date Collected: 06/16/20 00:00
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-13
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/30/20 04:00	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/20 04:00	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/30/20 04:00	1
Toluene	ND		1.0	0.20	ug/L			06/30/20 04:00	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/30/20 04:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*80 - 120*		*06/30/20 04:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*		*06/30/20 04:00*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*06/30/20 04:00*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*06/30/20 04:00*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 19:46	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 19:46	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 19:46	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 19:46	1
Chrysene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 19:46	1
Dibenz(a,h)anthracene	ND		0.074	0.021	ug/L		06/22/20 17:21	06/23/20 19:46	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.011	ug/L		06/22/20 17:21	06/23/20 19:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*58*		*10 - 138*	*06/22/20 17:21*	*06/23/20 19:46*	*1*
1-Methylnaphthalene-d10 (Surr)	*81*		*15 - 121*	*06/22/20 17:21*	*06/23/20 19:46*	*1*
Fluoranthene-d10 (Surr)	*107*		*34 - 125*	*06/22/20 17:21*	*06/23/20 19:46*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			06/28/20 04:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*85*		*50 - 150*		*06/28/20 04:28*	*1*

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* *1	100	47	ug/L		06/23/20 09:30	06/27/20 07:36	1
C24-C40	ND		260	100	ug/L		06/23/20 09:30	06/27/20 07:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Decanoic Acid (Surr)	*0.0003*		*0 - 1*	*06/23/20 09:30*	*06/27/20 07:36*	*1*
o- terphenyl (Surr)	*60*		*50 - 150*	*06/23/20 09:30*	*06/27/20 07:36*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Client Sample ID: Trip Blank

Date Collected: 06/16/20 00:00
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-14

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/29/20 23:36	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/29/20 23:36	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/29/20 23:36	1
Toluene	ND		1.0	0.20	ug/L			06/29/20 23:36	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/29/20 23:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*80 - 120*		*06/29/20 23:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*06/29/20 23:36*	*1*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*06/29/20 23:36*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*06/29/20 23:36*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			06/27/20 22:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid) (1C)	*83*		*50 - 150*		*06/27/20 22:04*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DBFM (80-120)	DCA (80-120)	BFB (80-120)	TOL (80-120)
410-4890-1	MW-70R	103	101	92	98
410-4890-2	MW-200	103	106	96	99
410-4890-3	MW-201	103	104	92	99
410-4890-4	MW-202	102	104	92	97
410-4890-5	MW-203	111	105	97	99
410-4890-6	MW-204	106	103	101	101
410-4890-7	MW-205	109	105	98	98
410-4890-8	MW-206	110	104	96	99
410-4890-9	MW-207	111	106	96	99
410-4890-10	MW-209	104	100	99	100
410-4890-11	MW-210	99	99	100	99
410-4890-12	MW-211	100	101	99	99
410-4890-13	DUP-1	111	106	96	99
410-4890-14	Trip Blank	111	105	95	99
LCS 410-17520/4	Lab Control Sample	105	109	100	100
LCS 410-17792/4	Lab Control Sample	106	101	101	100
LCS 410-18395/5	Lab Control Sample	107	102	102	101
LCS 410-18475/4	Lab Control Sample	101	100	101	99
LCSD 410-17520/5	Lab Control Sample Dup	103	104	97	100
LCSD 410-18475/5	Lab Control Sample Dup	101	99	101	101
MB 410-17520/7	Method Blank	103	106	92	101
MB 410-17792/6	Method Blank	110	106	96	99
MB 410-18395/7	Method Blank	109	103	97	100
MB 410-18475/7	Method Blank	100	102	99	99

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	BAPd12 (10-138)	MNPd10 (15-121)	FLN10 (34-125)
410-4890-1	MW-70R	68	80	107
410-4890-2	MW-200	55	83	113
410-4890-3	MW-201	58	77	101
410-4890-4	MW-202	67	64	102
410-4890-5	MW-203	43	68	95
410-4890-6	MW-204	50	95	120
410-4890-7	MW-205	57	82	106
410-4890-8	MW-206	57	73	103
410-4890-9	MW-207	66	77	117
410-4890-10	MW-209	59	95	109
410-4890-11	MW-210	62	82	103
410-4890-12	MW-211	36	80	102
410-4890-13	DUP-1	58	81	107

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	BAPd12 (10-138)	MNPd10 (15-121)	FLN10 (34-125)
LCS 410-15452/2-A	Lab Control Sample	85	59	101
LCSD 410-15452/3-A	Lab Control Sample Dup	88	55	101
MB 410-15452/1-A	Method Blank	81	73	109

Surrogate Legend

BAPd12 = Benzo(a)pyrene-d12 (Surr)
MNPd10 = 1-Methylnaphthalene-d10 (Surr)
FLN10 = Fluoranthene-d10 (Surr)

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT-F1 (50-150)
410-4890-1	MW-70R	73
410-4890-2	MW-200	82
410-4890-3	MW-201	89
410-4890-4	MW-202	79
410-4890-5	MW-203	84
410-4890-6	MW-204	83
410-4890-7	MW-205	82
410-4890-8	MW-206	83
410-4890-9	MW-207	86
410-4890-10	MW-209	84
410-4890-11	MW-210	84
410-4890-12	MW-211	84
410-4890-13	DUP-1	85
410-4890-14	Trip Blank	83
LCS 410-17338/5	Lab Control Sample	77
LCSD 410-17338/6	Lab Control Sample Dup	81
MB 410-17338/4	Method Blank	82

Surrogate Legend

TFT-F = a,a,a-Trifluorotoluene (fid)

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	NDA (0-1)	OTP (50-150)
410-4890-1	MW-70R	0.0002	67
410-4890-2	MW-200	0.01	66
410-4890-3	MW-201	0.02	72
410-4890-4	MW-202	0.003	58
410-4890-5	MW-203	0.01	76
410-4890-6	MW-204	0.1	74
410-4890-7	MW-205	0.01	68
410-4890-8	MW-206	0.0004	66
410-4890-9	MW-207	0.002	56
410-4890-10	MW-209	0.07	81

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		NDA	OTP								
Lab Sample ID	Client Sample ID	(0-1)	(50-150)								
410-4890-11	MW-210	0.006	70								
410-4890-12	MW-211	0.01	66								
410-4890-13	DUP-1	0.0003	60								
LCS 410-15607/2-B	Lab Control Sample	0.04	74								
LCSD 410-15607/3-B	Lab Control Sample Dup	0.02	72								
MB 410-15607/1-B	Method Blank	0.0003	72								

Surrogate Legend

NDA = n-Decanoic Acid (Surr)
OTP = o- terphenyl (Surr)

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		NDA	OTP								
Lab Sample ID	Client Sample ID		(50-150)								
LCS 410-15608/2-B	Lab Control Sample	0.02	76								
LCSD 410-15608/3-B	Lab Control Sample Dup	0.02	74								
MB 410-15608/1-B	Method Blank	0.0003	76								

Surrogate Legend

NDA = n-Decanoic Acid (Surr)
OTP = o- terphenyl (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 410-17520/7
Matrix: Water
Analysis Batch: 17520

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/29/20 11:07	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/29/20 11:07	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/29/20 11:07	1
Toluene	ND		1.0	0.20	ug/L			06/29/20 11:07	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/29/20 11:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*06/29/20 11:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*		*06/29/20 11:07*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*06/29/20 11:07*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*06/29/20 11:07*	*1*

Lab Sample ID: LCS 410-17520/4
Matrix: Water
Analysis Batch: 17520

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	22.6		ug/L		113	80 - 120
Ethylbenzene	20.0	20.6		ug/L		103	80 - 120
Methyl tertiary butyl ether	20.0	20.0		ug/L		100	69 - 122
Toluene	20.0	21.3		ug/L		106	80 - 120
Xylenes, Total	60.0	62.2		ug/L		104	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*105*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 410-17520/5
Matrix: Water
Analysis Batch: 17520

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	20.0	22.1		ug/L		110	80 - 120	2	30
Ethylbenzene	20.0	20.7		ug/L		103	80 - 120	1	30
Methyl tertiary butyl ether	20.0	21.9		ug/L		110	69 - 122	9	30
Toluene	20.0	21.3		ug/L		107	80 - 120	0	30
Xylenes, Total	60.0	63.2		ug/L		105	80 - 120	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 410-17792/6
Matrix: Water
Analysis Batch: 17792

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/29/20 23:07	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/29/20 23:07	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			06/29/20 23:07	1
Toluene	ND		1.0	0.20	ug/L			06/29/20 23:07	1
Xylenes, Total	ND		6.0	1.4	ug/L			06/29/20 23:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*110*		*80 - 120*		*06/29/20 23:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*		*06/29/20 23:07*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*06/29/20 23:07*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*06/29/20 23:07*	*1*

Lab Sample ID: LCS 410-17792/4
Matrix: Water
Analysis Batch: 17792

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	20.0		ug/L		100	80 - 120
Ethylbenzene	20.0	20.2		ug/L		101	80 - 120
Methyl tertiary butyl ether	20.0	16.9		ug/L		85	69 - 122
Toluene	20.0	19.6		ug/L		98	80 - 120
Xylenes, Total	60.0	60.3		ug/L		101	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*106*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: MB 410-18395/7
Matrix: Water
Analysis Batch: 18395

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/01/20 11:15	1
Ethylbenzene	ND		1.0	0.40	ug/L			07/01/20 11:15	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			07/01/20 11:15	1
Toluene	ND		1.0	0.20	ug/L			07/01/20 11:15	1
Xylenes, Total	ND		6.0	1.4	ug/L			07/01/20 11:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*109*		*80 - 120*		*07/01/20 11:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*07/01/20 11:15*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*07/01/20 11:15*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*07/01/20 11:15*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 410-18395/5
Matrix: Water
Analysis Batch: 18395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	20.4		ug/L		102	80 - 120
Ethylbenzene	20.0	20.6		ug/L		103	80 - 120
Methyl tertiary butyl ether	20.0	17.1		ug/L		85	69 - 122
Toluene	20.0	19.7		ug/L		99	80 - 120
Xylenes, Total	60.0	60.8		ug/L		101	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*107*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*

Lab Sample ID: MB 410-18475/7
Matrix: Water
Analysis Batch: 18475

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/01/20 11:06	1
Ethylbenzene	ND		1.0	0.40	ug/L			07/01/20 11:06	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			07/01/20 11:06	1
Toluene	ND		1.0	0.20	ug/L			07/01/20 11:06	1
Xylenes, Total	ND		6.0	1.4	ug/L			07/01/20 11:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*07/01/20 11:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*07/01/20 11:06*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*07/01/20 11:06*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*07/01/20 11:06*	*1*

Lab Sample ID: LCS 410-18475/4
Matrix: Water
Analysis Batch: 18475

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	20.8		ug/L		104	80 - 120
Ethylbenzene	20.0	21.3		ug/L		107	80 - 120
Methyl tertiary butyl ether	20.0	18.8		ug/L		94	69 - 122
Toluene	20.0	21.3		ug/L		106	80 - 120
Xylenes, Total	60.0	63.7		ug/L		106	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 410-18475/5
Matrix: Water
Analysis Batch: 18475

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			20.0	21.0		ug/L		105	80 - 120	1	30
Ethylbenzene			20.0	21.7		ug/L		108	80 - 120	2	30
Methyl tertiary butyl ether			20.0	19.1		ug/L		95	69 - 122	2	30
Toluene			20.0	21.4		ug/L		107	80 - 120	0	30
Xylenes, Total			60.0	63.9		ug/L		107	80 - 120	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-15452/1-A
Matrix: Water
Analysis Batch: 15629

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 15452

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/20 17:21	06/23/20 09:34	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/20 17:21	06/23/20 09:34	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/20 17:21	06/23/20 09:34	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/20 17:21	06/23/20 09:34	1
Chrysene	ND		0.050	0.010	ug/L		06/22/20 17:21	06/23/20 09:34	1
Dibenz(a,h)anthracene	ND		0.070	0.020	ug/L		06/22/20 17:21	06/23/20 09:34	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.010	ug/L		06/22/20 17:21	06/23/20 09:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*81*		*10 - 138*	*06/22/20 17:21*	*06/23/20 09:34*	*1*
1-Methylnaphthalene-d10 (Surr)	*73*		*15 - 121*	*06/22/20 17:21*	*06/23/20 09:34*	*1*
Fluoranthene-d10 (Surr)	*109*		*34 - 125*	*06/22/20 17:21*	*06/23/20 09:34*	*1*

Lab Sample ID: LCS 410-15452/2-A
Matrix: Water
Analysis Batch: 15629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 15452

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene			1.00	0.904		ug/L		90	61 - 117
Benzo[a]pyrene			1.00	0.904		ug/L		90	63 - 135
Benzo[b]fluoranthene			1.00	0.914		ug/L		91	66 - 138
Benzo[k]fluoranthene			1.00	0.891		ug/L		89	58 - 142
Chrysene			1.00	0.806		ug/L		81	61 - 117
Dibenz(a,h)anthracene			1.00	0.822		ug/L		82	51 - 139
Indeno[1,2,3-cd]pyrene			1.00	0.887		ug/L		88	56 - 147

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*85*		*10 - 138*
1-Methylnaphthalene-d10 (Surr)	*59*		*15 - 121*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 410-15452/2-A
Matrix: Water
Analysis Batch: 15629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 15452

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Fluoranthene-d10 (Surr)	*101*		*34 - 125*

Lab Sample ID: LCSD 410-15452/3-A
Matrix: Water
Analysis Batch: 15629

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 15452

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	1.00	0.922		ug/L		92	61 - 117	2	30
Benzo[a]pyrene	1.00	0.944		ug/L		94	63 - 135	4	30
Benzo[b]fluoranthene	1.00	0.942		ug/L		94	66 - 138	3	30
Benzo[k]fluoranthene	1.00	0.932		ug/L		93	58 - 142	4	30
Chrysene	1.00	0.833		ug/L		83	61 - 117	3	30
Dibenz(a,h)anthracene	1.00	0.825		ug/L		82	51 - 139	0	30
Indeno[1,2,3-cd]pyrene	1.00	0.912		ug/L		91	56 - 147	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Benzo(a)pyrene-d12 (Surr)	*88*		*10 - 138*
1-Methylnaphthalene-d10 (Surr)	*55*		*15 - 121*
Fluoranthene-d10 (Surr)	*101*		*34 - 125*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-17338/4
Matrix: Water
Analysis Batch: 17338

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			06/27/20 20:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	*82*		*50 - 150*		*06/27/20 20:41*	*1*

Lab Sample ID: LCS 410-17338/5
Matrix: Water
Analysis Batch: 17338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C7-C12 (1C)	1100	1080		ug/L		98	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	*77*		*50 - 150*

Lab Sample ID: LCSD 410-17338/6
Matrix: Water
Analysis Batch: 17338

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C7-C12 (1C)	1100	1080		ug/L		99	64 - 131	0	30

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	81		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Lab Sample ID: MB 410-15607/1-B
Matrix: Water
Analysis Batch: 17257

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 15607

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		06/23/20 09:30	06/27/20 03:03	1
C24-C40	ND		250	100	ug/L		06/23/20 09:30	06/27/20 03:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.0003		0 - 1	06/23/20 09:30	06/27/20 03:03	1
o- terphenyl (Surr)	72		50 - 150	06/23/20 09:30	06/27/20 03:03	1

Lab Sample ID: LCS 410-15607/2-B
Matrix: Water
Analysis Batch: 17257

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 15607

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C12-C24			600	1490	*	ug/L		248	10 - 115		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
n-Decanoic Acid (Surr)	0.04		0 - 1
o- terphenyl (Surr)	74		50 - 150

Lab Sample ID: LCSD 410-15607/3-B
Matrix: Water
Analysis Batch: 17257

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 15607

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C12-C24			600	285	*1	ug/L		48	10 - 115	136	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Decanoic Acid (Surr)	0.02		0 - 1
o- terphenyl (Surr)	72		50 - 150

Lab Sample ID: MB 410-15608/1-B
Matrix: Water
Analysis Batch: 16410

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 15608

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		06/23/20 09:30	06/25/20 22:56	1
C24-C40	ND		250	100	ug/L		06/23/20 09:30	06/25/20 22:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.0003			06/23/20 09:30	06/25/20 22:56	1
o- terphenyl (Surr)	76		50 - 150	06/23/20 09:30	06/25/20 22:56	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH (Continued)

Lab Sample ID: LCS 410-15608/2-B
Matrix: Water
Analysis Batch: 16410

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 15608

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C12-C24			600	285		ug/L		47	10 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Decanoic Acid (Surr)	*0.02*		
o- terphenyl (Surr)	*76*		*50 - 150*

Lab Sample ID: LCSD 410-15608/3-B
Matrix: Water
Analysis Batch: 16410

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 15608

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C12-C24			600	348		ug/L		58	10 - 115	20	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Decanoic Acid (Surr)	*0.02*		
o- terphenyl (Surr)	*74*		*50 - 150*

GC/MS VOA

Analysis Batch: 17520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-1	MW-70R	Total/NA	Water	8260C	
410-4890-2	MW-200	Total/NA	Water	8260C	
410-4890-3	MW-201	Total/NA	Water	8260C	
410-4890-4	MW-202	Total/NA	Water	8260C	
MB 410-17520/7	Method Blank	Total/NA	Water	8260C	
LCS 410-17520/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 410-17520/5	Lab Control Sample Dup	Total/NA	Water	8260C	

Analysis Batch: 17792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-5	MW-203	Total/NA	Water	8260C	
410-4890-6	MW-204	Total/NA	Water	8260C	
410-4890-7	MW-205	Total/NA	Water	8260C	
410-4890-8	MW-206	Total/NA	Water	8260C	
410-4890-9	MW-207	Total/NA	Water	8260C	
410-4890-13	DUP-1	Total/NA	Water	8260C	
410-4890-14	Trip Blank	Total/NA	Water	8260C	
MB 410-17792/6	Method Blank	Total/NA	Water	8260C	
LCS 410-17792/4	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 18395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-10	MW-209	Total/NA	Water	8260C	
MB 410-18395/7	Method Blank	Total/NA	Water	8260C	
LCS 410-18395/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 18475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-11	MW-210	Total/NA	Water	8260C	
410-4890-12	MW-211	Total/NA	Water	8260C	
MB 410-18475/7	Method Blank	Total/NA	Water	8260C	
LCS 410-18475/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 410-18475/5	Lab Control Sample Dup	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 15452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-1	MW-70R	Total/NA	Water	3510C	
410-4890-2	MW-200	Total/NA	Water	3510C	
410-4890-3	MW-201	Total/NA	Water	3510C	
410-4890-4	MW-202	Total/NA	Water	3510C	
410-4890-5	MW-203	Total/NA	Water	3510C	
410-4890-6	MW-204	Total/NA	Water	3510C	
410-4890-7	MW-205	Total/NA	Water	3510C	
410-4890-8	MW-206	Total/NA	Water	3510C	
410-4890-9	MW-207	Total/NA	Water	3510C	
410-4890-10	MW-209	Total/NA	Water	3510C	
410-4890-11	MW-210	Total/NA	Water	3510C	
410-4890-12	MW-211	Total/NA	Water	3510C	
410-4890-13	DUP-1	Total/NA	Water	3510C	

GC/MS Semi VOA (Continued)

Prep Batch: 15452 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-15452/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-15452/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-15452/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 15629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-1	MW-70R	Total/NA	Water	8270D SIM	15452
410-4890-2	MW-200	Total/NA	Water	8270D SIM	15452
410-4890-3	MW-201	Total/NA	Water	8270D SIM	15452
410-4890-4	MW-202	Total/NA	Water	8270D SIM	15452
410-4890-5	MW-203	Total/NA	Water	8270D SIM	15452
410-4890-6	MW-204	Total/NA	Water	8270D SIM	15452
410-4890-7	MW-205	Total/NA	Water	8270D SIM	15452
410-4890-8	MW-206	Total/NA	Water	8270D SIM	15452
410-4890-9	MW-207	Total/NA	Water	8270D SIM	15452
410-4890-10	MW-209	Total/NA	Water	8270D SIM	15452
410-4890-11	MW-210	Total/NA	Water	8270D SIM	15452
410-4890-12	MW-211	Total/NA	Water	8270D SIM	15452
410-4890-13	DUP-1	Total/NA	Water	8270D SIM	15452
MB 410-15452/1-A	Method Blank	Total/NA	Water	8270D SIM	15452
LCS 410-15452/2-A	Lab Control Sample	Total/NA	Water	8270D SIM	15452
LCSD 410-15452/3-A	Lab Control Sample Dup	Total/NA	Water	8270D SIM	15452

GC VOA

Analysis Batch: 17338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-1	MW-70R	Total/NA	Water	NWTPH-Gx	
410-4890-2	MW-200	Total/NA	Water	NWTPH-Gx	
410-4890-3	MW-201	Total/NA	Water	NWTPH-Gx	
410-4890-4	MW-202	Total/NA	Water	NWTPH-Gx	
410-4890-5	MW-203	Total/NA	Water	NWTPH-Gx	
410-4890-6	MW-204	Total/NA	Water	NWTPH-Gx	
410-4890-7	MW-205	Total/NA	Water	NWTPH-Gx	
410-4890-8	MW-206	Total/NA	Water	NWTPH-Gx	
410-4890-9	MW-207	Total/NA	Water	NWTPH-Gx	
410-4890-10	MW-209	Total/NA	Water	NWTPH-Gx	
410-4890-11	MW-210	Total/NA	Water	NWTPH-Gx	
410-4890-12	MW-211	Total/NA	Water	NWTPH-Gx	
410-4890-13	DUP-1	Total/NA	Water	NWTPH-Gx	
410-4890-14	Trip Blank	Total/NA	Water	NWTPH-Gx	
MB 410-17338/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-17338/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-17338/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

GC Semi VOA

Prep Batch: 15607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-1	MW-70R	Total/NA	Water	3510C	
410-4890-2	MW-200	Total/NA	Water	3510C	
410-4890-3	MW-201	Total/NA	Water	3510C	

GC Semi VOA (Continued)

Prep Batch: 15607 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-4	MW-202	Total/NA	Water	3510C	
410-4890-5	MW-203	Total/NA	Water	3510C	
410-4890-6	MW-204	Total/NA	Water	3510C	
410-4890-7	MW-205	Total/NA	Water	3510C	
410-4890-8	MW-206	Total/NA	Water	3510C	
410-4890-9	MW-207	Total/NA	Water	3510C	
410-4890-13	DUP-1	Total/NA	Water	3510C	
MB 410-15607/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-15607/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-15607/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 15608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-10	MW-209	Total/NA	Water	3510C	
410-4890-11	MW-210	Total/NA	Water	3510C	
410-4890-12	MW-211	Total/NA	Water	3510C	
MB 410-15608/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-15608/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-15608/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Cleanup Batch: 16049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-10	MW-209	Total/NA	Water	3630C	15608
410-4890-11	MW-210	Total/NA	Water	3630C	15608
410-4890-12	MW-211	Total/NA	Water	3630C	15608
MB 410-15608/1-B	Method Blank	Total/NA	Water	3630C	15608
LCS 410-15608/2-B	Lab Control Sample	Total/NA	Water	3630C	15608
LCSD 410-15608/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	15608

Analysis Batch: 16410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-10	MW-209	Total/NA	Water	NWTPH-Dx	16049
410-4890-11	MW-210	Total/NA	Water	NWTPH-Dx	16049
410-4890-12	MW-211	Total/NA	Water	NWTPH-Dx	16049
MB 410-15608/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	16049
LCS 410-15608/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	16049
LCSD 410-15608/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	16049

Cleanup Batch: 16933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-1	MW-70R	Total/NA	Water	3630C	15607
410-4890-2	MW-200	Total/NA	Water	3630C	15607
410-4890-3	MW-201	Total/NA	Water	3630C	15607
410-4890-4	MW-202	Total/NA	Water	3630C	15607
410-4890-5	MW-203	Total/NA	Water	3630C	15607
410-4890-6	MW-204	Total/NA	Water	3630C	15607
410-4890-7	MW-205	Total/NA	Water	3630C	15607
410-4890-8	MW-206	Total/NA	Water	3630C	15607
410-4890-9	MW-207	Total/NA	Water	3630C	15607
410-4890-13	DUP-1	Total/NA	Water	3630C	15607
MB 410-15607/1-B	Method Blank	Total/NA	Water	3630C	15607

GC Semi VOA (Continued)

Cleanup Batch: 16933 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-15607/2-B	Lab Control Sample	Total/NA	Water	3630C	15607
LCSD 410-15607/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	15607

Analysis Batch: 17257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-4890-1	MW-70R	Total/NA	Water	NWTPH-Dx	16933
410-4890-2	MW-200	Total/NA	Water	NWTPH-Dx	16933
410-4890-3	MW-201	Total/NA	Water	NWTPH-Dx	16933
410-4890-4	MW-202	Total/NA	Water	NWTPH-Dx	16933
410-4890-5	MW-203	Total/NA	Water	NWTPH-Dx	16933
410-4890-6	MW-204	Total/NA	Water	NWTPH-Dx	16933
410-4890-7	MW-205	Total/NA	Water	NWTPH-Dx	16933
410-4890-8	MW-206	Total/NA	Water	NWTPH-Dx	16933
410-4890-9	MW-207	Total/NA	Water	NWTPH-Dx	16933
410-4890-13	DUP-1	Total/NA	Water	NWTPH-Dx	16933
MB 410-15607/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	16933
LCS 410-15607/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	16933
LCSD 410-15607/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	16933

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Client Sample ID: MW-70R
Date Collected: 06/16/20 10:00
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17520	06/29/20 17:09	UKAD	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 13:38	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/27/20 22:31	UMDJ	ELLE
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 04:11	IUSB	ELLE

Client Sample ID: MW-200
Date Collected: 06/16/20 13:50
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17520	06/29/20 17:33	UKAD	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 14:09	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/27/20 22:58	UMDJ	ELLE
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 04:34	IUSB	ELLE

Client Sample ID: MW-201
Date Collected: 06/16/20 13:05
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17520	06/29/20 17:57	UKAD	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 14:40	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/27/20 23:26	UMDJ	ELLE
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 04:57	IUSB	ELLE

Client Sample ID: MW-202
Date Collected: 06/16/20 11:48
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17520	06/29/20 18:20	UKAD	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 15:10	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/27/20 23:54	UMDJ	ELLE

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Client Sample ID: MW-202
Date Collected: 06/16/20 11:48
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 05:19	IUSB	ELLE

Client Sample ID: MW-203
Date Collected: 06/16/20 14:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17792	06/30/20 02:10	TQ4J	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 15:41	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/28/20 00:21	UMDJ	ELLE
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 05:42	IUSB	ELLE

Client Sample ID: MW-204
Date Collected: 06/16/20 15:05
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17792	06/30/20 02:32	TQ4J	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 16:12	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/28/20 00:48	UMDJ	ELLE
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 06:05	IUSB	ELLE

Client Sample ID: MW-205
Date Collected: 06/16/20 16:20
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17792	06/30/20 02:53	TQ4J	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 16:42	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/28/20 01:43	UMDJ	ELLE
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 06:28	IUSB	ELLE

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Client Sample ID: MW-206
Date Collected: 06/16/20 11:40
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17792	06/30/20 03:16	TQ4J	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 17:13	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/28/20 02:11	UMDJ	ELLE
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 06:50	IUSB	ELLE

Client Sample ID: MW-207
Date Collected: 06/16/20 10:40
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17792	06/30/20 03:38	TQ4J	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 17:44	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/28/20 02:38	UMDJ	ELLE
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 07:13	IUSB	ELLE

Client Sample ID: MW-209
Date Collected: 06/17/20 11:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	18395	07/01/20 17:38	UCB5	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 18:14	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/28/20 03:06	UMDJ	ELLE
Total/NA	Prep	3510C			15608	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16049	06/24/20 01:00	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	16410	06/26/20 00:04	IUSB	ELLE

Client Sample ID: MW-210
Date Collected: 06/17/20 12:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	18475	07/01/20 17:55	UCB5	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 18:45	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/28/20 03:33	UMDJ	ELLE

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Client Sample ID: MW-210
Date Collected: 06/17/20 12:30
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			15608	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16049	06/24/20 01:00	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	16410	06/26/20 00:26	IUSB	ELLE

Client Sample ID: MW-211
Date Collected: 06/17/20 11:15
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	18475	07/01/20 18:17	UCB5	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 19:16	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/28/20 04:00	UMDJ	ELLE
Total/NA	Prep	3510C			15608	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16049	06/24/20 01:00	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	16410	06/26/20 00:49	IUSB	ELLE

Client Sample ID: DUP-1
Date Collected: 06/16/20 00:00
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17792	06/30/20 04:00	TQ4J	ELLE
Total/NA	Prep	3510C			15452	06/22/20 17:21	DFX4	ELLE
Total/NA	Analysis	8270D SIM		1	15629	06/23/20 19:46	X3ZL	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/28/20 04:28	UMDJ	ELLE
Total/NA	Prep	3510C			15607	06/23/20 09:30	R9CT	ELLE
Total/NA	Cleanup	3630C			16933	06/26/20 00:30	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	17257	06/27/20 07:36	IUSB	ELLE

Client Sample ID: Trip Blank
Date Collected: 06/16/20 00:00
Date Received: 06/18/20 10:28

Lab Sample ID: 410-4890-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	17792	06/29/20 23:36	TQ4J	ELLE
Total/NA	Analysis	NWTPH-Gx		1	17338	06/27/20 22:04	UMDJ	ELLE

Laboratory References:
ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C		Water	Benzene
8260C		Water	Ethylbenzene
8260C		Water	Methyl tertiary butyl ether
8260C		Water	Toluene
8260C		Water	Xylenes, Total
8270D SIM	3510C	Water	Benzo[a]anthracene
8270D SIM	3510C	Water	Benzo[a]pyrene
8270D SIM	3510C	Water	Benzo[b]fluoranthene
8270D SIM	3510C	Water	Benzo[k]fluoranthene
8270D SIM	3510C	Water	Chrysene
8270D SIM	3510C	Water	Dibenz(a,h)anthracene
8270D SIM	3510C	Water	Indeno[1,2,3-cd]pyrene
NWTPH-Dx	3510C	Water	C12-C24
NWTPH-Gx		Water	C7-C12 (1C)

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

Protocol References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Seattle Terminal

Job ID: 410-4890-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
410-4890-1	MW-70R	Water	06/16/20 10:00	06/18/20 10:28	
410-4890-2	MW-200	Water	06/16/20 13:50	06/18/20 10:28	
410-4890-3	MW-201	Water	06/16/20 13:05	06/18/20 10:28	
410-4890-4	MW-202	Water	06/16/20 11:48	06/18/20 10:28	
410-4890-5	MW-203	Water	06/16/20 14:30	06/18/20 10:28	
410-4890-6	MW-204	Water	06/16/20 15:05	06/18/20 10:28	
410-4890-7	MW-205	Water	06/16/20 16:20	06/18/20 10:28	
410-4890-8	MW-206	Water	06/16/20 11:40	06/18/20 10:28	
410-4890-9	MW-207	Water	06/16/20 10:40	06/18/20 10:28	
410-4890-10	MW-209	Water	06/17/20 11:30	06/18/20 10:28	
410-4890-11	MW-210	Water	06/17/20 12:30	06/18/20 10:28	
410-4890-12	MW-211	Water	06/17/20 11:15	06/18/20 10:28	
410-4890-13	DUP-1	Water	06/16/20 00:00	06/18/20 10:28	
410-4890-14	Trip Blank	Water	06/16/20 00:00	06/18/20 10:28	

Chevron Northwest R ... equest/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # _____

410-4890 Chain of Custody

e only

cled numbers.

1 Client Information

Facility # _____ WBS _____
Former Unocal Seattle Marketing Terminal

Site Address
3001 Elliot Avenue, Seattle, WA

Chevron PM
Kim Jolitz

Lead Consultant
Arcadis

Consultant/Office
Seattle-WA / Arcadis 1100 Olive Way, Ste 800, Seattle, WA

Consultant Project Mgr.
Sam Miles

Consultant Phone #
206-325-5254

Sampler
Ryan Brauchla / Dan Gilbert

SCR #: _____

- ☐ 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	Collected Date	Collected Time	3 Grab	Composite	4 Matrix: Soil	Sediment	Water: Ground	Potable	NPDES	Surface	Oil	Air	Total Number of Containers	5 Analyses Requested: BTEX + MTBE 8021	8260	Naphth	8260 full scan	Oxygenates	NWTPH GX	NWTPH DX	Silica Gel Cleanup	Diss.	Total	Method	WAVPH	WAEPH	cPAHs by 8270 SIM				
~~MW-30 D56~~			X				X						10	X					X	X		*			X	D56			
~~MW-61A R D56~~			X				X						10	X					X	X					X	D56			
MW-70R	6-16-20	1000	X				X						10	X					X	X					X				
MW-200	6-16-20	1350	X				X						10	X					X	X					X				
MW-201	6-16-20	1305	X				X						10	X					X	X					X				
MW-202	6-16-20	1148	X				X						10	X					X	X					X				
MW-203	6-16-20	1430	X				X						10	X					X	X					X				
MW-204	6-16-20	1505	X				X						10	X					X	X					X				
MW-205	6-16-20	1620	X				X						10	X					X	X					X				
MW-206	6-16-20	1140	X				X						10	X					X	X					X				
MW-207	6-16-20	1040	X				X						10	X					X	X					X				
MW-209	6-17-20	1130	X				X						10	X					X	X					X				
MW-210	6-17-20	1230	X				X						10	X					X	X					X				

6 Remarks

7 Turnaround Time Requested (TAT) (please circle)

(Standard) 5 day 4 day

72 hour 48 hour 24 hour

8 Data Package Options (please circle if required)

Type I - Full Type VI (Raw Data)

Relinquished by	Date	Time	Received by	Date	Time
Dan M Gilbert	6/17/20				
Relinquished by	Date	Time	Received by	Date	Time

Relinquished by Commerical Carrier: UPS _____ FedEx X Other _____

Received by _____ Date 6/18/20 Time 1020

Temperature Upon Receipt 1.8 / 5.8 / 4.0 °C

Custody Seals Intact? Yes (No)

9

Lancaster Laboratories, Inc. • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

White copy should accompany samples to Lancaster Laboratories. The yellow copy should be retained by the client.

CML Issued by Dept. 40 Management

Chevron Northwest Region Analysis Request/Chain of Custody

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For Lancaster Laboratories use only
Acct. # ____ Group # ____ Sample # ____
Instructions on reverse side correspond with circled numbers.

SCR #: ____

(1) Client Information

Facility #: Former Unocal Seattle Marketing Terminal
WBS:
Site Address: 3001 Elliot Avenue, Seattle, WA
Chevron PM: Kim Jolitz
Lead Consultant: Arcadis
Consultant/Office: 1100 Olive Way, Suite 800, Seattle, WA
Consultant Project Mgr.: Sam Miles
Consultant Phone #: 206-325-5254
Sampler: Ryan Brauchla / Dan Gilbert

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

(5) Analyses Requested: BTEX + MTBE 8021 ☐ 8260 ☒ Naphth ☐; 8260 full scan; Oxygenates; NWTPH GX; NWTPH DX ☐ Silica Gel Cleanup ☒; Lead Total ☐ Diss. ☐ Method; WAVPH ☐ WAEPH ☐; cPAHs by 8270SIM

(2) Sample Identification	Collected Date	Collected Time	(3) Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021 / 8260 / Naphth	8260 full scan	Oxygenates	NWTPH GX	NWTPH DX / Silica Gel Cleanup	Lead	WAVPH / WAEPH	cPAHs by 8270SIM
MW-211	6-17-20	1115	X			X		10	X			X	X			X
DUP-1	6-16-20	—	X			X		10	X			X	X			X
Trip Blank			X			X			X			X				

(6) 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

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

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

(8) Data Package Options (please circle if required)

Type I - Full Type VI (Raw Data)

(9)

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6-17-20				

Relinquished by Commerical Carrier: UPS ____ FedEx X Other ____
Received by: [signature] Date: 6/18/20 Time: 1028

Temperature Upon Receipt 5.8 / 1.9 / 4.0 °C
Custody Seals Intact? (Yes) No

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-4890-1

Login Number: 4890
List Number: 1
Creator: Reiff, Nicole L

List Source: Eurofins Lancaster Laboratories Env

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified.	N/A	
Residual Chlorine Checked.	N/A	
Sample custody seals are intact.	True	

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