

Chevron Environmental Management Company

2017 GROUNDWATER AND OPERATION REPORT

Former Unocal Edmonds Bulk Fuel Terminal
Edmonds, Washington

November 1, 2017



2017 GROUNDWATER AND OPERATION REPORT



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ACRONYMS AND ABBREVIATIONS

2017 GOR	Groundwater and Operation Report
AO	Agreed Order
Arcadis	Arcadis U.S., Inc.
BMEWP	Baseline Monitoring Event Work Plan
BSE	baseline sampling event
CMP	Compliance Monitoring Plan
COC	constituent of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSID	Cleanup Site Identification Number
CUL	cleanup level
DB-1	Detention Basin 1
DB-2	Detention Basin 2
DMR	discharge monitoring report
DPE	dual-phase extraction
DRO	diesel range organics
Ecology	Washington State Department of Ecology
fish hatchery	Willow Creek fish hatchery
FSID	Facility Site Identification Number
GRO	gasoline range organics
HO	heavy oil range organics
IAWP	Interim Action Work Plan
LNAPL	light nonaqueous phase liquid
MNA	monitored natural attenuation
NAVD 88	North American Vertical Datum of 1988
NPDES	National Pollutant Discharge Elimination System
POC	point of compliance
PRAE	post-remedial action event
REL	remediation level

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Site	former Unocal Edmonds Bulk Fuel Terminal, located at 11720 Unoco Road, Edmonds, Washington
TEQ	toxic equivalent
TPH	total petroleum hydrocarbons
TWT	temporary water treatment
USEPA	United States Environmental Protection Agency
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation
µg/L	micrograms per liter

1. INTRODUCTION

On behalf of Chevron Environmental Management Company, Arcadis U.S., Inc. (Arcadis) prepared this 2017 Groundwater and Operation Report (2017 GOR) for the former Union Oil Company of California (Unocal) Edmonds Terminal located at 11720 Unoco Road in Edmonds, Washington (Site). The Site and surrounding area are shown on Figure 1-1.

This 2017 GOR is written according to the requirement of the Compliance Monitoring Plan (CMP), which is provided as Appendix B of the Draft Cleanup Action Plan submitted to the Washington State Department of Ecology (Ecology) on July 31, 2017 (Arcadis 2017d). The Site is currently under the Agreed Order (AO) No. DE 4460 (Ecology 2007).

The former Unocal Edmonds Terminal is formally known as Unocal Edmonds Bulk Fuel Terminal 0178 in Ecology's database. Identifiers are

- Facility Site Identification Number (FSID): 2720
- Cleanup Site Identification Number (CSID): 5180

According to the CMP (Arcadis 2017d), the 2017 GOR must be submitted to Ecology by November 1, 2017, and annually thereafter as required in the National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit No. WA0991007 and must include:

- Descriptions of field activities, including any unusual or unexpected events or conditions.
- Figures displaying total petroleum hydrocarbons (TPH), benzene, and total toxic equivalent (TEQ) carcinogenic polycyclic aromatic hydrocarbon (cPAH) concentrations in the groundwater samples.
- Tables containing groundwater monitoring data, as well as groundwater sample analytical results.
- Copies of laboratory reports and chain of custody documentation.

In 2017, Arcadis performed the following activities:

- Baseline sampling event (BSE) prior to implementation of the remedial actions according to the Baseline Monitoring Event Work Plan (BMEWP; Arcadis 2017a).
- Remedial actions according to the Final Interim Action Work Plan (Final IAWP; Arcadis 2016b).

The BSE is described in this 2017 GOR. The remedial actions will be described in the Remedial Action As-Built Reports – DB-2 Excavation As-Built Report and DPE System Installation As-built Report – as required per the CMP (Arcadis 2017d). Elements of the remedial actions that must be monitored under the NPDES permit requirements (water discharge) are described in this 2017 GOR.

2. SITE DESCRIPTION

The Site, as defined by Model Toxics Control Act, comprises the areas of the Lower Yard and the former Upper Yard. The Site Layout, as well as the areas of the Lower Yard, are shown on Figure 2-1.

The approximately 25-acre former Upper Yard is located south of the Lower Yard (Figure 2-1). Unocal sold the former Upper Yard to Point Edwards, LLC in October 2003 and, since then, this area has been occupied by the fully developed Point Edwards condominium complex. The aquifer beneath the Site is considered a site-wide aquifer; therefore, groundwater constituents of concern (COCs) are the same for the former Upper Yard and the Lower Yard. Additionally, points of compliance (POCs) for the former Upper Yard will be monitored by monitoring locations in the Lower Yard.

The approximately 22-acre Lower Yard surrounds the former Upper Yard to the north, east, and west, and is currently owned by Unocal. The Lower Yard is currently a vacant property, with no permanent aboveground structures. A temporary storage shed, concrete pad, and system enclosure are located along lower Unoco Road in the central portion of the Lower Yard. Until summer 2017, the Lower Yard stormwater system conveyed direct precipitation and stormwater to two detention basins, Detention Basin 1 (DB-1) and Detention Basin 2 (DB-2), located in the northern part of the Lower Yard and then discharged into Willow Creek. Since fall 2017, the Lower Yard stormwater system conveyed direct precipitation and stormwater to DB-1 only; DB-2 was excavated and backfilled during summer 2017.

Willow Creek runs along the northern portion of the western boundary and the entire eastern boundary of the Lower Yard. Willow Creek is approximately 10 feet wide and is underlain by silt and sand material. To the north and northeast of the Lower Yard beyond Willow Creek is Edmonds Marsh, which is a 23-acre freshwater and brackish-water marsh. Willow Creek and Edmonds Marsh are directly connected to Puget Sound and are tidally influenced. At high tide, water flows from Puget Sound upstream into Edmonds Marsh; at low tide, water drains from Edmonds Marsh into Puget Sound. At its nearest point (the southwest corner of the Lower Yard), the Site is approximately 160 feet from the Puget Sound shoreline. The tidal variations in water levels in Puget Sound also influence groundwater elevations at the Site perimeter.

3. GROUNDWATER MONITORING

3.1 Groundwater Monitoring Program Background

In accordance with the AO No. DE 4460 (Ecology 2007), groundwater monitoring was conducted following the 2007/2008 remedial excavation activities to: 1) determine if the remaining soil concentrations will be a source of LNAPL; 2) evaluate if the remaining soil concentrations will cause an exceedance of groundwater CULs at the POCs; 3) determine if the remaining petroleum hydrocarbon concentrations in groundwater will naturally attenuate below the CULs at the POCs; and 4) calculate the restoration timeframes to meet the groundwater CULs at the POCs.

In accordance with AO No. DE 4460 (Ecology 2007) and the Request to Modify the Groundwater Sampling Program (Arcadis 2009), groundwater sampling events were conducted quarterly at perimeter compliance monitoring wells and semiannually at interior compliance monitoring wells. Due to stable groundwater conditions at the Site and the locations of remaining groundwater impacts within areas of the planned remedial actions, Arcadis proposed to temporarily cease groundwater sampling in a letter dated August 26, 2015 (Arcadis 2015); this request was approved by Ecology in a letter dated September 1, 2015 (Ecology 2015).

With Ecology's concurrence, a reduced monitoring event was conducted in October 2016 to assess if groundwater conditions onsite were stable. Perimeter compliance monitoring wells in the southeast Lower Yard (MW-108, MW-109, MW-129R, MW-135, MW-136, MW-500, and MW-501), perimeter compliance monitoring wells in the southwest Lower Yard (MW-147, MW-149-R, MW-150, MW-523, and MW-524), and interior compliance monitoring wells in the southeast Lower Yard and near the fish hatchery (MW-13U, MW-134X, MW-203, MW-527, and MW-528) were not sampled during this event due to stable concentrations less than the Site-specific CULs.

Beginning with the third quarter 2017, groundwater sampling events are performed in accordance with the CMP (Arcadis 2017d). The CMP (Arcadis 2017d) describes a BSE to be conducted prior to implementation of the remedial action and quarterly post-remedial action events (PRAEs). In 2017, Arcadis performed a BSE prior to implementation of the remedial action according to the BMEWP (Arcadis 2017a). PRAEs are planned to begin in first quarter 2018 when the DPE system start-up will be completed.

3.2 Groundwater Monitoring Program

Beginning in third quarter 2017, the groundwater monitoring program includes gauging and sampling of the interior and perimeter compliance monitoring wells listed in the CMP (Arcadis 2017d) and in Table 3-1, and as shown on Figure 3-1. Additionally, the groundwater monitoring program includes gauging monitoring wells in the southeast Lower Yard (MW-108, MW-109, MW-135, MW-136, MW-500, and MW-501), in the southwest Lower Yard (MW-147, MW-149-R, MW-150, MW-523, and MW-524), and in the southeast Lower Yard near the fish hatchery (MW-13U, MW-134X, MW-203, MW-527, and MW-528).

Compliance monitoring wells (MW-508, MW-510, and MW-529) located within the DB-2 excavation footprint were decommissioned during the construction work related to DB-2 excavation activities. Following the completion of excavation activities, three new monitoring wells (MW-533, MW-534, and

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MW-535) were installed at locations close to those of the decommissioned wells. Well decommissioning and installation will be discussed in the DB-2 Excavation As-Built Report.

Table 3-1. Groundwater Compliance Monitoring Wells

Perimeter Wells	Interior Wells
LM-2	MW-126
MW-8R	MW-143
MW-20R	MW-502
MW-101	MW-503
MW-104	MW-504
MW-129R	MW-505
MW-139R	MW-506
MW-510 (BSE)	MW-507
MW-518	MW-508 (BSE)
MW-522	MW-509
MW-529 (BSE)	MW-511
MW-530	MW-512
MW-533 (PRAE)	MW-513
MW-535 (PRAE)	MW-514
	MW-515
	MW-516
	MW-517
	MW-519
	MW-520
	MW-521
	MW-525
	MW-526
	MW-531
	MW-532
	MW-E
	MW-535 (PRAE)

The groundwater monitoring program includes measuring surface water elevations at the six measuring stations in Willow Creek (TB, D-1, D-2, D-3, D-4, and D-5) and DB-1 (D-6) and gauging the monitoring wells to measure water levels and assess the presence of recoverable LNAPL within 2 hours of low tide, according to the tide charts for Edmonds, Washington (obtained from the National Oceanic and Atmospheric Administration), which are provided in Appendix A.¹

The groundwater monitoring program includes purging and collecting groundwater samples using low-flow methods, monitoring water quality parameters (dissolved oxygen, oxidation-reduction potential, pH, conductivity, and temperature), and submitting groundwater samples to an Ecology-approved laboratory under a chain-of-custody for the analyses described in the CMP (Arcadis 2017d) and summarized below:

¹ Available at <https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=9447427&legacy=1>

- COCs:
 - Benzene by United States Environmental Protection Agency (USEPA) Method 8021B
 - Gasoline range organics (GRO) by Ecology Method NWTPH-Gx
 - Diesel range organics (DRO) and heavy oil range organics (HO) by Ecology Method NWTPH-Dx (after silica gel cleanup)
 - cPAHs by USEPA Method 8270 selected ion monitoring, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.
- Monitored natural attenuation parameters:
 - Sulfate and nitrate by USEPA Method 300.0
 - Dissolved methane by USEPA Method RSK 175
 - Dissolved manganese by USEPA Method 200.8 (field filtered)
 - Ferrous iron (Hach® field kits).

Groundwater samples will be submitted for both COCs and monitored natural attenuation (MNA) parameters during the BSE and then quarterly for COCs and biannually for MNA parameters for the PRAEs. In addition of the PRAEs, monitoring well locations MW-525, MW-526 and MW-532 will be gauged and sampled every-other-month for both COCs and MNA parameters. Beginning after one year of data collection (six data points) sampling frequency of those three wells will be reduced to quarterly for both COCs and MNA parameters.

3.3 Groundwater Cleanup Levels

Groundwater CULs for the Site are summarized in Table 3-2. Further details regarding CUL identification are provided in the Feasibility Study Report (Arcadis 2017c).

Table 3-2. Groundwater Cleanup Levels

Constituents of Concern ¹	Cleanup Levels (as protection of surface water) ¹
TPH ²	— ⁴
Benzene	16 µg/L ⁵
Total cPAH TEQ ³	0.05 µg/L ⁶

Notes:

¹ The aquifer beneath the Site is considered a Site-wide aquifer; therefore, groundwater COCs and CULs are the same for the former Upper Yard and the Lower Yard.

² TPH concentration calculated by summing the concentrations of GRO, DRO, and HO. For results that do not exceed method reporting limits, one-half of the reporting limit is added to determine TPH concentration.

³ Total cPAHs calculated by summing the concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene and

adjusted for toxicity using toxic equivalency factors to represent a total benzo(a)pyrene concentration (Washington Administrative Code [WAC] 173-340-900). For results that do not exceed method reporting limits, one-half of the reporting limit is added to determine cPAH concentration.

⁴ Method A (WAC 173-340-900, Table 720-1); TPH calculated on a sample-specific basis. The CUL will fall between 500 and 800 micrograms per liter ($\mu\text{g/L}$), depending on the sample's composition.

⁵ National Recommended Water Quality Criteria for human-health (organisms only) (USEPA 2015).

⁶Total cPAH TEQ adjusted for practical quantitation limit based on WAC 173-340-730(5)(c).

3.4 2017 Baseline Sampling Event

3.4.1 Field Activities

Arcadis performed a BSE from July 24 to 27, one week before the construction work related to DB-2 excavation activities began on August 1.

Gauging was implemented per the program described in Section 3.2. The surface water elevations and depths to groundwater in monitoring wells were measured on July 24 in 3 hours during low tide, according to the tide charts for Edmonds presented in Appendix A. Monitoring well MW-109 and measuring station D-3, both located in the east/northeast Lower Yard, were not accessible due to high water levels in Detention Basin No. 1 and could not be gauged.

Sampling was conducted on July 25, 26, and 27 per the program described in Section 3.2. Monitoring well MW-503 was obstructed and could not be sampled. Post-BSE, it was observed that a large root was obstructing monitoring well MW-503; the root was removed on October 16, 2017. Groundwater samples were submitted to Lancaster Laboratories Environmental, an Ecology-approved laboratory, under chain-of-custody and were analyzed in accordance with the methods described in Section 3.2.

Groundwater quality at monitoring well MW-E was assessed during the BSE according to the BMEWP. Monitoring well MW-E well was installed approximately 20 years ago (between 1994 and 1998) however its construction well details are not available, and no records of groundwater sample collection are available for this well prior to the BSE. To limit uncertainty associated with the lack of knowledge of monitoring well MW-E, the well was re-installed in place on October 20, 2017. Well re-installation will be discussed in the DB-2 Excavation As-Built Report.

Groundwater BSE field notes are provided in Appendix B.

3.4.2 Groundwater Elevation and Flow Direction

Groundwater elevations throughout the Lower Yard remained consistent from October 2008 to July 2017, with average groundwater elevations ranging between 5 and 9 feet above North American Vertical Datum of 1988 (NAVD 88) excluding data for the southeast Lower Yard, which indicate the presence of an area of localized groundwater mounding (with average groundwater elevations ranging between 9 and 11 feet above NAVD 88 and groundwater elevations in monitoring wells MW-500 and MW-501 generally observed several feet higher than nearby wells). In general, the seasonal variation includes the difference between the highest groundwater elevations observed during January and the lowest groundwater elevations observed between June and September.

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Historically observed groundwater flow directions are to the north-northwest in the central portion of the Site (Central Lower Yard) and to the northwest in the western portion of the Site (Western Boundary, West/Northwest Lower Yard and the Southwest Lower Yard). Using the quarterly water-level data from October 2008 to June 2012 to calculate a Site-wide gradient (Devlin 2003), the analysis indicates that the overall average gradient is 0.002 foot per foot toward the west-northwest.

Observed depth to water, groundwater elevation, and flow direction observed in 2017 are summarized below, on Figure 3-2, and in Table 3-3 and are consistent with historical data.

Observed Depth to Water:

Event	Gauging Stations	Depth to Water Range (feet below top of casing/gauge)
2017 BSE	Measuring stations in Willow Creek – Pre-Event	2.29 (D-1) to 4.50 (D-2)
	Measuring stations in Willow Creek – Post-Event	2.67 (D-1) to 3.64 (TB)
	Monitoring Wells	1.62 (LM-2) to 26.02 (MW-134X)

Groundwater Elevations and Flow Direction:

Event	Site Areas	Elevation Range (feet above NAVD 88)	Interpreted Groundwater Flow Direction
2017 BSE	Site	4.90 (MW-149R) to 10.79 (MW-500)	West-northwest
	Western Boundary, West/Northwest Lower Yard and the Southwest Lower Yard	4.90 (MW-149R) to 6.49 (MW-509)	Northwest
	Central Lower Yard	5.97 (MW-525) to 8.37 (MW-13U)	North to Northwest
	Southeast Lower Yard	7.25 (MW-135) to 10.79 (MW-500)	Mounding effect

Light Non-Aqueous Phase Liquid Present at the Site:

No LNAPL was encountered at a measurable thickness of 0.01 foot at the Site. A film was observed during gauging at monitoring well 129R and confirmed with a bailer.

3.4.3 Analytical Results

Thirty-one of the 36 POCs contained COC concentrations less than their respective CULs. Additionally, one POC presented detection limits greater than the CULs due to a laboratory sample dilution factor of 50. Analytical results are presented in Tables 3-4 and 3-5. COC concentrations are presented on Figures 3-3, 3-4, and 3-5. Figures 3-5 and 3-6 show the Site soil and groundwater remediation status as of the groundwater BSE prior to implementation of the remedial action. Low-flow sampling field notes are included in Appendix B. Groundwater BSE laboratory analytical reports and chain-of-custody documents are included in Appendix C.

Constituent of Concern Concentrations:

COCs concentrations greater than their respective CULs are listed below:

- *TPH*. MW-522, MW-525, MW-526, and MW-E contained TPH concentrations of 805, 4,885, 1,770, and 1,810 µg/L, respectively.
- *Benzene*. MW-525 contained a benzene concentration of 1,200 µg/L.
- *cPAHs*. No exceedances were observed.

TPH and benzene were not detected in the sample collected from monitoring well LM-2; however, the detection limits are greater than CULs due to a laboratory sample dilution factor of 50.

Monitored Natural Attenuation Parameters:

Thirty-three of the 36 POCs contained methane concentrations greater than detection limits (3 µg/L) and 29 of those POCs contained methane concentrations greater than 100 µg/L, suggesting degradation of organic constituents.

Beginning after 1 year of data collection (six data points), linear regression trend analyses will be conducted to evaluate trends in the COC concentrations with time at individual monitoring locations.

4. REMEDIATION SYSTEM

4.1 Remediation System Background

Two remediation systems were planned for remedial actions onsite, as discussed in the Engineering Design Report and the Final IAWP (Arcadis 2016a, 2016b):

- Temporary water treatment (TWT) system constructed to handle and treat petroleum-impacted groundwater during DB-2 excavation activities.
- DPE system to remediate the remaining impacts near the WSDOT stormwater line.

Treated water from the TWT or DPE system will be discharged to Willow Creek at Outfall #002 under NPDES Waste Discharge Permit No. WA0991007. This permit requires the collection of discharge water samples weekly during water treatment operation at Outfall #002 and submittal of the discharge water samples to an Ecology-approved laboratory for the following analyses:

- Benzene by USEPA Method USEPA 624
- GRO by Ecology Method NWTPH-Gx
- DRO by Ecology Method NWTPH-Dx (after silica gel cleanup)
- cPAHs by USEPA Method 625
- pH by pH meter onsite
- Chitosan acetate by chitosan acetate field screening test for discharge water from the TWT system only.

NPDES Waste Discharge Permit No. WA0991007 requires discharge monitoring reports (DMRs; provided in Appendix D) to be entered by the 28th of each month, starting December 28, 2016, into Ecology's online system WQebDMR.

4.2 2017 Remediation System Operation

From January through October 2017, the following activities related to remediation system operation were performed:

- As part of DB-2 excavation dewatering, the TWT system was installed in August 2017 and operated from September 11 until October 9, 2017. TWT system decommissioning activities were completed in October 2017 and the system was removed from the Site.
- Arcadis received the prefabricated DPE treatment system on April 12, 2017. The treatment system was delivered to the site and a crane was used to set it onto a preconstructed concrete pad. From October 9 through the end of the reporting period, Arcadis installed remediation wells and DPE system infrastructure. Installation of the DPE system is incomplete at the time of preparation of this 2017 GOR, and did not operate. Construction details will be described in the DPE System Installation As-built Report as required per the CMP (Arcadis 2017d).

2017 TWT System Operation Summary:

System Start-Up Date:	9/11/17 (no waste water discharge until 9/12/17)
System Shut-Down Date:	10/9/17
Remedial Technology:	Excavation dewatering and treatment system
System Operation:	During DB-2 excavation activities only.
NPDES Permit Conditions Met:	Yes
Total Volume Treated (Gallons):	243,744

2017 DPE System Operation Summary:

System Startup Date:	Not applicable from 01/01/2017 to 11/01/17
System Startup Date:	Not applicable from 01/01/2017 to 11/01/17
Remedial Technology:	Dual-phase extraction and treatment system
System Operation:	No operation from 01/01/2017 to 11/01/17
System O&M Schedule:	Not applicable from 01/01/2017 to 11/01/17 - Planned according to Dual-Phase Extraction System Operation Maintenance and Monitoring Manual (Arcadis. 2017b)
Total Operational Time in 2017:	0 hours
Operational Percentage in 2017:	0 percent until 11/01/17
NPDES Permit Conditions Met:	Yes
Total Volume Treated (Gallons):	Not applicable from 01/01/2017 to 11/01/17
Total Vapor Phase Mass Remove (lbs VOCs):	Not applicable from 01/01/2017 to 11/01/17

4.3 2017 Water Discharge

4.3.1 Temporary Water Treatment System Discharge Water

DB-2 excavation activities began August 30. Groundwater accumulating in the DB-2 excavation began to be pumped and treated by the TWT system on 09/11/17. TWT treated water was temporary held in a 21,000-gallon storage tank until reception of analytical results confirming the effectiveness of the TWT system. A post TWT sample, OUTFALL#002-091117, was collected on September 11, 2017 prior to the first discharge of TWT treated water into Willow Creek, and results showed compliance with the NPDES Waste Discharge Permit No. WA0991007 allowing discharge into Willow Creek to begin on September 12. Discharge into Willow Creek at Outfall # 002 under NPDES Waste Discharge Permit No. WA0991007 was implemented from September 12 to October 9, 2017. Sampling was implemented weekly from September 14 to October 2, 2017 per the program described in Section 4.1. As presented in Tables 4-1 and 4-2, the TWT treated water discharge volumes and flows, and analytical data and field parameters, respectively, were in compliance with NPDES Waste Discharge Permit No. WA0991007.

DMRs are presented in Appendix D. Discharge water field notes are included in Appendix E. TWT system treated water laboratory analytical reports and chain-of-custody documents are included in Appendix F.

4.3.2 Dual-Phase Extraction System Discharge Water

DPE system installation and start-up is incomplete at the time of preparation of this 2017 GOR; therefore, no discharge water was produced.

5. REFERENCES

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TABLES



Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
LM-2	10/20/08	16:08	8.14	2.66	--	NP	5.48	--
LM-2	12/08/08	10:51	8.14	2.89	--	NP	5.25	--
LM-2	02/20/09	9:55	8.14	2.64	--	NP	5.50	--
LM-2	04/20/09	9:48	8.14	2.46	--	NP	5.68	--
LM-2	06/22/09	11:35	8.14	2.84	--	NP	5.30	--
LM-2	08/03/09	11:18	8.14	3.10	--	NP	5.04	--
LM-2	08/17/09	9:27	8.14	3.09	--	NP	5.05	--
LM-2	10/29/09	9:46	8.14	2.56	--	NP	5.58	--
LM-2	01/18/10	13:47	8.14	2.59	--	NP	5.55	--
LM-2	04/19/10	15:14	8.14	2.20	--	NP	5.94	--
LM-2	07/19/10	7:24	8.14	2.41	--	NP	5.73	--
LM-2	10/25/10	14:02	8.14	1.63	--	NP	6.51	--
LM-2	03/21/11	12:32	8.14	1.60	--	NP	6.54	--
LM-2	06/14/11	10:54	8.14	2.54	--	NP	5.60	--
LM-2	09/26/11	10:59	8.14	2.79	--	NP	5.35	--
LM-2	12/12/11	12:42	8.14	2.46	--	NP	5.68	--
LM-2	03/27/12	14:09	8.14	1.71	--	NP	6.43	--
LM-2	06/27/12	17:14	8.14	1.98	--	NP	6.16	--
LM-2	09/25/12	7:40	8.14	2.51	--	NP	5.63	--
LM-2	12/13/12	10:15	8.14	1.68	--	NP	6.46	--
LM-2	03/25/13	10:20	8.14	1.17	--	NP	6.97	--
LM-2	06/24/13	12:45	8.14	1.66	--	NP	6.48	--
LM-2	09/23/13	13:55	8.14	2.36	--	NP	5.78	--
LM-2	12/16/13	11:33	8.14	1.86	--	NP	6.28	--
LM-2	03/26/14	8:15	8.14	1.94	--	NP	6.20	--
LM-2	06/16/14	13:11	8.14	2.04	--	NP	6.10	--
LM-2	09/29/14	14:58	8.14	2.29	--	NP	5.85	--
LM-2	12/08/14	12:15	8.14	1.90	--	NP	6.24	--
LM-2	03/23/15	14:51	8.14	2.13	--	NP	6.01	--
LM-2	06/22/15	15:48	8.14	2.50	--	NP	5.64	--
LM-2	10/27/16	9:26	8.14	1.62	--	NP	6.52	--
LM-2	07/24/17	11:40	8.14	1.62	--	NP	6.52	--
MW-E	10/20/08	16:20	14.42	7.95	--	NP	6.47	--
MW-E	12/08/08	11:35	14.42	7.78	--	NP	6.64	--
MW-E	02/20/09	10:27	14.42	7.58	--	NP	6.84	--
MW-E	04/20/09	10:11	14.42	7.48	--	NP	6.94	--
MW-E	06/22/09	12:14	14.42	7.94	--	NP	6.48	--
MW-E	08/03/09	11:32	14.42	8.10	--	NP	6.32	--
MW-E	08/17/09	9:39	14.42	8.19	--	NP	6.23	--
MW-E	10/29/09	8:53	14.42	7.02	--	NP	7.40	--
MW-E	01/18/10	13:45	14.42	6.89	--	NP	7.53	--
MW-E	04/19/10	15:39	14.42	7.10	--	NP	7.32	--
MW-E	07/19/10	7:41	14.42	7.65	--	NP	6.77	--
MW-E	10/25/10	14:14	14.42	7.30	--	NP	7.12	--
MW-E	03/21/11	12:44	14.42	6.58	--	NP	7.84	--
MW-E	06/14/11	11:15	14.42	7.57	--	NP	6.85	--
MW-E	09/26/11	11:06	14.42	7.93	--	NP	6.49	--
MW-E	12/12/11	12:41	14.42	7.45	--	NP	6.97	--
MW-E	03/27/12	14:24	14.42	6.71	--	NP	7.71	--
MW-E	06/27/12	17:26	14.42	7.19	--	NP	7.23	--
MW-E	09/25/12	8:03	14.42	7.82	--	NP	6.60	--
MW-E	12/13/12	10:15	14.42	6.68	--	NP	7.74	--
MW-E	03/25/13	10:37	14.42	6.82	--	NP	7.60	--
MW-E	06/24/13	12:06	14.42	7.29	--	NP	7.13	--
MW-E	09/23/13	14:05	14.42	7.58	--	NP	6.84	--
MW-E	12/16/13	10:43	14.42	7.46	--	NP	6.96	--
MW-E	03/26/14	8:26	14.42	6.99	--	NP	7.43	--
MW-E	06/16/14	13:54	14.42	7.42	--	NP	7.00	--
MW-E	09/29/14	15:55	14.42	7.46	--	NP	6.96	--
MW-E	12/08/14	12:45	14.42	6.84	--	NP	7.58	--
MW-E	03/23/15	13:59	14.42	7.09	--	NP	7.33	--
MW-E	06/22/15	15:17	14.42	7.66	--	NP	6.76	--
MW-E	10/27/16	9:58	14.42	6.67	--	<0.01	7.75	Film observed during gauging, confirmed with bailer
MW-E	07/24/17	12:45	14.42	7.29	--	NP	7.13	--
MW-8R	10/20/08	15:47	13.82	8.49	--	NP	5.33	--
MW-8R	12/08/08	10:17	13.82	8.35	--	NP	5.47	--
MW-8R	02/20/09	9:22	13.82	8.11	--	NP	5.71	--
MW-8R	04/20/09	9:09	13.82	8.40	--	NP	5.42	--
MW-8R	06/22/09	11:13	13.82	7.06	--	NP	6.76	--
MW-8R	08/03/09	10:53	13.82	8.21	--	NP	5.61	--
MW-8R	08/17/09	8:53	13.82	8.45	--	NP	5.37	--
MW-8R	10/29/09	8:43	13.82	7.99	--	NP	5.83	--
MW-8R	01/18/10	13:21	13.82	6.02	--	NP	7.80	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-8R	04/19/10	14:29	13.82	7.64	--	NP	6.18	--
MW-8R	07/19/10	6:58	13.82	8.37	--	NP	5.45	--
MW-8R	10/25/10	13:31	13.82	7.83	--	NP	5.99	--
MW-8R	03/21/11	12:16	13.82	6.92	--	NP	6.90	--
MW-8R	06/14/11	9:58	13.82	8.13	--	NP	5.69	--
MW-8R	09/26/11	10:48	13.82	8.35	--	NP	5.47	--
MW-8R	12/12/11	11:39	13.82	8.39	--	NP	5.43	--
MW-8R	03/27/12	13:47	13.82	7.39	--	NP	6.43	--
MW-8R	06/27/12	16:37	13.82	8.04	--	NP	5.78	--
MW-8R	09/25/12	7:30	13.82	8.46	--	NP	5.36	--
MW-8R	12/13/12	9:49	13.82	7.24	--	NP	6.58	--
MW-8R	03/25/13	9:56	13.82	8.25	--	NP	5.57	--
MW-8R	06/24/13	11:19	13.82	8.13	--	NP	5.69	--
MW-8R	09/23/13	13:28	13.82	8.02	--	NP	5.80	--
MW-8R	12/16/13	9:35	13.82	8.58	--	NP	5.24	--
MW-8R	03/26/14	7:45	13.82	7.83	--	NP	5.99	--
MW-8R	06/16/14	13:16	13.82	8.16	--	NP	5.66	--
MW-8R	09/29/14	13:26	13.82	7.62	--	NP	6.20	--
MW-8R	12/08/14	12:00	13.82	7.21	--	NP	6.61	--
MW-8R	03/23/15	13:07	13.82	8.53	--	NP	5.29	--
MW-8R	06/22/15	15:11	13.82	8.33	--	NP	5.49	--
MW-8R	10/27/16	8:48	13.82	7.02	--	NP	6.80	--
MW-8R	07/24/17	11:31	13.82	8.31	--	NP	5.51	--
MW-101	10/20/08	15:55	14.99	8.97	--	NP	6.02	--
MW-101	12/08/08	10:30	14.99	8.96	--	NP	6.03	--
MW-101	02/20/09	9:40	14.99	8.81	--	NP	6.18	--
MW-101	04/20/09	9:15	14.99	8.83	--	NP	6.16	--
MW-101	06/22/09	11:27	14.99	8.95	--	NP	6.04	--
MW-101	08/03/09	11:03	14.99	9.14	--	NP	5.85	--
MW-101	08/17/09	9:18	14.99	9.38	--	NP	5.61	--
MW-101	10/29/09	9:00	14.99	8.71	--	NP	6.28	--
MW-101	01/18/10	13:30	14.99	7.00	--	NP	7.99	--
MW-101	04/19/10	14:43	14.99	8.31	--	NP	6.68	--
MW-101	07/19/10	7:10	14.99	9.08	--	NP	5.91	--
MW-101	10/25/10	13:39	14.99	8.55	--	NP	6.44	--
MW-101	03/21/11	12:23	14.99	7.85	--	NP	7.14	--
MW-101	06/14/11	10:07	14.99	8.79	--	NP	6.20	--
MW-101	09/26/11	10:50	14.99	9.13	--	NP	5.86	--
MW-101	12/12/11	11:56	14.99	9.82	--	NP	5.17	--
MW-101	03/27/12	13:52	14.99	8.06	--	NP	6.93	--
MW-101	06/27/12	16:53	14.99	8.79	--	NP	6.20	--
MW-101	09/25/12	7:28	14.99	9.39	--	NP	5.60	--
MW-101	12/13/12	10:06	14.99	7.95	--	NP	7.04	--
MW-101	03/25/13	10:06	14.99	8.01	--	NP	6.98	--
MW-101	06/24/13	11:27	14.99	8.86	--	NP	6.13	--
MW-101	09/23/13	13:37	14.99	8.76	--	NP	6.23	--
MW-101	12/16/13	11:40	14.99	9.20	--	NP	5.79	--
MW-101	03/26/14	7:45	14.99	8.19	--	NP	6.80	--
MW-101	06/16/14	13:24	14.99	8.91	--	NP	6.08	--
MW-101	09/29/14	13:42	14.99	8.72	--	NP	6.27	--
MW-101	12/08/14	12:20	14.99	8.01	--	NP	6.98	--
MW-101	03/23/15	13:22	14.99	8.24	--	NP	6.75	--
MW-101	06/22/15	15:22	14.99	9.14	--	NP	5.85	--
MW-101	10/27/16	9:03	14.99	7.88	--	NP	7.11	--
MW-101	07/24/17	11:44	14.99	8.99	--	NP	6.00	--
MW-104	10/20/08	15:53	14.08	8.21	--	NP	5.87	--
MW-104	12/08/08	10:28	14.08	8.20	--	NP	5.88	--
MW-104	02/20/09	9:34	14.08	8.09	--	NP	5.99	--
MW-104	04/20/09	9:13	14.08	8.32	--	NP	5.76	--
MW-104	06/22/09	11:24	14.08	8.41	8.40	0.01^	5.67	Measurement error. See note^.
MW-104	08/03/09	11:02	14.08	8.51	--	NP	5.57	--
MW-104	08/17/09	9:17	14.08	8.80	--	NP	5.28	--
MW-104	10/29/09	8:59	14.08	8.12	--	NP	5.96	--
MW-104	01/18/10	13:29	14.08	6.24	--	NP	7.84	--
MW-104	04/19/10	14:40	14.08	7.77	--	NP	6.31	--
MW-104	07/19/10	7:08	14.08	8.47	--	NP	5.61	--
MW-104	10/25/10	13:37	14.08	7.74	--	NP	6.34	--
MW-104	03/21/11	12:21	14.08	7.11	--	NP	6.97	--
MW-104	06/14/11	10:04	14.08	8.26	--	NP	5.82	--
MW-104	09/26/11	10:47	14.08	8.50	--	NP	5.58	--
MW-104	12/12/11	11:48	14.08	8.15	--	NP	5.93	--
MW-104	03/27/12	13:50	14.08	7.39	--	NP	6.69	--
MW-104	06/27/12	16:49	14.08	8.09	--	NP	5.99	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-104	09/25/12	7:26	14.08	8.78	--	NP	5.30	--
MW-104	12/13/12	10:04	14.08	7.21	--	NP	6.87	--
MW-104	03/25/13	10:04	14.08	8.13	--	NP	5.95	--
MW-104	06/24/13	11:25	14.08	8.19	--	NP	5.89	--
MW-104	09/23/13	13:35	14.08	7.99	--	NP	6.09	--
MW-104	12/16/13	10:03	14.08	8.45	--	NP	5.63	--
MW-104	03/26/14	7:40	14.08	7.55	--	NP	6.53	--
MW-104	06/16/14	13:22	14.08	8.24	--	NP	5.84	--
MW-104	09/29/14	13:33	14.08	7.99	--	NP	6.09	--
MW-104	12/08/14	12:18	14.08	7.30	--	NP	6.78	--
MW-104	03/23/15	13:23	14.08	7.58	--	NP	6.50	--
MW-104	06/22/15	15:22	14.08	8.46	--	NP	5.62	--
MW-104	10/27/16	9:02	14.08	7.12	--	NP	6.96	--
MW-104	07/24/17	11:43	14.08	8.35	--	NP	5.73	--
MW-108	10/20/08	16:11	12.40	6.31	--	NP	6.09	--
MW-108	12/08/08	10:59	12.40	7.80	--	NP	4.60	--
MW-108	02/20/09	9:58	12.40	6.54	--	NP	5.86	--
MW-108	04/20/09	9:51	12.40	6.48	--	NP	5.92	--
MW-108	06/22/09	11:38	12.40	6.68	--	NP	5.72	--
MW-108	08/03/09	11:20	12.40	6.75	--	NP	5.65	--
MW-108	08/17/09	9:29	12.40	6.80	--	NP	5.60	--
MW-108	10/29/09	9:43	12.40	7.45	--	NP	4.95	--
MW-108	01/18/10	13:49	12.40	6.42	--	NP	5.98	--
MW-108	04/19/10	15:16	12.40	6.07	--	NP	6.33	--
MW-108	07/19/10	7:27	12.40	6.42	--	NP	5.98	--
MW-108	10/25/10	13:58	12.40	5.66	--	NP	6.74	--
MW-108	03/21/11	12:34	12.40	5.81	--	NP	6.59	--
MW-108	06/14/11	10:49	12.40	6.38	--	NP	6.02	--
MW-108	09/26/11	9:27	12.40	6.56	--	NP	5.84	--
MW-108	12/12/11	12:47	12.40	6.37	--	NP	6.03	--
MW-108	03/27/12	14:11	12.40	5.91	--	NP	6.49	--
MW-108	06/27/12	17:19	12.40	6.03	--	NP	6.37	--
MW-108	09/25/12	7:43	12.40	6.49	--	NP	5.91	--
MW-108	12/13/12	10:06	12.40	5.76	--	NP	6.64	--
MW-108	03/25/13	11:30	12.40	5.52	--	NP	6.88	--
MW-108	06/24/13	12:48	12.40	5.91	--	NP	6.49	--
MW-108	09/23/13	13:58	12.40	6.25	--	NP	6.15	--
MW-108	12/16/13	11:37	12.40	6.45	--	NP	5.95	--
MW-108	03/26/14	8:17	12.40	5.80	--	NP	6.60	--
MW-108	06/16/14	13:10	12.40	6.05	--	NP	6.35	--
MW-108	09/29/14	14:45	12.40	6.23	--	NP	6.17	--
MW-108	12/08/14	12:20	12.40	6.03	--	NP	6.37	--
MW-108	03/23/15	14:59	12.40	6.03	--	NP	6.37	--
MW-108	06/22/15	15:49	12.40	6.44	--	NP	5.96	--
MW-108	10/27/16	10:16	12.40	6.05	--	NP	6.35	--
MW-108	07/24/17	11:25	12.40	7.08	--	NP	5.32	--
MW-109	10/20/08	16:15	13.53	6.98	--	NP	6.55	--
MW-109	12/08/08	11:02	13.53	7.38	--	NP	6.15	--
MW-109	02/20/09	10:00	13.53	7.36	--	NP	6.17	--
MW-109	04/20/09	9:53	13.53	7.30	--	NP	6.23	--
MW-109	06/22/09	11:41	13.53	7.15	--	NP	6.38	--
MW-109	08/03/09	11:22	13.53	7.56	--	NP	5.97	--
MW-109	08/17/09	9:32	13.53	7.60	--	NP	5.93	--
MW-109	10/29/09	9:41	13.53	7.39	--	NP	6.14	--
MW-109	01/18/10	13:51	13.53	6.46	--	NP	7.07	--
MW-109	04/19/10	15:20	13.53	6.87	--	NP	6.66	--
MW-109	07/19/10	7:33	13.53	7.40	--	NP	6.13	--
MW-109	10/25/10	13:58	13.53	6.40	--	NP	7.13	--
MW-109	03/21/11	12:32	13.53	6.74	--	NP	6.79	--
MW-109	06/14/11	10:44	13.53	6.95	--	NP	6.58	--
MW-109	09/26/11	9:49	13.53	7.15	--	NP	6.38	--
MW-109	12/12/11	12:50	13.53	2.33	--	NP	11.20	--
MW-109	03/27/12	14:14	13.53	6.76	--	NP	6.77	--
MW-109	06/27/12	17:22	13.53	7.12	--	NP	6.41	--
MW-109	09/25/12	7:45	13.53	7.51	--	NP	6.02	--
MW-109	12/13/12	10:02	13.53	6.68	--	NP	6.85	--
MW-109	03/25/13	11:34	13.53	6.91	--	NP	6.62	--
MW-109	06/24/13	12:55	13.53	6.64	--	NP	6.89	--
MW-109	09/23/13	13:58	13.53	6.77	--	NP	6.76	--
MW-109	12/16/13	11:40	13.53	7.57	--	NP	5.96	--
MW-109	03/26/14	8:20	13.53	6.26	--	NP	7.27	--
MW-109	06/16/14	13:03	13.53	6.78	--	NP	6.75	--
MW-109	09/29/14	14:46	13.53	6.85	--	NP	6.68	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-109	12/08/14	12:22	13.53	7.01	--	NP	6.52	--
MW-109	03/23/15	15:00	13.53	6.97	--	NP	6.56	--
MW-109	06/22/15	15:54	13.53	7.54	--	NP	5.99	--
MW-109	10/27/16	10:20	13.53	6.80	--	NP	6.73	--
MW-109	07/24/17	--	--	--	--	--	--	Unable to access
MW-122	10/20/08	16:32	15.54	8.05	--	NP	7.49	--
MW-122	12/08/08	11:40	15.54	7.87	--	NP	7.67	--
MW-122	02/20/09	10:27	15.54	7.85	--	NP	7.69	--
MW-122	04/20/09	10:13	15.54	7.92	--	NP	7.62	--
MW-122	06/22/09	11:54	15.54	8.21	--	NP	7.33	--
MW-122	08/03/09	10:30	15.54	8.31	--	NP	7.23	--
MW-122	08/17/09	9:42	15.54	8.41	--	NP	7.13	--
MW-122	10/29/09	9:35	15.54	7.78	--	NP	7.76	--
MW-122	01/18/10	14:10	15.54	7.35	--	NP	8.19	--
MW-122	04/19/10	15:43	15.54	7.61	--	NP	7.93	--
MW-122	07/19/10	7:49	15.54	8.00	--	NP	7.54	--
MW-122	10/25/10	14:15	15.54	7.52	--	NP	8.02	--
MW-122	03/21/11	12:46	15.54	7.23	--	NP	8.31	--
MW-122	06/14/11	11:11	15.54	7.90	--	NP	7.64	--
MW-122	09/26/11	11:17	15.54	8.10	--	NP	7.44	--
MW-122	12/12/11	12:44	15.54	7.76	--	NP	7.78	--
MW-122	03/27/12	14:30	15.54	7.31	--	NP	8.23	--
MW-122	06/27/12	17:37	15.54	7.59	--	NP	7.95	--
MW-122	09/25/12	8:08	15.54	8.02	--	NP	7.52	--
MW-122	12/13/12	10:29	15.54	7.15	--	NP	8.39	--
MW-122	03/25/13	10:41	15.54	7.39	--	NP	8.15	--
MW-122	06/24/13	12:08	15.54	7.67	--	NP	7.87	--
MW-122	09/23/13	14:05	15.54	7.74	--	NP	7.80	--
MW-122	12/16/13	10:43	15.54	7.71	--	NP	7.83	--
MW-122	03/26/14	8:33	15.54	7.29	--	NP	8.25	--
MW-122	06/16/14	14:02	15.54	7.77	--	NP	7.77	--
MW-122	09/29/14	14:01	15.54	7.66	--	NP	7.88	--
MW-122	12/08/14	13:15	15.54	7.27	--	NP	8.27	--
MW-122	03/23/15	14:36	15.54	7.53	--	NP	8.01	--
MW-122	06/22/15	15:15	15.54	7.92	--	NP	7.62	--
MW-122	10/27/16	10:00	15.54	7.23	--	NP	8.31	--
MW-122	07/24/17	--	--	--	--	--	--	Deep well - not part of the monitoring network
MW-126	10/20/08	17:05	12.40	4.51	--	NP	7.89	--
MW-126	12/08/08	10:00	12.40	4.17	--	NP	8.23	--
MW-126	02/20/09	9:33	12.40	4.32	--	NP	8.08	--
MW-126	04/20/09	8:59	12.40	4.13	--	NP	8.27	--
MW-126	06/22/09	11:03	12.40	4.54	--	NP	7.86	--
MW-126	08/03/09	10:58	12.40	4.85	--	NP	7.55	--
MW-126	08/17/09	8:44	12.40	4.65	--	NP	7.75	--
MW-126	10/29/09	9:47	12.40	4.00	--	NP	8.40	--
MW-126	01/18/10	13:02	12.40	3.55	--	NP	8.85	--
MW-126	04/19/10	14:10	12.40	3.97	--	NP	8.43	--
MW-126	07/19/10	6:44	12.40	4.72	--	NP	7.68	--
MW-126	10/25/10	13:13	12.40	4.35	--	NP	8.05	--
MW-126	03/21/11	12:08	12.40	3.74	--	NP	8.66	--
MW-126	06/14/11	11:30	12.40	4.49	--	NP	7.91	--
MW-126	09/26/11	10:35	12.40	4.91	--	NP	7.49	--
MW-126	12/12/11	11:51	12.40	4.20	--	NP	8.20	--
MW-126	03/27/12	13:34	12.40	3.85	--	NP	8.55	--
MW-126	06/27/12	16:46	12.40	4.35	--	NP	8.05	--
MW-126	09/25/12	7:21	12.40	4.80	--	NP	7.60	--
MW-126	12/13/12	9:56	12.40	3.68	--	NP	8.72	--
MW-126	03/25/13	11:26	12.40	4.07	--	NP	8.33	--
MW-126	06/24/13	11:11	12.40	4.47	--	NP	7.93	--
MW-126	09/23/13	13:27	12.40	4.57	--	NP	7.83	--
MW-126	12/16/13	9:53	12.40	4.53	--	NP	7.87	--
MW-126	03/26/14	8:04	12.40	3.80	--	NP	8.60	--
MW-126	06/16/14	13:22	12.40	4.39	--	NP	8.01	--
MW-126	09/29/14	14:52	12.40	4.53	--	NP	7.87	--
MW-126	12/08/14	13:18	12.40	3.73	--	NP	8.67	--
MW-126	03/22/15	12:21	12.40	2.84	--	NP	9.56	--
MW-126	06/22/15	15:21	12.40	4.99	--	NP	7.41	--
MW-126	10/27/16	8:58	12.40	3.94	--	NP	8.46	--
MW-126	07/24/17	11:43	12.40	5.95	--	NP	6.45	--
MW-129R	10/20/08	16:33	12.92	6.54	--	NP	6.38	--
MW-129R	12/08/08	11:38	12.92	6.78	--	NP	6.14	--
MW-129R	02/20/09	10:30	12.92	6.35	6.34	0.01	6.58	See **
MW-129R	04/20/09	10:15	12.92	6.35	--	NP	6.57	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-129R	06/22/09	11:56	12.92	6.71	--	NP	6.21	--
MW-129R	08/03/09	10:25	12.92	6.90	--	NP	6.02	--
MW-129R	08/17/09	9:44	12.92	6.98	--	<0.01	5.94	Film observed during gauging, sheen observed on purge water
MW-129R	10/29/09	9:34	12.92	6.27	--	NP	6.65	--
MW-129R	01/18/10	14:08	12.92	6.22	--	NP	6.70	--
MW-129R	04/19/10	15:44	12.92	5.88	--	NP	7.04	--
MW-129R	07/19/10	7:45	12.92	6.30	--	NP	6.62	--
MW-129R	10/25/10	14:17	12.92	5.79	--	NP	7.13	--
MW-129R	03/21/11	12:49	12.92	5.31	--	NP	7.61	--
MW-129R	06/14/11	11:07	12.92	6.36	--	NP	6.56	--
MW-129R	09/26/11	11:10	12.92	6.66	--	<0.01	6.26	Film observed during gauging, confirmed with bailer
MW-129R	12/12/11	13:53	12.92	6.31	--	NP	6.61	--
MW-129R	03/27/12	14:37	12.92	5.37	--	NP	7.55	--
MW-129R	06/27/12	17:35	12.92	5.81	--	NP	7.11	--
MW-129R	09/25/12	8:05	12.92	6.44	--	NP	6.48	--
MW-129R	12/13/12	10:20	12.92	5.52	--	NP	7.40	--
MW-129R	03/25/13	10:40	12.92	5.20	--	NP	7.72	--
MW-129R	06/24/13	12:52	12.92	5.71	--	NP	7.21	--
MW-129R	09/23/13	14:42	12.92	6.31	--	NP	6.61	--
MW-129R	12/16/13	10:45	12.92	6.96	--	NP	5.96	--
MW-129R	03/26/14	8:31	12.92	5.53	--	NP	7.39	--
MW-129R	06/16/14	13:56	12.92	5.95	--	NP	6.97	--
MW-129R	09/29/14	14:47	12.92	6.18	--	NP	6.74	--
MW-129R	12/08/14	12:46	12.92	5.65	--	NP	7.27	--
MW-129R	03/23/14	14:36	12.92	5.90	--	NP	7.02	Sheen observed on purge water
MW-129R	06/22/15	15:14	12.92	6.13	--	NP	6.79	--
MW-129R	10/27/16	9:59	12.92	5.59	--	NP	7.33	--
MW-129R	07/24/17	12:57	12.92	5.62	--	NP	7.30	Film observed during gauging, confirmed with bailer
MW-13U	10/20/08	16:46	25.60	17.52	--	NP	8.08	--
MW-13U	12/08/08	12:03	25.60	17.32	--	NP	8.28	--
MW-13U	02/20/09	10:52	25.60	17.29	--	NP	8.31	--
MW-13U	04/20/09	10:35	25.60	17.10	--	NP	8.50	--
MW-13U	06/22/09	11:40	25.60	17.40	--	NP	8.20	--
MW-13U	08/03/09	10:39	25.60	17.53	--	NP	8.07	--
MW-13U	08/17/09	9:55	25.60	17.63	--	NP	7.97	--
MW-13U	10/29/09	9:32	25.60	17.26	--	NP	8.34	--
MW-13U	01/18/10	14:02	25.60	16.21	--	NP	9.39	--
MW-13U	04/19/10	16:06	25.60	16.52	--	NP	9.08	--
MW-13U	07/19/10	8:10	25.60	17.21	--	NP	8.39	--
MW-13U	10/25/10	14:48	25.60	17.25	--	NP	8.35	--
MW-13U	03/21/11	13:03	25.60	16.33	--	NP	9.27	--
MW-13U	06/14/11	11:30	25.60	16.88	--	NP	8.72	--
MW-13U	09/26/11	11:15	25.60	17.34	--	NP	8.26	--
MW-13U	12/12/11	13:24	25.60	16.96	--	NP	8.64	--
MW-13U	03/27/12	14:53	25.60	16.49	--	NP	9.11	--
MW-13U	06/27/12	17:44	25.60	16.92	--	NP	8.68	--
MW-13U	09/25/12	8:28	25.60	17.41	--	NP	8.19	--
MW-13U	12/13/12	10:39	25.60	16.56	--	NP	9.04	--
MW-13U	03/25/13	11:03	25.60	16.78	--	NP	8.82	--
MW-13U	06/24/13	12:37	25.60	17.11	--	NP	8.49	--
MW-13U	09/23/13	13:32	25.60	17.23	--	NP	8.37	--
MW-13U	12/16/13	11:05	25.60	17.30	--	NP	8.30	--
MW-13U	03/26/14	8:28	25.60	16.44	--	NP	9.16	--
MW-13U	06/16/14	14:10	25.60	17.02	--	NP	8.58	--
MW-13U	09/29/14	14:53	25.60	17.22	--	NP	8.38	--
MW-13U	12/08/14	13:09	25.60	16.58	--	NP	9.02	--
MW-13U	03/23/15	14:32	25.60	16.61	--	NP	8.99	--
MW-13U	06/22/15	15:46	25.60	17.13	--	NP	8.47	--
MW-13U	10/27/16	9:40	25.60	16.91	--	NP	8.69	--
MW-13U	07/24/17	12:15	25.60	17.03	--	NP	8.57	--
MW-131	10/20/08	16:17	12.53	6.37	--	NP	6.16	--
MW-131	12/08/08	11:31	12.53	6.10	--	NP	6.43	--
MW-131	02/20/09	10:58	12.53	5.91	--	NP	6.62	--
MW-131	04/20/09	8:42	12.53	5.75	--	NP	6.78	--
MW-131	06/22/09	11:46	12.53	6.27	--	NP	6.26	--
MW-131	08/03/09	11:31	12.53	6.45	--	NP	6.08	--
MW-131	08/17/09	9:32	12.53	6.46	--	NP	6.07	--
MW-131	10/29/09	9:30	12.53	5.70	--	NP	6.83	--
MW-131	01/18/10	13:46	12.53	4.81	--	NP	7.72	--
MW-131	04/19/10	15:32	12.53	5.49	--	NP	7.04	--
MW-131	07/19/10	8:36	12.53	6.11	--	NP	6.42	--
MW-131	10/25/10	14:12	12.53	5.83	--	NP	6.70	--
MW-131	03/21/11	12:42	12.53	4.83	--	NP	7.70	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-131	06/14/11	10:53	12.53	5.95	--	NP	6.58	--
MW-131	09/26/11	11:04	12.53	6.40	--	NP	6.13	--
MW-131	12/12/11	12:11	12.53	5.84	--	NP	6.69	--
MW-131	03/27/12	14:20	12.53	5.24	--	NP	7.29	--
MW-131	06/27/12	17:28	12.53	5.68	--	NP	6.85	--
MW-131	09/25/12	8:00	12.53	6.34	--	NP	6.19	--
MW-131	12/13/12	10:54	12.53	5.19	--	NP	7.34	--
MW-131	03/25/13	10:45	12.53	5.12	--	NP	7.41	--
MW-131	06/24/13	12:05	12.53	5.92	--	NP	6.61	--
MW-131	09/23/13	14:02	12.53	6.05	--	NP	6.48	--
MW-131	12/16/13	10:32	12.53	6.04	--	NP	6.49	--
MW-131	03/26/14	9:11	12.53	5.51	--	NP	7.02	--
MW-131	06/16/14	13:52	12.53	5.95	--	NP	6.58	--
MW-131	09/29/14	13:57	12.53	5.93	--	NP	6.60	--
MW-131	12/08/14	12:50	12.53	5.36	--	NP	7.17	--
MW-131	03/23/15	14:03	12.53	5.38	--	NP	7.15	--
MW-131	06/22/15	15:19	12.53	6.15	--	NP	6.38	--
MW-131	10/27/16	9:50	12.53	4.98	--	NP	7.55	--
MW-131	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
MW-134X	10/20/08	16:40	35.13	26.58	--	NP	8.55	--
MW-134X	12/08/08	11:57	35.13	26.55	--	NP	8.58	--
MW-134X	02/20/09	10:55	35.13	26.62	--	NP	8.51	--
MW-134X	04/20/09	10:30	35.13	26.43	--	NP	8.70	--
MW-134X	06/22/09	11:35	35.13	26.69	--	NP	8.44	--
MW-134X	08/03/09	10:36	35.13	26.70	--	NP	8.43	--
MW-134X	08/17/09	9:50	35.13	26.79	--	NP	8.34	--
MW-134X	10/29/09	9:25	35.13	26.34	--	NP	8.79	--
MW-134X	01/18/10	13:57	35.13	25.51	--	NP	9.62	--
MW-134X	04/19/10	16:01	35.13	25.64	--	NP	9.49	--
MW-134X	07/19/10	8:06	35.13	26.41	--	NP	8.72	--
MW-134X	10/25/10	14:43	35.13	26.40	--	NP	8.73	--
MW-134X	03/21/11	13:00	35.13	25.65	--	NP	9.48	--
MW-134X	06/14/11	11:22	35.13	26.20	--	NP	8.93	--
MW-134X	09/26/11	11:11	35.13	26.34	--	NP	8.79	--
MW-134X	12/12/11	13:16	35.13	26.21	--	NP	8.92	--
MW-134X	03/27/12	14:48	35.13	25.75	--	NP	9.38	--
MW-134X	06/27/12	17:54	35.13	26.15	--	NP	8.98	--
MW-134X	09/25/12	8:25	35.13	26.50	--	NP	8.63	--
MW-134X	12/13/12	11:00	35.13	25.97	--	NP	9.16	--
MW-134X	03/25/13	11:11	35.13	25.97	--	NP	9.16	--
MW-134X	06/24/13	12:34	35.13	26.14	--	NP	8.99	--
MW-134X	09/23/13	13:43	35.13	26.52	--	NP	8.61	--
MW-134X	12/16/13	11:10	35.13	26.53	--	NP	8.60	--
MW-134X	03/26/14	9:15	35.13	25.61	--	NP	9.52	--
MW-134X	06/16/14	14:02	35.13	26.15	--	NP	8.98	--
MW-134X	09/29/14	15:15	35.13	26.26	--	NP	8.87	--
MW-134X	12/08/14	13:04	35.13	25.89	--	NP	9.24	--
MW-134X	03/23/15	11:53	35.13	25.83	--	NP	9.30	--
MW-134X	06/22/15	15:44	35.13	26.26	--	NP	8.87	--
MW-134X	10/27/16	9:30	35.13	24.16	--	NP	10.97	--
MW-134X	07/24/17	12:31	35.13	26.02	--	NP	9.11	--
MW-135	10/20/08	16:35	18.13	10.06	--	NP	8.07	--
MW-135	12/08/08	11:47	18.13	11.43	--	NP	6.70	--
MW-135	02/20/09	10:47	18.13	10.14	--	NP	7.99	--
MW-135	04/20/09	10:22	18.13	11.17	--	NP	6.96	--
MW-135	06/22/09	11:23	18.13	10.84	--	NP	7.29	--
MW-135	08/03/09	10:13	18.13	11.04	--	NP	7.09	--
MW-135	08/17/09	9:55	18.13	11.16	--	NP	6.97	--
MW-135	10/29/09	10:15	18.13	11.00	--	NP	7.13	--
MW-135	01/18/10	13:05	18.13	10.20	--	NP	7.93	--
MW-135	04/19/10	15:54	18.13	10.78	--	NP	7.35	--
MW-135	07/19/10	7:52	18.13	10.97	--	NP	7.16	--
MW-135	10/25/10	14:26	18.13	10.75	--	NP	7.38	--
MW-135	03/21/11	12:56	18.13	10.53	--	NP	7.60	--
MW-135	06/14/11	11:26	18.13	10.05	--	NP	8.08	--
MW-135	09/26/11	11:05	18.13	11.25	--	NP	6.88	--
MW-135	12/12/11	13:08	18.13	11.01	--	NP	7.12	--
MW-135	03/27/12	14:41	18.13	10.61	--	NP	7.52	--
MW-135	06/27/12	17:43	18.13	10.41	--	NP	7.72	--
MW-135	09/25/12	8:15	18.13	11.19	--	NP	6.94	--
MW-135	12/13/12	10:32	18.13	10.48	--	NP	7.65	--
MW-135	03/25/13	10:40	18.13	10.46	--	NP	7.67	--
MW-135	06/24/13	12:27	18.13	10.62	--	NP	7.51	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-135	09/23/13	13:56	18.13	11.00	--	NP	7.13	--
MW-135	12/16/13	10:38	18.13	11.56	--	NP	6.57	--
MW-135	03/26/14	--	18.13	--	--	--	--	--
MW-135	06/16/14	13:20	18.13	10.78	--	NP	7.35	--
MW-135	09/29/14	14:35	18.13	10.99	--	NP	7.14	--
MW-135	12/08/14	13:17	18.13	10.77	--	NP	7.36	--
MW-135	03/23/15	14:50	18.13	10.35	--	NP	7.78	--
MW-135	06/22/15	14:41	18.13	11.10	--	NP	7.03	--
MW-135	10/27/16	9:40	18.13	10.69	--	NP	7.44	--
MW-135	07/24/17	11:50	18.13	10.88	--	NP	7.25	--
MW-136	10/27/08	13:35	15.99	8.13	--	NP	7.86	--
MW-136	12/08/08	11:49	15.99	8.06	--	NP	7.93	--
MW-136	02/20/09	10:50	15.99	7.80	--	NP	8.19	--
MW-136	04/20/09	10:25	15.99	7.73	--	NP	8.26	--
MW-136	06/22/09	11:25	15.99	8.00	--	NP	7.99	--
MW-136	08/03/09	10:14	15.99	8.74	--	NP	7.25	--
MW-136	08/17/09	9:57	15.99	9.78	--	NP	6.21	--
MW-136	10/29/09	10:20	15.99	7.84	--	NP	8.15	--
MW-136	01/18/10	13:02	15.99	7.08	--	NP	8.91	--
MW-136	04/19/10	15:55	15.99	7.63	--	NP	8.36	--
MW-136	07/19/10	7:55	15.99	8.06	--	NP	7.93	--
MW-136	10/25/10	14:23	15.99	7.91	--	NP	8.08	--
MW-136	03/21/11	12:56	15.99	6.22	--	NP	9.77	--
MW-136	06/14/11	11:23	15.99	7.77	--	NP	8.22	--
MW-136	09/26/11	11:23	15.99	8.70	--	NP	7.29	--
MW-136	12/12/11	13:10	15.99	7.69	--	NP	8.30	--
MW-136	03/27/12	14:43	15.99	7.44	--	NP	8.55	--
MW-136	06/27/12	17:45	15.99	7.79	--	NP	8.20	--
MW-136	09/25/12	8:05	15.99	8.31	--	NP	7.68	--
MW-136	12/13/12	10:25	15.99	6.78	--	NP	9.21	--
MW-136	03/25/13	10:35	15.99	7.46	--	NP	8.53	--
MW-136	06/24/13	12:28	15.99	7.86	--	NP	8.13	--
MW-136	09/23/13	13:55	15.99	8.01	--	NP	7.98	--
MW-136	12/16/13	10:50	15.99	7.80	--	NP	8.19	--
MW-136	03/26/14	9:02	15.99	6.85	--	NP	9.14	--
MW-136	06/16/14	13:32	15.99	7.80	--	NP	8.19	--
MW-136	09/29/14	15:20	15.99	7.72	--	NP	8.27	--
MW-136	12/08/14	13:15	15.99	7.11	--	NP	8.88	--
MW-136	03/23/15	14:25	15.99	7.04	--	NP	8.95	--
MW-136	06/22/15	14:43	15.99	7.86	--	NP	8.13	--
MW-136	10/27/16	9:32	15.99	7.40	--	NP	8.59	--
MW-136	07/24/17	11:52	15.99	8.12	--	NP	7.87	--
MW-139R	10/20/08	15:59	13.84	7.57	--	NP	6.27	--
MW-139R	12/08/08	10:46	13.84	7.17	--	NP	6.67	--
MW-139R	02/20/09	9:48	13.84	6.96	--	NP	6.88	--
MW-139R	04/20/09	9:38	13.84	6.77	--	NP	7.07	--
MW-139R	06/22/09	11:27	13.84	7.34	--	NP	6.50	--
MW-139R	08/03/09	11:12	13.84	7.54	--	NP	6.30	--
MW-139R	08/17/09	9:21	13.84	7.62	--	NP	6.22	--
MW-139R	10/29/09	9:23	13.84	6.93	--	NP	6.91	--
MW-139R	01/18/10	13:45	13.84	5.43	--	NP	8.41	--
MW-139R	04/19/10	14:58	13.84	6.51	--	NP	7.33	--
MW-139R	07/19/10	7:15	13.84	7.36	--	NP	6.48	--
MW-139R	10/25/10	13:48	13.84	7.08	--	NP	6.76	--
MW-139R	03/21/11	12:27	13.84	5.89	--	NP	7.95	--
MW-139R	06/14/11	10:39	13.84	7.01	--	NP	6.83	--
MW-139R	09/26/11	10:53	13.84	7.62	--	NP	6.22	--
MW-139R	12/12/11	12:07	13.84	6.95	--	NP	6.89	--
MW-139R	03/27/12	13:59	13.84	6.35	--	NP	7.49	--
MW-139R	06/27/12	17:05	13.84	6.92	--	NP	6.92	--
MW-139R	09/25/12	7:38	13.84	7.62	--	NP	6.22	--
MW-139R	12/13/12	10:12	13.84	6.33	--	NP	7.51	--
MW-139R	03/25/13	10:14	13.84	6.75	--	NP	7.09	--
MW-139R	06/24/13	11:32	13.84	7.31	--	NP	6.53	--
MW-139R	09/23/13	13:44	13.84	7.20	--	NP	6.64	--
MW-139R	12/16/13	11:23	13.84	7.38	--	NP	6.46	--
MW-139R	03/26/14	8:22	13.84	6.50	--	NP	7.34	--
MW-139R	06/16/14	13:34	13.84	7.23	--	NP	6.61	--
MW-139R	09/29/14	13:44	13.84	7.15	--	NP	6.69	--
MW-139R	12/08/14	12:36	13.84	6.50	--	NP	7.34	--
MW-139R	03/23/15	13:49	13.84	6.56	--	NP	7.28	--
MW-139R	06/22/15	15:26	13.84	7.35	--	NP	6.49	--
MW-139R	10/27/16	9:18	13.84	6.04	--	NP	7.80	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-139R	07/24/17	11:50	13.84	7.42	--	NP	6.42	--
MW-143	10/22/08	12:25	11.94	4.55	--	NP	7.39	--
MW-143	12/16/08	10:16	11.94	4.08	--	NP	7.86	--
MW-143	02/20/09	10:18	11.94	4.02	--	NP	7.92	--
MW-143	04/20/09	9:31	11.94	3.79	--	NP	8.15	--
MW-143	06/22/09	11:05	11.94	4.45	--	NP	7.49	--
MW-143	08/03/09	10:57	11.94	4.70	--	NP	7.24	--
MW-143	08/17/09	8:45	11.94	4.69	--	NP	7.25	--
MW-143	10/29/09	9:50	11.94	4.07	--	NP	7.87	--
MW-143	01/18/10	13:07	11.94	2.81	--	NP	9.13	--
MW-143	04/19/10	14:12	11.94	3.46	--	NP	8.48	--
MW-143	07/19/10	6:44	11.94	4.47	--	NP	7.47	--
MW-143	10/25/10	13:18	11.94	3.17	--	NP	8.77	--
MW-143	03/21/11	12:06	11.94	3.80	--	NP	8.14	--
MW-143	06/14/11	11:31	11.94	4.14	--	NP	7.80	--
MW-143	09/26/11	10:36	11.94	2.90	--	NP	9.04	--
MW-143	12/12/11	11:50	11.94	3.84	--	NP	8.10	--
MW-143	03/27/12	13:36	11.94	3.83	--	NP	8.11	--
MW-143	06/27/12	16:44	11.94	4.13	--	NP	7.81	--
MW-143	09/25/12	7:22	11.94	4.76	--	NP	7.18	--
MW-143	12/13/12	9:58	11.94	3.52	--	NP	8.42	--
MW-143	03/25/13	10:14	11.94	3.63	--	NP	8.31	--
MW-143	06/24/13	11:13	11.94	3.65	--	NP	8.29	--
MW-143	09/23/13	13:26	11.94	4.46	--	NP	7.48	--
MW-143	12/16/13	9:50	11.94	4.35	--	NP	7.59	--
MW-143	03/26/14	8:18	11.94	3.66	--	NP	8.28	--
MW-143	06/16/14	14:09	11.94	4.34	--	NP	7.60	--
MW-143	09/29/14	14:53	11.94	4.45	--	NP	7.49	--
MW-143	12/08/14	11:35	11.94	3.70	--	NP	8.24	--
MW-143	03/23/15	13:19	11.94	3.56	--	NP	8.38	--
MW-143	06/22/15	15:19	11.94	4.65	--	NP	7.29	--
MW-143	10/27/16	10:00	11.94	4.83	--	NP	7.11	--
MW-143	07/24/17	11:41	11.94	5.65	--	NP	6.29	--
MW-147	10/20/08	15:45	11.02	5.69	--	NP	5.33	--
MW-147	12/08/08	10:13	11.02	5.51	--	NP	5.51	--
MW-147	02/20/09	9:13	11.02	5.35	--	NP	5.67	--
MW-147	04/20/09	9:13	11.02	5.76	--	NP	5.26	--
MW-147	06/22/09	11:08	11.02	5.67	--	NP	5.35	--
MW-147	08/03/09	10:50	11.02	5.72	--	NP	5.30	--
MW-147	08/17/09	8:51	11.02	5.99	--	NP	5.03	--
MW-147	10/29/09	8:48	11.02	5.01	--	NP	6.01	--
MW-147	01/18/10	13:18	11.02	2.86	--	NP	8.16	--
MW-147	04/19/10	14:25	11.02	5.12	--	NP	5.90	--
MW-147	07/19/10	6:58	11.02	5.93	--	NP	5.09	--
MW-147	10/25/10	13:28	11.02	4.74	--	NP	6.28	--
MW-147	03/21/11	12:15	11.02	4.07	--	NP	6.95	--
MW-147	06/14/11	9:56	11.02	5.70	--	NP	5.32	--
MW-147	09/26/11	10:39	11.02	8.78	--	NP	2.24	--
MW-147	12/12/11	11:34	11.02	5.58	--	NP	5.44	--
MW-147	03/27/12	13:43	11.02	4.70	--	NP	6.32	--
MW-147	06/27/12	16:35	11.02	5.37	--	NP	5.65	--
MW-147	09/25/12	7:25	11.02	5.98	--	NP	5.04	--
MW-147	12/13/12	9:46	11.02	4.26	--	NP	6.76	--
MW-147	03/25/13	9:56	11.02	5.57	--	NP	5.45	--
MW-147	06/24/13	11:16	11.02	5.64	--	NP	5.38	--
MW-147	09/23/13	13:23	11.02	5.33	--	NP	5.69	--
MW-147	12/16/13	9:46	11.02	5.80	--	NP	5.22	--
MW-147	03/26/14	7:42	11.02	4.96	--	NP	6.06	--
MW-147	06/16/14	13:12	11.02	5.70	--	NP	5.32	--
MW-147	09/29/14	13:23	11.02	5.16	--	NP	5.86	--
MW-147	12/08/14	11:30	11.02	4.41	--	NP	6.61	--
MW-147	03/23/15	13:04	11.02	4.95	--	NP	6.07	--
MW-147	06/22/15	15:12	11.02	5.86	--	NP	5.16	--
MW-147	10/27/16	8:52	11.02	3.95	--	NP	7.07	--
MW-147	07/24/17	11:28	11.02	5.78	--	NP	5.24	--
MW-149R	10/20/08	15:42	12.18	6.76	--	NP	5.42	--
MW-149R	12/08/08	10:07	12.18	6.70	--	NP	5.48	--
MW-149R	02/20/09	9:10	12.18	6.57	--	NP	5.61	--
MW-149R	04/20/09	9:06	12.18	7.09	--	NP	5.09	--
MW-149R	06/22/09	11:10	12.18	7.22	--	NP	4.96	--
MW-149R	08/03/09	10:46	12.18	7.33	--	NP	4.85	--
MW-149R	08/17/09	8:48	12.18	7.69	--	NP	4.49	--
MW-149R	10/29/09	8:50	12.18	6.77	--	NP	5.41	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-149R	01/18/10	13:15	12.18	3.90	--	NP	8.28	--
MW-149R	04/19/10	14:20	12.18	6.76	--	NP	5.42	--
MW-149R	07/19/10	6:50	12.18	7.56	--	NP	4.62	--
MW-149R	10/25/10	13:23	12.18	6.13	--	NP	6.05	--
MW-149R	03/21/11	12:13	12.18	5.39	--	NP	6.79	--
MW-149R	06/14/11	9:44	12.18	7.27	--	NP	4.91	--
MW-149R	09/26/11	10:44	12.18	7.19	--	NP	4.99	--
MW-149R	12/12/11	11:29	12.18	6.74	--	NP	5.44	--
MW-149R	03/27/12	13:41	12.18	6.07	--	NP	6.11	--
MW-149R	06/27/12	16:30	12.18	6.75	--	NP	5.43	--
MW-149R	09/25/12	7:14	12.18	7.58	--	NP	4.60	--
MW-149R	12/13/12	9:41	12.18	5.34	--	NP	6.84	--
MW-149R	03/25/13	9:49	12.18	6.95	--	NP	5.23	--
MW-149R	06/24/13	11:17	12.18	7.24	--	NP	4.94	--
MW-149R	09/23/13	13:14	12.18	6.60	--	NP	5.58	--
MW-149R	12/16/13	9:33	12.18	6.90	--	NP	5.28	--
MW-149R	03/26/14	7:35	12.18	6.08	--	NP	6.10	--
MW-149R	06/16/14	13:05	12.18	7.28	--	NP	4.90	--
MW-149R	09/29/14	13:17	12.18	6.43	--	NP	5.75	--
MW-149R	12/08/14	11:27	12.18	5.59	--	NP	6.59	--
MW-149R	03/23/15	13:00	12.18	6.21	--	NP	5.97	--
MW-149R	06/22/15	15:01	12.18	7.34	--	NP	4.84	--
MW-149R	10/27/16	8:44	12.18	5.41	--	NP	6.77	--
MW-149R	07/24/17	11:21	12.18	7.28	--	NP	4.90	--
MW-150	10/20/08	15:41	12.36	7.21	--	NP	5.15	--
MW-150	12/08/08	10:05	12.36	6.90	--	NP	5.46	--
MW-150	02/20/09	9:07	12.36	6.76	--	NP	5.60	--
MW-150	04/20/09	9:04	12.36	6.89	--	NP	5.47	--
MW-150	06/22/09	11:12	12.36	6.81	--	NP	5.55	--
MW-150	08/03/09	10:44	12.36	6.95	--	NP	5.41	--
MW-150	08/17/09	8:46	12.36	7.15	--	NP	5.21	--
MW-150	10/29/09	8:48	12.36	6.44	--	NP	5.92	--
MW-150	01/18/10	13:14	12.36	4.20	--	NP	8.16	--
MW-150	04/19/10	14:18	12.36	6.34	--	NP	6.02	--
MW-150	07/19/10	6:47	12.36	7.07	--	NP	5.29	--
MW-150	10/25/10	13:25	12.36	6.55	--	NP	5.81	--
MW-150	03/21/11	12:11	12.36	4.93	--	NP	7.43	--
MW-150	06/14/11	9:40	12.36	6.75	--	NP	5.61	--
MW-150	09/26/11	10:43	12.36	7.15	--	NP	5.21	--
MW-150	12/12/11	11:30	12.36	6.89	--	NP	5.47	--
MW-150	03/27/12	13:38	12.36	5.81	--	NP	6.55	--
MW-150	06/27/12	16:28	12.36	6.61	--	NP	5.75	--
MW-150	09/25/12	7:10	12.36	DRY	DRY	DRY	DRY	--
MW-150	12/13/12	9:42	12.36	5.36	--	NP	7.00	--
MW-150	03/25/13	9:46	12.36	6.62	--	NP	5.74	--
MW-150	06/24/13	11:15	12.36	6.98	--	NP	5.38	--
MW-150	09/23/13	13:15	12.36	6.81	--	NP	5.55	--
MW-150	12/16/13	9:30	12.36	7.17	--	NP	5.19	--
MW-150	03/26/14	7:32	12.36	6.09	--	NP	6.27	--
MW-150	06/16/14	13:08	12.36	6.95	--	NP	5.41	--
MW-150	09/29/14	13:15	12.36	6.55	--	NP	5.81	--
MW-150	12/08/14	11:25	12.36	5.90	--	NP	6.46	--
MW-150	03/23/15	12:57	12.36	5.96	--	NP	6.40	--
MW-150	06/22/15	15:07	12.36	6.99	--	NP	5.37	--
MW-150	10/27/16	8:42	12.36	5.28	--	NP	7.08	--
MW-150	07/24/17	11:19	12.36	6.96	--	NP	5.40	--
MW-151	10/20/08	15:39	11.05	5.76	--	NP	5.29	--
MW-151	12/08/08	10:02	11.05	5.41	--	NP	5.64	--
MW-151	02/20/09	9:16	11.05	5.28	--	NP	5.77	--
MW-151	04/20/09	9:10	11.05	5.24	--	NP	5.81	--
MW-151	06/22/09	11:07	11.05	5.52	--	NP	5.53	--
MW-151	08/03/09	10:48	11.05	5.64	--	NP	5.41	--
MW-151	08/17/09	8:51	11.05	5.82	--	NP	5.23	--
MW-151	10/29/09	8:42	11.05	4.44	--	NP	6.61	--
MW-151	01/18/10	13:10	11.05	1.26	--	NP	9.79	--
MW-151	04/19/10	14:15	11.05	4.77	--	NP	6.28	--
MW-151	07/19/10	6:53	11.05	7.80	--	NP	3.25	--
MW-151	10/25/10	13:21	11.05	4.63	--	NP	6.42	--
MW-151	03/21/11	12:10	11.05	2.71	--	NP	8.34	--
MW-151	06/14/11	9:51	11.05	7.38	--	NP	3.67	--
MW-151	09/26/11	10:38	11.05	5.75	--	NP	5.30	--
MW-151	12/12/11	11:35	11.05	5.29	--	NP	5.76	--
MW-151	03/27/12	13:39	11.05	3.96	--	NP	7.09	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-151	06/27/12	16:31	11.05	5.01	--	NP	6.04	--
MW-151	09/25/12	7:20	11.05	5.85	--	NP	5.20	--
MW-151	12/13/12	9:45	11.05	3.42	--	NP	7.63	--
MW-151	03/25/13	9:53	11.05	4.98	--	NP	6.07	--
MW-151	06/24/13	11:21	11.05	5.60	--	NP	5.45	--
MW-151	09/23/13	13:20	11.05	5.39	--	NP	5.66	--
MW-151	12/16/13	9:40	11.05	5.79	--	NP	5.26	--
MW-151	03/26/14	7:37	11.05	4.25	--	NP	6.80	--
MW-151	06/16/14	13:12	11.05	5.60	--	NP	5.45	--
MW-151	09/29/14	14:54	11.05	5.19	--	NP	5.86	--
MW-151	12/08/14	11:49	11.05	4.21	--	NP	6.84	--
MW-151	03/23/15	13:10	11.05	4.41	--	NP	6.64	--
MW-151	06/22/15	15:09	11.05	5.73	--	NP	5.32	--
MW-151	10/27/16	8:53	11.05	4.46	--	NP	6.59	--
MW-151	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
MW-20R	10/20/08	15:51	12.17	6.53	--	NP	5.64	--
MW-20R	12/08/08	10:27	12.17	6.50	--	NP	5.67	--
MW-20R	02/20/09	9:27	12.17	6.37	--	NP	5.80	--
MW-20R	04/20/09	9:11	12.17	6.80	--	NP	5.37	--
MW-20R	06/22/09	11:21	12.17	6.83	--	NP	5.34	--
MW-20R	08/03/09	11:00	12.17	6.90	--	NP	5.27	--
MW-20R	08/17/09	9:15	12.17	7.18	--	NP	4.99	--
MW-20R	10/29/09	8:58	12.17	6.55	--	NP	5.62	--
MW-20R	01/18/10	13:27	12.17	4.60	--	NP	7.57	--
MW-20R	04/19/10	14:38	12.17	6.30	--	NP	5.87	--
MW-20R	07/19/10	7:06	12.17	6.94	--	NP	5.23	--
MW-20R	10/25/10	13:34	12.17	5.96	--	NP	6.21	--
MW-20R	03/21/11	12:19	12.17	5.73	--	NP	6.44	--
MW-20R	06/14/11	10:02	12.17	6.76	--	NP	5.41	--
MW-20R	09/26/11	10:47	12.17	6.83	--	NP	5.34	--
MW-20R	12/12/11	11:44	12.17	6.56	--	NP	5.61	--
MW-20R	03/27/12	13:49	12.17	5.98	--	NP	6.19	--
MW-20R	06/27/12	16:43	12.17	6.52	--	NP	5.65	--
MW-20R	09/25/12	7:24	12.17	7.09	--	NP	5.08	--
MW-20R	12/13/12	10:00	12.17	5.62	--	NP	6.55	--
MW-20R	03/25/13	10:02	12.17	6.64	--	NP	5.53	--
MW-20R	06/24/13	11:23	12.17	6.64	--	NP	5.53	--
MW-20R	09/23/13	13:32	12.17	6.34	--	NP	5.83	--
MW-20R	12/16/13	9:45	12.17	6.76	--	NP	5.41	--
MW-20R	03/26/14	7:30	12.17	6.04	--	NP	6.13	--
MW-20R	06/16/14	13:20	12.17	6.77	--	NP	5.40	--
MW-20R	09/29/14	13:32	12.17	6.28	--	NP	5.89	--
MW-20R	12/08/14	12:15	12.17	5.55	--	NP	6.62	--
MW-20R	03/23/15	13:15	12.17	6.13	--	NP	6.04	--
MW-20R	06/22/15	15:13	12.17	6.89	--	NP	5.28	--
MW-20R	10/27/16	9:01	12.17	5.66	--	NP	6.51	--
MW-20R	07/24/17	11:41	12.17	6.88	--	NP	5.29	--
MW-203	10/20/08	16:43	31.15	22.83	--	NP	8.32	--
MW-203	12/08/08	12:00	31.15	22.69	--	NP	8.46	--
MW-203	02/20/09	11:00	31.15	22.71	--	NP	8.44	--
MW-203	04/20/09	10:33	31.15	22.55	--	NP	8.60	--
MW-203	06/22/09	11:38	31.15	22.81	--	NP	8.34	--
MW-203	08/03/09	10:38	31.15	22.90	--	NP	8.25	--
MW-203	08/17/09	10:22	31.15	23.02	--	NP	8.13	--
MW-203	10/29/09	9:30	31.15	22.11	--	NP	9.04	--
MW-203	01/18/10	13:59	31.15	21.67	--	NP	9.48	--
MW-203	04/19/10	16:04	31.15	21.86	--	NP	9.29	--
MW-203	07/19/10	8:05	31.15	22.57	--	NP	8.58	--
MW-203	10/25/10	14:45	31.15	22.62	--	NP	8.53	--
MW-203	03/21/11	13:00	31.15	21.76	--	NP	9.39	--
MW-203	06/14/11	11:27	31.15	22.26	--	NP	8.89	--
MW-203	09/26/11	11:13	31.15	22.63	--	NP	8.52	--
MW-203	12/12/11	13:20	31.15	22.35	--	NP	8.80	--
MW-203	03/27/12	14:51	31.15	21.91	--	NP	9.24	--
MW-203	06/27/12	17:48	31.15	22.30	--	NP	8.85	--
MW-203	09/25/12	8:50	31.15	22.75	--	NP	8.40	--
MW-203	12/13/12	10:41	31.15	23.01	--	NP	8.14	--
MW-203	03/25/13	11:06	31.15	22.16	--	NP	8.99	--
MW-203	06/24/13	12:36	31.15	22.43	--	NP	8.72	--
MW-203	09/23/13	13:35	31.15	22.61	--	NP	8.54	--
MW-203	12/16/13	9:41	31.15	22.64	--	NP	8.51	--
MW-203	03/26/14	8:30	31.15	21.85	--	NP	9.30	--
MW-203	06/16/14	14:05	31.15	22.36	--	NP	8.79	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-203	09/29/14	14:55	31.15	22.54	--	NP	8.61	--
MW-203	12/08/14	13:07	31.15	22.00	--	NP	9.15	--
MW-203	03/23/15	14:15	31.15	21.98	--	NP	9.17	--
MW-203	06/22/15	15:48	31.15	22.48	--	NP	8.67	--
MW-203	10/27/16	9:50	31.15	22.31	--	NP	8.84	--
MW-203	07/24/17	12:25	31.15	22.29	--	NP	8.86	--
MW-301	10/20/08	17:30	12.15	6.73	--	NP	5.42	--
MW-301	12/08/08	--	12.15	--	--	--	--	--
MW-301	02/20/09	11:22	12.15	6.53	--	NP	5.62	--
MW-301	04/20/09	10:55	12.15	7.44	--	NP	4.71	--
MW-301	06/22/09	10:36	12.15	7.25	--	NP	4.90	--
MW-301	08/03/09	11:44	12.15	7.42	--	NP	4.73	--
MW-301	08/17/09	10:28	12.15	7.92	--	NP	4.23	--
MW-301	10/29/09	10:00	12.15	7.26	--	NP	4.89	--
MW-301	01/18/10	14:11	12.15	4.95	--	NP	7.20	--
MW-301	04/19/10	16:25	12.15	7.05	--	NP	5.10	--
MW-301	07/19/10	8:34	12.15	7.62	--	NP	4.53	--
MW-301	10/25/10	15:07	12.15	6.05	--	NP	6.10	--
MW-301	03/21/11	13:26	12.15	6.36	--	NP	5.79	--
MW-301	06/14/11	11:50	12.15	7.57	--	NP	4.58	--
MW-301	09/26/11	11:50	12.15	7.27	--	NP	4.88	--
MW-301	12/12/11	14:15	12.15	6.78	--	NP	5.37	--
MW-301	03/27/12	14:51	12.15	6.60	--	NP	5.55	--
MW-301	06/27/12	18:10	12.15	7.05	--	NP	5.10	--
MW-301	09/25/12	9:05	12.15	7.70	--	NP	4.45	--
MW-301	12/13/12	10:58	12.15	5.94	--	NP	6.21	--
MW-301	03/25/13	11:40	12.15	7.30	--	NP	4.85	--
MW-301	06/24/13	12:58	12.15	7.36	--	NP	4.79	--
MW-301	09/23/13	15:00	12.15	6.66	--	NP	5.49	--
MW-301	12/16/13	11:20	12.15	6.95	--	NP	5.20	--
MW-301	03/26/14	9:05	12.15	6.46	--	NP	5.69	--
MW-301	06/16/14	14:45	12.15	7.40	--	NP	4.75	--
MW-301	09/29/14	15:05	12.15	6.59	--	NP	5.56	--
MW-301	12/08/14	12:58	12.15	5.73	--	NP	6.42	--
MW-301	03/23/15	15:01	12.15	7.00	--	NP	5.15	--
MW-301	06/22/15	15:54	12.15	7.39	--	NP	4.76	--
MW-301	10/27/16	10:15	12.15	6.21	--	NP	5.94	--
MW-301	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
MW-500	10/20/08	16:32	16.64	8.71	--	NP	7.93	--
MW-500	12/08/08	11:45	16.64	5.16	--	NP	11.48	--
MW-500	02/20/09	10:46	16.64	4.51	--	NP	12.13	--
MW-500	04/20/09	10:19	16.64	3.54	--	NP	13.10	--
MW-500	06/22/09	11:28	16.64	5.18	--	NP	11.46	--
MW-500	08/03/09	10:20	16.64	6.15	--	NP	10.49	--
MW-500	08/17/09	9:48	16.64	6.51	--	NP	10.13	--
MW-500	10/29/09	9:05	16.64	4.94	--	NP	11.70	--
MW-500	01/18/10	13:16	16.64	1.69	--	NP	14.95	--
MW-500	04/19/10	15:50	16.64	3.77	--	NP	12.87	--
MW-500	07/19/10	7:45	16.64	5.39	--	NP	11.25	--
MW-500	10/25/10	14:35	16.64	5.51	--	NP	11.13	--
MW-500	03/21/11	12:54	16.64	2.20	--	NP	14.44	--
MW-500	06/14/11	11:17	16.64	4.71	--	NP	11.93	--
MW-500	09/26/11	11:00	16.64	6.94	--	NP	9.70	--
MW-500	12/12/11	13:00	16.64	4.39	--	NP	12.25	--
MW-500	03/27/12	14:36	16.64	2.61	--	NP	14.03	--
MW-500	06/27/12	17:35	16.64	4.65	--	NP	11.99	--
MW-500	09/25/12	8:17	16.64	6.57	--	NP	10.07	--
MW-500	12/13/12	10:28	16.64	2.27	--	NP	14.37	--
MW-500	03/25/13	10:50	16.64	3.54	--	NP	13.10	--
MW-500	06/24/13	12:20	16.64	5.61	--	NP	11.03	--
MW-500	09/23/13	14:07	16.64	6.22	--	NP	10.42	--
MW-500	12/16/13	10:50	16.64	5.20	--	NP	11.44	--
MW-500	03/26/14	8:46	16.64	2.63	--	NP	14.01	--
MW-500	06/16/14	13:44	16.64	5.48	--	NP	11.16	--
MW-500	09/29/14	15:40	16.64	6.55	--	NP	10.09	--
MW-500	12/08/14	13:05	16.64	3.05	--	NP	13.59	--
MW-500	03/23/15	14:07	16.64	3.18	--	NP	13.46	--
MW-500	06/22/15	14:58	16.64	5.95	--	NP	10.69	--
MW-500	10/27/16	9:45	16.64	2.00	--	NP	14.64	--
MW-500	07/24/17	11:58	16.64	5.85	--	NP	10.79	--
MW-501	10/20/08	16:30	15.24	7.27	--	NP	7.97	--
MW-501	12/08/08	11:43	15.24	5.20	--	NP	10.04	--
MW-501	02/20/09	10:44	15.24	3.43	--	NP	11.81	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-501	04/20/09	10:17	15.24	2.50	--	NP	12.74	--
MW-501	06/22/09	11:31	15.24	3.98	--	NP	11.26	--
MW-501	08/03/09	10:22	15.24	4.95	--	NP	10.29	--
MW-501	08/17/09	9:46	15.24	5.51	--	NP	9.73	--
MW-501	10/29/09	9:02	15.24	3.01	--	NP	12.23	--
MW-501	01/18/10	13:23	15.24	0.56	--	NP	14.68	--
MW-501	04/19/10	15:48	15.24	2.54	--	NP	12.70	--
MW-501	07/19/10	7:44	15.24	4.36	--	NP	10.88	--
MW-501	10/25/10	14:35	15.24	4.57	--	NP	10.67	--
MW-501	03/21/11	12:48	15.24	1.31	--	NP	13.93	--
MW-501	06/14/11	11:12	15.24	3.51	--	NP	11.73	--
MW-501	09/26/11	11:12	15.24	6.01	--	NP	9.23	--
MW-501	12/12/11	12:56	15.24	3.28	--	NP	11.96	--
MW-501	03/27/12	14:53	15.24	1.79	--	NP	13.45	--
MW-501	06/27/12	17:47	15.24	3.38	--	NP	11.86	--
MW-501	09/25/12	8:15	15.24	5.78	--	NP	9.46	--
MW-501	12/13/12	10:25	15.24	1.36	--	NP	13.88	--
MW-501	03/25/13	10:54	15.24	2.35	--	NP	12.89	--
MW-501	06/24/13	12:18	15.24	4.24	--	NP	11.00	--
MW-501	09/23/13	14:08	15.24	5.52	--	NP	9.72	--
MW-501	12/16/13	11:25	15.24	4.01	--	NP	11.23	--
MW-501	03/26/14	8:41	15.24	1.75	--	NP	13.49	--
MW-501	06/16/14	13:53	15.24	4.12	--	NP	11.12	--
MW-501	09/29/14	15:47	15.24	6.49	--	NP	8.75	--
MW-501	12/08/14	12:50	15.24	2.20	--	NP	13.04	--
MW-501	03/23/15	14:41	15.24	2.45	--	NP	12.79	--
MW-501	06/22/15	14:59	15.24	4.85	--	NP	10.39	--
MW-501	10/27/16	9:54	15.24	1.39	--	NP	13.85	--
MW-501	07/24/17	12:02	15.24	4.67	--	NP	10.57	--
MW-502	10/20/08	16:25	13.00	5.41	--	NP	7.59	--
MW-502	12/08/08	11:20	13.00	5.16	--	NP	7.84	--
MW-502	02/20/09	10:24	13.00	5.03	--	NP	7.97	--
MW-502	04/20/09	10:40	13.00	4.98	--	NP	8.02	--
MW-502	06/22/09	11:49	13.00	5.35	--	NP	7.65	--
MW-502	08/03/09	11:34	13.00	5.53	--	NP	7.47	--
MW-502	08/17/09	9:39	13.00	5.56	--	NP	7.44	--
MW-502	10/29/09	9:40	13.00	5.03	--	NP	7.97	--
MW-502	01/18/10	13:55	13.00	3.78	--	NP	9.22	--
MW-502	04/19/10	15:42	13.00	4.47	--	NP	8.53	--
MW-502	07/19/10	7:24	13.00	5.25	--	NP	7.75	--
MW-502	10/25/10	14:15	13.00	5.20	--	NP	7.80	--
MW-502	03/21/11	12:43	13.00	4.05	--	NP	8.95	--
MW-502	06/14/11	11:05	13.00	4.90	--	NP	8.10	--
MW-502	09/26/11	11:10	13.00	5.46	--	NP	7.54	--
MW-502	12/12/11	13:26	13.00	4.91	--	NP	8.09	--
MW-502	03/27/12	14:26	13.00	4.32	--	NP	8.68	--
MW-502	06/27/12	17:24	13.00	4.93	--	NP	8.07	--
MW-502	09/25/12	8:01	13.00	6.50	--	NP	6.50	--
MW-502	12/13/12	10:22	13.00	4.31	--	NP	8.69	--
MW-502	03/25/13	10:31	13.00	4.71	--	NP	8.29	--
MW-502	06/24/13	12:38	13.00	5.20	--	NP	7.80	--
MW-502	09/23/13	14:20	13.00	5.22	--	NP	7.78	--
MW-502	12/16/13	10:39	13.00	5.27	--	NP	7.73	--
MW-502	03/26/14	8:24	13.00	4.38	--	NP	8.62	--
MW-502	06/16/14	13:50	13.00	5.10	--	NP	7.90	--
MW-502	09/29/14	15:39	13.00	5.20	--	NP	7.80	--
MW-502	12/08/14	12:37	13.00	4.51	--	NP	8.49	--
MW-502	03/23/15	14:27	13.00	4.50	--	NP	8.50	--
MW-502	06/22/15	15:55	13.00	5.28	--	NP	7.72	--
MW-502	10/27/16	10:05	13.00	4.80	--	NP	8.20	--
MW-502	07/24/17	11:51	13.00	5.35	--	NP	7.65	--
MW-503	10/20/08	16:23	12.22	5.75	--	NP	6.47	--
MW-503	12/08/08	11:23	12.22	5.42	--	NP	6.80	--
MW-503	02/20/09	10:21	12.22	5.25	--	NP	6.97	--
MW-503	04/20/09	10:42	12.22	5.00	--	NP	7.22	--
MW-503	06/22/09	11:48	12.22	5.56	--	NP	6.66	--
MW-503	08/03/09	11:33	12.22	5.75	--	NP	6.47	--
MW-503	08/17/09	9:37	12.22	5.76	--	NP	6.46	--
MW-503	10/29/09	9:39	12.22	5.00	--	NP	7.22	--
MW-503	01/18/10	13:54	12.22	3.66	--	NP	8.56	--
MW-503	04/19/10	15:40	12.22	4.69	--	NP	7.53	--
MW-503	07/19/10	7:26	12.22	5.45	--	NP	6.77	--
MW-503	10/25/10	14:12	12.22	5.19	--	NP	7.03	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-503	03/21/11	12:42	12.22	4.10	--	NP	8.12	--
MW-503	06/14/11	11:01	12.22	5.10	--	NP	7.12	--
MW-503	09/26/11	11:07	12.22	5.55	--	NP	6.67	--
MW-503	12/12/11	13:30	12.22	5.07	--	NP	7.15	--
MW-503	03/27/12	14:24	12.22	4.47	--	NP	7.75	--
MW-503	06/27/12	17:22	12.22	5.05	--	NP	7.17	--
MW-503	09/25/12	7:59	12.22	5.61	--	NP	6.61	--
MW-503	12/13/12	10:20	12.22	4.40	--	NP	7.82	--
MW-503	03/25/13	10:35	12.22	4.83	--	NP	7.39	--
MW-503	06/24/13	11:54	12.22	5.33	--	NP	6.89	--
MW-503	09/23/13	14:35	12.22	5.26	--	NP	6.96	--
MW-503	12/16/13	10:35	12.22	5.40	--	NP	6.82	--
MW-503	03/26/14	8:22	12.22	4.56	--	NP	7.66	--
MW-503	06/16/14	13:48	12.22	5.22	--	NP	7.00	--
MW-503	09/29/14	15:41	12.22	5.13	--	NP	7.09	--
MW-503	12/08/14	12:35	12.22	4.55	--	NP	7.67	--
MW-503	03/23/15	14:10	12.22	5.09	--	NP	7.13	--
MW-503	06/22/15	15:57	12.22	5.32	--	NP	6.90	--
MW-503	10/27/16	10:06	12.22	4.22	--	NP	8.00	--
MW-503	07/24/17	11:53	12.22	5.38	--	NP	6.84	Well damaged
MW-504	10/20/08	16:14	13.32	7.01	--	NP	6.31	--
MW-504	12/08/08	11:26	13.32	6.63	--	NP	6.69	--
MW-504	02/20/09	10:16	13.32	6.46	--	NP	6.86	--
MW-504	04/20/09	10:03	13.32	6.25	--	NP	7.07	--
MW-504	06/22/09	11:42	13.32	6.81	--	NP	6.51	--
MW-504	08/03/09	11:29	13.32	7.00	--	NP	6.32	--
MW-504	08/17/09	9:35	13.32	7.05	--	NP	6.27	--
MW-504	10/29/09	9:26	13.32	6.28	--	NP	7.04	--
MW-504	01/18/10	13:53	13.32	4.90	--	NP	8.42	--
MW-504	04/19/10	15:37	13.32	5.99	--	NP	7.33	--
MW-504	07/19/10	7:28	13.32	6.80	--	NP	6.52	--
MW-504	10/25/10	14:10	13.32	6.66	--	NP	6.66	--
MW-504	03/21/11	12:40	13.32	5.48	--	NP	7.84	--
MW-504	06/14/11	10:57	13.32	6.48	--	NP	6.84	--
MW-504	09/26/11	11:05	13.32	7.09	--	NP	6.23	--
MW-504	12/12/11	12:07	13.32	6.42	--	NP	6.90	--
MW-504	03/27/12	14:22	13.32	5.84	--	NP	7.48	--
MW-504	06/27/12	17:20	13.32	6.40	--	NP	6.92	--
MW-504	09/25/12	7:57	13.32	7.07	--	NP	6.25	--
MW-504	12/13/12	10:18	13.32	5.80	--	NP	7.52	--
MW-504	03/25/13	10:33	13.32	6.22	--	NP	7.10	--
MW-504	06/24/13	11:57	13.32	6.80	--	NP	6.52	--
MW-504	09/23/13	13:55	13.32	6.67	--	NP	6.65	--
MW-504	12/16/13	10:37	13.32	6.85	--	NP	6.47	--
MW-504	03/26/14	8:21	13.32	6.00	--	NP	7.32	--
MW-504	06/16/14	13:46	13.32	6.69	--	NP	6.63	--
MW-504	09/29/14	15:45	13.32	6.61	--	NP	6.71	--
MW-504	12/08/14	12:33	13.32	5.64	--	NP	7.68	--
MW-504	03/23/15	13:57	13.32	6.05	--	NP	7.27	--
MW-504	06/22/15	15:59	13.32	5.32	--	NP	8.00	--
MW-504	10/27/16	9:13	13.32	5.52	--	NP	7.80	--
MW-504	07/24/17	12:00	13.32	6.85	--	NP	6.47	--
MW-505	10/20/08	16:11	11.42	5.10	--	NP	6.32	--
MW-505	12/08/08	11:13	11.42	4.72	--	NP	6.70	--
MW-505	02/20/09	10:18	11.42	4.53	--	NP	6.89	--
MW-505	04/20/09	10:02	11.42	4.32	--	NP	7.10	--
MW-505	06/22/09	11:39	11.42	4.90	--	NP	6.52	--
MW-505	08/03/09	11:28	11.42	5.11	--	NP	6.31	--
MW-505	08/17/09	9:33	11.42	5.13	--	NP	6.29	--
MW-505	10/29/09	9:25	11.42	4.37	--	NP	7.05	--
MW-505	01/18/10	13:52	11.42	2.99	--	NP	8.43	--
MW-505	04/19/10	15:35	11.42	4.08	--	NP	7.34	--
MW-505	07/19/10	7:31	11.42	5.89	--	NP	5.53	--
MW-505	10/25/10	14:08	11.42	4.73	--	NP	6.69	--
MW-505	03/21/11	12:39	11.42	3.45	--	NP	7.97	--
MW-505	06/14/11	10:58	11.42	4.58	--	NP	6.84	--
MW-505	09/26/11	10:54	11.42	5.14	--	NP	6.28	--
MW-505	12/12/11	12:09	11.42	4.50	--	NP	6.92	--
MW-505	03/27/12	14:11	11.42	3.94	--	NP	7.48	--
MW-505	06/27/12	17:16	11.42	4.49	--	NP	6.93	--
MW-505	09/25/12	7:55	11.42	5.13	--	NP	6.29	--
MW-505	12/13/12	10:15	11.42	3.88	--	NP	7.54	--
MW-505	03/25/13	10:31	11.42	4.30	--	NP	7.12	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-505	06/24/13	11:52	11.42	4.84	--	NP	6.58	--
MW-505	09/23/13	13:53	11.42	4.76	--	NP	6.66	--
MW-505	12/16/13	10:27	11.42	4.91	--	NP	6.51	--
MW-505	03/26/14	8:17	11.42	4.10	--	NP	7.32	--
MW-505	06/16/14	13:44	11.42	4.75	--	NP	6.67	--
MW-505	09/29/14	15:47	11.42	4.69	--	NP	6.73	--
MW-505	12/08/14	12:30	11.42	4.10	--	NP	7.32	--
MW-505	03/23/15	13:56	11.42	4.13	--	NP	7.29	--
MW-505	06/22/15	16:01	11.42	4.88	--	NP	6.54	--
MW-505	10/27/16	9:14	11.42	3.63	--	NP	7.79	--
MW-505	07/24/17	12:17	11.42	4.92	--	NP	6.50	--
MW-506	10/20/08	16:16	13.44	7.13	--	NP	6.31	--
MW-506	12/08/08	11:29	13.44	6.75	--	NP	6.69	--
MW-506	02/20/09	10:13	13.44	6.60	--	NP	6.84	--
MW-506	04/20/09	10:08	13.44	6.37	--	NP	7.07	--
MW-506	06/22/09	11:44	13.44	6.93	--	NP	6.51	--
MW-506	08/03/09	11:30	13.44	7.13	--	NP	6.31	--
MW-506	08/17/09	9:31	13.44	7.17	--	NP	6.27	--
MW-506	10/29/09	9:28	13.44	6.39	--	NP	7.05	--
MW-506	01/18/10	13:47	13.44	5.02	--	NP	8.42	--
MW-506	04/19/10	15:30	13.44	6.10	--	NP	7.34	--
MW-506	07/19/10	7:37	13.44	6.91	--	NP	6.53	--
MW-506	10/25/10	14:10	13.44	6.75	--	NP	6.69	--
MW-506	03/21/11	12:40	13.44	5.50	--	NP	7.94	--
MW-506	06/14/11	10:48	13.44	6.59	--	NP	6.85	--
MW-506	09/26/11	11:00	13.44	7.13	--	NP	6.31	--
MW-506	12/12/11	12:14	13.44	6.56	--	NP	6.88	--
MW-506	03/27/12	14:15	13.44	5.93	--	NP	7.51	--
MW-506	06/27/12	17:20	13.44	6.51	--	NP	6.93	--
MW-506	09/25/12	7:52	13.44	7.15	--	NP	6.29	--
MW-506	12/13/12	10:10	13.44	5.89	--	NP	7.55	--
MW-506	03/25/13	10:33	13.44	6.33	--	NP	7.11	--
MW-506	06/24/13	12:03	13.44	6.88	--	NP	6.56	--
MW-506	09/23/13	13:57	13.44	6.76	--	NP	6.68	--
MW-506	12/16/13	10:28	13.44	6.93	--	NP	6.51	--
MW-506	03/26/14	9:12	13.44	6.09	--	NP	7.35	--
MW-506	06/16/14	13:48	13.44	6.79	--	NP	6.65	--
MW-506	09/29/14	13:54	13.44	6.71	--	NP	6.73	--
MW-506	12/08/14	12:45	13.44	6.07	--	NP	7.37	--
MW-506	03/23/15	14:03	13.44	6.15	--	NP	7.29	--
MW-506	06/22/15	15:25	13.44	6.89	--	NP	6.55	--
MW-506	10/27/16	9:48	13.44	5.62	--	NP	7.82	--
MW-506	07/24/17	12:01	13.44	6.91	--	NP	6.53	--
MW-507	10/20/08	16:09	13.60	7.38	--	NP	6.22	--
MW-507	12/08/08	11:11	13.60	7.09	--	NP	6.51	--
MW-507	02/20/09	10:11	13.60	6.91	--	NP	6.69	--
MW-507	04/20/09	10:00	13.60	6.70	--	NP	6.90	--
MW-507	06/22/09	11:37	13.60	7.23	--	NP	6.37	--
MW-507	08/03/09	11:27	13.60	7.41	--	NP	6.19	--
MW-507	08/17/09	9:29	13.60	7.45	--	NP	6.15	--
MW-507	10/29/09	9:23	13.60	6.70	--	NP	6.90	--
MW-507	01/18/10	13:48	13.60	5.49	--	NP	8.11	--
MW-507	04/19/10	15:29	13.60	6.40	--	NP	7.20	--
MW-507	07/19/10	7:36	13.60	7.14	--	NP	6.46	--
MW-507	10/25/10	14:09	13.60	6.90	--	NP	6.70	--
MW-507	03/21/11	12:38	13.60	5.86	--	NP	7.74	--
MW-507	06/14/11	10:44	13.60	6.95	--	NP	6.65	--
MW-507	09/26/11	11:01	13.60	7.40	--	NP	6.20	--
MW-507	12/12/11	12:17	13.60	6.81	--	NP	6.79	--
MW-507	03/27/12	14:10	13.60	6.23	--	NP	7.37	--
MW-507	06/27/12	17:17	13.60	6.79	--	NP	6.81	--
MW-507	09/25/12	7:49	13.60	7.38	--	NP	6.22	--
MW-507	12/13/12	10:12	13.60	6.19	--	NP	7.41	--
MW-507	03/25/13	10:31	13.60	6.56	--	NP	7.04	--
MW-507	06/24/13	12:02	13.60	7.05	--	NP	6.55	--
MW-507	09/23/13	13:52	13.60	7.03	--	NP	6.57	--
MW-507	12/16/13	10:26	13.60	7.15	--	NP	6.45	--
MW-507	03/26/14	8:40	13.60	6.41	--	NP	7.19	--
MW-507	06/16/14	13:46	13.60	7.01	--	NP	6.59	--
MW-507	09/29/14	13:53	13.60	6.92	--	NP	6.68	--
MW-507	12/08/14	12:41	13.60	6.35	--	NP	7.25	--
MW-507	03/23/15	13:54	13.60	6.47	--	NP	7.13	--
MW-507	06/22/15	15:26	13.60	7.17	--	NP	6.43	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-507	10/27/16	9:47	13.60	5.84	--	NP	7.76	--
MW-507	07/24/17	12:05	13.60	7.07	--	NP	6.53	--
MW-508	10/20/08	16:07	13.31	7.16	--	NP	6.15	--
MW-508	12/08/08	11:09	13.31	6.33	--	NP	6.98	--
MW-508	02/20/09	10:08	13.31	6.70	--	NP	6.61	--
MW-508	04/20/09	9:59	13.31	6.40	--	NP	6.91	--
MW-508	06/22/09	11:35	13.31	6.94	--	NP	6.37	--
MW-508	08/03/09	11:26	13.31	7.15	--	NP	6.16	--
MW-508	08/17/09	9:28	13.31	7.20	--	NP	6.11	--
MW-508	10/29/09	9:22	13.31	6.55	--	NP	6.76	--
MW-508	01/18/10	13:49	13.31	5.13	--	NP	8.18	--
MW-508	04/19/10	15:27	13.31	6.11	--	NP	7.20	--
MW-508	07/19/10	7:33	13.31	6.88	--	NP	6.43	--
MW-508	10/25/10	14:07	13.31	6.58	--	NP	6.73	--
MW-508	03/21/11	12:36	13.31	5.51	--	NP	7.80	--
MW-508	06/14/11	10:40	13.31	6.70	--	NP	6.61	--
MW-508	09/26/11	10:57	13.31	7.18	--	NP	6.13	--
MW-508	12/12/11	12:21	13.31	6.55	--	NP	6.76	--
MW-508	03/29/12	14:06	13.31	5.92	--	NP	7.39	--
MW-508	06/27/12	18:18	13.31	6.42	--	NP	6.89	--
MW-508	09/25/12	7:45	13.31	7.11	--	NP	6.20	--
MW-508	12/13/12	10:40	13.31	5.85	--	NP	7.46	--
MW-508	03/25/13	10:29	13.31	6.24	--	NP	7.07	--
MW-508	06/24/13	11:50	13.31	6.73	--	NP	6.58	--
MW-508	09/23/13	13:49	13.31	6.82	--	NP	6.49	--
MW-508	12/16/13	10:25	13.31	6.95	--	NP	6.36	--
MW-508	03/26/14	9:30	13.31	5.90	--	NP	7.41	--
MW-508	06/16/14	13:42	13.31	6.68	--	NP	6.63	--
MW-508	09/29/14	13:51	13.31	6.69	--	NP	6.62	--
MW-508	12/08/14	12:37	13.31	6.03	--	NP	7.28	--
MW-508	03/23/15	13:51	13.31	6.17	--	NP	7.14	--
MW-508	06/22/15	15:31	13.31	6.93	--	NP	6.38	--
MW-508	10/27/16	9:45	13.31	5.40	--	NP	7.91	--
MW-508 ^{UBZ}	07/24/17	12:06	13.31	6.81	--	NP	6.50	--
MW-509	10/20/08	16:05	10.28	3.97	--	NP	6.31	--
MW-509	12/08/08	11:07	10.28	3.59	--	NP	6.69	--
MW-509	02/20/09	10:06	10.28	3.39	--	NP	6.89	--
MW-509	04/20/09	9:36	10.28	3.18	--	NP	7.10	--
MW-509	06/22/09	11:33	10.28	3.75	--	NP	6.53	--
MW-509	08/03/09	11:11	10.28	3.95	--	NP	6.33	--
MW-509	08/17/09	9:27	10.28	6.97	--	NP	3.31	--
MW-509	10/29/09	9:10	10.28	3.23	--	NP	7.05	--
MW-509	01/18/10	13:50	10.28	1.85	--	NP	8.43	--
MW-509	04/19/10	15:26	10.28	2.93	--	NP	7.35	--
MW-509	07/19/10	7:18	10.28	3.77	--	NP	6.51	--
MW-509	10/25/10	14:49	10.28	4.59	--	NP	5.69	--
MW-509	03/21/11	12:30	10.28	2.34	--	NP	7.94	--
MW-509	06/14/11	10:17	10.28	3.43	--	NP	6.85	--
MW-509	09/26/11	10:55	10.28	4.20	--	NP	6.08	--
MW-509	12/12/11	12:27	10.28	3.36	--	NP	6.92	--
MW-509	03/27/12	13:57	10.28	2.78	--	NP	7.50	--
MW-509	06/27/12	17:06	10.28	3.33	--	NP	6.95	--
MW-509	09/25/12	7:42	10.28	4.00	--	NP	6.28	--
MW-509	12/13/12	10:13	10.28	2.73	--	NP	7.55	--
MW-509	03/25/13	10:26	10.28	3.18	--	NP	7.10	--
MW-509	06/24/13	11:34	10.28	3.37	--	NP	6.91	--
MW-509	09/23/13	13:50	10.28	3.62	--	NP	6.66	--
MW-509	12/16/13	11:25	10.28	3.80	--	NP	6.48	--
MW-509	03/26/14	8:24	10.28	2.93	--	NP	7.35	--
MW-509	06/16/14	13:36	10.28	3.64	--	NP	6.64	--
MW-509	09/29/14	14:30	10.28	3.56	--	NP	6.72	--
MW-509	12/08/14	12:05	10.28	2.92	--	NP	7.36	--
MW-509	03/23/15	13:47	10.28	2.98	--	NP	7.30	--
MW-509	06/25/15	11:41	10.28	3.74	--	NP	6.54	--
MW-509	10/27/16	9:17	10.28	2.48	--	NP	7.80	--
MW-509	07/24/17	11:53	10.28	3.80	--	NP	6.48	--
MW-510	10/20/08	16:03	12.53	6.47	--	NP	6.06	--
MW-510	12/08/08	10:49	12.53	6.45	--	NP	6.08	--
MW-510	02/20/09	9:51	12.53	6.35	--	NP	6.18	--
MW-510	04/20/09	9:46	12.53	6.72	--	NP	5.81	--
MW-510	06/22/09	11:31	12.53	7.05	--	NP	5.48	--
MW-510	08/03/09	11:15	12.53	7.08	--	<0.01	5.45	Sheen observed on probe, sheen observed on purge water
MW-510	08/17/09	9:24	12.53	7.29	--	<0.01	5.24	Film observed during gauging

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-510	10/29/09	9:31	12.53	6.72	6.71	0.01	5.82	See **
MW-510	01/18/10	13:31	12.53	4.98	4.85	0.13	7.65	See **
MW-510	04/19/10	15:04	12.53	6.40	6.38	0.02	6.15	See **
MW-510	07/19/10	7:40	12.53	7.04	7.00	0.04	5.52	See **
MW-510	10/25/10	14:49	12.53	6.04	6.02	0.02	6.51	See **
MW-510	03/21/11	13:25	12.53	5.81	5.80	0.01	6.73	See **
MW-510	06/14/11	12:11	12.53	7.08	--	NP	5.45	--
MW-510	09/26/11	12:47	12.53	6.96	6.94	0.02	5.59	See **
MW-510	12/12/11	12:26	12.53	6.41	--	NP	6.12	--
MW-510	03/27/12	14:03	12.53	5.96	--	NP	6.57	--
MW-510	06/27/12	16:41	12.53	6.42	6.41	0.01	6.12	See **
MW-510	09/25/12	8:19	12.53	7.11	7.10	0.01	5.43	See **
MW-510	12/13/12	11:11	12.53	5.50	--	<0.01	7.03	Film observed during gauging, sheen observed on purge water
MW-510	03/25/13	10:16	12.53	6.34	--	<0.01	6.19	Film observed during gauging, sheen observed on purge water
MW-510	06/24/13	12:11	12.53	6.61	--	<0.01	5.92	Film observed during gauging, confirmed with bailer
MW-510	09/23/13	13:40	12.53	6.30	--	NP	6.23	--
MW-510	12/16/13	10:38	12.53	6.60	--	<0.01	5.93	Film observed during gauging, confirmed with bailer
MW-510	03/26/14	8:27	12.53	5.63	--	<0.01	6.90	Film observed during gauging, confirmed with bailer
MW-510	06/16/14	14:50	12.53	6.61	--	<0.01	5.92	Film observed during gauging
MW-510	09/29/14	14:18	12.53	6.26	--	<0.01	6.27	Film observed during gauging
MW-510	12/08/14	11:56	12.53	5.51	--	NP	7.02	--
MW-510	03/23/15	13:32	12.53	5.82	--	NP	6.71	--
MW-510	06/22/15	14:36	12.53	6.75	--	NP	5.78	--
MW-510	10/27/16	9:22	12.53	4.67	--	NP	7.86	--
MW-510 ^{DB2}	07/24/17	13:00	12.53	6.60	--	NP	5.93	--
MW-511	10/20/08	16:49	15.20	7.75	--	NP	7.45	--
MW-511	12/08/08	12:05	15.20	7.45	--	NP	7.75	--
MW-511	02/20/09	10:13	15.20	7.34	--	NP	7.86	--
MW-511	04/20/09	10:44	15.20	7.09	--	NP	8.11	--
MW-511	06/22/09	11:16	15.20	7.66	--	NP	7.54	--
MW-511	08/03/09	10:40	15.20	7.89	--	NP	7.31	--
MW-511	08/17/09	9:17	15.20	7.87	--	NP	7.33	--
MW-511	10/29/09	9:10	15.20	7.30	--	NP	7.90	--
MW-511	01/18/10	13:36	15.20	6.06	--	NP	9.14	--
MW-511	04/19/10	16:10	15.20	6.83	--	NP	8.37	--
MW-511	07/19/10	7:18	15.20	7.59	--	NP	7.61	--
MW-511	10/25/10	14:50	15.20	7.51	--	NP	7.69	--
MW-511	03/21/11	13:06	15.20	6.37	--	NP	8.83	--
MW-511	06/14/11	11:38	15.20	7.29	--	NP	7.91	--
MW-511	09/26/11	11:08	15.20	7.88	--	NP	7.32	--
MW-511	12/12/11	13:27	15.20	7.20	--	NP	8.00	--
MW-511	03/27/12	14:55	15.20	6.62	--	NP	8.58	--
MW-511	06/27/12	17:39	15.20	7.27	--	NP	7.93	--
MW-511	09/25/12	8:27	15.20	7.85	--	NP	7.35	--
MW-511	12/13/12	10:44	15.20	6.59	--	NP	8.61	--
MW-511	03/25/13	10:59	15.20	7.05	--	NP	8.15	--
MW-511	06/24/13	11:32	15.20	7.60	--	NP	7.60	--
MW-511	09/23/13	13:29	15.20	7.59	--	NP	7.61	--
MW-511	12/16/13	11:27	15.20	7.60	--	NP	7.60	--
MW-511	03/26/14	8:24	15.20	6.74	--	NP	8.46	--
MW-511	06/16/14	13:35	15.20	7.50	--	NP	7.70	--
MW-511	09/29/14	15:16	15.20	7.59	--	NP	7.61	--
MW-511	12/08/14	11:50	15.20	6.89	--	NP	8.31	--
MW-511	03/23/15	13:29	15.20	6.86	--	NP	8.34	--
MW-511	06/22/15	15:42	15.20	7.70	--	NP	7.50	--
MW-511	10/27/16	9:10	15.20	7.38	--	NP	7.82	--
MW-511	07/24/17	11:49	15.20	8.06	--	NP	7.14	--
MW-512	10/20/08	16:04	13.19	6.90	--	NP	6.29	--
MW-512	12/08/08	10:37	13.19	6.51	--	NP	6.68	--
MW-512	02/20/09	10:10	13.19	6.30	--	NP	6.89	--
MW-512	04/20/09	9:28	13.19	6.12	--	NP	7.07	--
MW-512	06/22/09	11:18	13.19	7.68	--	NP	5.51	--
MW-512	08/03/09	11:09	13.19	6.86	--	NP	6.33	--
MW-512	08/17/09	9:18	13.19	6.91	--	NP	6.28	--
MW-512	10/29/09	9:07	13.19	6.15	--	NP	7.04	--
MW-512	01/18/10	13:34	13.19	4.78	--	NP	8.41	--
MW-512	04/19/10	14:48	13.19	5.85	--	NP	7.34	--
MW-512	07/19/10	7:16	13.19	6.67	--	NP	6.52	--
MW-512	10/25/10	13:48	13.19	6.51	--	NP	6.68	--
MW-512	03/21/11	12:22	13.19	5.26	--	NP	7.93	--
MW-512	06/14/11	10:16	13.19	6.35	--	NP	6.84	--
MW-512	09/26/11	11:53	13.19	6.95	--	NP	6.24	--
MW-512	12/12/11	11:59	13.19	6.29	--	NP	6.90	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-512	03/27/12	13:52	13.19	5.72	--	NP	7.47	--
MW-512	06/27/12	17:00	13.19	6.27	--	NP	6.92	--
MW-512	09/25/12	7:30	13.19	6.93	--	NP	6.26	--
MW-512	12/13/12	10:15	13.19	5.65	--	NP	7.54	--
MW-512	03/25/13	10:20	13.19	6.11	--	NP	7.08	--
MW-512	06/24/13	11:37	13.19	6.67	--	NP	6.52	--
MW-512	09/23/13	13:40	13.19	6.57	--	NP	6.62	--
MW-512	12/16/13	10:09	13.19	6.72	--	NP	6.47	--
MW-512	03/26/14	8:12	13.19	5.88	--	NP	7.31	--
MW-512	06/16/14	13:31	13.19	6.56	--	NP	6.63	--
MW-512	09/29/14	15:25	13.19	6.50	--	NP	6.69	--
MW-512	12/08/14	11:55	13.19	5.90	--	NP	7.29	--
MW-512	03/23/15	13:32	13.19	5.91	--	NP	7.28	--
MW-512	06/22/15	15:38	13.19	6.70	--	NP	6.49	--
MW-512	10/27/16	9:09	13.19	5.40	--	NP	7.79	--
MW-512	07/24/17	12:25	13.19	6.73	--	NP	6.46	--
MW-513	10/20/08	16:01	11.09	4.78	--	NP	6.31	--
MW-513	12/08/08	10:41	11.09	4.40	--	NP	6.69	--
MW-513	02/20/09	10:07	11.09	4.19	--	NP	6.90	--
MW-513	04/20/09	9:30	11.09	4.00	--	NP	7.09	--
MW-513	06/22/09	11:21	11.09	4.58	--	NP	6.51	--
MW-513	08/03/09	11:08	11.09	4.78	--	NP	6.31	--
MW-513	08/17/09	9:21	11.09	4.80	--	NP	6.29	--
MW-513	10/29/09	9:13	11.09	4.04	--	NP	7.05	--
MW-513	01/18/10	13:37	11.09	2.67	--	NP	8.42	--
MW-513	04/19/10	14:51	11.09	3.75	--	NP	7.34	--
MW-513	07/19/10	7:12	11.09	4.57	--	NP	6.52	--
MW-513	10/25/10	13:44	11.09	4.42	--	NP	6.67	--
MW-513	03/21/11	12:25	11.09	3.18	--	NP	7.91	--
MW-513	06/14/11	10:12	11.09	4.25	--	NP	6.84	--
MW-513	09/26/11	10:54	11.09	4.83	--	NP	6.26	--
MW-513	12/12/11	11:57	11.09	4.19	--	NP	6.90	--
MW-513	03/27/12	13:56	11.09	3.60	--	NP	7.49	--
MW-513	06/27/12	16:58	11.09	4.15	--	NP	6.94	--
MW-513	09/25/12	7:35	11.09	4.82	--	NP	6.27	--
MW-513	12/13/12	10:13	11.09	3.56	--	NP	7.53	--
MW-513	03/25/13	10:16	11.09	3.90	--	NP	7.19	--
MW-513	06/24/13	11:40	11.09	4.55	--	NP	6.54	--
MW-513	09/23/13	13:46	11.09	4.47	--	NP	6.62	--
MW-513	12/16/13	10:12	11.09	4.62	--	NP	6.47	--
MW-513	03/26/14	8:14	11.09	3.77	--	NP	7.32	--
MW-513	06/16/14	13:41	11.09	4.46	--	NP	6.63	--
MW-513	09/29/14	15:29	11.09	4.38	--	NP	6.71	--
MW-513	12/08/14	12:00	11.09	3.74	--	NP	7.35	--
MW-513	03/23/15	13:35	11.09	3.81	--	NP	7.28	--
MW-513	06/22/15	15:31	11.09	4.58	--	NP	6.51	--
MW-513	10/27/16	9:08	11.09	3.30	--	NP	7.79	--
MW-513	07/24/17	12:01	11.09	4.62	--	NP	6.47	--
MW-514	10/20/08	16:02	11.39	5.09	--	NP	6.30	--
MW-514	12/08/08	10:35	11.39	4.70	--	NP	6.69	--
MW-514	02/20/09	10:08	11.39	4.19	--	NP	7.20	--
MW-514	04/20/09	9:28	11.39	4.31	--	NP	7.08	--
MW-514	06/22/09	11:19	11.39	4.88	--	NP	6.51	--
MW-514	08/03/09	11:07	11.39	5.08	--	NP	6.31	--
MW-514	08/17/09	9:19	11.39	5.11	--	NP	6.28	--
MW-514	10/29/09	9:06	11.39	4.35	--	NP	7.04	--
MW-514	01/18/10	13:33	11.39	2.98	--	NP	8.41	--
MW-514	04/19/10	14:46	11.39	4.05	--	NP	7.34	--
MW-514	07/19/10	7:10	11.39	4.97	--	NP	6.42	--
MW-514	10/25/10	13:41	11.39	4.71	--	NP	6.68	--
MW-514	03/21/11	12:23	11.39	3.48	--	NP	7.91	--
MW-514	06/14/11	10:14	11.39	4.56	--	NP	6.83	--
MW-514	09/26/11	10:50	11.39	5.13	--	NP	6.26	--
MW-514	12/12/11	11:55	11.39	4.49	--	NP	6.90	--
MW-514	03/27/12	13:54	11.39	3.92	--	NP	7.47	--
MW-514	06/27/12	16:56	11.39	4.47	--	NP	6.92	--
MW-514	09/25/12	7:32	11.39	5.13	--	NP	6.26	--
MW-514	12/13/12	10:14	11.39	3.84	--	NP	7.55	--
MW-514	03/25/13	9:50	11.39	7.62	--	NP	3.77	See*
MW-514	06/24/13	11:39	11.39	4.84	--	NP	6.55	--
MW-514	09/23/13	13:38	11.39	4.76	--	NP	6.63	--
MW-514	12/16/13	10:10	11.39	4.92	--	NP	6.47	--
MW-514	03/26/14	8:00	11.39	4.05	--	NP	7.34	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-514	06/16/14	13:39	11.39	4.76	--	NP	6.63	--
MW-514	09/29/14	15:27	11.39	4.69	--	NP	6.70	--
MW-514	12/08/14	11:57	11.39	4.10	--	NP	7.29	--
MW-514	03/23/15	13:33	11.39	4.12	--	NP	7.27	--
MW-514	06/22/15	15:28	11.39	4.88	--	NP	6.51	--
MW-514	10/27/16	9:08	11.39	3.61	--	NP	7.78	--
MW-514	07/24/17	12:39	11.39	4.92	--	NP	6.47	--
MW-515	10/20/08	16:00	11.60	5.30	--	NP	6.30	--
MW-515	12/08/08	10:42	11.60	4.91	--	NP	6.69	--
MW-515	02/20/09	9:47	11.60	5.70	--	NP	5.90	--
MW-515	04/20/09	9:25	11.60	4.52	--	NP	7.08	--
MW-515	06/22/09	11:25	11.60	5.09	--	NP	6.51	--
MW-515	08/03/09	11:04	11.60	5.29	--	NP	6.31	--
MW-515	08/17/09	9:23	11.60	5.33	--	NP	6.27	--
MW-515	10/29/09	9:15	11.60	4.55	--	NP	7.05	--
MW-515	01/18/10	13:40	11.60	3.18	--	NP	8.42	--
MW-515	04/19/10	14:54	11.60	4.26	--	NP	7.34	--
MW-515	07/19/10	7:12	11.60	5.10	--	NP	6.50	--
MW-515	10/25/10	13:45	11.60	4.93	--	NP	6.67	--
MW-515	03/21/11	12:26	11.60	3.65	--	NP	7.95	--
MW-515	06/14/11	10:14	11.60	4.75	--	NP	6.85	--
MW-515	09/26/11	10:52	11.60	5.35	--	NP	6.25	--
MW-515	12/12/11	12:01	11.60	4.71	--	NP	6.89	--
MW-515	03/27/12	13:56	11.60	4.11	--	NP	7.49	--
MW-515	06/27/12	17:00	11.60	4.68	--	NP	6.92	--
MW-515	09/25/12	7:35	11.60	5.34	--	NP	6.26	--
MW-515	12/13/12	10:12	11.60	4.06	--	NP	7.54	--
MW-515	03/25/13	10:10	11.60	4.53	--	NP	7.07	--
MW-515	06/24/13	11:45	11.60	5.06	--	NP	6.54	--
MW-515	09/23/13	13:40	11.60	4.96	--	NP	6.64	--
MW-515	12/16/13	10:19	11.60	5.15	--	NP	6.45	--
MW-515	03/26/14	8:18	11.60	4.26	--	NP	7.34	--
MW-515	06/16/14	13:30	11.60	4.98	--	NP	6.62	--
MW-515	09/29/14	15:35	11.60	4.89	--	NP	6.71	--
MW-515	12/08/14	12:03	11.60	4.27	--	NP	7.33	--
MW-515	03/23/15	13:45	11.60	4.33	--	NP	7.27	--
MW-515	06/22/15	15:29	11.60	5.09	--	NP	6.51	--
MW-515	10/27/16	9:05	11.60	3.81	--	NP	7.79	--
MW-515	07/24/17	11:55	11.60	5.11	--	NP	6.49	--
MW-516	10/20/08	15:59	11.25	4.94	--	NP	6.31	--
MW-516	12/08/08	10:33	11.25	4.56	--	NP	6.69	--
MW-516	02/20/09	9:49	11.25	4.35	--	NP	6.90	--
MW-516	04/20/09	9:26	11.25	4.17	--	NP	7.08	--
MW-516	06/22/09	11:24	11.25	4.75	--	NP	6.50	--
MW-516	08/03/09	11:05	11.25	4.94	--	NP	6.31	--
MW-516	08/17/09	9:24	11.25	4.96	--	NP	6.29	--
MW-516	10/29/09	9:14	11.25	4.22	--	NP	7.03	--
MW-516	01/18/10	13:39	11.25	2.84	--	NP	8.41	--
MW-516	04/19/10	14:52	11.25	3.91	--	NP	7.34	--
MW-516	07/19/10	7:11	11.25	4.75	--	NP	6.50	--
MW-516	10/25/10	13:44	11.25	5.38	--	NP	5.87	--
MW-516	03/21/11	12:25	11.25	3.30	--	NP	7.95	--
MW-516	06/14/11	10:12	11.25	4.41	--	NP	6.84	--
MW-516	09/26/11	10:50	11.25	5.00	--	NP	6.25	--
MW-516	12/12/11	11:48	11.25	4.36	--	NP	6.89	--
MW-516	03/27/12	13:55	11.25	3.79	--	NP	7.46	--
MW-516	06/27/12	16:58	11.25	4.33	--	NP	6.92	--
MW-516	09/25/12	7:32	11.25	4.99	--	NP	6.26	--
MW-516	12/13/12	10:11	11.25	3.71	--	NP	7.54	--
MW-516	03/25/13	10:09	11.25	4.17	--	NP	7.08	--
MW-516	06/24/13	11:43	11.25	4.71	--	NP	6.54	--
MW-516	09/23/13	13:39	11.25	4.62	--	NP	6.63	--
MW-516	12/16/13	10:16	11.25	4.81	--	NP	6.44	--
MW-516	03/26/14	7:50	11.25	3.92	--	NP	7.33	--
MW-516	06/16/14	13:28	11.25	4.63	--	NP	6.62	--
MW-516	09/29/14	15:32	11.25	4.56	--	NP	6.69	--
MW-516	12/08/14	12:25	11.25	3.92	--	NP	7.33	--
MW-516	03/23/15	13:43	11.25	3.99	--	NP	7.26	--
MW-516	06/22/15	15:31	11.25	4.75	--	NP	6.50	--
MW-516	10/27/16	9:06	11.25	3.49	--	NP	7.76	--
MW-516	07/24/17	11:58	11.25	4.82	--	NP	6.43	--
MW-517	10/20/08	15:57	12.00	5.69	--	NP	6.31	--
MW-517	12/08/08	10:31	12.00	5.31	--	NP	6.69	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-517	02/20/09	9:51	12.00	5.12	--	NP	6.88	--
MW-517	04/20/09	9:27	12.00	4.91	--	NP	7.09	--
MW-517	06/22/09	11:22	12.00	5.49	--	NP	6.51	--
MW-517	08/03/09	11:06	12.00	5.68	--	NP	6.32	--
MW-517	08/17/09	9:25	12.00	5.72	--	NP	6.28	--
MW-517	10/29/09	9:05	12.00	4.97	--	NP	7.03	--
MW-517	01/18/10	13:31	12.00	3.58	--	NP	8.42	--
MW-517	04/19/10	14:44	12.00	4.66	--	NP	7.34	--
MW-517	07/19/10	7:08	12.00	5.49	--	NP	6.51	--
MW-517	10/25/10	13:42	12.00	5.33	--	NP	6.67	--
MW-517	03/21/11	12:24	12.00	4.05	--	NP	7.95	--
MW-517	06/14/11	10:08	12.00	5.16	--	NP	6.84	--
MW-517	09/26/11	10:49	12.00	5.77	--	NP	6.23	--
MW-517	12/12/11	11:51	12.00	5.11	--	NP	6.89	--
MW-517	03/27/12	13:54	12.00	4.52	--	NP	7.48	--
MW-517	06/27/12	16:54	12.00	5.08	--	NP	6.92	--
MW-517	09/25/12	7:30	12.00	5.78	--	NP	6.22	--
MW-517	12/13/12	10:10	12.00	4.46	--	NP	7.54	--
MW-517	03/25/13	10:08	12.00	4.93	--	NP	7.07	--
MW-517	06/24/13	11:41	12.00	5.48	--	NP	6.52	--
MW-517	09/23/13	13:35	12.00	5.38	--	NP	6.62	--
MW-517	12/16/13	10:13	12.00	5.55	--	NP	6.45	--
MW-517	03/26/14	7:55	12.00	4.69	--	NP	7.31	--
MW-517	06/16/14	13:26	12.00	5.38	--	NP	6.62	--
MW-517	09/29/14	15:31	12.00	5.30	--	NP	6.70	--
MW-517	12/08/14	12:22	12.00	4.68	--	NP	7.32	--
MW-517	03/23/15	13:40	12.00	4.73	--	NP	7.27	--
MW-517	06/22/15	15:27	12.00	5.49	--	NP	6.51	--
MW-517	10/27/16	9:07	12.00	4.22	--	NP	7.78	--
MW-517	07/24/17	12:00	12.00	5.55	--	NP	6.45	--
MW-518	10/20/08	15:56	14.60	8.51	--	NP	6.09	--
MW-518	12/08/08	10:44	14.60	8.37	--	NP	6.23	--
MW-518	02/20/09	9:45	14.60	8.29	--	NP	6.31	--
MW-518	04/20/09	9:17	14.60	8.40	--	NP	6.20	--
MW-518	06/22/09	11:29	14.60	8.68	--	NP	5.92	--
MW-518	08/03/09	11:04	14.60	8.79	--	NP	5.81	--
MW-518	08/17/09	9:20	14.60	9.00	--	NP	5.60	--
MW-518	10/29/09	9:19	14.60	8.42	--	NP	6.18	--
MW-518	01/18/10	13:43	14.60	6.65	--	NP	7.95	--
MW-518	04/19/10	14:56	14.60	8.01	--	NP	6.59	--
MW-518	07/19/10	7:14	14.60	8.73	--	NP	5.87	--
MW-518	10/25/10	13:47	14.60	8.05	--	NP	6.55	--
MW-518	03/21/11	12:27	14.60	7.45	--	NP	7.15	--
MW-518	06/14/11	10:09	14.60	8.45	--	NP	6.15	--
MW-518	09/26/11	10:52	14.60	8.73	--	NP	5.87	--
MW-518	12/12/11	12:03	14.60	7.30	--	NP	7.30	--
MW-518	03/27/12	13:57	14.60	7.75	--	NP	6.85	--
MW-518	06/27/12	17:02	14.60	8.28	--	NP	6.32	--
MW-518	09/25/12	7:37	14.60	8.96	--	NP	5.64	--
MW-518	12/13/12	10:09	14.60	7.49	--	NP	7.11	--
MW-518	03/25/13	10:11	14.60	8.30	--	NP	6.30	--
MW-518	06/24/13	11:30	14.60	8.44	--	NP	6.16	--
MW-518	09/23/13	13:41	14.60	8.32	--	NP	6.28	--
MW-518	12/16/13	11:56	14.60	8.65	--	NP	5.95	--
MW-518	03/26/14	8:20	14.60	7.82	--	NP	6.78	--
MW-518	06/16/14	13:32	14.60	8.53	--	NP	6.07	--
MW-518	09/29/14	13:43	14.60	8.25	--	NP	6.35	--
MW-518	12/08/14	12:30	14.60	7.57	--	NP	7.03	--
MW-518	03/23/15	13:50	14.60	7.92	--	NP	6.68	--
MW-518	06/22/15	15:24	14.60	8.70	--	NP	5.90	--
MW-518	10/27/16	9:04	14.60	7.47	--	NP	7.13	--
MW-518	07/24/17	11:47	14.60	8.62	--	NP	5.98	--
MW-519	10/20/08	15:35	12.60	7.25	--	NP	5.35	--
MW-519	12/08/08	10:25	12.60	7.12	--	NP	5.48	--
MW-519	02/20/09	10:21	12.60	6.89	--	NP	5.71	--
MW-519	04/20/09	9:02	12.60	7.17	--	NP	5.43	--
MW-519	06/22/09	11:04	12.60	6.83	--	NP	5.77	--
MW-519	08/03/09	10:57	12.60	6.96	--	NP	5.64	--
MW-519	08/17/09	8:47	12.60	7.21	--	NP	5.39	--
MW-519	10/29/09	8:56	12.60	6.75	--	NP	5.85	--
MW-519	01/18/10	13:25	12.60	4.80	--	NP	7.80	--
MW-519	04/19/10	14:37	12.60	6.41	--	NP	6.19	--
MW-519	07/19/10	7:05	12.60	7.15	--	NP	5.45	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-519	10/25/10	13:36	12.60	6.60	--	NP	6.00	--
MW-519	03/21/11	12:19	12.60	5.71	--	NP	6.89	--
MW-519	06/14/11	10:03	12.60	6.88	--	NP	5.72	--
MW-519	09/26/11	10:37	12.60	7.11	--	NP	5.49	--
MW-519	12/12/11	11:42	12.60	7.14	--	NP	5.46	--
MW-519	03/27/12	13:46	12.60	6.14	--	NP	6.46	--
MW-519	06/27/12	16:42	12.60	6.84	--	NP	5.76	--
MW-519	09/25/12	7:20	12.60	7.26	--	NP	5.34	--
MW-519	12/13/12	9:54	12.60	6.01	--	NP	6.59	--
MW-519	03/25/13	9:59	12.60	6.99	--	NP	5.61	--
MW-519	06/24/13	11:24	12.60	6.90	--	NP	5.70	--
MW-519	09/23/13	13:30	12.60	6.83	--	NP	5.77	--
MW-519	12/16/13	9:48	12.60	7.34	--	NP	5.26	--
MW-519	03/26/14	7:54	12.60	6.62	--	NP	5.98	--
MW-519	06/16/14	13:20	12.60	6.92	--	NP	5.68	--
MW-519	09/29/14	15:04	12.60	6.68	--	NP	5.92	--
MW-519	12/08/14	11:37	12.60	6.02	--	NP	6.58	--
MW-519	03/23/15	13:17	12.60	6.30	--	NP	6.30	--
MW-519	06/22/15	15:19	12.60	7.09	--	NP	5.51	--
MW-519	10/27/16	8:57	12.60	5.75	--	NP	6.85	--
MW-519	07/24/17	11:45	12.60	7.02	--	NP	5.58	--
MW-520	10/20/08	15:50	13.31	7.95	--	NP	5.36	--
MW-520	12/08/08	10:23	13.31	7.83	--	NP	5.48	--
MW-520	02/20/09	9:23	13.31	7.61	--	NP	5.70	--
MW-520	04/20/09	9:05	13.31	7.88	--	NP	5.43	--
MW-520	06/22/09	11:19	13.31	7.55	--	NP	5.76	--
MW-520	08/03/09	10:56	13.31	7.69	--	NP	5.62	--
MW-520	08/17/09	8:49	13.31	7.92	--	NP	5.39	--
MW-520	10/29/09	8:55	13.31	7.46	--	NP	5.85	--
MW-520	01/18/10	13:26	13.31	5.51	--	NP	7.80	--
MW-520	04/19/10	14:35	13.31	7.12	--	NP	6.19	--
MW-520	07/19/10	7:03	13.31	7.85	--	NP	5.46	--
MW-520	10/25/10	13:33	13.31	7.30	--	NP	6.01	--
MW-520	03/21/11	12:18	13.31	5.38	--	NP	7.93	--
MW-520	06/14/11	10:01	13.31	7.59	--	NP	5.72	--
MW-520	09/26/11	10:43	13.31	7.82	--	NP	5.49	--
MW-520	12/12/11	11:40	13.31	7.85	--	NP	5.46	--
MW-520	03/27/12	13:47	13.31	6.84	--	NP	6.47	--
MW-520	06/27/12	16:40	13.31	7.53	--	NP	5.78	--
MW-520	09/25/12	7:22	13.31	7.94	--	NP	5.37	--
MW-520	12/13/12	9:53	13.31	6.71	--	NP	6.60	--
MW-520	03/25/13	10:00	13.31	7.70	--	NP	5.61	--
MW-520	06/24/13	11:22	13.31	7.59	--	NP	5.72	--
MW-520	09/23/13	13:28	13.31	7.52	--	NP	5.79	--
MW-520	12/16/13	9:47	13.31	8.04	--	NP	5.27	--
MW-520	03/26/14	7:50	13.31	7.31	--	NP	6.00	--
MW-520	06/16/14	13:17	13.31	7.62	--	NP	5.69	--
MW-520	09/29/14	15:00	13.31	7.39	--	NP	5.92	--
MW-520	12/08/14	11:40	13.31	6.69	--	NP	6.62	--
MW-520	03/23/15	13:11	13.31	7.00	--	NP	6.31	--
MW-520	06/22/15	15:17	13.31	7.80	--	NP	5.51	--
MW-520	10/27/16	8:56	13.31	6.48	--	NP	6.83	--
MW-520	07/24/17	11:34	13.31	7.71	--	NP	5.60	--
MW-521	10/20/08	15:48	12.18	6.82	--	NP	5.36	--
MW-521	12/08/08	10:21	12.18	6.71	--	NP	5.47	--
MW-521	02/20/09	9:21	12.18	6.49	--	NP	5.69	--
MW-521	04/20/09	9:04	12.18	6.75	--	NP	5.43	--
MW-521	06/22/09	11:06	12.18	6.41	--	NP	5.77	--
MW-521	08/03/09	10:55	12.18	6.57	--	NP	5.61	--
MW-521	08/17/09	8:48	12.18	6.80	--	NP	5.38	--
MW-521	10/29/09	8:56	12.18	6.33	--	NP	5.85	--
MW-521	01/18/10	13:24	12.18	4.39	--	NP	7.79	--
MW-521	04/19/10	14:33	12.18	6.01	--	NP	6.17	--
MW-521	07/19/10	7:01	12.18	6.74	--	NP	5.44	--
MW-521	10/25/10	13:30	12.18	6.40	--	NP	5.78	--
MW-521	03/21/11	12:16	12.18	5.29	--	NP	6.89	--
MW-521	06/14/11	10:04	12.18	7.45	--	NP	4.73	--
MW-521	09/26/11	10:40	12.18	6.70	--	NP	5.48	--
MW-521	12/12/11	11:38	12.18	6.73	--	NP	5.45	--
MW-521	03/27/12	13:44	12.18	5.75	--	NP	6.43	--
MW-521	06/27/12	16:38	12.18	6.42	--	NP	5.76	--
MW-521	09/25/12	7:35	12.18	6.82	--	NP	5.36	--
MW-521	12/13/12	9:51	12.18	5.60	--	NP	6.58	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-521	03/25/13	9:58	12.18	6.60	--	NP	5.58	--
MW-521	06/24/13	11:26	12.18	6.48	--	NP	5.70	--
MW-521	09/23/13	13:25	12.18	6.41	--	NP	5.77	--
MW-521	12/16/13	9:49	12.18	6.42	--	NP	5.76	--
MW-521	03/26/14	7:52	12.18	6.21	--	NP	5.97	--
MW-521	06/16/14	13:15	12.18	6.50	--	NP	5.68	--
MW-521	09/29/14	14:59	12.18	6.27	--	NP	5.91	--
MW-521	12/08/14	11:32	12.18	5.61	--	NP	6.57	--
MW-521	03/23/15	13:10	12.18	5.90	--	NP	6.28	--
MW-521	06/22/15	15:15	12.18	6.69	--	NP	5.49	--
MW-521	10/27/16	--	12.18	--	--	--	--	--
MW-521	07/24/17	11:36	12.18	6.67	--	NP	5.51	--
MW-522	10/20/08	15:50	13.82	8.49	--	NP	5.33	--
MW-522	12/08/08	10:19	13.82	8.35	--	NP	5.47	--
MW-522	02/20/09	9:23	13.82	8.10	--	NP	5.72	--
MW-522	04/20/09	9:07	13.82	8.41	--	NP	5.41	--
MW-522	06/22/09	11:15	13.82	8.11	--	NP	5.71	--
MW-522	08/03/09	10:53	13.82	8.25	--	NP	5.57	--
MW-522	08/17/09	8:54	13.82	8.51	--	NP	5.31	--
MW-522	10/29/09	8:56	13.82	7.99	--	NP	5.83	--
MW-522	01/18/10	13:22	13.82	6.03	--	NP	7.79	--
MW-522	04/19/10	14:31	13.82	7.65	--	NP	6.17	--
MW-522	07/19/10	7:02	13.82	8.43	--	NP	5.39	--
MW-522	10/25/10	13:33	13.82	7.80	--	NP	6.02	--
MW-522	03/21/11	12:18	13.82	6.97	--	NP	6.85	--
MW-522	06/14/11	9:59	13.82	8.13	--	NP	5.69	--
MW-522	09/26/11	10:46	13.82	8.40	--	NP	5.42	--
MW-522	12/12/11	11:42	13.82	8.38	--	NP	5.44	--
MW-522	03/27/12	13:49	13.82	7.42	--	NP	6.40	--
MW-522	06/27/12	16:39	13.82	8.08	--	NP	5.74	--
MW-522	09/25/12	7:32	13.82	8.48	--	NP	5.34	--
MW-522	12/13/12	9:50	13.82	7.22	--	NP	6.60	--
MW-522	03/25/13	10:00	13.82	8.25	--	NP	5.57	--
MW-522	06/24/13	11:20	13.82	8.17	--	NP	5.65	--
MW-522	09/23/13	13:30	13.82	8.04	--	NP	5.78	--
MW-522	12/16/13	9:43	13.82	8.58	--	NP	5.24	--
MW-522	03/26/14	7:46	13.82	7.84	--	NP	5.98	--
MW-522	06/16/14	13:18	13.82	8.19	--	NP	5.63	--
MW-522	09/29/14	13:27	13.82	7.90	--	NP	5.92	--
MW-522	12/08/14	12:11	13.82	7.19	--	NP	6.63	--
MW-522	03/23/15	13:08	13.82	7.55	--	NP	6.27	--
MW-522	06/22/15	15:12	13.82	8.34	--	NP	5.48	--
MW-522	10/27/16	8:55	13.82	6.99	--	NP	6.83	--
MW-522	07/24/17	11:32	13.82	5.36	--	NP	8.46	--
MW-523	10/20/08	15:47	13.53	8.17	--	NP	5.36	--
MW-523	12/08/08	10:15	13.53	8.05	--	NP	5.48	--
MW-523	02/20/09	9:21	13.53	7.81	--	NP	5.72	--
MW-523	04/20/09	9:10	13.53	8.10	--	NP	5.43	--
MW-523	06/22/09	11:11	13.53	7.78	--	NP	5.75	--
MW-523	08/03/09	10:52	13.53	7.91	--	NP	5.62	--
MW-523	08/17/09	8:52	13.53	8.17	--	NP	5.36	--
MW-523	10/29/09	8:54	13.53	7.69	--	NP	5.84	--
MW-523	01/18/10	13:20	13.53	5.73	--	NP	7.80	--
MW-523	04/19/10	14:27	13.53	7.35	--	NP	6.18	--
MW-523	07/19/10	6:54	13.53	8.09	--	NP	5.44	--
MW-523	10/25/10	13:30	13.53	7.52	--	NP	6.01	--
MW-523	03/21/11	12:15	13.53	6.64	--	NP	6.89	--
MW-523	06/14/11	9:58	13.53	7.85	--	NP	5.68	--
MW-523	09/26/11	10:44	13.53	8.02	--	NP	5.51	--
MW-523	12/12/11	11:37	13.53	8.09	--	NP	5.44	--
MW-523	03/27/12	13:45	13.53	7.09	--	NP	6.44	--
MW-523	06/27/12	16:35	13.53	7.77	--	NP	5.76	--
MW-523	09/25/12	7:27	13.53	8.20	--	NP	5.33	--
MW-523	12/13/12	9:48	13.53	6.95	--	NP	6.58	--
MW-523	03/25/13	9:55	13.53	7.95	--	NP	5.58	--
MW-523	06/24/13	11:18	13.53	7.84	--	NP	5.69	--
MW-523	09/23/13	13:25	13.53	7.75	--	NP	5.78	--
MW-523	12/16/13	9:40	13.53	8.27	--	NP	5.26	--
MW-523	03/26/14	7:44	13.53	7.55	--	NP	5.98	--
MW-523	06/16/14	13:14	13.53	7.89	--	NP	5.64	--
MW-523	09/29/14	13:25	13.53	7.61	--	NP	5.92	--
MW-523	12/08/14	11:55	13.53	6.91	--	NP	6.62	--
MW-523	03/23/15	13:05	13.53	7.22	--	NP	6.31	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-523	06/22/15	15:10	13.53	8.04	--	NP	5.49	--
MW-523	10/27/16	8:47	13.53	6.71	--	NP	6.82	--
MW-523	07/24/17	11:29	13.53	7.96	--	NP	5.57	--
MW-524	10/20/08	15:44	13.16	8.95	--	NP	4.21	--
MW-524	12/08/08	10:09	13.16	7.71	--	NP	5.45	--
MW-524	02/20/09	9:13	13.16	7.60	--	NP	5.56	--
MW-524	04/20/09	9:08	13.16	7.81	--	NP	5.35	--
MW-524	06/22/09	11:19	13.16	7.69	--	NP	5.47	--
MW-524	08/03/09	10:47	13.16	7.79	--	NP	5.37	--
MW-524	08/17/09	7:33	13.16	8.03	--	NP	5.13	--
MW-524	10/29/09	8:50	13.16	6.75	--	NP	6.41	--
MW-524	01/18/10	13:17	13.16	4.26	--	NP	8.90	--
MW-524	04/19/10	14:23	13.16	7.17	--	NP	5.99	--
MW-524	07/19/10	6:51	13.16	7.99	--	NP	5.17	--
MW-524	10/25/10	13:27	13.16	6.97	--	NP	6.19	--
MW-524	03/21/11	12:12	13.16	5.78	--	NP	7.38	--
MW-524	06/14/11	9:48	13.16	7.67	--	NP	5.49	--
MW-524	09/26/11	10:41	13.16	7.90	--	NP	5.26	--
MW-524	12/12/11	11:33	13.16	7.74	--	NP	5.42	--
MW-524	03/27/12	13:41	13.16	6.60	--	NP	6.56	--
MW-524	06/27/12	16:32	13.16	7.49	--	NP	5.67	--
MW-524	09/25/12	7:18	13.16	8.05	--	NP	5.11	--
MW-524	12/13/12	9:44	13.16	6.20	--	NP	6.96	--
MW-524	03/25/13	11:28	13.16	7.68	--	NP	5.48	--
MW-524	06/24/13	11:19	13.16	7.75	--	NP	5.41	--
MW-524	09/23/13	13:20	13.16	7.55	--	NP	5.61	--
MW-524	12/16/13	9:41	13.16	8.02	--	NP	5.14	--
MW-524	03/26/14	7:39	13.16	6.98	--	NP	6.18	--
MW-524	06/16/14	13:10	13.16	7.79	--	NP	5.37	--
MW-524	09/29/14	13:20	13.16	7.36	--	NP	5.80	--
MW-524	12/08/14	11:53	13.16	6.56	--	NP	6.6	--
MW-524	03/23/15	13:02	13.16	6.85	--	NP	6.31	--
MW-524	06/22/15	15:04	13.16	7.89	--	NP	5.27	--
MW-524	10/27/16	8:45	13.16	5.49	--	NP	7.67	--
MW-524	07/24/17	11:25	13.16	7.78	--	NP	5.38	--
MW-525	06/27/12	16:50	12.62	6.02	--	NP	6.60	--
MW-525	09/25/12	7:27	12.62	6.57	--	NP	6.05	--
MW-525	12/13/12	10:05	12.62	5.40	--	NP	7.22	--
MW-525	03/25/13	10:04	12.62	6.01	--	NP	6.61	--
MW-525	06/24/13	12:54	12.62	6.30	--	NP	6.32	--
MW-525	09/23/13	13:20	12.62	6.18	--	NP	6.44	--
MW-525	12/16/13	9:58	12.62	6.45	--	NP	6.17	--
MW-525	03/26/14	8:02	12.62	5.58	--	NP	7.04	--
MW-525	06/16/14	14:50	12.62	6.30	--	<0.01	6.32	Film observed during gauging
MW-525	09/29/14	14:35	12.62	6.08	--	<0.01	6.54	Film observed during gauging
MW-525	12/08/14	11:42	12.62	5.45	--	NP	7.17	--
MW-525	03/23/15	16:00	12.62	5.75	--	NP	6.87	Sheen
MW-525	06/22/15	15:32	12.62	6.36	6.35	0.01	6.27	See **
MW-525	10/27/16	9:00	12.62	5.49	--	NP	7.13	--
MW-525	07/24/17	13:06	12.62	6.65	--	NP	5.97	--
MW-526	06/27/12	17:03	12.90	4.93	--	NP	7.97	--
MW-526	09/25/12	8:25	12.90	5.54	--	NP	7.36	--
MW-526	12/13/12	10:17	12.90	4.26	--	NP	8.64	--
MW-526	03/25/13	10:23	12.90	4.71	--	NP	8.19	--
MW-526	06/24/13	11:35	12.90	5.27	--	NP	7.63	--
MW-526	09/23/13	13:43	12.90	5.29	--	NP	7.61	--
MW-526	12/16/13	10:09	12.90	5.29	--	NP	7.61	--
MW-526	03/26/14	8:11	12.90	4.38	--	NP	8.52	--
MW-526	06/16/14	13:33	12.90	5.14	--	NP	7.76	--
MW-526	09/29/14	15:18	12.90	5.33	--	NP	7.57	--
MW-526	12/08/14	11:52	12.90	4.55	--	NP	8.35	--
MW-526	03/23/15	13:30	12.90	4.56	--	NP	8.34	--
MW-526	06/22/15	15:40	12.90	5.31	--	NP	7.59	--
MW-526	10/27/16	9:10	12.90	5.01	--	NP	7.89	--
MW-526	07/24/17	11:03	12.90	5.49	--	NP	7.41	--
MW-527	06/27/12	17:50	19.09	9.41	--	NP	9.68	--
MW-527	09/25/12	8:10	19.09	10.41	--	NP	8.68	--
MW-527	12/13/12	10:30	19.09	7.22	--	NP	11.87	--
MW-527	03/25/13	10:42	19.09	9.05	--	NP	10.04	--
MW-527	06/24/13	12:31	19.09	9.91	--	NP	9.18	--
MW-527	09/23/13	13:48	19.09	9.95	--	NP	9.14	--
MW-527	12/16/13	10:59	19.09	9.50	--	NP	9.59	--
MW-527	03/26/14	9:00	19.09	7.58	--	NP	11.51	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-527	06/16/14	13:38	19.09	9.88	--	NP	9.21	--
MW-527	09/29/14	15:30	19.09	10.05	--	NP	9.04	--
MW-527	12/08/14	13:05	19.09	8.65	--	NP	10.44	--
MW-527	03/23/15	14:20	19.09	8.82	--	NP	10.27	--
MW-527	06/22/15	14:48	19.09	10.18	--	NP	8.91	--
MW-527	10/27/16	9:45	19.09	6.79	--	NP	12.30	--
MW-527	07/24/17	11:56	19.09	9.90	--	NP	9.19	--
MW-528	06/27/12	17:47	19.74	9.46	--	NP	10.28	--
MW-528	09/25/12	8:07	19.74	10.82	--	NP	8.92	--
MW-528	12/13/12	10:28	19.74	8.12	--	NP	11.62	--
MW-528	03/25/13	10:37	19.74	8.92	--	NP	10.82	--
MW-528	06/24/13	12:30	19.74	10.22	--	NP	9.52	--
MW-528	09/23/13	13:50	19.74	10.27	--	NP	9.47	--
MW-528	12/16/13	10:51	19.74	9.73	--	NP	10.01	--
MW-528	03/26/14	8:59	19.74	8.05	--	NP	11.69	--
MW-528	06/16/14	13:35	19.74	10.03	--	NP	9.71	--
MW-528	09/29/14	15:25	19.74	11.28	--	NP	8.46	--
MW-528	12/08/14	13:10	19.74	8.61	--	NP	11.13	--
MW-528	03/23/15	14:22	19.74	8.53	--	NP	11.21	--
MW-528	06/22/15	14:48	19.74	10.38	--	NP	9.36	--
MW-528	10/27/16	9:36	19.74	8.06	--	NP	11.68	--
MW-528	07/24/17	11:54	19.74	10.59	--	NP	9.15	--
MW-529	06/27/12	17:31	10.12	4.39	--	NP	5.73	--
MW-529	09/25/12	7:41	10.12	4.86	--	NP	5.26	--
MW-529	12/13/12	10:21	10.12	3.52	--	NP	6.60	--
MW-529	03/25/13	10:16	10.12	4.33	--	NP	5.79	--
MW-529	06/24/13	12:06	10.12	4.30	--	NP	5.82	--
MW-529	09/23/13	14:30	10.12	4.15	--	NP	5.97	--
MW-529	12/16/13	11:28	10.12	4.64	--	NP	5.48	--
MW-529	03/26/14	8:32	10.12	3.70	--	NP	6.42	--
MW-529	06/16/14	14:43	10.12	4.53	--	NP	5.59	--
MW-529	09/29/14	15:59	10.12	4.07	--	NP	6.05	--
MW-529	12/08/14	13:16	10.12	3.52	--	NP	6.60	--
MW-529	03/23/15	14:36	10.12	4.13	--	NP	5.99	--
MW-529	06/22/15	15:43	10.12	4.75	--	NP	5.37	--
MW-529	10/27/16	9:23	10.12	3.64	--	NP	6.48	--
MW-529 ^{DBZ}	07/24/17	12:15	10.12	4.29	--	NP	5.83	--
MW-530	06/27/12	17:16	11.02	5.27	--	NP	5.75	--
MW-530	09/25/12	7:43	11.02	5.79	--	NP	5.23	--
MW-530	12/13/12	10:13	11.02	4.65	--	NP	6.37	--
MW-530	03/25/13	10:22	11.02	5.06	--	NP	5.96	--
MW-530	06/24/13	12:43	11.02	5.28	--	NP	5.74	--
MW-530	09/23/13	13:57	11.02	5.09	--	NP	5.93	--
MW-530	12/16/13	11:34	11.02	5.21	--	NP	5.81	--
MW-530	03/26/14	8:10	11.02	4.82	--	NP	6.20	--
MW-530	06/16/14	13:13	11.02	5.31	--	NP	5.71	--
MW-530	09/29/14	14:55	11.02	4.90	--	NP	6.12	--
MW-530	12/08/14	12:17	11.02	4.64	--	NP	6.38	--
MW-530	03/23/15	14:37	11.02	5.24	--	NP	5.78	--
MW-530	06/22/15	15:46	11.02	5.65	--	NP	5.37	--
MW-530	10/27/16	9:30	11.02	4.95	--	NP	6.07	--
MW-530	07/24/17	11:30	11.02	4.97	--	NP	6.05	--
MW-531	06/27/12	16:51	13.26	7.50	--	NP	5.76	--
MW-531	09/25/12	7:24	13.26	7.90	--	NP	5.36	--
MW-531	12/13/12	9:58	13.26	6.70	--	NP	6.56	--
MW-531	03/25/13	10:03	13.26	7.67	--	NP	5.59	--
MW-531	06/24/13	11:30	13.26	7.54	--	NP	5.72	--
MW-531	09/23/13	13:25	13.26	7.43	--	NP	5.83	--
MW-531	12/16/13	10:01	13.26	8.00	--	NP	5.26	--
MW-531	03/26/14	7:56	13.26	7.28	--	NP	5.98	--
MW-531	06/16/14	13:27	13.26	7.59	--	NP	5.67	--
MW-531	09/29/14	15:07	13.26	7.35	--	NP	5.91	--
MW-531	12/08/14	11:42	13.26	6.64	--	NP	6.62	--
MW-531	03/23/15	13:27	13.26	6.95	--	NP	6.31	--
MW-531	06/22/15	15:25	13.26	7.75	--	NP	5.51	--
MW-531	10/27/16	9:00	13.26	6.42	--	NP	6.84	--
MW-531	07/24/17	11:45	13.26	7.69	--	NP	5.57	--
MW-532	06/27/12	16:48	13.38	6.62	--	NP	6.76	--
MW-532	09/25/12	7:26	13.38	7.11	--	NP	6.27	--
MW-532	12/13/12	9:57	13.38	6.00	--	NP	7.38	--
MW-532	03/25/13	10:05	13.38	6.61	--	NP	6.77	--
MW-532	06/24/13	11:28	13.38	6.79	--	NP	6.59	--
MW-532	09/23/13	13:28	13.38	6.80	--	NP	6.58	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-532	12/16/13	9:56	13.38	7.02	--	NP	6.36	--
MW-532	03/26/14	7:59	13.38	6.31	--	NP	7.07	--
MW-532	06/16/14	13:24	13.38	6.78	--	NP	6.60	--
MW-532	09/29/14	15:11	13.38	6.70	--	NP	6.68	--
MW-532	12/08/14	11:45	13.38	6.14	--	NP	7.24	--
MW-532	03/23/15	13:25	13.38	6.28	--	NP	7.10	--
MW-532	06/22/15	15:23	13.38	7.00	--	NP	6.38	--
MW-532	10/27/16	8:54	13.38	6.52	--	NP	6.86	--
MW-532	07/24/17	11:13	13.38	7.49	--	NP	5.89	--
Piezometers								
P-1 ^S	08/03/09	10:23	16.47	7.80	--	NP	8.67	--
P-1 ^S	08/17/09	9:43	16.47	6.60	--	NP	9.87	--
P-1 ^S	10/29/09	9:32	16.47	4.37	--	NP	12.10	--
P-1 ^S	01/18/10	13:31	16.47	1.26	--	NP	15.21	--
P-1 ^S	04/19/10	15:46	16.47	3.21	--	NP	13.26	--
P-1 ^S	07/19/10	8:02	16.47	4.65	--	NP	11.82	--
P-1 ^S	10/25/10	14:26	16.47	4.61	--	NP	11.86	--
P-1 ^S	03/21/11	12:46	16.47	2.16	--	NP	14.31	--
P-1 ^S	06/14/11	11:08	16.47	3.98	--	NP	12.49	--
P-1 ^S	09/26/11	11:27	16.47	6.76	--	NP	9.71	--
P-1 ^S	12/12/11	12:49	16.47	3.87	--	NP	12.60	--
P-1 ^S	03/27/12	14:30	16.47	2.55	--	NP	13.92	--
P-1 ^S	06/27/12	17:43	16.47	3.64	--	NP	12.83	--
P-1 ^S	09/25/12	8:35	16.47	6.45	--	NP	10.02	--
P-1 ^S	12/13/12	10:24	16.47	1.95	--	NP	14.52	--
P-1 ^S	03/25/13	10:45	16.47	2.78	--	NP	13.69	--
P-1 ^S	06/24/13	12:10	16.47	4.84	--	NP	11.63	--
P-1 ^S	09/23/13	14:07	16.47	6.02	--	NP	10.45	--
P-1 ^S	12/16/13	10:41	16.47	4.23	--	NP	12.24	--
P-1 ^S	03/26/14	8:36	16.47	2.42	--	NP	14.05	--
P-1 ^S	06/16/14	13:55	16.47	4.60	--	NP	11.87	--
P-1 ^S	09/29/14	15:57	16.47	7.02	--	NP	9.45	--
P-1 ^S	12/08/14	12:56	16.47	2.81	--	NP	13.66	--
P-1 ^S	03/23/15	14:26	16.47	2.93	--	NP	13.54	--
P-1 ^S	06/22/15	15:06	16.47	5.23	--	NP	11.24	--
P-1 ^S	10/27/16	9:55	16.47	2.06	--	NP	14.41	--
P-1 ^S	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-2 ^D	08/03/09	10:21	15.00	7.39	--	NP	7.61	--
P-2 ^D	08/17/09	9:46	15.00	7.46	--	NP	7.54	--
P-2 ^D	10/29/09	8:57	15.00	6.38	--	NP	8.62	--
P-2 ^D	01/18/10	13:28	15.00	6.30	--	NP	8.70	--
P-2 ^D	04/19/10	15:47	15.00	6.68	--	NP	8.32	--
P-2 ^D	07/19/10	7:46	15.00	7.02	--	NP	7.98	--
P-2 ^D	10/25/10	14:29	15.00	6.65	--	NP	8.35	--
P-2 ^D	03/21/11	12:49	15.00	6.26	--	NP	8.74	--
P-2 ^D	06/14/11	11:10	15.00	7.01	--	NP	7.99	--
P-2 ^D	09/26/11	11:15	15.00	7.01	--	NP	7.99	--
P-2 ^D	12/12/11	12:52	15.00	6.79	--	NP	8.21	--
P-2 ^D	03/27/12	14:31	15.00	6.35	--	NP	8.65	--
P-2 ^D	06/27/12	17:48	15.00	6.63	--	NP	8.37	--
P-2 ^D	09/25/12	8:12	15.00	7.14	--	NP	7.86	--
P-2 ^D	12/13/12	10:26	15.00	6.19	--	NP	8.81	--
P-2 ^D	03/25/13	10:49	15.00	6.48	--	NP	8.52	--
P-2 ^D	06/24/13	12:15	15.00	6.81	--	NP	8.19	--
P-2 ^D	09/23/13	14:10	15.00	6.84	--	NP	8.16	--
P-2 ^D	12/16/13	10:48	15.00	6.81	--	NP	8.19	--
P-2 ^D	03/26/14	8:38	15.00	7.32	--	NP	7.68	--
P-2 ^D	06/16/14	13:52	15.00	6.86	--	NP	8.14	--
P-2 ^D	09/29/14	15:45	15.00	6.79	--	NP	8.21	--
P-2 ^D	12/08/14	12:55	15.00	6.31	--	NP	8.69	--
P-2 ^D	03/23/15	14:28	15.00	6.26	--	NP	8.74	--
P-2 ^D	06/22/15	15:03	15.00	7.00	--	NP	8.00	--
P-2 ^D	10/27/16	9:52	15.00	6.25	--	NP	8.75	--
P-2 ^D	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-3 ^S	08/03/09	10:21	14.84	4.47	--	NP	10.37	--
P-3 ^S	08/17/09	9:48	14.84	4.77	--	NP	10.07	--
P-3 ^S	10/29/09	8:59	14.84	3.35	--	NP	11.49	--
P-3 ^S	01/18/10	13:25	14.84	0.81	--	NP	14.03	--
P-3 ^S	04/19/10	15:48	14.84	2.36	--	NP	12.48	--
P-3 ^S	07/19/10	7:48	14.84	3.72	--	NP	11.12	--
P-3 ^S	10/25/10	14:31	14.84	4.04	--	NP	10.80	--
P-3 ^S	03/21/11	12:49	14.84	1.19	--	NP	13.65	--
P-3 ^S	06/14/11	11:11	14.84	3.05	--	NP	11.79	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
P-3 ^S	09/26/11	11:17	14.84	5.18	--	NP	9.66	--
P-3 ^S	12/12/11	12:54	14.84	2.95	--	NP	11.89	--
P-3 ^S	03/27/12	14:32	14.84	1.63	--	NP	13.21	--
P-3 ^S	06/27/12	17:54	14.84	3.11	--	NP	11.73	--
P-3 ^S	09/25/12	8:14	14.84	4.80	--	NP	10.04	--
P-3 ^S	12/13/12	10:27	14.84	1.42	--	NP	13.42	--
P-3 ^S	03/25/13	10:51	14.84	2.16	--	NP	12.68	--
P-3 ^S	06/24/13	12:16	14.84	4.02	--	NP	10.82	--
P-3 ^S	09/23/13	14:12	14.84	4.49	--	NP	10.35	--
P-3 ^S	12/16/13	10:47	14.84	3.55	--	NP	11.29	--
P-3 ^S	03/26/14	8:39	14.84	1.48	--	NP	13.36	--
P-3 ^S	06/16/14	13:54	14.84	3.80	--	NP	11.04	--
P-3 ^S	09/29/14	15:43	14.84	4.80	--	NP	10.04	--
P-3 ^S	12/08/14	13:00	14.84	1.90	--	NP	12.94	--
P-3 ^S	03/23/15	14:29	14.84	2.10	--	NP	12.74	--
P-3 ^S	06/22/15	15:01	14.84	4.24	--	NP	10.60	--
P-3 ^S	10/27/16	9:50	14.84	1.15	--	NP	13.69	--
P-3 ^S	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-4 ^D	08/03/09	10:19	16.38	8.64	--	NP	7.74	--
P-4 ^D	08/17/09	9:49	16.38	8.75	--	NP	7.63	--
P-4 ^D	10/29/09	9:08	16.38	7.64	--	NP	8.74	--
P-4 ^D	01/18/10	13:21	16.38	7.56	--	NP	8.82	--
P-4 ^D	04/19/10	15:49	16.38	7.92	--	NP	8.46	--
P-4 ^D	07/19/10	7:50	16.38	8.28	--	NP	8.10	--
P-4 ^D	10/25/10	14:34	16.38	7.93	--	NP	8.45	--
P-4 ^D	03/21/11	12:52	16.38	7.51	--	NP	8.87	--
P-4 ^D	06/14/11	11:14	16.38	8.23	--	NP	8.15	--
P-4 ^D	09/26/11	11:20	16.38	8.41	--	NP	7.97	--
P-4 ^D	12/12/11	13:01	16.38	8.00	--	NP	8.38	--
P-4 ^D	03/27/12	14:34	16.38	7.60	--	NP	8.78	--
P-4 ^D	06/27/12	17:30	16.38	7.92	--	NP	8.46	--
P-4 ^D	09/25/12	8:19	16.38	8.37	--	NP	8.01	--
P-4 ^D	12/13/12	10:30	16.38	7.45	--	NP	8.93	--
P-4 ^D	03/25/13	10:54	16.38	7.79	--	NP	8.59	--
P-4 ^D	06/24/13	12:22	16.38	8.00	--	NP	8.38	--
P-4 ^D	09/23/13	14:03	16.38	8.11	--	NP	8.27	--
P-4 ^D	12/16/13	10:49	16.38	8.05	--	NP	8.33	--
P-4 ^D	03/26/14	8:47	16.38	7.56	--	NP	8.82	--
P-4 ^D	06/16/14	13:45	16.38	8.01	--	NP	8.37	--
P-4 ^D	09/29/14	15:35	16.38	8.03	--	NP	8.35	--
P-4 ^D	12/08/14	12:58	16.38	7.53	--	NP	8.85	--
P-4 ^D	03/23/15	14:30	16.38	7.82	--	NP	8.56	--
P-4 ^D	06/22/15	14:56	16.38	8.28	--	NP	8.10	--
P-4 ^D	10/27/16	9:48	16.38	7.43	--	NP	8.95	--
P-4 ^D	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-5 ^S	08/03/09	10:19	16.85	6.47	--	NP	10.38	--
P-5 ^S	08/17/09	9:50	16.85	6.78	--	NP	10.07	--
P-5 ^S	10/29/09	9:10	16.85	5.85	--	NP	11.00	--
P-5 ^S	01/18/10	13:18	16.85	2.76	--	NP	14.09	--
P-5 ^S	04/19/10	15:50	16.85	4.31	--	NP	12.54	--
P-5 ^S	07/19/10	7:54	16.85	5.71	--	NP	11.14	--
P-5 ^S	10/25/10	14:33	16.85	6.03	--	NP	10.82	--
P-5 ^S	03/21/11	12:53	16.85	3.17	--	NP	13.68	--
P-5 ^S	06/14/11	11:15	16.85	5.00	--	NP	11.85	--
P-5 ^S	09/26/11	11:21	16.85	7.13	--	NP	9.72	--
P-5 ^S	12/12/11	13:02	16.85	4.93	--	NP	11.92	--
P-5 ^S	03/27/12	14:35	16.85	3.60	--	NP	13.25	--
P-5 ^S	06/27/12	17:32	16.85	5.07	--	NP	11.78	--
P-5 ^S	09/25/12	8:21	16.85	6.78	--	NP	10.07	--
P-5 ^S	12/13/12	10:32	16.85	3.01	--	NP	13.84	--
P-5 ^S	03/25/13	10:52	16.85	4.00	--	NP	12.85	--
P-5 ^S	06/24/13	12:23	16.85	5.95	--	NP	10.90	--
P-5 ^S	09/23/13	14:01	16.85	6.46	--	NP	10.39	--
P-5 ^S	12/16/13	10:48	16.85	5.46	--	NP	11.39	--
P-5 ^S	03/26/14	8:48	16.85	3.31	--	NP	13.54	--
P-5 ^S	06/16/14	13:41	16.85	5.68	--	NP	11.17	--
P-5 ^S	09/29/14	15:37	16.85	6.79	--	NP	10.06	--
P-5 ^S	12/08/14	13:02	16.85	3.67	--	NP	13.18	--
P-5 ^S	03/23/15	14:32	16.85	3.88	--	NP	12.97	--
P-5 ^S	06/22/15	15:04	16.85	6.17	--	NP	10.68	--
P-5 ^S	10/27/16	9:46	16.85	3.20	--	NP	13.65	--
P-5 ^S	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-6 ^S	08/03/09	10:16	17.67	9.90	--	NP	7.77	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
P-6 ^S	08/17/09	9:53	17.67	6.31	--	NP	11.36	--
P-6 ^S	10/29/09	9:12	17.67	4.92	--	NP	12.75	--
P-6 ^S	01/18/10	13:10	17.67	3.09	--	NP	14.58	--
P-6 ^S	04/19/10	15:52	17.67	4.63	--	NP	13.04	--
P-6 ^S	07/19/10	7:59	17.67	5.21	--	NP	12.46	--
P-6 ^S	10/25/10	14:29	17.67	4.81	--	NP	12.86	--
P-6 ^S	03/21/11	12:54	17.67	3.41	--	NP	14.26	--
P-6 ^S	06/14/11	11:20	17.67	5.05	--	NP	12.62	--
P-6 ^S	09/26/11	11:25	17.67	6.40	--	NP	11.27	--
P-6 ^S	12/12/11	13:05	17.67	5.07	--	NP	12.60	--
P-6 ^S	03/27/12	14:39	17.67	3.90	--	NP	13.77	--
P-6 ^S	06/27/12	17:39	17.67	4.64	--	NP	13.03	--
P-6 ^S	09/25/12	8:17	17.67	5.94	--	NP	11.73	--
P-6 ^S	12/13/12	10:35	17.67	3.71	--	NP	13.96	--
P-6 ^S	03/25/13	10:45	17.67	4.60	--	NP	13.07	--
P-6 ^S	06/24/13	12:24	17.67	5.22	--	NP	12.45	--
P-6 ^S	09/23/13	13:58	17.67	5.23	--	NP	12.44	--
P-6 ^S	12/16/13	10:56	17.67	4.91	--	NP	12.76	--
P-6 ^S	03/26/14	8:55	17.67	3.74	--	NP	13.93	--
P-6 ^S	06/16/14	13:50	17.67	5.16	--	NP	12.51	--
P-6 ^S	09/29/14	15:59	17.67	6.77	--	NP	10.90	--
P-6 ^S	12/08/14	13:09	17.67	4.05	--	NP	13.62	--
P-6 ^S	03/23/15	14:35	17.67	3.97	--	NP	13.70	--
P-6 ^S	06/22/15	14:50	17.67	5.38	--	NP	12.29	--
P-6 ^S	10/27/16	9:42	17.67	3.55	--	NP	14.12	--
P-6 ^S	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-7 ^D	08/03/09	10:17	17.63	9.72	--	NP	7.91	--
P-7 ^D	08/17/09	9:52	17.63	9.80	--	NP	7.83	--
P-7 ^D	10/29/09	8:55	17.63	6.15	--	NP	11.48	--
P-7 ^D	01/18/10	13:14	17.63	8.56	--	NP	9.07	--
P-7 ^D	04/19/10	15:51	17.63	8.94	--	NP	8.69	--
P-7 ^D	07/19/10	8:00	17.63	7.36	--	NP	10.27	--
P-7 ^D	10/25/10	14:31	17.63	8.97	--	NP	8.66	--
P-7 ^D	03/21/11	12:52	17.63	8.62	--	NP	9.01	--
P-7 ^D	06/14/11	11:18	17.63	9.24	--	NP	8.39	--
P-7 ^D	09/26/11	11:23	17.63	9.55	--	NP	8.08	--
P-7 ^D	12/12/11	13:04	17.63	9.04	--	NP	8.59	--
P-7 ^D	03/27/12	14:36	17.63	8.66	--	NP	8.97	--
P-7 ^D	06/27/12	17:37	17.63	8.94	--	NP	8.69	--
P-7 ^D	09/25/12	8:19	17.63	9.49	--	NP	8.14	--
P-7 ^D	12/13/12	10:37	17.63	8.49	--	NP	9.14	--
P-7 ^D	03/25/13	10:47	17.63	8.81	--	NP	8.82	--
P-7 ^D	06/24/13	12:26	17.63	9.13	--	NP	8.50	--
P-7 ^D	09/23/13	14:00	17.63	9.16	--	NP	8.47	--
P-7 ^D	12/16/13	10:57	17.63	9.11	--	NP	8.52	--
P-7 ^D	03/26/14	8:50	17.63	8.66	--	NP	8.97	--
P-7 ^D	06/16/14	13:49	17.63	9.07	--	NP	8.56	--
P-7 ^D	09/29/14	15:59	17.63	9.12	--	NP	8.51	--
P-7 ^D	12/08/14	13:06	17.63	8.60	--	NP	9.03	--
P-7 ^D	03/23/15	14:34	17.63	8.82	--	NP	8.81	--
P-7 ^D	06/22/15	14:51	17.63	9.29	--	NP	8.34	--
P-7 ^D	10/27/16	9:44	17.63	8.56	--	NP	9.07	--
P-7 ^D	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-8 ^D	08/03/09	10:24	16.07	8.52	--	NP	7.55	--
P-8 ^D	08/17/09	9:41	16.07	8.92	--	NP	7.15	--
P-8 ^D	10/29/09	8:53	16.07	8.03	--	NP	8.04	--
P-8 ^D	01/18/10	13:33	16.07	7.47	--	NP	8.60	--
P-8 ^D	04/19/10	15:45	16.07	7.80	--	NP	8.27	--
P-8 ^D	07/19/10	8:03	16.07	8.12	--	NP	7.95	--
P-8 ^D	10/25/10	14:24	16.07	7.80	--	NP	8.27	--
P-8 ^D	03/21/11	12:45	16.07	7.49	--	NP	8.58	--
P-8 ^D	06/14/11	11:05	16.07	8.16	--	NP	7.91	--
P-8 ^D	09/26/11	11:20	16.07	8.34	--	NP	7.73	--
P-8 ^D	12/12/11	12:48	16.07	7.94	--	NP	8.13	--
P-8 ^D	03/27/12	14:29	16.07	7.49	--	NP	8.58	--
P-8 ^D	06/27/12	17:41	16.07	7.78	--	NP	8.29	--
P-8 ^D	09/25/12	8:10	16.07	8.29	--	NP	7.78	--
P-8 ^D	12/13/12	10:21	16.07	7.34	--	NP	8.73	--
P-8 ^D	03/25/13	10:49	16.07	7.60	--	NP	8.47	--
P-8 ^D	06/24/13	12:12	16.07	7.89	--	NP	8.18	--
P-8 ^D	09/23/13	14:05	16.07	8.01	--	NP	8.06	--
P-8 ^D	12/16/13	10:40	16.07	7.93	--	NP	8.14	--
P-8 ^D	03/26/14	8:35	16.07	7.41	--	NP	8.66	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
P-8 ^D	06/16/14	13:53	16.07	7.95	--	NP	8.12	--
P-8 ^D	09/29/14	15:50	16.07	7.94	--	NP	8.13	--
P-8 ^D	12/08/14	12:55	16.07	7.45	--	NP	8.62	--
P-8 ^D	03/23/14	14:33	16.07	7.60	--	NP	8.47	--
P-8 ^D	06/22/15	15:09	16.07	8.18	--	NP	7.89	--
P-8 ^D	10/27/16	9:58	16.07	7.41	--	NP	8.66	--
P-8 ^D	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-9	08/25/11	12:51	13.86	7.57	--	NP	6.29	--
P-9	09/02/11	10:04	13.86	7.58	--	NP	6.28	--
P-9	09/09/11	7:58	13.86	7.61	--	NP	6.25	--
P-9	09/16/11	14:42	13.86	7.64	--	NP	6.22	--
P-9	09/26/11	11:03	13.86	8.62	--	NP	5.24	--
P-9	10/28/11	9:52	13.86	7.59	--	NP	6.27	--
P-9	11/18/11	8:55	13.86	7.45	--	NP	6.41	--
P-9	12/12/11	13:55	13.86	7.00	--	NP	6.86	--
P-9	03/27/12	14:17	13.86	6.39	--	NP	7.47	--
P-9	06/27/12	17:23	13.86	6.95	--	NP	6.91	--
P-9	09/25/12	7:59	13.86	7.62	--	NP	6.24	--
P-9	12/13/12	10:50	13.86	6.33	--	NP	7.53	--
P-9	03/25/13	11:34	13.86	6.79	--	NP	7.07	--
P-9	06/24/13	12:04	13.86	7.33	--	NP	6.53	--
P-9	09/23/13	14:59	13.86	7.23	--	NP	6.63	--
P-9	12/16/13	10:31	13.86	7.38	--	NP	6.48	--
P-9	03/26/14	9:13	13.86	6.52	--	NP	7.34	--
P-9	06/16/14	13:50	13.86	7.25	--	NP	6.61	--
P-9	09/29/14	15:48	13.86	7.16	--	NP	6.70	--
P-9	12/08/14	12:48	13.86	6.53	--	NP	7.33	--
P-9	03/23/15	14:00	13.86	6.59	--	NP	7.27	--
P-9	06/22/15	15:24	13.86	7.36	--	NP	6.50	--
P-9	10/27/16	9:48	13.86	6.09	--	NP	7.77	--
P-9	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-10	08/25/11	12:49	11.07	4.98	--	NP	6.09	--
P-10	09/02/11	10:08	11.07	4.97	--	NP	6.10	--
P-10	09/09/11	8:02	11.07	5.00	--	NP	6.07	--
P-10	09/16/11	14:35	11.07	5.00	--	NP	6.07	--
P-10	09/26/11	10:59	11.07	4.96	--	NP	6.11	--
P-10	10/28/11	9:56	11.07	4.80	--	NP	6.27	--
P-10	11/18/11	9:00	11.07	4.81	--	NP	6.26	--
P-10	12/12/11	12:18	11.07	4.36	--	NP	6.71	--
P-10	03/27/12	14:08	11.07	3.74	--	NP	7.33	--
P-10	06/27/12	17:15	11.07	4.31	--	NP	6.76	--
P-10	09/25/12	7:47	11.07	4.92	--	NP	6.15	--
P-10	12/13/12	10:25	11.07	3.61	--	NP	7.46	--
P-10	03/25/13	11:32	11.07	4.08	--	NP	6.99	--
P-10	06/24/13	12:00	11.07	4.51	--	NP	6.56	--
P-10	09/23/13	13:47	11.07	4.61	--	NP	6.46	--
P-10	12/16/13	10:21	11.07	4.66	--	NP	6.41	--
P-10	03/26/14	8:40	11.07	3.90	--	NP	7.17	--
P-10	06/16/14	13:44	11.07	4.56	--	NP	6.51	--
P-10	09/29/14	13:52	11.07	4.44	--	NP	6.63	--
P-10	12/08/14	12:40	11.07	3.85	--	NP	7.22	--
P-10	03/23/15	14:21	11.07	3.99	--	NP	7.08	--
P-10	06/22/15	15:28	11.07	4.77	--	NP	6.30	--
P-10	10/27/16	9:46	11.07	2.55	--	NP	8.52	--
P-10 ^{UBZ}	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-11	08/25/11	12:45	13.63	7.49	--	NP	6.14	--
P-11	09/02/11	10:10	13.63	7.49	--	NP	6.14	--
P-11	09/09/11	8:05	13.63	7.50	--	NP	6.13	--
P-11	09/16/11	14:30	13.63	7.53	--	NP	6.10	--
P-11	09/26/11	12:15	13.63	7.50	--	NP	6.13	--
P-11	10/28/11	9:59	13.63	7.36	--	NP	6.27	--
P-11	11/18/11	9:03	13.63	7.31	--	NP	6.32	--
P-11	12/12/11	13:58	13.63	6.75	--	NP	6.88	--
P-11	03/27/12	14:03	13.63	6.14	--	NP	7.49	--
P-11	06/27/12	17:13	13.63	6.71	--	NP	6.92	--
P-11	09/25/12	7:44	13.63	7.42	--	NP	6.21	--
P-11	12/13/12	10:41	13.63	6.08	--	NP	7.55	--
P-11	03/25/13	10:27	13.63	6.52	--	NP	7.11	--
P-11	06/24/13	11:48	13.63	7.11	--	NP	6.52	--
P-11	09/23/13	13:46	13.63	7.02	--	NP	6.61	--
P-11	12/16/13	10:23	13.63	7.19	--	NP	6.44	--
P-11	03/26/14	8:37	13.63	6.31	--	NP	7.32	--
P-11	06/16/14	13:40	13.63	7.02	--	NP	6.61	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
P-11	09/29/14	13:50	13.63	6.95	--	NP	6.68	--
P-11	12/08/14	12:35	13.63	6.29	--	NP	7.34	--
P-11	03/23/15	14:24	13.63	6.40	--	NP	7.23	--
P-11	06/22/15	15:29	13.63	7.20	--	NP	6.43	--
P-11	10/27/16	9:44	13.63	5.83	--	NP	7.80	--
P-11 ^{DBZ}	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-12	08/25/11	12:42	13.03	7.26	--	NP	5.77	--
P-12	09/02/11	10:14	13.03	7.10	--	NP	5.93	--
P-12	09/09/11	8:08	13.03	7.11	--	NP	5.92	--
P-12	09/16/11	14:10	13.03	7.18	--	<0.01	5.85	Field note not available
P-12	09/26/11	12:37	13.03	7.16	7.15	0.01	5.88	See **
P-12	10/28/11	10:03	13.03	6.91	--	NP	6.12	--
P-12	11/18/11	9:13	13.03	6.98	--	NP	6.05	--
P-12	12/12/11	13:59	13.03	6.61	--	NP	6.42	--
P-12	03/27/12	14:24	13.03	6.11	--	NP	6.92	--
P-12	06/27/12	17:08	13.03	6.70	6.61	0.09	6.40	See **
P-12	09/25/12	8:05	13.03	7.32	7.25	0.07	5.77	See **
P-12	12/13/12	10:41	13.03	5.91	--	<0.01	7.12	Film observed during gauging
P-12	03/25/13	10:43	13.03	6.56	--	<0.01	6.47	Film observed during gauging
P-12	06/24/13	12:35	13.03	6.98	6.91	0.07	6.11	See **
P-12	09/23/13	14:20	13.03	6.71	6.69	0.02	6.34	See **
P-12	12/16/13	10:56	13.03	7.03	6.95	0.08	6.06	See **
P-12	03/26/14	9:11	13.03	6.30	--	<0.01	6.73	Film observed during gauging
P-12	06/16/14	14:55	13.03	--	7.82	--	--	See +
P-12	09/29/14	14:57	13.03	--	6.50	--	--	See +
P-12	12/08/14	12:18	13.03	5.98	--	NP	7.05	--
P-12	03/23/15	14:12	13.03	6.41	--	<0.01	6.62	Film observed during gauging
P-12	06/22/15	15:00	13.03	--	7.00	--	--	See +
P-12	10/27/16	9:41	13.03	6.3	5.83	0.47	7.11	See **
P-12 ^{DBZ}	07/26/17	16:15	13.03	7.42	7.1	0.32	5.87	Not part of the monitoring network
P-13	08/25/11	12:40	13.02	6.90	--	NP	6.12	--
P-13	09/02/11	10:17	13.02	6.84	--	NP	6.18	--
P-13	09/09/11	8:11	13.02	6.89	--	NP	6.13	--
P-13	09/16/11	14:17	13.02	6.91	--	<0.01	6.11	Field note not available
P-13	09/26/11	12:23	13.02	6.93	6.90	0.03	6.11	See **
P-13	10/28/11	10:20	13.02	6.75	6.74	0.01	6.28	See **
P-13	11/18/11	9:19	13.02	--	6.66	--	--	See +
P-13	12/12/11	12:11	13.02	6.46	6.23	0.23	6.74	See **
P-13	03/27/12	14:11	13.02	5.70	5.60	0.10	7.40	See **
P-13	06/27/12	16:47	13.02	--	6.15	--	--	See +
P-13	09/25/12	8:26	13.02	--	6.90	--	--	See +
P-13	12/13/12	11:00	13.02	--	5.50	--	--	See +
P-13	03/25/13	10:31	13.02	--	5.98	--	--	See +
P-13	06/24/13	12:23	13.02	--	6.54	--	--	See +
P-13	09/23/13	14:00	13.02	7.60	6.35	1.25	6.42	See **
P-13	12/16/13	10:43	13.02	7.94	6.59	1.35	6.16	See **
P-13	03/26/14	8:15	13.02	--	5.65	--	--	See +
P-13	06/16/14	15:00	13.02	--	8.63	--	--	See +
P-13	09/29/14	15:12	13.02	7.60	6.27	1.33	6.48	See **
P-13	12/08/14	12:29	13.02	7.50	5.54	1.96	7.09	See **
P-13	03/23/15	14:00	13.02	6.89	5.70	1.19	7.08	See **
P-13	06/22/15	14:45	13.02	7.92	6.60	1.32	6.16	See **
P-13	10/27/16	9:34	13.02	5.20	5.07	0.13	7.92	See **
P-13 ^{DBZ}	07/26/17	15:32	13.02	6.63	6.61	0.02	6.41	Not part of the monitoring network
P-14	08/25/11	12:38	12.14	6.79	--	NP	5.35	--
P-14	09/02/11	10:21	12.14	6.37	--	NP	5.77	--
P-14	09/09/11	8:14	12.14	6.50	--	NP	5.64	--
P-14	09/16/11	14:23	12.14	6.51	--	NP	5.63	--
P-14	09/26/11	12:19	12.14	6.60	--	NP	5.54	--
P-14	10/28/11	10:16	12.14	6.13	--	NP	6.01	--
P-14	11/18/11	9:16	12.14	6.24	--	NP	5.90	--
P-14	12/12/11	14:03	12.14	5.98	--	NP	6.16	--
P-14	03/27/12	14:03	12.14	5.78	--	NP	6.36	--
P-14	06/27/12	17:10	12.14	6.15	--	NP	5.99	--
P-14	09/25/12	7:41	12.14	6.79	--	NP	5.35	--
P-14	12/13/12	10:30	12.14	5.31	--	NP	6.83	--
P-14	03/25/13	11:30	12.14	6.22	--	NP	5.92	--
P-14	06/24/13	12:17	12.14	6.43	--	NP	5.71	--
P-14	09/23/13	13:45	12.14	6.00	--	NP	6.14	--
P-14	12/16/13	10:43	12.14	6.25	--	NP	5.89	--
P-14	03/26/14	8:30	12.14	5.66	--	NP	6.48	--
P-14	06/16/14	15:10	12.14	6.52	--	NP	5.62	--
P-14	09/29/14	15:48	12.14	5.95	--	NP	6.19	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
P-14	12/08/14	13:19	12.14	5.30	--	NP	6.84	--
P-14	03/23/15	14:54	12.14	5.71	--	NP	6.43	--
P-14	06/22/15	14:41	12.14	6.57	--	NP	5.57	--
P-14	10/27/16	10:05	12.14	5.39	--	NP	6.75	--
P-14 ^{UBZ}	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
P-15	08/25/11	12:30	12.54	7.48	--	NP	5.06	--
P-15	09/02/11	10:23	12.54	6.97	--	NP	5.57	--
P-15	09/09/11	8:17	12.54	7.22	--	NP	5.32	--
P-15	09/16/11	14:48	12.54	7.10	--	NP	5.44	--
P-15	09/26/11	10:56	12.54	7.15	--	NP	5.39	--
P-15	10/28/11	10:11	12.54	6.68	--	NP	5.86	--
P-15	11/18/11	9:09	12.54	6.83	--	NP	5.71	--
P-15	12/12/11	12:55	12.54	6.65	--	NP	5.89	--
P-15	03/27/12	14:07	12.54	6.34	--	NP	6.20	--
P-15	06/27/12	17:08	12.54	6.79	--	NP	5.75	--
P-15	09/25/12	7:45	12.54	7.35	--	NP	5.19	--
P-15	12/13/12	11:20	12.54	5.90	--	NP	6.64	--
P-15	03/25/13	11:05	12.54	-- ⁺	6.65	-- ⁺	-- ⁺	See +
P-15	06/24/13	11:53	12.54	6.90	6.76	0.14	5.75	See **
P-15	09/23/13	14:30	12.54	6.55	--	NP	5.99	--
P-15	12/16/13	10:25	12.54	6.84	6.78	0.06	5.75	See **
P-15	03/26/14	8:48	12.54	-- ⁺	6.33	-- ⁺	-- ⁺	See +
P-15	06/16/14	15:15	12.54	-- ⁺	7.29	-- ⁺	-- ⁺	See +
P-15	09/29/14	15:35	12.54	6.53	6.51	0.02	6.03	See **
P-15	12/08/14	12:06	12.54	5.83	--	NP	6.71	--
P-15	03/23/15	14:24	12.54	6.50	--	NP	6.04	LNAPL observed on probe during gauging
P-15	06/22/15	15:13	12.54	7.18	--	NP	5.36	--
P-15	10/27/16	10:15	12.54	5.92	--	<0.01	6.62	Film observed during gauging, confirmed with bailer
P-15 ^{UBZ}	07/26/17	16:30	12.54	7.52	7.18	0.34	5.29	Not part of the monitoring network
P-16	08/25/11	12:25	9.04	3.60	--	NP	5.44	--
P-16	09/02/11	10:25	9.04	3.41	--	NP	5.63	--
P-16	09/09/11	8:19	9.04	3.42	--	NP	5.62	--
P-16	09/16/11	14:52	9.04	3.39	--	NP	5.65	--
P-16	09/26/11	11:00	9.04	3.38	--	NP	5.66	--
P-16	10/28/11	10:07	9.04	3.14	--	NP	5.90	--
P-16	11/18/11	9:07	9.04	3.22	--	NP	5.82	--
P-16	12/12/11	12:38	9.04	2.93	--	NP	6.11	--
P-16	03/27/12	14:06	9.04	2.43	--	NP	6.61	--
P-16	06/27/12	17:11	9.04	2.86	--	NP	6.18	--
P-16	09/25/12	7:51	9.04	3.45	--	NP	5.59	--
P-16	12/13/12	10:19	9.04	2.31	--	NP	6.73	--
P-16	03/25/13	10:24	9.04	2.55	--	NP	6.49	--
P-16	06/24/13	12:40	9.04	2.88	--	NP	6.16	--
P-16	09/23/13	13:53	9.04	2.96	--	NP	6.08	--
P-16	12/16/13	10:45	9.04	3.01	--	NP	6.03	--
P-16	03/26/14	8:35	9.04	2.73	--	NP	6.31	--
P-16	06/16/14	15:05	9.04	3.25	--	NP	5.79	--
P-16	09/29/14	15:50	9.04	2.95	--	NP	6.09	--
P-16	12/08/14	12:10	9.04	2.35	--	NP	6.69	--
P-16	03/23/15	14:49	9.04	2.47	--	NP	6.57	--
P-16	06/22/15	15:40	9.04	3.32	--	NP	5.72	--
P-16	10/27/16	10:30	9.04	2.66	--	NP	6.38	--
P-16 ^{UBZ}	07/24/17	--	--	--	--	--	--	Not part of the monitoring network
Staff Gauges								
D-1 ¹	06/22/09	10:43	8.84 ³	2.58	--	NP	6.26	--
D-1 ¹	06/22/09	12:31		2.81	--	NP	6.03	--
D-1 ¹	08/03/09	9:34		2.85	--	NP	5.99	--
D-1 ¹	08/03/09	12:02		2.82	--	NP	6.02	--
D-1 ¹	08/17/09	7:48		2.79	--	NP	6.05	--
D-1 ¹	08/17/09	10:59		2.87	--	NP	5.97	--
D-1 ¹	10/29/09	7:48		2.68	--	NP	6.16	--
D-1 ¹	10/29/09	10:08		2.54	--	NP	6.30	--
D-1 ¹	01/18/10	12:34		1.48	--	NP	7.36	--
D-1 ¹	01/18/10	14:39		1.83	--	NP	7.01	--
D-1 ¹	04/19/10	14:09		2.62	--	NP	6.22	--
D-1 ¹	04/19/10	16:13		2.78	--	NP	6.06	--
D-1 ¹	07/19/10	5:35		2.50	--	NP	6.34	--
D-1 ¹	07/19/10	9:08		3.86	--	NP	4.98	--
D-1 ¹	10/25/10	12:18		1.30	--	NP	7.54	--
D-1 ¹	10/25/10	15:33		1.85	--	NP	6.99	--
D-1 ¹	03/21/11	11:17		2.50	--	NP	6.34	--
D-1 ¹	03/21/11	13:56		2.80	--	NP	6.04	--
D-1 ¹	06/14/11	8:54		2.40	--	NP	6.44	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
D-1 ¹	06/14/11	12:49		2.92	--	NP	5.92	--
D-1 ¹	09/26/11	8:56		2.43	--	NP	6.41	--
D-1 ¹	09/26/11	--		2.69	--	NP	6.15	--
D-1 ¹	12/12/11	10:15		2.27	--	NP	6.57	--
D-1 ¹	12/12/11	14:40		2.70	--	NP	6.14	--
D-1 ¹	03/27/12	12:43		2.16	--	NP	6.68	--
D-1 ¹	03/27/12	13:46		2.75	--	NP	6.09	--
D-1 ¹	06/27/12	15:11		2.90	--	NP	5.94	--
D-1 ¹	06/27/12	18:40		2.85	--	NP	5.99	--
D-1 ¹	09/25/12	6:15		2.90	--	NP	5.94	--
D-1 ¹	09/25/12	9:35		2.88	--	NP	5.96	--
D-1 ¹	12/13/12	9:03		1.95	--	NP	6.89	--
D-1 ¹	12/13/12	12:18		2.41	--	NP	6.43	--
D-1 ¹	03/25/13	9:00		2.28	--	NP	6.56	--
D-1 ¹	03/25/13	11:45		2.96	--	NP	5.88	--
D-1 ¹	06/24/13	10:36		1.80	--	NP	7.04	--
D-1 ¹	06/24/13	13:05		2.58	--	NP	6.26	--
D-1 ¹	09/23/13	12:20		1.61	--	NP	7.23	--
D-1 ¹	09/23/13	15:35		2.78	--	NP	6.06	--
D-1 ¹	12/16/13	9:33		2.72	--	NP	6.12	--
D-1 ¹	12/16/13	11:32		2.91	--	NP	5.93	--
D-1 ¹	03/26/14	6:55		1.38	--	NP	7.46	--
D-1 ¹	03/26/14	10:00		2.21	--	NP	6.63	--
D-1 ¹	06/16/14	12:52		2.64	--	NP	6.20	--
D-1 ¹	06/16/14	14:42		2.21	--	NP	6.63	--
D-1 ¹	09/29/14	13:55		2.01	--	NP	6.83	--
D-1 ¹	09/29/14	16:20		2.77	--	NP	6.07	--
D-1 ¹	12/08/14	10:30		1.97	--	NP	6.87	--
D-1 ¹	12/08/14	13:35		2.50	--	NP	6.34	--
D-1 ¹	03/23/14	12:37		1.90	--	NP	6.94	--
D-1 ¹	03/23/14	15:30		2.55	--	NP	6.29	--
D-1 ¹	06/22/15	14:10		2.88	--	NP	5.96	--
D-1 ¹	06/22/15	16:19		2.89	--	NP	5.95	--
D-1 ¹	10/27/16	7:45		1.94	--	NP	6.90	--
D-1 ¹	10/27/16	10:34		2.50	--	NP	6.34	--
D-1 ¹	07/24/17	11:15		2.29	--	NP	6.55	--
D-1 ¹	07/24/17	14:03		2.67	--	NP	6.17	--
D-2	10/20/08	17:15	5.60	1.20	--	NP	6.80	--
D-2	12/08/08	11:05		1.24	--	NP	6.84	--
D-2	02/20/09	9:55		0.60	--	NP	6.20	--
D-2	04/20/09	9:49		0.20	--	NP	5.80	--
D-2	06/22/09	10:50	8.67	2.30	--	NP	6.37	--
D-2	06/22/09	12:35		2.44	--	NP	6.23	--
D-2	08/03/09	9:40		2.43	--	NP	6.24	--
D-2	08/03/09	12:05		2.45	--	NP	6.22	--
D-2	08/17/09	7:53		2.50	--	NP	6.17	--
D-2	08/17/09	11:03		2.50	--	NP	6.17	--
D-2	10/29/09	7:52		2.35	--	NP	6.32	--
D-2	10/29/09	10:14		2.25	--	NP	6.42	--
D-2	01/18/10	12:38		1.38	--	NP	7.29	--
D-2	01/18/10	14:43		1.76	--	NP	6.91	--
D-2	04/19/10	14:14		2.32	--	NP	6.35	--
D-2	04/19/10	16:16		2.44	--	NP	6.23	--
D-2	07/19/10	5:46		2.26	--	NP	6.41	--
D-2	07/19/10	9:13		2.45	--	NP	6.22	--
D-2	10/25/10	12:23		1.00	--	NP	7.67	--
D-2	10/25/10	15:40		1.60	--	NP	7.07	--
D-2	03/21/11	11:21		2.27	--	NP	6.40	--
D-2	03/21/11	14:06		2.45	--	NP	6.22	--
D-2	06/14/11	9:23		2.64	--	NP	6.03	--
D-2	06/14/11	12:54		2.45	--	NP	6.22	--
D-2	09/26/11	9:25		2.30	--	NP	6.37	--
D-2	09/26/11	--		2.39	--	NP	6.28	--
D-2	12/12/11	10:21		2.09	--	NP	6.58	--
D-2	12/12/11	14:47		2.50	--	NP	6.17	--
D-2	03/27/12	12:49		2.00	--	NP	6.67	--
D-2	03/27/12	15:51		2.88	--	NP	5.79	--
D-2	06/27/12	15:28		2.50	--	NP	6.17	--
D-2	06/27/12	18:45		2.50	--	NP	6.17	--
D-2	09/25/12	6:20		2.60	--	NP	6.07	--
D-2	09/25/12	9:42		2.53	--	NP	6.14	--
D-2	12/13/12	9:10		1.80	--	NP	6.87	--
D-2	12/13/12	12:05		2.34	--	NP	6.33	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
D-2	03/25/13	9:07		2.07	--	NP	6.60	--
D-2	03/25/13	11:40		2.53	--	NP	6.14	--
D-2	06/24/13	10:44		1.60	--	NP	7.07	--
D-2	06/24/13	12:44		2.30	--	NP	6.37	--
D-2	09/23/13	12:10		1.49	--	NP	7.18	--
D-2	09/23/13	15:45		2.59	--	NP	6.08	--
D-2	12/16/13	9:40		2.65	--	NP	6.02	--
D-2	12/16/13	11:36		2.74	--	NP	5.93	--
D-2	03/26/14	7:05		1.51	--	NP	7.16	--
D-2	03/26/14	10:10		2.32	--	NP	6.35	--
D-2	06/16/14	12:59		2.74	--	NP	5.93	--
D-2	06/16/14	14:47		2.83	--	NP	5.84	--
D-2	09/29/14	14:15		2.24	--	NP	6.43	--
D-2	09/29/14	16:15		2.80	--	NP	5.87	--
D-2	12/08/14	10:40		2.15	--	NP	6.52	--
D-2	12/08/14	13:40		2.66	--	NP	6.01	--
D-2	03/23/15	12:50		1.87	--	NP	6.80	--
D-2	03/26/15	15:39		2.69	--	NP	5.98	--
D-2	06/22/15	14:06		2.89	--	NP	5.78	--
D-2	06/22/15	16:29		2.91	--	NP	5.76	--
D-2	10/27/16	7:55		2.11	--	NP	6.56	--
D-2	10/27/16	10:27		2.63	--	NP	6.04	--
D-2	07/24/17	11:28		4.50	--	NP	4.17	--
D-2	07/24/17	14:10		2.70	--	NP	5.97	--
D-3	10/20/08	17:18	5.20	1.90	--	NP	7.10	--
D-3	12/08/08	11:09		1.78	--	NP	6.98	--
D-3	02/20/09	9:59		1.20	--	NP	6.40	--
D-3	04/20/09	9:53		1.20	--	NP	6.40	--
D-3	06/22/09	11:02	8.39	2.19	--	NP	6.20	--
D-3	06/22/09	12:40		2.24	--	NP	6.15	--
D-3	08/03/09	9:49		2.30	--	NP	6.09	--
D-3	08/03/09	12:10		2.23	--	NP	6.16	--
D-3	08/17/09	7:57		2.19	--	NP	6.20	--
D-3	08/17/09	11:08		2.40	--	NP	5.99	--
D-3	10/29/09	7:55		2.07	--	NP	6.32	--
D-3	10/29/09	10:13		2.04	--	NP	6.35	--
D-3	01/18/10	12:23		1.22	--	NP	7.17	--
D-3	01/18/10	14:46		1.52	--	NP	6.87	--
D-3	04/19/10	14:18		2.12	--	NP	6.27	--
D-3	04/19/10	16:22		2.29	--	NP	6.10	--
D-3	07/19/10	5:55		2.10	--	NP	6.29	--
D-3	07/19/10	9:17		2.28	--	NP	6.11	--
D-3	10/25/10	12:29		0.80	--	NP	7.59	--
D-3	10/25/10	15:42		1.45	--	NP	6.94	--
D-3	03/21/11	11:25		2.30	--	NP	6.09	--
D-3	03/21/11	14:05		2.50	--	NP	5.89	--
D-3	06/14/11	9:06		2.05	--	NP	6.34	--
D-3	06/14/11	12:59		2.35	--	NP	6.04	--
D-3	09/26/11	9:45		2.19	--	NP	6.20	--
D-3	09/26/11	--		2.08	--	NP	6.31	--
D-3	12/12/11	10:27		3.16	--	NP	5.23	--
D-3	12/12/11	14:55		3.47	--	NP	4.92	--
D-3	03/27/12	12:53		2.94	--	NP	5.45	--
D-3	03/27/12	15:55		3.53	--	NP	4.86	--
D-3	06/27/12	15:22		-- ⁴	--	NP	-- ⁴	--
D-3	06/27/12	18:52	8.70	2.60	--	NP	6.10	--
D-3	09/25/12	6:25		2.72	--	NP	5.98	--
D-3	09/25/12	9:45		2.73	--	NP	5.97	--
D-3	12/13/12	9:15		1.90	--	NP	6.80	--
D-3	12/13/12	12:09		2.40	--	NP	6.30	--
D-3	03/25/13	9:15		2.20	--	NP	6.50	--
D-3	03/25/13	11:37		2.60	--	NP	6.10	--
D-3	06/24/13	10:49		1.81	--	NP	6.89	--
D-3	06/24/13	12:37		2.45	--	NP	6.25	--
D-3	09/23/13	12:45		1.42	--	NP	7.28	--
D-3	09/23/13	15:55		2.65	--	NP	6.05	--
D-3	12/16/13	9:44		2.55	--	NP	6.15	--
D-3	12/16/13	11:39		2.65	--	NP	6.05	--
D-3	03/26/14	7:10		1.25	--	NP	7.45	--
D-3	03/26/14	10:15		2.06	--	NP	6.64	--
D-3	06/16/14	12:59		2.44	--	NP	6.26	--
D-3	06/16/14	14:49		2.54	--	NP	6.16	--
D-3	09/29/14	14:10		2.83	--	NP	5.87	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
D-3	09/29/14	--	--	--	--	--	--	D-3 appears to have been moved
D-3	12/08/14	10:50	--	3.07	--	NP	--	Top of casing elevation not available
D-3	12/08/14	13:50	--	0.59	--	NP	--	Top of casing elevation not available
D-3	03/23/15	12:44	--	2.67	--	NP	--	Top of casing elevation not available
D-3	03/23/15	15:40	--	3.56	--	NP	--	Top of casing elevation not available
D-3	06/22/15	14:00	--	3.82	--	NP	--	Top of casing elevation not available
D-3	06/22/15	16:30	--	3.83	--	NP	--	Top of casing elevation not available
D-3	10/27/16	8:05	--	3.02	--	NP	--	Top of casing elevation not available
D-3	10/27/16	10:21	--	3.49	--	NP	--	Top of casing elevation not available
D-3	07/24/17	--	--	--	--	--	--	Unable to access. Top of casing elevation not available
D-3	07/24/17	--	--	--	--	--	--	Unable to access. Top of casing elevation not available
D-4 ²	06/22/09	10:19	9.39 ³	2.96	--	NP	6.43	--
D-4 ²	06/22/09	12:54		2.81	--	NP	6.58	--
D-4 ²	08/03/09	10:09		2.93	--	NP	6.46	--
D-4 ²	08/03/09	12:25		2.95	--	NP	6.44	--
D-4 ²	08/17/09	8:10		2.92	--	NP	6.47	--
D-4 ²	08/17/09	11:19		2.94	--	NP	6.45	--
D-4 ²	10/29/09	8:19		2.74	--	NP	6.65	--
D-4 ²	10/29/09	10:34		2.59	--	NP	6.80	--
D-4 ²	01/18/10	12:55		2.06	--	NP	7.33	--
D-4 ²	01/18/10	15:00		2.35	--	NP	7.04	--
D-4 ²	04/19/10	14:33		2.87	--	NP	6.52	--
D-4 ²	04/19/10	16:39		2.95	--	NP	6.44	--
D-4 ²	07/19/10	6:19		2.90	--	NP	6.49	--
D-4 ²	07/19/10	9:34		3.00	--	NP	6.39	--
D-4 ²	10/25/10	12:45		1.70	--	NP	7.69	--
D-4 ²	10/25/10	15:36		2.40	--	NP	6.99	--
D-4 ²	03/21/11	11:48		2.83	--	NP	6.56	--
D-4 ²	03/21/11	14:15		2.90	--	NP	6.49	--
D-4 ²	06/14/11	9:00		2.35	--	NP	7.04	--
D-4 ²	06/14/11	13:12		2.93	--	NP	6.46	--
D-4 ²	09/26/11	10:00		2.82	--	NP	6.57	--
D-4 ²	09/26/11	--		3.03	--	NP	6.36	--
D-4 ²	12/12/11	10:48		2.86	--	NP	6.53	--
D-4 ²	12/12/11	15:05		2.18	--	NP	7.21	--
D-4 ²	03/27/12	13:05		2.70	--	NP	6.69	--
D-4 ²	03/27/12	16:14		3.01	--	NP	6.38	--
D-4 ²	06/27/12	15:43		3.05	--	NP	6.34	--
D-4 ²	06/27/12	19:02		3.00	--	NP	6.39	--
D-4 ²	09/25/12	6:35		3.09	--	NP	6.30	--
D-4 ²	09/25/12	9:55		3.05	--	NP	6.34	--
D-4 ²	12/13/12	9:35		2.45	--	NP	6.94	--
D-4 ²	12/13/12	12:35		2.77	--	NP	6.62	--
D-4 ²	03/25/13	9:30		2.83	--	NP	6.56	--
D-4 ²	03/25/13	11:05		3.05	--	NP	6.34	--
D-4 ²	06/24/13	11:00		2.42	--	NP	6.97	--
D-4 ²	06/24/13	13:30		3.04	--	NP	6.35	--
D-4 ²	09/23/13	13:00		2.16	--	NP	7.23	--
D-4 ²	09/23/13	16:10		3.08	--	NP	6.31	--
D-4 ²	12/16/13	9:54		3.08	--	NP	6.31	--
D-4 ²	12/16/13	11:50		3.13	--	NP	6.26	--
D-4 ²	03/26/14	7:20		1.90	--	NP	7.49	--
D-4 ²	03/26/14	10:20		2.69	--	NP	6.70	--
D-4 ²	06/16/14	13:00		3.02	--	NP	6.37	--
D-4 ²	06/16/14	14:57		3.04	--	NP	6.35	--
D-4 ²	09/29/14	14:25		2.66	--	NP	6.73	--
D-4 ²	09/29/14	16:00		2.98	--	NP	6.41	--
D-4 ²	12/08/14	11:00		2.50	--	NP	6.89	--
D-4 ²	12/08/14	13:55		3.00	--	NP	6.39	--
D-4 ²	03/23/15	12:55		2.18	--	NP	7.21	--
D-4 ²	03/23/15	15:32		2.94	--	NP	6.45	--
D-4 ²	06/22/15	14:38		3.08	--	NP	6.31	--
D-4 ²	06/22/15	16:46		3.11	--	NP	6.28	--
D-4 ²	10/27/16	8:25		2.39	--	NP	7.00	--
D-4 ²	10/27/16	10:48		2.68	--	NP	6.71	--
D-4 ²	07/24/17	11:46		2.74	--	NP	6.65	--
D-4 ²	07/24/17	14:22		2.90	--	NP	6.49	--
D-5	10/20/08	--	--	--	--	--	--	--
D-5	12/08/08	11:18	5.60	1.25	--	NP	6.85	--
D-5	02/20/09	9:45		0.30	--	NP	5.90*	See *
D-5	04/20/09	9:22		0.10	--	NP	5.70	--
D-5	06/22/09	10:39	9.09 ³	2.88	--	NP	6.21	--
D-5	06/22/09	12:28		3.10	--	NP	5.99	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
D-5	08/03/09	9:32		3.10	--	NP	5.99	--
D-5	08/03/09	11:59		3.12	--	NP	5.97	--
D-5	08/17/09	7:46		3.12	--	NP	5.97	--
D-5	08/17/09	10:56		3.17	--	NP	5.92	--
D-5	10/29/09	7:45		2.99	--	NP	6.10	--
D-5	10/29/09	10:04		2.88	--	NP	6.21	--
D-5	01/18/10	12:29		1.76	--	NP	7.33	--
D-5	01/18/10	14:35		2.10	--	NP	6.99	--
D-5	04/19/10	14:05		2.87	--	NP	6.22	--
D-5	04/19/10	16:10		Dry	--	NP	Dry	--
D-5	07/19/10	5:32		2.78	--	NP	6.31	--
D-5	07/19/10	9:04		Dry	--	NP	Dry	--
D-5	10/25/10	12:15		1.50	--	NP	7.59	--
D-5	10/25/10	15:33		2.11	--	NP	6.98	--
D-5	03/21/11	11:13		2.80	--	NP	6.29	--
D-5	03/21/11	13:54		3.10	--	NP	5.99	--
D-5	06/14/11	8:50		2.65	--	NP	6.44	--
D-5	06/14/11	12:46		3.19	--	NP	5.90	--
D-5	09/26/11	8:50		2.69	--	NP	6.40	--
D-5	09/26/11	--		2.99	--	NP	6.10	--
D-5	12/12/11	10:09		2.49	--	NP	6.60	--
D-5	12/12/11	14:35		2.99	--	NP	6.10	--
D-5	03/27/12	12:36		2.44	--	NP	6.65	--
D-5	03/27/12	15:41		3.13	--	NP	5.96	--
D-5	06/27/12	15:10		3.20	--	NP	5.89	--
D-5	06/27/12	18:37		3.20	--	NP	5.89	--
D-5	09/25/12	6:10		Dry	--	NP	Dry	--
D-5	09/25/12	9:30		Dry	--	NP	Dry	--
D-5	12/13/12	9:00		2.20	--	NP	6.89	--
D-5	12/13/12	12:00		2.77	--	NP	6.32	--
D-5	03/25/13	8:55		2.55	--	NP	6.54	--
D-5	03/25/13	11:49		Dry	--	NP	Dry	--
D-5	06/24/13	10:33		2.08	--	NP	7.01	--
D-5	06/24/13	13:16		2.90	--	NP	6.19	--
D-5	09/23/13	12:10		1.88	--	NP	7.21	--
D-5	09/23/13	15:30		2.09	--	NP	7.00	--
D-5	12/16/13	9:29		3.01	--	NP	6.08	--
D-5	12/16/13	11:22		Dry	--	NP	Dry	--
D-5	03/26/14	6:50		1.66	--	NP	7.43	--
D-5	03/26/14	9:55		2.50	--	NP	6.59	--
D-5	06/16/14	12:48		2.95	--	NP	6.14	--
D-5	06/16/14	14:40		3.13	--	NP	5.96	--
D-5	09/29/14	13:50		2.29	--	NP	6.80	--
D-5	09/29/14	16:22		3.08	--	NP	6.01	--
D-5	12/08/14	10:20		2.29	--	NP	6.80	--
D-5	12/08/14	13:25		2.74	--	NP	6.35	--
D-5	03/23/15	12:34		2.20	--	NP	6.89	--
D-5	03/23/15	15:25		2.86	--	NP	6.23	--
D-5	06/22/15	14:12		3.20	--	NP	5.89	--
D-5	06/22/15	16:22		3.21	--	NP	5.88	--
D-5	10/27/16	7:40		2.27	--	NP	6.82	--
D-5	10/27/16	10:36		2.87	--	NP	6.22	--
D-5	07/24/17	11:12		2.61	--	NP	6.48	--
D-5	07/24/17	14:00		3.00	--	NP	6.09	--
D-6	10/20/08	--	--	--	--	--	--	--
D-6	12/08/08	11:22	2.80	3.00	--	NP	5.80	--
D-6	02/20/09	10:16		4.40	--	NP	7.20	--
D-6	04/20/09	9:40		4.30	--	NP	7.10	--
D-6	06/22/09	11:10	8.11 ³	3.12	--	NP	4.99	--
D-6	06/22/09	12:46		3.12	--	NP	4.99	--
D-6	08/03/09	9:59		3.30	--	NP	4.81	--
D-6	08/03/09	12:16		3.29	--	NP	4.82	--
D-6	08/17/09	8:02		3.30	--	NP	4.81	--
D-6	08/17/09	11:14		3.29	--	NP	4.82	--
D-6	10/29/09	8:09		2.76	--	NP	5.35	--
D-6	10/29/09	10:34		2.71	--	NP	5.40	--
D-6	01/18/10	12:46		3.77	--	NP	4.34	--
D-6	01/18/10	14:52		3.80	--	NP	4.31	--
D-6	04/19/10	14:25		2.20	--	NP	5.91	--
D-6	04/19/10	16:30		2.30	--	NP	5.81	--
D-6	07/19/10	6:08		2.35	--	NP	5.76	--
D-6	07/19/10	9:26		2.35	--	NP	5.76	--
D-6	10/25/10	12:36		1.65	--	NP	6.46	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
D-6	10/25/10	15:48		1.61	--	NP	6.50	--
D-6	03/21/11	11:35		1.64	--	NP	6.47	--
D-6	03/21/11	14:08		1.65	--	NP	6.46	--
D-6R	06/14/11	8:57	9.11	3.72	--	NP	5.39	--
D-6R	06/14/11	12:50		3.72	--	NP	5.39	--
D-6R	09/26/11	9:00		3.95	--	NP	5.16	--
D-6R	09/26/11	--		3.90	--	NP	5.21	--
D-6R	12/12/11	10:17		3.69	--	NP	5.42	--
D-6R	12/12/11	14:42		3.69	--	NP	5.42	--
D-6R	03/27/12	12:45		2.78	--	NP	6.33	--
D-6R	03/27/12	15:48		2.75	--	NP	6.36	--
D-6R	06/27/12	15:15		2.94	--	NP	6.17	--
D-6R	06/27/12	18:42		2.94	--	NP	6.17	--
D-6R	09/25/12	6:17		3.49	--	NP	5.62	--
D-6R	09/25/12	9:39		3.46	--	NP	5.65	--
D-6R	12/13/12	9:06		2.70	--	NP	6.41	--
D-6R	12/13/12	12:15		2.70	--	NP	6.41	--
D-6R	03/25/13	9:02		2.15	--	NP	6.96	--
D-6R	03/25/13	11:44		2.15	--	NP	6.96	--
D-6R	06/24/13	10:39		2.65	--	NP	6.46	--
D-6R	06/24/13	13:00		2.65	--	NP	6.46	--
D-6R	09/23/13	12:30		3.51	--	NP	5.60	--
D-6R	09/23/13	15:40		3.50	--	NP	5.61	--
D-6R	12/16/13	9:36		2.79	--	NP	6.32	--
D-6R	12/16/13	11:31		2.79	--	NP	6.32	--
D-6R	03/26/14	7:00		3.09	--	NP	6.02	--
D-6R	03/26/14	10:05		3.09	--	NP	6.02	--
D-6R	06/16/14	12:59		3.02	--	NP	6.09	--
D-6R	06/16/14	14:45		3.02	--	NP	6.09	--
D-6R	09/29/14	14:00		3.27	--	NP	5.84	--
D-6R	09/29/14	16:10		3.32	--	NP	5.79	--
D-6R	12/08/14	11:10		3.00	--	NP	6.11	--
D-6R	12/08/14	14:00		3.01	--	NP	6.10	--
D-6R	03/23/15	12:40		3.29	--	NP	5.82	--
D-6R	03/23/15	15:35		3.34	--	NP	5.77	--
D-6R	06/22/15	16:25		3.53	--	NP	5.58	--
D-6R	10/27/16	7:50		2.80	--	NP	6.31	--
D-6R	10/27/16	10:30		2.79	--	NP	6.32	--
D-6R	07/24/17	11:20		2.41	--	NP	6.70	--
D-6R	07/24/17	14:05		2.46	--	NP	6.65	--
D-7	10/20/08	17:23	7.60	Dry	--	NP	Dry	--
D-7	12/08/08	11:31		Dry	--	NP	Dry	--
D-7	02/20/09	10:48		Dry	--	NP	Dry	--
D-7	04/20/09	10:23		Dry	--	NP	Dry	--
TB	10/20/08	17:05	4.70	2.30	--	NP	7.00	--
TB	12/08/08	11:16		2.50	--	NP	7.20	--
TB	02/20/09	9:37		1.10	--	NP	5.80	--
TB	04/20/09	9:20		1.33	--	NP	6.03	--
TB	06/22/09	10:35		1.63	--	NP	6.33	--
TB	06/22/09	12:25		1.85	--	NP	6.55	--
TB	08/03/09	9:27		1.83	--	NP	6.53	--
TB	08/03/09	11:56		1.83	--	NP	6.53	--
TB	08/17/09	7:41		1.83	--	NP	6.53	--
TB	08/17/09	10:52		1.88	--	NP	6.58	--
TB	10/29/09	7:41		1.69	--	NP	6.39	--
TB	10/29/09	10:01		1.64	--	NP	6.34	--
TB	01/18/10	12:18		0.45	--	NP	5.15	--
TB	01/18/10	14:24		0.90	--	NP	5.60	--
TB	04/19/10	14:00		1.74	--	NP	6.44	--
TB	04/19/10	16:07		1.94	--	NP	6.64	--
TB	07/19/10	5:28		1.59	--	NP	6.29	--
TB	07/19/10	9:01		1.97	--	NP	6.67	--
TB	10/25/10	12:11		4.20	--	NP	8.90	--
TB	10/25/10	15:30		0.86	--	NP	5.56	--
TB	06/14/11	8:47		1.49	--	NP	6.19	--
TB	06/14/11	12:42		1.95	--	NP	6.65	--
TB	09/26/11	8:47		1.51	--	NP	6.21	--
TB	09/26/11	--		1.74	--	NP	6.44	--
TB	12/12/11	10:05		1.19	--	NP	5.89	--
TB	12/12/11	14:30		1.70	--	NP	6.40	--
TB	03/27/12	12:32		1.33	--	NP	6.03	--
TB	03/27/12	15:37		1.99	--	NP	6.69	--
TB	06/27/12	15:00		1.95	--	NP	6.65	--

Table 3-3
Groundwater Elevation Data
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
TB	06/27/12	18:31		2.00	--	NP	6.70	--
TB	09/25/12	6:05		1.99	--	NP	6.69	--
TB	09/25/12	9:25		1.98	--	NP	6.68	--
TB	12/13/12	8:55		0.90	--	NP	5.60	--
TB	12/13/12	11:55		1.49	--	NP	6.19	--
TB	03/25/13	8:50		1.40	--	NP	6.10	--
TB	03/25/13	11:54		1.94	--	NP	6.64	--
TB	06/24/13	10:27		1.03	--	NP	5.73	--
TB	06/24/13	12:18		1.73	--	NP	6.43	--
TB	09/23/13	12:00		2.51	--	NP	7.21	--
TB	09/23/13	15:20		3.68	--	NP	8.38	--
TB	12/16/13	9:24		1.76	--	NP	6.46	--
TB	12/16/13	11:17		2.03	--	NP	6.73	--
TB	03/26/14	6:40		2.43	--	NP	7.13	--
TB	03/26/14	9:50		3.22	--	NP	7.92	--
TB	06/16/14	12:45		3.56	--	NP	8.26	--
TB	06/16/14	14:37		3.74	--	NP	8.44	--
TB	09/29/14	13:45		1.83	--	NP	6.53	--
TB	09/29/14	16:30		3.81	--	NP	8.51	--
TB	12/08/14	10:10		2.85	--	NP	7.55	--
TB	12/08/14	13:20		3.31	--	NP	8.01	--
TB	03/23/15	12:30		2.93	--	NP	7.63	--
TB	03/23/15	15:20		3.50	--	NP	8.20	--
TB	06/22/15	14:29		3.85	--	NP	8.55	--
TB	06/22/15	16:14		3.88	--	NP	8.58	--
TB	10/27/16	7:37		2.99	--	NP	7.69	--
TB	10/27/16	10:39		3.50	--	NP	8.20	--
TB	07/24/17	11:09		3.29	--	NP	7.99	--
TB	07/24/17	13:58		3.64	--	NP	8.34	--

Notes:

amsl= Above Mean Sea Level

LNAPL = Light non-aqueous phase liquid

"--" = Not measured.

NP = Not present

¹ Staff gauge D-1 re-established prior to June 2009 sampling event.

² Staff gauge D-4 was established prior to June 2009 sampling event to replace staff gauge D-7 which is not within the Willow Creek channel.

³ Staff gauges were resurveyed by OTAK Incorporated June 1, 2009. Staff gauges were surveyed from top of gauge and water levels are now measured from top down to water.

⁴ Staff gauge D-3 was down during the first gauging of the June 27, 2012 gauging event. A depth to water reading was unable to be collected.

⁵ Staff gauge D-3 was re-established for the second gauging of the June 27, 2012 gauging event and was re-surveyed by OTAK Incorporated on 8/8/12.

* = Potentially anomalous reading that will be confirmed with subsequent gauging data.

** = Groundwater elevation adjusted for the presence of LNAPL.

+ = LNAPL thickness could not be accurately measured due to LNAPL coating oil/water interface probe tip.

^ = Measurement error. LNAPL measurement was not confirmed with a bailer at the time the measurement was collected. The measurement was re-collected on 06/23/09 and there was no indication of LNAPL or LNAPL film. A bailer was used to confirm the measurement on 06/23/09 and there were no signs of LNAPL, sheen or odor present in MW-104.

^S = Shallow piezometer (installed between 12 and 13 feet below ground surface).

^D = Deep piezometer (installed between 22 and 25 feet below ground surface).

^{DB2} = Wells and piezometers located within the DB-2 excavation footprint and decommissioned during the construction work related to DB-2 excavation activities in August 2017.

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)								Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)		Gasoline ⁴ (µg/L)		Heavy Oil ³ (µg/L)		TPH ⁵ (µg/L)		TPH CUL ⁶ (µg/L)
		B		T		E		X												
		CUL=16		--		--		--		CUL=0.05		--		--		--		see note 6		
LM-2*	10/23/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	243	U	50	U	485	U	389	UU	512
LM-2*	12/11/08	0.50	U	0.50	U	0.50	U	1.00	U	0.008		243	U	50	U	485	U	389	UU	512
LM-2*	02/26/09	0.5	U	NA		NA		NA		0.008	UU	1,300		50	U	510		1,835		503
LM-2*	04/23/09	0.5	U	NA		NA		NA		0.007	UU	1,100		50	U	230		1,355		503
LM-2*	06/25/09	0.5	U	NA		NA		NA		0.007	UU	520		50	U	370		915		505
LM-2*	08/20/09	0.5	U	NA		NA		NA		0.012	UU	290		50	U	71		386		512
LM-2*	10/30/09	0.5	U	NA		NA		NA		0.013	UU	1,500		50	U	700		2,225		502
LM-2*	01/20/10	NA		NA		NA		NA		NA		1,100		50	U	500		1,625		503
LM-2*	04/21/10	NA		NA		NA		NA		NA		1,100		50	U	460		1,585		503
LM-2*	07/22/10	NA		NA		NA		NA		NA		1,500		50	U	550		2,075		502
LM-2*	10/29/10	0.5	U	NA		NA		NA		0.012	UU	2,500		50	U	1,400		3,925		501
LM-2*	03/23/11	NA		NA		NA		NA		NA		1,600		50	U	1,000		2,625		502
LM-2*	06/16/11	NA		NA		NA		NA		NA		1,800		50	U	520		2,345		502
LM-2*	09/28/11	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
LM-2*	12/16/11	0.2	U	NA		NA		NA		0.007	UU	28	U	50	U	66	U	72	UU	575
LM-2*	03/29/12	NA		NA		NA		NA		NA		3,900		50	U	2,000		5,925		501
LM-2*	06/29/12	NA		NA		NA		NA		NA		32	U	50	U	74	U	78	UU	568
LM-2*	09/27/12	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
LM-2*	12/18/12	0.2	U	NA		NA		NA		0.011		30	U	50	U	71	U	76	UU	571
LM-2*	03/27/13	NA		NA		NA		NA		NA		31	U	50	U	72	U	77	UU	570
LM-2*	06/26/13	NA		NA		NA		NA		NA		30		250	U	69	U	190		664
LM-2*	09/24/13	NA		NA		NA		NA		NA		33		50	U	70	U	93		556
LM-2*	12/18/13	0.2	U	NA		NA		NA		0.008	UU	30	U	50	U	69	U	75	UU	572
LM-2*	03/27/14	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
LM-2*	06/17/14	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
LM-2*	09/30/14	NA		NA		NA		NA		NA		38		50	U	68	U	97		553
LM-2*	12/09/14	0.3		NA		NA		NA		0.008	UU	29	U	50	U	67	U	73	UU	574
LM-2*	03/25/15	NA		NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
LM-2*	06/24/15	NA		NA		NA		NA		NA		28	U	250	U	66	U	172	UU	687
LM-2*	10/26/16	0.5	U	0.5	U	0.5	U	1.5	U	0.008		46	U	50	U	100	U	98	UU	553
LM-2*	07/26/17	25	U	NA		NA		NA		0.008		48	U	2500	U	110	U	1,329	UU	772
MW-101*	10/22/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	250	U	50	U	500	U	400	UU	512
MW-101*	12/10/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	245	U	50	U	490	U	393	UU	512
MW-101*	02/24/09	0.5	U	NA		NA		NA		0.008	UU	160		83		72	U	279		563
MW-101*	04/22/09	0.5	U	NA		NA		NA		0.008	UU	160		50	U	79	U	225		522
MW-101*	06/25/09	0.5	U	NA		NA		NA		0.007	UU	36		50	U	69	U	96		554
MW-101*	08/20/09	0.5	U	NA		NA		NA		0.012	UU	82		50	U	74	U	144		535
MW-101*	10/27/09	0.5	U	NA		NA		NA		0.013	UU	310		50	U	74	U	372		513
MW-101*	01/19/10	NA		NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-101*	04/21/10	NA		NA		NA		NA		NA		75		75		78	U	189		587
MW-101*	07/21/10	NA		NA		NA		NA		NA		98		50	U	74	U	160		531
MW-101* (Duplicate)	07/21/10	NA		NA		NA		NA		NA		100		50	U	73	U	162		531
MW-101*	10/27/10	0.5	U	NA		NA		NA		0.012	UU	130		120		67	U	284		594
MW-101*	03/23/11	NA		NA		NA		NA		NA		34		50	U	67	U	93		556
MW-101*	06/15/11	NA		NA		NA		NA		NA		70		50	U	67	U	129		539
MW-101* (Duplicate)	06/15/11	NA		NA		NA		NA		NA		68		50	U	70		163		531
MW-101*	09/27/11	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-101*	12/14/11	0.2	U	NA		NA		NA		0.007	UU	32	U	50	U	75	U	79	UU	568
MW-101*	03/28/12	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-101*	06/29/12	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-101*	09/27/12	NA		NA		NA		NA		NA		30	U	50	U	70	U	75	UU	571
MW-101* (Duplicate)	09/27/12	NA		NA		NA		NA		NA		30	U	50	U	71	U	76	UU	571

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)								
		B	T	E	X														
		CUL=16		--	--	--	--	--	see note 6										
MW-101*	12/18/12	0.2	U	NA	NA	NA	0.008	UU	29	U	50	U	68	U	74	UU	573		
MW-101*	03/26/13	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574		
MW-101*	06/25/13	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574		
MW-101*	09/25/13	NA		NA	NA	NA	NA		29	U	50	U	68	U	74	UU	573		
MW-101*	12/20/13	0.2	U	NA	NA	NA	0.008	UU	29	U	50	U	67	U	73	UU	574		
MW-101*	03/28/14	NA		NA	NA	NA	NA		28	U	50	U	66	U	72	UU	575		
MW-101*	06/18/14	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574		
MW-101*	10/01/14	NA		NA	NA	NA	NA		30	U	50	U	71	U	76	UU	571		
MW-101*	12/10/14	0.2	U	NA	NA	NA	0.008	UU	29	U	50	U	67	U	73	UU	574		
MW-101*	03/25/15	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574		
MW-101*	06/25/15	NA		NA	NA	NA	NA		28	U	50	U	66	U	72	UU	575		
MW-101*	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	0.008	UU	45	U	76	100	U	149	619	
MW-101*	07/25/17	0.5	U	NA	NA	NA	0.008	UU	46	U	50	U	100	U	98	UU	553		
MW-101* (Duplicate)	07/25/17	0.5	U	NA	NA	NA	0.008	UU	46	U	50	U	100	U	98	UU	553		
MW-104*	10/22/08	3.89		0.554	U	11.8	1.00	U	0.008	UU	253	U	728	505	U	1,107	664		
MW-104*	12/10/08	3.41		0.50	U	23.5	1.15	U	0.007	UU	245	U	859	490	U	1,227	678		
MW-104*	02/24/09	1.4		NA		NA	NA		0.007	UU	130		460	68	U	624	691		
MW-104*	04/23/09	5	U	NA		NA	NA		0.008	UU	180		1,700	70	U	1,915	750		
MW-104* (Duplicate)	04/23/09	5	U	NA		NA	NA		0.008	UU	210		1,800	72	U	2,046	746		
MW-104*	06/24/09	2.9		NA		NA	NA		0.007	UU	140		740	72	U	916	717		
MW-104*	08/19/09	2		NA		NA	NA		0.012	UU	120		310	68	U	464	667		
MW-104*	10/27/09	2		NA		NA	NA		0.013	UU	130		510	73	U	677	697		
MW-104*	01/19/10	NA		NA		NA	NA		NA		270		2,800	69	U	3,105	756		
MW-104*	04/21/10	NA		NA		NA	NA		NA		100		400	83	U	542	692		
MW-104* (Duplicate)	04/21/10	NA		NA		NA	NA		NA		100		510	67	U	644	711		
MW-104*	07/20/10	NA		NA		NA	NA		NA		200		450	72	U	686	663		
MW-104*	10/27/10	1.7		NA		NA	NA		0.047	UU	81		220	67	U	335	664		
MW-104*	03/23/11	NA		NA		NA	NA		NA		290		890	68	U	1,214	690		
MW-104*	06/15/11	NA		NA		NA	NA		NA		340		1,900	67	U	2,274	728		
MW-104* (Duplicate)	06/15/11	NA		NA		NA	NA		NA		350		1,900	67	U	2,317	722		
MW-104*	09/27/11	NA		NA		NA	NA		NA		29	U	50	U	67	U	73	UU	
MW-104*	12/13/11	3.0	U	NA		NA	NA		0.072	UU	38		700	66	U	771	758		
MW-104*	03/29/12	NA		NA		NA	NA		NA		440		280	220		940	563		
MW-104*	06/28/12	NA		NA		NA	NA		NA		29	U	83	67	U	131	656		
MW-104*	09/26/12	NA		NA		NA	NA		NA		33		170	66	U	236	685		
MW-104*	12/18/12	0.2	U	NA		NA	NA		0.008	UU	29	U	50	U	67	U	73	UU	
MW-104*	03/27/13	NA		NA		NA	NA		NA		52	U	310	120	U	396	708		
MW-104*	06/26/13	NA		NA		NA	NA		NA		29	U	78	68	U	127	650		
MW-104*	09/24/13	NA		NA		NA	NA		NA		30	U	190	70	U	240	711		
MW-104* (Duplicate)	09/24/13	NA		NA		NA	NA		NA		44		170	70	U	249	672		
MW-104*	12/17/13	0.4		NA		NA	NA		0.008	UU	29	U	120	68	U	169	682		
MW-104*	03/26/14	NA		NA		NA	NA		NA		29	U	50	U	67	U	73	UU	
MW-104*	06/17/14	NA		NA		NA	NA		NA		29	U	50	U	67	U	73	UU	
MW-104* (Duplicate)	06/17/14	NA		NA		NA	NA		NA		28	U	50	U	66	U	72	UU	
MW-104*	09/30/14	NA		NA		NA	NA		NA		30		50	U	69	U	90	559	
MW-104*	12/09/14	1.0	U	NA		NA	NA		0.008	UU	29	U	50	U	67	U	73	UU	
MW-104*	03/25/15	NA		NA		NA	NA		NA		30	U	59	69	U	109	628		
MW-104*	06/23/15	NA		NA		NA	NA		NA		28	U	64	66	U	111	638		
MW-104*	10/24/16	0.5	U	0.5	U	11.0	1.5	U	0.008	UU	46	U	350	100	U	423	725		
MW-104*	07/26/17	0.5	U	NA		NA	NA		0.008	UU	45	U	120	100	U	193	653		
MW-108*	10/23/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	243	U	50	U	485	U	389	UU
MW-108*	12/11/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	243	U	50	U	485	U	389	UU

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)						
		B	T	E	X													
		CUL=16		--	--	--	CUL=0.05	--	--	--	see note 6							
MW-108*	02/26/09	0.5	U	NA	NA	NA	0.007	UU	31	U	50	U	71	U	76	UU	570	
MW-108*	04/23/09	2.5	U W	NA	NA	NA	0.007	UU	39	U	250	UW	66	U	322	UU	705	
MW-108*	06/25/09	0.5	U	NA	NA	NA	0.007	UU	28	U	50	U	66	U	72	UU	575	
MW-108*	08/20/09	0.5	U	NA	NA	NA	0.012	UU	36	U	50	U	68	U	95	UU	555	
MW-108*	10/30/09	0.5	U	NA	NA	NA	0.014	UU	40	U	50	U	71	U	101	UU	551	
MW-108*	01/20/10	NA		NA	NA	NA	NA		28	U	50	U	66	U	72	UU	575	
MW-108*	04/21/10	NA		NA	NA	NA	NA		75		50	U	67	U	134		538	
MW-108*	07/22/10	NA		NA	NA	NA	NA		76		50	U	76	U	139		536	
MW-108*	10/29/10	0.5	U	NA	NA	NA	0.0119225	UU	29	U	50	U	67	U	73	UU	574	
MW-108*	03/23/11	NA		NA	NA	NA	NA		33		50	U	67	U	92		557	
MW-108*	06/16/11	NA		NA	NA	NA	NA		140		50	U	68	U	199		525	
MW-108*	09/28/11	NA		NA	NA	NA	NA		30	U	50	U	69	U	75	UU	572	
MW-108*	12/16/11	0.2	U	NA	NA	NA	0.00717	UU	29	U	50	U	67	U	73	UU	574	
MW-108*	03/29/12	NA		NA	NA	NA	NA		110		50	U	150		285		517	
MW-108*	06/29/12	NA		NA	NA	NA	NA		30	U	50	U	71	U	76	UU	571	
MW-108*	09/27/12	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574	
MW-108*	12/18/12	0.2	U	NA	NA	NA	0.008	UU	31	U	50	U	72	U	77	UU	570	
MW-108*	03/27/13	NA		NA	NA	NA	NA		31	U	50	U	72	U	77	UU	570	
MW-108*	06/27/13	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574	
MW-108*	09/26/13	NA		NA	NA	NA	NA		28	U	50	U	66	U	72	UU	575	
MW-108*	12/19/13	0.2	U	NA	NA	NA	0.008	UU	32	U	50	U	74	U	78	UU	568	
MW-108*	03/27/14	NA		NA	NA	NA	NA		30	U	50	U	69	U	75	UU	572	
MW-108*	06/17/14	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574	
MW-108*	10/02/14	NA		NA	NA	NA	NA		29	U	50	U	68	U	74	UU	573	
MW-108*	12/09/14	0.2	U	NA	NA	NA	0.008	UU	29	U	50	U	67	U	73	UU	574	
MW-108*	03/26/15	NA		NA	NA	NA	NA		29	U	500	U	68	U	299	UU	729	
MW-108*	06/24/15	NA		NA	NA	NA	NA		28	U	250	U	66	U	172	UU	687	
MW-109*	10/23/08	0.50	U	0.50	U	0.50	U	1.00	U	253	U	50	U	505	U	404	UU	512
MW-109*	12/12/08	0.50	U	0.50	U	0.50	U	1.00	U	248	U	50	U	495	U	397	UU	512
MW-109*	02/26/09	0.5	U	NA		NA		NA		32	U	50	U	75	U	79	UU	568
MW-109*	04/23/09	0.5	U	NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-109*	06/25/09	0.5	U	NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-109*	08/20/09	0.5	U	NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-109*	10/30/09	0.5	U	NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-109*	01/20/10	NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-109*	04/21/10	NA		NA		NA		NA		55		50	U	67	U	114		545
MW-109*	07/22/10	NA		NA		NA		NA		31	U	50	U	72	U	77	UU	570
MW-109*	10/29/10	0.5	U	NA		NA		NA		0.012	UU	29	U	67	U	73	UU	574
MW-109*	03/23/11	NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-109*	06/16/11	NA		NA		NA		NA		96		50	U	100		221		522
MW-109*	09/28/11	NA		NA		NA		NA		32	U	50	U	75	U	79	UU	568
MW-109*	12/16/11	0.2	U	NA		NA		NA		0.0072	UU	29	U	66	U	87		560
MW-109*	03/29/12	NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-109*	06/29/12	NA		NA		NA		NA		30	U	50	U	69	U	75	UU	572
MW-109*	09/27/12	NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-109*	12/18/12	0.2	U	NA		NA		NA		0.008	UU	33	U	77	U	80	UU	566
MW-109*	03/27/13	NA		NA		NA		NA		31	U	50	U	72	U	77	UU	570
MW-109*	06/27/13	NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-109* (Duplicate)	06/27/13	NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-109*	09/26/13	NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-109*	12/19/13	0.2	U	NA		NA		NA		0.008	UU	31	U	73	U	77	UU	569
MW-109*	03/27/14	NA		NA		NA		NA		54		67	U	50	U	113		563

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-109*	06/17/14	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-109*	10/02/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-109*	12/09/14	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-109*	03/26/15	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-109*	06/24/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-126	06/29/12	NA	NA	NA	NA	NA	30 U	50 U	70 U	75 UU	571
MW-126 (Duplicate)	06/29/12	NA	NA	NA	NA	NA	31 U	50 U	71 U	76 UU	570
MW-126	12/18/12	0.2 U	NA	NA	NA	0.008 UU	170 U	50 U	68 U	229 UU	521
MW-126	06/25/13	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-126	12/17/13	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-126 (Duplicate)	12/17/13	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-126	06/18/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-126	12/10/14	0.2 U	NA	NA	NA	0.008 UU	210 U	50 U	67 U	269 UU	518
MW-126	06/23/15	NA	NA	NA	NA	NA	28 U	50 U	65 U	72 UU	575
MW-126	10/24/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	45 U	50 U	100 U	98 UU	553
MW-126	07/25/17	0.5 U	NA	NA	NA	0.008 UU	45 U	50 U	100 U	98 UU	553
MW-129R*	10/24/08	0.50 U	0.50 U	0.50 U	1.12 U	0.007 UU	250 U	68.1 U	500 U	443 UU	531
MW-129R*	12/12/08	0.50 U	0.50 U	0.50 U	1.00 U	0.008 UU	245 U	50 U	490 U	393 UU	512
MW-129R*	02/27/09	0.5 U	NA	NA	NA	0.007 UU	1,900 U	50 U	730 U	2,655 UU	502
MW-129R*	04/27/09	0.5 U	NA	NA	NA	0.007 UU	1,400 U	50 U	250 U	1,675 UU	503
MW-129R*	06/26/09	0.5 U	NA	NA	NA	0.007 UU	1,700 U	50 U	1,000 U	2,725 UU	502
MW-129R*	08/21/09	0.5 U	NA	NA	NA	0.012 UU	3,400 U	50 U	1,000 U	4,425 UU	501
MW-129R*	10/28/09	0.5 U	NA	NA	NA	0.013 UU	1,900 U	50 U	240 U	2,165 UU	502
MW-129R*	01/21/10	NA	NA	NA	NA	NA	1,800 U	50 U	650 U	2,475 UU	502
MW-129R*	04/22/10	NA	NA	NA	NA	NA	1,600 U	50 U	390 U	2,015 UU	502
MW-129R*	07/22/10	NA	NA	NA	NA	NA	1,800 U	50 U	400 U	2,225 UU	502
MW-129R*	11/01/10	0.5 U	NA	NA	NA	0.012 UU	1,900 U	50 U	700 U	2,625 UU	502
MW-129R*	03/23/11	NA	NA	NA	NA	NA	1,700 U	50 UU	550 U	2,300 UU	504
MW-129R* (Duplicate)	03/23/11	NA	NA	NA	NA	NA	1,700 U	50 U	650 U	2,375 UU	502
MW-129R*	06/17/11	NA	NA	NA	NA	NA	1,600 U	50 U	310 U	1,935 UU	502
MW-129R*	09/28/11	NA	NA	NA	NA	NA	2,700 U	50 U	230 U	2,955 UU	502
MW-129R*	12/19/11	0.2 U	NA	NA	NA	0.007 UU	45 U	50 U	67 U	104 UU	550
MW-129R*	03/29/12	NA	NA	NA	NA	NA	1,700 U	55 U	300 U	2,055 UU	505
MW-129R* (Duplicate)	03/29/12	NA	NA	NA	NA	NA	87 U	56 U	67 U	177 UU	568
MW-129R*	07/02/12	NA	NA	NA	NA	NA	44 U	50 U	67 U	103 UU	550
MW-129R*	09/27/12	NA	NA	NA	NA	NA	330 U	50 U	75 U	393 UU	512
MW-129R*	12/18/12	0.2 U	NA	NA	NA	0.009 UU	32 U	50 U	68 U	91 UU	557
MW-129R*	03/27/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	88 UU	560
MW-129R*	06/26/13	NA	NA	NA	NA	NA	30 U	50 U	68 U	114 UU	598
MW-129R*	09/24/13	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-129R*	12/18/13	0.2 U	NA	NA	NA	0.008 UU	33 U	50 U	71 U	94 UU	556
MW-129R*	03/26/14	NA	NA	NA	NA	NA	46 U	56 U	67 U	136 UU	592
MW-129R*	06/18/14	NA	NA	NA	NA	NA	80 U	50 U	66 U	138 UU	536
MW-129R*	09/30/14	NA	NA	NA	NA	NA	310 U	50 U	68 U	369 UU	513
MW-129R*	12/09/14	0.2 U	NA	NA	NA	0.008 UU	36 U	50 U	66 U	94 UU	555
MW-129R*	03/26/15	NA	NA	NA	NA	NA	100 U	52 U	67 U	186 UU	559
MW-129R*	06/23/15	NA	NA	NA	NA	NA	51 U	50 U	66 U	109 UU	547
MW-129R*	07/26/17	0.5 U	NA	NA	NA	0.008 UU	46 U	93 U	100 U	166 UU	633
MW-134X	06/28/12	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-134X	12/14/12	0.2 U	NA	NA	NA	0.008 UU	30 U	50 U	210 U	265 UU	518
MW-134X	06/27/13	NA	NA	NA	NA	NA	30 U	50 U	71 U	126 UU	540
MW-134X	12/19/13	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	68 U	74 UU	573

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)				
		B	T	E	X										
		CUL=16		--	--	--	--	--	see note 6						
MW-134X	06/17/14	NA	U	NA	U	NA	28	U	50	U	66	U	72	UU	575
MW-134X	12/10/14	0.2	U	NA	U	0.008	28	U	50	U	66	U	72	UU	575
MW-134X	06/24/15	NA	U	NA	U	NA	29	U	50	U	68	U	74	UU	573
MW-135*	10/27/08	0.50	U	0.50	U	0.007	243	U	50	U	485	U	389	UU	512
MW-135*	12/15/08	0.5	U	0.5	U	0.007	238	U	50	U	476	U	382	UU	513
MW-135*	02/27/09	0.5	U	NA	U	0.079	800	U	50	U	870	U	1,695	UU	503
MW-135*	04/24/09	0.5	U	NA	U	0.007	310	U	50	U	67	U	369	UU	513
MW-135*	06/29/09	0.5	U	NA	U	0.007	1,600	U	50	U	1,000	U	2,625	UU	502
MW-135*	08/24/09	0.5	U	NA	U	0.012	1,900	U	50	U	640	U	2,565	UU	502
MW-135*	10/29/09	0.5	U	NA	U	0.012	2,000	U	50	U	520	U	2,545	UU	502
MW-135*	01/21/10	NA	U	NA	U	NA	460	U	50	U	360	U	845	UU	506
MW-135*	04/23/10	NA	U	NA	U	NA	610	U	50	U	400	U	1,035	UU	505
MW-135*	07/22/10	NA	U	NA	U	NA	1,400	U	50	U	200	U	1,625	UU	503
MW-135*	11/01/10	0.5	U	NA	U	0.012	1,800	UU	50	U	590	U	2,415	UU	502
MW-135*	03/24/11	NA	U	NA	U	NA	500	U	50	U	170	U	695	UU	507
MW-135*	06/17/11	NA	U	NA	U	NA	550	U	50	U	210	U	785	UU	506
MW-135*	03/28/14	NA	U	NA	U	NA	28	U	50	U	66	U	72	UU	575
MW-135*	09/28/11	NA	U	NA	U	NA	29	U	50	U	69	U	74	UU	573
MW-135*	12/16/11	0.2	U	NA	U	0.007	79	U	50	U	110	U	214	UU	523
MW-135*	03/28/12	NA	U	NA	U	NA	29	U	50	U	67	U	73	UU	574
MW-135*	07/02/12	NA	U	NA	U	NA	29	U	50	U	68	U	74	UU	573
MW-135*	09/28/12	NA	U	NA	U	NA	30	U	50	U	69	U	75	UU	572
MW-135*	12/19/12	0.2	U	NA	U	0.008	28	U	50	U	66	U	72	UU	575
MW-135*	03/28/13	NA	U	NA	U	NA	30	U	50	U	71	U	76	UU	571
MW-135*	06/28/13	NA	U	NA	U	NA	30	U	50	U	70	U	75	UU	571
MW-135*	09/26/13	NA	U	NA	U	NA	30	U	50	U	70	U	75	UU	571
MW-135*	12/20/13	0.2	U	NA	U	0.008	29	U	50	U	68	U	74	UU	573
MW-135*	03/28/14	NA	U	NA	U	NA	29	U	50	U	67	U	73	UU	574
MW-135*	06/20/14	NA	U	NA	U	NA	29	U	50	U	68	U	74	UU	573
MW-135*	10/02/14	NA	U	NA	U	NA	35	U	50	U	82	U	84	UU	563
MW-135*	12/12/14	0.2	U	NA	U	0.008	29	U	50	U	67	U	73	UU	574
MW-135*	03/26/15	NA	U	NA	U	NA	29	U	50	U	67	U	73	UU	574
MW-135*	06/26/15	NA	U	NA	U	NA	28	U	50	U	66	U	72	UU	575
MW-136*	10/27/08	0.50	U	0.50	U	0.008	243	U	50	U	485	U	389	UU	512
MW-136*	12/15/08	0.50	U	0.50	U	0.007	243	U	60.6	U	485	U	425	UU	528
MW-136*	02/27/09	2.5	U	NA	U	0.007	2,400	UU	120	U	490	U	3,010	UU	508
MW-136*	04/24/09	1.9	U	NA	U	0.009	1,400	UU	52	U	170	U	1,622	UU	506
MW-136*	06/29/09	0.8	U	NA	U	0.008	2,500	UU	50	U	1,200	U	3,725	UU	501
MW-136*	08/24/09	0.6	U	NA	U	0.012	1,600	UU	50	U	560	U	2,185	UU	502
MW-136*	10/29/09	0.5	U	NA	U	0.013	2,100	UU	50	U	460	U	2,585	UU	502
MW-136*	01/21/10	NA	U	NA	U	NA	980	U	50	U	540	U	1,545	UU	503
MW-136*	04/23/10	NA	U	NA	U	NA	1,100	U	50	U	410	U	1,535	UU	503
MW-136*	07/22/10	NA	U	NA	U	NA	1,300	U	50	U	250	U	1,575	UU	503
MW-136*	11/01/10	0.5	U	NA	U	0.012	1,200	UU	50	U	460	U	1,685	UU	503
MW-136*	03/24/11	NA	U	NA	U	NA	540	U	50	U	78	U	643	UU	507
MW-136*	06/17/11	NA	U	NA	U	NA	510	U	50	U	110	U	645	UU	507
MW-136*	09/28/11	NA	U	NA	U	NA	40	U	50	U	67	U	99	UU	553
MW-136*	12/16/11	0.2	U	NA	U	0.007	40	U	50	U	71	U	101	UU	551
MW-136*	03/29/12	NA	U	NA	U	NA	570	U	50	U	240	U	835	UU	506
MW-136*	07/03/12	NA	U	NA	U	NA	31	U	50	U	72	U	77	UU	570
MW-136*	09/28/12	NA	U	NA	U	NA	29	U	50	U	67	U	73	UU	574
MW-136*	12/19/12	0.2	U	NA	U	0.008	30	U	50	U	69	U	75	UU	572

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-136*	03/28/13	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-136*	06/28/13	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-136*	09/26/13	NA	NA	NA	NA	NA	42 U	50 U	68 U	101	551
MW-136* (Duplicate)	09/26/13	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-136*	12/20/13	0.2 U	NA	NA	NA	0.008 UU	32 U	50 U	74 U	78 UU	568
MW-136*	03/28/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-136*	06/20/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-136* (Duplicate)	06/20/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-136*	10/02/14	NA	NA	NA	NA	NA	32 U	50 U	75 U	79 UU	568
MW-136* (Duplicate)	10/02/14	NA	NA	NA	NA	NA	33 U	51 U	96	138	537
MW-136*	12/12/14	0.2 U	NA	NA	NA	0.011 UU	30 U	50 U	70 U	75 UU	571
MW-136* (Duplicate)	12/12/14	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	68 U	88	560
MW-136*	03/26/15	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-136*	06/26/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-139R*	10/22/08	0.50 U	0.50 U	0.724	1.00 U	0.007 UU	240 U	57 JZ	481 U	418	527
MW-139R*	12/10/08	0.50 U	0.50 U	0.50 U	1.00 U	0.007 UU	248 U	50 U	495 U	397 UU	512
MW-139R*	02/25/09	0.5 U	NA	NA	NA	0.008 UU	42 U	50 U	73 U	104	550
MW-139R*	04/23/09	0.5 U	NA	NA	NA	0.008 UU	31 U	50 U	72 U	77 UU	570
MW-139R*	06/25/09	0.5 U	NA	NA	NA	0.007 UU	63 U	50 U	69 U	123	541
MW-139R*	08/20/09	0.5 U	NA	NA	NA	0.012 UU	87 U	50 U	66 U	145	535
MW-139R*	10/28/09	0.5 U	NA	NA	NA	0.012 UU	78 U	50 U	70 U	138	536
MW-139R*	01/20/10	NA	NA	NA	NA	NA	31 U	50 U	70 U	91	557
MW-139R* (Duplicate)	01/20/10	NA	NA	NA	NA	NA	36 U	50 U	70 U	96	554
MW-139R*	04/21/10	NA	NA	NA	NA	NA	34 U	50 U	78 U	81 UU	565
MW-139R*	07/21/10	NA	NA	NA	NA	NA	66 U	50 U	80 U	131	539
MW-139R*	10/28/10	0.5 U	NA	NA	NA	0.012 UU	64 U	50 U	66 U	122	542
MW-139R*	03/23/11	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-139R*	06/16/11	NA	NA	NA	NA	NA	56 U	50 U	870	951	505
MW-139R*	09/27/11	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-139R*	12/15/11	0.2 U	NA	NA	NA	0.007 UU	29 U	50 U	67 U	73 UU	574
MW-139R*	03/28/12	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-139R*	06/29/12	NA	NA	NA	NA	NA	31 U	50 U	72 U	77 UU	570
MW-139R*	09/27/12	NA	NA	NA	NA	NA	31 U	50 U	73 U	77 UU	569
MW-139R*	12/18/12	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	68 U	74 UU	573
MW-139R* (Duplicate)	12/18/12	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	68 U	74 UU	573
MW-139R*	03/27/13	NA	NA	NA	NA	NA	31 U	50 U	72 U	77 UU	570
MW-139R*	06/27/13	NA	NA	NA	NA	NA	31 U	50 U	72 U	77 UU	570
MW-139R*	09/26/13	NA	NA	NA	NA	NA	30 U	50 U	70 U	75 UU	571
MW-139R*	12/18/13	0.2 U	NA	NA	NA	0.008 UU	30 U	50 U	71 U	76 UU	571
MW-139R*	03/28/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-139R*	06/19/14	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-139R*	10/01/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-139R*	12/10/14	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-139R*	03/25/15	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-139R*	06/25/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-139R*	10/25/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	45 U	50 U	100 U	98 UU	553
MW-139R* (Duplicate)	10/25/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	46 U	50 U	100 U	98 UU	553
MW-139R*	07/27/17	0.5 U	NA	NA	NA	0.008 UU	47 U	50 U	100 U	99 UU	553
MW-13U	06/28/12	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-13U	12/14/12	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-13U	06/27/13	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-13U	12/20/13	0.2 U	NA	NA	NA	0.008 UU	31 U	50 U	71 U	76 UU	570

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)								
		B	T	E	X															
		CUL=16		--	--	--	CUL=0.05	--	--	--	see note 6									
MW-13U (Duplicate)	12/20/13	0.2	U	NA	NA	NA	0.008	UU	30	U	50	U	70	U	75	UU	571			
MW-13U	06/17/14	NA		NA	NA	NA	NA		29	U	50	U	68	U	74	UU	573			
MW-13U	12/10/14	0.2	U	NA	NA	NA	0.008	UU	30	U	50	U	69	U	75	UU	572			
MW-13U	06/24/15	NA		NA	NA	NA	NA		29	U	50	U	68	U	74	UU	573			
MW-143	10/22/08	0.50	U	0.50	U	0.50	U	1.00	U	250	U	50	U	500	U	400	UU	512		
MW-143	12/16/08	0.50	U	0.50	U	0.50	U	1.00	U	240	U	50	U	481	U	386	UU	512		
MW-143	02/25/09	0.5	U	NA		NA		NA		1,400		50	U	580		2,005		502		
MW-143	04/21/09	0.5	U	NA		NA		NA		710		50	U	69	U	770		506		
MW-143	06/24/09	0.5	U	NA		NA		NA		940		50	U	210		1,175		504		
MW-143	08/19/09	0.5	U	NA		NA		NA		360		50	U	71	U	421		511		
MW-143	10/27/09	0.5	U	NA		NA		NA		200		50	U	66	U	258		519		
MW-143	01/21/10	NA		NA		NA		NA		620		50	U	330		975		505		
MW-143	04/20/10	NA		NA		NA		NA		1,200		50	U	340		1,565		503		
MW-143 (Duplicate)	04/20/10	NA		NA		NA		NA		1,400		50	U	450		1,875		503		
MW-143	07/20/10	NA		NA		NA		NA		1,300		50	U	260		1,585		503		
MW-143	10/27/10	0.5	U	NA		NA		NA		0.012	UU	110		67	U	169		529		
MW-143	06/15/11	NA		NA		NA		NA		1,500		50	U	220		1,745		503		
MW-143	12/14/11	0.2	U	NA		NA		NA		0.007	UU	31		67	U	90		559		
MW-143	06/29/12	NA		NA		NA		NA		31	U	50	U	73	U	77	UU	569		
MW-143	12/20/12	0.2	U	NA		NA		NA		0.008	UU	28	U	50	U	66	U	72	UU	575
MW-143	06/27/13	0.2	U	NA		NA		NA		29	U	50	U	68	U	74	UU	573		
MW-143	12/18/13	0.2	U	NA		NA		NA		0.008	UU	28	U	50	U	66	U	72	UU	575
MW-143 (Duplicate)	12/18/13	0.2	U	NA		NA		NA		0.008	UU	28	U	50	U	66	U	72	UU	575
MW-143	06/18/14	NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574		
MW-143	12/10/14	0.2	U	NA		NA		NA		0.008	UU	28	U	50	U	65	U	72	UU	575
MW-143	06/23/15	NA		NA		NA		NA		30	U	50	U	69	U	75	UU	572		
MW-143	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	0.023		47	U	50	U	100	U	99	UU	553
MW-143	07/25/17	0.5	U	NA		NA		NA		0.008	UU	46	U	50	U	100	U	98	UU	553
MW-147*	10/21/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	240	U	91.2		481	U	452		541
MW-147*	12/09/08	0.50	U	0.562		1.38		3.49		0.008	UU	243	U	604		485	U	968		653
MW-147*	02/23/09	0.5	U	NA		NA		NA		0.007	UU	1,100		760		380.00		2,240		573
MW-147* (Duplicate)	02/23/09	0.5	U	NA		NA		NA		0.008	UU	1,000		790		420		2,210		577
MW-147*	04/21/09	1.7		NA		NA		NA		0.008	UU	730		630		99		1,459		597
MW-147*	06/23/09	0.5	U	NA		NA		NA		0.007	UU	750		260		290		1,300		541
MW-147*	08/18/09	0.5	U	NA		NA		NA		0.012	UU	240		76		70	U	351		544
MW-147*	10/26/09	0.5	U	NA		NA		NA		0.012	UU	1,700		690		330		2,720		553
MW-147*	01/19/10	NA		NA		NA		NA		360		750		66	U			1,143		663
MW-147*	04/20/10	NA		NA		NA		NA		320		730		78				1,128		660
MW-147*	07/20/10	NA		NA		NA		NA		500		70		100				670		520
MW-147*	10/26/10	0.5	U	NA		NA		NA		0.013	UU	1,200		330		200		1,730		539
MW-147*	03/22/11	NA		NA		NA		NA		750		740		68	U			1,524		611
MW-147*	06/15/11	NA		NA		NA		NA		370		250		67	U			654		584
MW-147*	09/27/11	NA		NA		NA		NA		29	U	50	U	67	U			73	UU	574
MW-147*	12/13/11	0.2	U	NA		NA		NA		0.007	UU	28	U	50	U	66	U	72	UU	575
MW-147* (Duplicate)	12/13/11	0.2	U	NA		NA		NA		0.007	UU	28	U	50	U	66	U	72	UU	575
MW-147*	03/28/12	NA		NA		NA		NA		29	U	130		67	U			178		689
MW-147*	06/28/12	NA		NA		NA		NA		29	U	59		67	U			107		630
MW-147*	09/26/12	NA		NA		NA		NA		30	U	50	U	71	U			76	UU	571
MW-147*	12/14/12	0.2	U	NA		NA		NA		0.008	UU	28	U	50	U	66	U	72	UU	575
MW-147*	03/26/13	NA		NA		NA		NA		28	U	50	U	66	U			72	UU	575
MW-147*	06/25/13	NA		NA		NA		NA		30	U	50	U	71	U			76	UU	571
MW-147*	09/25/13	NA		NA		NA		NA		29	U	50	U	69	U			74	UU	573

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Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)						
		B	T	E	X													
		CUL=16		--	--	--	CUL=0.05	--	--	--	see note 6							
MW-147*	12/17/13	0.2	U	NA	NA	NA	0.008	UU	29	U	50	U	67	U	73	UU	574	
MW-147*	03/28/14	NA		NA	NA	NA	NA		31	U	50	U	72	U	77	UU	570	
MW-147*	06/18/14	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574	
MW-147*	09/30/14	NA		NA	NA	NA	NA		30	U	50	U	71	U	76	UU	571	
MW-147*	12/09/14	0.2	U	NA	NA	NA	0.008	UU	29	U	50	U	67	U	73	UU	574	
MW-147*	03/25/15	NA		NA	NA	NA	NA		30	U	50	U	69	U	75	UU	572	
MW-147* (Duplicate)	03/25/15	NA		NA	NA	NA	NA		28	U	50	U	66	U	72	UU	575	
MW-147*	06/23/15	NA		NA	NA	NA	NA		28	U	50	U	66	U	72	UU	575	
MW-149R*	10/21/08	0.50	U	0.50	U	0.50	U	1.00	U	245	U	50	U	490	U	393	UU	512
MW-149R*	12/09/08	0.50	U	0.50	U	0.50	U	1.00	U	243	U	50	U	485	U	389	UU	512
MW-149R*	02/23/09	0.5	U	NA		NA		NA		110	U	50	U	78	U	174		528
MW-149R*	04/21/09	0.5	U	NA		NA		NA		100	U	50	U	76	U	163		531
MW-149R*	06/23/09	0.5	U	NA		NA		NA		190	U	50	U	66	U	248		520
MW-149R*	08/18/09	0.5	U	NA		NA		NA		160	U	50	U	66	U	218		522
MW-149R*	10/26/09	0.5	U	NA		NA		NA		430	U	50	U	320		775		506
MW-149R*	01/19/10	NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-149R*	04/20/10	NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-149R* (Duplicate)	04/20/10	NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-149R*	07/20/10	NA		NA		NA		NA		210	U	50	U	89		324		515
MW-149R*	10/26/10	0.5	U	NA		NA		NA		410	U	50	U	210		645		507
MW-149R*	03/22/11	NA		NA		NA		NA		61	U	50	U	66	U	119		543
MW-149R*	06/17/11	NA		NA		NA		NA		82	U	50	U	66	U	140		536
MW-149R*	09/27/11	NA		NA		NA		NA		30	U	50	U	67	U	74	UU	573
MW-149R*	12/13/11	0.2	U	NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-149R*	03/28/12	NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-149R* (Duplicate)	03/28/12	NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-149R*	06/28/12	NA		NA		NA		NA		250	U	50	U	66	U	308		516
MW-149R*	09/26/12	NA		NA		NA		NA		32	U	50	U	74	U	78	UU	568
MW-149R*	12/14/12	0.2	U	NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-149R*	03/26/13	NA		NA		NA		NA		32	U	50	U	74	U	78	UU	568
MW-149R*	06/25/13	NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-149R*	09/24/13	NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-149R*	12/17/13	0.2	U	NA		NA		NA		30	U	50	U	71	U	76	UU	571
MW-149R*	03/28/14	NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-149R*	06/18/14	NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-149R*	09/30/14	NA		NA		NA		NA		30	U	50	U	70	U	75	UU	571
MW-149R*	12/09/14	0.2	U	NA		NA		NA		30	U	50	U	70	U	75	UU	571
MW-149R*	03/25/15	NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-149R*	06/23/15	NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-150*	10/21/08	0.50	U	0.50	U	0.50	U	1.00	U	240	U	50	U	481	UJ	626		508
MW-150*	12/09/08	0.50	U	0.50	U	0.50	U	1.00	U	248	U	50	U	495	U	397	UU	512
MW-150*	02/23/09	0.5	U	NA		NA		NA		82	U	50	U	69	U	142		535
MW-150*	04/21/09	0.5	U	NA		NA		NA		240	U	50	U	69	U	300		516
MW-150*	06/23/09	0.5	U	NA		NA		NA		160	U	50	U	69	U	220		522
MW-150*	08/18/09	0.5	U	NA		NA		NA		110	U	50	U	72	U	171		529
MW-150*	10/26/09	0.5	U	NA		NA		NA		420	U	50	U	270		715		507
MW-150*	01/19/10	NA		NA		NA		NA		31	U	50	U	69	U	91		558
MW-150*	04/20/10	NA		NA		NA		NA		48	U	50	U	77	U	112		546
MW-150*	07/20/10	NA		NA		NA		NA		200	U	50	U	68	U	259		519
MW-150*	10/26/10	0.5	U	NA		NA		NA		59	U	50	U	65	U	117		544
MW-150*	03/22/11	NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-150*	06/17/11	NA		NA		NA		NA		190	U	50	U	68	U	249		520

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-150*	09/27/11	NA	NA	NA	NA	NA	30 U	50 U	68 U	74 UU	573
MW-150*	12/13/11	0.2 U	NA	NA	NA	0.007 UU	29 U	50 U	68 U	74 UU	573
MW-150* (Duplicate)	12/13/11	0.2 U	NA	NA	NA	0.007 UU	28 U	50 U	66 U	72 UU	575
MW-150*	03/28/12	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-150*	06/28/12	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-150*	09/26/12	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-150*	12/14/12	0.2 U	NA	NA	NA	0.008 UU	30 U	50 U	69 U	75 UU	572
MW-150*	03/26/13	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-150*	06/25/13	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-150*	09/26/13	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-150*	12/17/13	0.2 U	NA	NA	NA	0.008 UU	30 U	50 U	70 U	75 UU	571
MW-150*	03/28/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-150*	06/18/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-150*	09/30/14	NA	NA	NA	NA	NA	31 U	50 U	71 U	76 UU	570
MW-150* (Duplicate)	09/30/14	NA	NA	NA	NA	NA	30 U	50 U	71 U	76 UU	571
MW-150*	12/09/14	0.4 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-150* (Duplicate)	12/09/14	0.2 U	NA	NA	NA	0.008 UU	30 U	50 U	70 U	75 UU	571
MW-150*	03/25/15	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-150*	06/23/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-203	06/28/12	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-203	12/17/12	0.2 U	NA	NA	NA	0.008 UU	31 U	50 U	72 U	77 UU	570
MW-203	06/27/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-203	12/19/13	0.2 U	NA	NA	NA	0.008 UU	30 U	50 U	70 U	75 UU	571
MW-203	06/18/14	NA	NA	NA	NA	NA	30 U	50 U	70 U	75 UU	571
MW-203	12/10/14	0.3	NA	NA	NA	0.008 UU	28 U	50 U	65 U	72 UU	575
MW-203	06/24/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-20R*	10/22/08	2.95	0.50 U	3.31	1.00 U	0.008 UU	250 U	222	500 U	597	581
MW-20R*	12/10/08	22.2	0.50 U	2.06	1.14	0.007 UU	248 U	325	495 U	697	606
MW-20R*	02/24/09	55	NA	NA	NA	0.007 UU	580	420	87	1,087	585
MW-20R*	04/22/09	47	NA	NA	NA	0.008 UU	510	270	86	866	566
MW-20R*	06/24/09	0.5 U	NA	NA	NA	0.007 UU	160	50 U	69 U	220	522
MW-20R*	08/19/09	8.4	NA	NA	NA	0.012 UU	220	50 U	68 U	279	517
MW-20R*	10/27/09	4.9	NA	NA	NA	0.013 UU	170	50 U	72 U	231	521
MW-20R*	01/19/10	50	0.5 U	1.1	1.5 U	NA	260	66	66 U	359	537
MW-20R*	04/21/10	0.9	NA	NA	NA	NA	350	50 U	100	475	510
MW-20R*	07/20/10	0.5	0.5 U	0.5	U	0.5	130	50 U	66 U	188	526
MW-20R* (Duplicate)	07/20/10	0.5	0.5 U	0.5	U	0.5	130	50 U	66 U	188	526
MW-20R*	10/27/10	0.5 U	NA	NA	NA	0.012 UU	47	50 U	75 U	110	547
MW-20R*	03/23/11	5.3	NA	NA	NA	NA	390	50 U	190	605	508
MW-20R*	06/15/11	3.9	NA	NA	NA	NA	320	71	72	463	531
MW-20R*	09/27/11	0.9	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-20R*	12/14/11	20	NA	NA	NA	0.007 UU	29 U	65	67 U	113	638
MW-20R*	03/28/12	28	NA	NA	NA	NA	29 U	120	67 U	168	683
MW-20R*	06/28/12	0.3	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-20R*	09/26/12	2.2	NA	NA	NA	NA	30 U	57	70 U	107	625
MW-20R*	12/17/12	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-20R*	03/26/13	3.7	NA	NA	NA	NA	29 U	310	68 U	359	740
MW-20R*	06/25/13	1.1	NA	NA	NA	NA	29 U	69	67 U	117	642
MW-20R*	09/25/13	0.5 U	0.5 U	0.5	U	1.5	31 U	50 U	72 U	77 UU	570
MW-20R* (Duplicate)	09/25/13	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-20R*	12/18/13	35	NA	NA	NA	0.008 UU	30 U	82	70 U	132	652
MW-20R*	03/26/14	38	NA	NA	NA	NA	29 U	210	67 U	258	720

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-20R*	06/18/14	0.7	NA	NA	NA	NA	28 U	98	66 U	145	670
MW-20R*	10/01/14	0.8	NA	NA	NA	NA	32 U	50 U	74 U	78 UU	568
MW-20R*	12/10/14	0.8	NA	NA	NA	0.008 UU	30 U	50 U	69 U	75 UU	572
MW-20R*	03/24/15	0.4	NA	NA	NA	NA	31 U	88	71 U	139	656
MW-20R*	06/24/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-20R*	10/25/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	45 U	50 U	100 U	98 UU	553
MW-20R*	07/26/17	1.6	NA	NA	NA	0.008 UU	46 U	64	100 U	137	606
MW-500*	10/27/08	0.8	0.50 U	0.93	8.29	0.007 UU	1,180	298	472 U	1,714	535
MW-500*	12/15/08	0.5 U	0.50 U	0.50 U	1.00 U	0.007 UU	245 U	50 U	490 U	393 UU	512
MW-500*	02/27/09	0.5 U	NA	NA	NA	0.008 UU	250	50 U	320	595	508
MW-500*	04/24/09	0.5 U	NA	NA	NA	0.007 UU	44	50 U	76 U	107	548
MW-500* (Duplicate)	04/24/09	0.5 U	NA	NA	NA	0.008 UU	35	50 U	75 U	98	553
MW-500*	06/29/09	0.5 U	NA	NA	NA	0.008	1,400	50 U	500	1,925	502
MW-500*	08/21/09	0.6	NA	NA	NA	0.012 UU	2,200	110	690	3,000	507
MW-500*	10/29/09	0.5 U	NA	NA	NA	0.012 UU	1,000	50 U	500	1,525	503
MW-500*	01/21/10	NA	NA	NA	NA	NA	36	50 U	70	131	539
MW-500* (Duplicate)	01/21/10	NA	NA	NA	NA	NA	29 U	50 U	69 U	74 UU	573
MW-500*	04/22/10	NA	NA	NA	NA	NA	59	50 U	68 U	118	543
MW-500*	07/22/10	NA	NA	NA	NA	NA	490	50 U	96	611	508
MW-500*	11/01/10	0.5 U	NA	NA	NA	0.012 UU	170	50 U	67 U	229	521
MW-500*	03/24/11	NA	NA	NA	NA	NA	32	50 U	68 U	91	557
MW-500*	06/17/11	NA	NA	NA	NA	NA	130	50 U	67 U	189	526
MW-500*	09/28/11	NA	NA	NA	NA	NA	61	60	69 U	156	585
MW-500* (Duplicate)	09/28/11	NA	NA	NA	NA	NA	45	62	98 U	156	588
MW-500*	12/16/11	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-500*	03/28/12	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-500*	07/02/12	NA	NA	NA	NA	NA	29 U	50 U	69 U	74 UU	573
MW-500*	09/28/12	NA	NA	NA	NA	NA	230	80	150	460	535
MW-500*	12/19/12	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-500*	03/28/13	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-500*	06/28/13	NA	NA	NA	NA	NA	29 U	57 U	67 U	77 UU	581
MW-500*	09/26/13	NA	NA	NA	NA	NA	41	50 U	70 U	101	551
MW-500*	12/20/13	0.2 U	NA	NA	NA	0.008 UU	30 U	50 U	69 U	75 UU	572
MW-500*	03/28/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-500*	06/19/14	NA	NA	NA	NA	NA	29 U	72	67 U	120	645
MW-500*	10/01/14	NA	NA	NA	NA	NA	130	65	83	278	548
MW-500*	12/11/14	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-500*	03/26/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-500*	06/26/15	NA	NA	NA	NA	NA	83	93	66 U	209	600
MW-501*	10/24/08	0.50 U	1.42	1.15	1.00 U	0.008 UU	6,690 J	1,040	597 J	8,327	525
MW-501*	12/15/08	0.50 U	0.50 U	0.50 U	1.00 U	0.007 UU	243 U	50 U	485 U	389 UU	512
MW-501*	03/02/09	0.5 U	NA	NA	NA	0.008 UU	630	50.00 U	160	815	506
MW-501*	03/02/09	5.0 U	NA	NA	NA	0.008 UU	550	50.00 U	210	785	506
MW-501*	04/24/09	0.5 U	NA	NA	NA	0.007 UU	350	50 U	67	442	511
MW-501*	06/26/09	0.5 U	NA	NA	NA	0.007 UU	1,700	50 U	1,100	2,825	502
MW-501*	08/21/09	0.5 U	NA	NA	NA	0.013 UU	2,600	50 U	760	3,385	501
MW-501*	10/29/09	0.5 U	NA	NA	NA	0.013 UU	75	50 U	73 U	137	537
MW-501*	01/21/10	NA	NA	NA	NA	NA	75	50 U	67 U	134	538
MW-501*	04/22/10	NA	NA	NA	NA	NA	130	50 U	69 U	190	526
MW-501*	07/22/10	NA	NA	NA	NA	NA	470	50 U	97	592	508
MW-501*	11/01/10	0.5 U	NA	NA	NA	0.013 UU	230	50 U	68 U	289	517
MW-501*	03/24/11	NA	NA	NA	NA	NA	89	50 U	67 U	148	534

Table 3-4
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Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)									
		B	T	E	X															
		CUL=16		--	--	--	--	--	see note 6											
MW-501*	06/17/11	NA	NA	NA	NA	NA	340	50	U	82	447	511								
MW-501*	09/28/11	NA	NA	NA	NA	NA	30	U	50	U	67	UU	573							
MW-501*	12/16/11	0.2	U	NA	NA	0.007	UU	28	U	50	U	66	UU	575						
MW-501*	03/28/12	NA	NA	NA	NA	NA	29	U	50	U	67	UU	574							
MW-501*	07/02/12	NA	NA	NA	NA	NA	31	U	50	U	73	UU	569							
MW-501*	09/28/12	NA	NA	NA	NA	NA	29	U	50	U	67	UU	574							
MW-501*	12/19/12	0.2	U	NA	NA	0.008	UU	54	U	50	U	67	UU	545						
MW-501*	03/28/13	NA	NA	NA	NA	NA	30	U	50	U	70	UU	571							
MW-501*	06/27/13	NA	NA	NA	NA	NA	30	U	50	U	70	UU	571							
MW-501*	09/26/13	NA	NA	NA	NA	NA	30	U	50	U	71	UU	571							
MW-501*	12/20/13	0.2	U	NA	NA	0.008	UU	29	U	50	U	67	UU	574						
MW-501*	03/28/14	NA	NA	NA	NA	NA	29	U	50	U	67	UU	574							
MW-501*	06/19/14	NA	NA	NA	NA	NA	29	U	50	U	67	UU	574							
MW-501*	10/01/14	NA	NA	NA	NA	NA	30	U	50	U	71	UU	571							
MW-501*	12/11/14	0.2	U	NA	NA	0.008	UU	28	U	50	U	66	UU	575						
MW-501*	03/26/15	NA	NA	NA	NA	NA	29	U	50	U	68	UU	573							
MW-501*	06/26/15	NA	NA	NA	NA	NA	28	U	50	U	66	UU	575							
MW-502	10/24/08	0.50	U	0.50	U	0.891	UU	1.00	U	0.008	UU	347	JX	1,100	JZ	500	U	1,697	661	
MW-502	12/12/08	0.50	U	0.50	U	0.50	U	1.00	U	0.008	UU	321	JX	874	U	485	U	1,438	648	
MW-502	02/25/09	0.5	U	NA	NA	NA	NA	NA	NA	0.008	UU	31	U	1,500	U	72	U	1,552	784	
MW-502	04/22/09	0.5	U	NA	NA	NA	NA	NA	NA	0.071	UU	370	U	1,100	U	66	U	1,503	689	
MW-502	06/26/09	0.5	U	NA	NA	NA	NA	NA	NA	0.007	UU	260	U	170	U	82	U	512	571	
MW-502 (Duplicate)	06/26/09	0.5	U	NA	NA	NA	NA	NA	NA	0.007	UU	220	U	160	U	66	U	413	585	
MW-502	08/21/09	0.5	U	NA	NA	NA	NA	NA	NA	0.012	UU	140	U	50	U	67	U	199	525	
MW-502	10/28/09	0.5	U	NA	NA	NA	NA	NA	NA	0.012	UU	370	U	470	U	66	U	873	626	
MW-502	01/21/10	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	300	U	800	U	130	U	1,230	661	
MW-502	04/22/10	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	290	U	520	U	67	U	844	650	
MW-502	07/21/10	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	200	U	50	U	68	U	259	519	
MW-502	10/28/10	0.5	U	NA	NA	NA	NA	NA	NA	0.013	UU	98	U	50	U	75	U	161	531	
MW-502	06/17/11	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	150	U	50	U	67	U	209	524	
MW-502	12/16/11	0.2	U	NA	NA	NA	NA	NA	NA	0.007	UU	30	U	50	U	66	U	88	560	
MW-502	07/02/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	29	U	50	U	68	U	74	UU	573
MW-502	12/19/12	0.2	U	NA	NA	NA	NA	NA	NA	0.008	UU	95	U	180	U	68	U	309	640	
MW-502 (Duplicate)	12/19/12	0.2	U	NA	NA	NA	NA	NA	NA	0.008	UU	95	U	190	U	66	U	318	644	
MW-502	06/26/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	29	U	50	U	67	U	73	UU	574
MW-502	12/20/13	0.2	U	NA	NA	NA	NA	NA	NA	0.008	UU	30	U	50	U	70	U	75	UU	571
MW-502	06/19/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	29	U	50	U	68	U	74	UU	573
MW-502	12/11/14	0.2	U	NA	NA	NA	NA	NA	NA	0.008	UU	29	U	50	U	68	U	74	UU	573
MW-502	06/25/15	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	28	U	50	U	66	U	72	UU	575
MW-502	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	0.008	UU	46	U	50	U	100	U	98	UU	553
MW-502	07/26/17	0.5	U	NA	NA	NA	NA	NA	NA	0.008	UU	47	U	50	U	100	U	99	UU	553
MW-502 (Duplicate)	07/26/17	0.5	U	NA	NA	NA	NA	NA	NA	0.008	UU	46	U	50	U	100	U	98	UU	553
MW-503	10/27/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	236	U	50	U	472	U	379	UU	513
MW-503	12/12/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	243	U	50	U	485	U	389	UU	512
MW-503	02/26/09	0.5	U	NA	NA	NA	NA	NA	NA	0.008	UU	77	U	50	U	74	U	139	UU	536
MW-503	04/22/09	0.5	U	NA	NA	NA	NA	NA	NA	0.007	UU	130	U	50	U	68	U	189	UU	526
MW-503	06/26/09	0.5	U	NA	NA	NA	NA	NA	NA	0.007	UU	210	U	50	U	96	U	331	UU	515
MW-503	08/21/09	0.5	U	NA	NA	NA	NA	NA	NA	0.012	UU	140	U	50	U	67	U	199	UU	525
MW-503	10/28/09	0.5	U	NA	NA	NA	NA	NA	NA	0.012	UU	160	U	50	U	66	U	218	UU	522
MW-503	01/21/10	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	150	U	50	U	190	U	365	UU	513
MW-503	04/22/10	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	30	U	50	U	70	U	75	UU	571
MW-503	07/21/10	NA	NA	NA	NA	NA	NA	NA	NA	NA	UU	220	U	50	U	68	U	279	UU	517

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)			
		B	T	E	X										
		CUL=16		--	--	--	CUL=0.05	--	--	--	see note 6				
MW-503	10/28/10	0.5	U	NA	NA	NA	0.013	UU	150	50	U	79	254	UU	519
MW-503	06/17/11	NA		NA	NA	NA	NA		140	50	U	67	199	UU	525
MW-503 (Duplicate)	06/17/11	NA		NA	NA	NA	NA		160	50	U	67	219	UU	522
MW-503	12/15/11	0.2	U	NA	NA	NA	0.007	UU	28	50	U	66	72	UU	575
MW-503	07/02/12	NA		NA	NA	NA	NA		29	50	U	69	74	UU	573
MW-503	12/18/12	0.2	U	NA	NA	NA	0.008	UU	29	50	U	67	73	UU	574
MW-503	06/27/13	NA		NA	NA	NA	NA		30	50	U	70	75	UU	571
MW-503	12/19/13	0.2	U	NA	NA	NA	0.008	UU	29	50	U	67	73	UU	574
MW-503	06/19/14	NA		NA	NA	NA	NA		29	50	U	67	73	UU	574
MW-503	12/11/14	0.2	U	NA	NA	NA	0.008	UU	29	50	U	68	74	UU	573
MW-503	06/25/15	NA		NA	NA	NA	NA		31	50	U	72	77	UU	570
MW-503	10/25/16	0.5	U	0.5	U	0.5	1.5	U	47	50	U	100	99	UU	553
MW-504	10/24/08	7.03		0.50	U	4.03	2.95	UU	248	329	U	495	701	UU	607
MW-504	12/12/08	0.5	U	0.5	U	0.5	1.00	U	248	50	U	495	397	UU	512
MW-504 (Duplicate)	12/12/08	5	U	5	U	5	1.00	U	250	50	U	500	400	UU	512
MW-504	02/27/09	0.5	U	NA		NA	NA		30	50	U	70	75	UU	571
MW-504	04/24/09	0.5	U	NA		NA	NA		46	50	U	66	104		550
MW-504	06/26/09	0.5	U	NA		NA	NA		220	50	U	73	282		517
MW-504	08/21/09	0.5	U	NA		NA	NA		220	50	U	68	279		517
MW-504	10/28/09	0.5	U	NA		NA	NA		95	50	U	66	153		533
MW-504	01/21/10	NA		NA		NA	NA		28	50	U	66	72	UU	575
MW-504	04/22/10	NA		NA		NA	NA		29	50	U	67	73	UU	574
MW-504	07/21/10	NA		NA		NA	NA		110	50	U	75	173		529
MW-504	10/28/10	0.5	U	NA		NA	NA		110	50	U	66	168		530
MW-504	06/17/11	NA		NA		NA	NA		60	50	U	68	119		543
MW-504	12/16/11	0.2	U	NA		NA	NA		28	50	U	66	72	UU	575
MW-504 (Duplicate)	12/16/11	0.2	U	NA		NA	NA		29	50	U	68	74	UU	573
MW-504	07/02/12	NA		NA		NA	NA		30	50	U	69	75	UU	572
MW-504	12/18/12	0.2	U	NA		NA	NA		29	50	U	68	74	UU	573
MW-504	06/27/13	NA		NA		NA	NA		29	50	U	68	74	UU	573
MW-504 (Duplicate)	06/27/13	NA		NA		NA	NA		29	50	U	68	74	UU	573
MW-504	12/19/13	0.2	U	NA		NA	NA		28	78	U	66	125		653
MW-504	06/19/14	NA		NA		NA	NA		29	50	U	68	74	UU	573
MW-504	12/11/14	0.2	U	NA		NA	NA		29	50	U	68	74	UU	573
MW-504	06/25/15	NA		NA		NA	NA		28	50	U	66	72	UU	575
MW-504	10/25/16	0.5	U	0.5	U	0.5	1.5	U	47	50	U	100	99	UU	553
MW-504	07/26/17	0.5	U	NA		NA	NA		46	50	U	100	98	UU	553
MW-505	10/24/08	0.5	U	0.5	U	0.50	1.01	UU	253	50	U	505	404	UU	512
MW-505 (Duplicate)	10/24/08	5.0	U	5.0	U	2.78	1.00	UU	250	50	U	500	400	UU	512
MW-505	12/15/08	0.5	U	0.5	U	0.50	1.00	UU	238	50	U	476	382	UU	513
MW-505 (Duplicate)	12/15/08	5.0	U	5.0	U	0.647	1.00	UU	238	50	U	476	382	UU	513
MW-505	02/27/09	0.5	U	NA		NA	NA		52	50	U	78	116		544
MW-505	04/22/09	0.5	U	NA		NA	NA		59	50	U	67	118		543
MW-505	06/26/09	0.5	U	NA		NA	NA		39	50	U	100	164		530
MW-505	08/21/09	0.5	U	NA		NA	NA		98	50	U	75	161		531
MW-505	10/28/09	0.5	U	NA		NA	NA		67	50	U	69	127		540
MW-505	01/20/10	NA		NA		NA	NA		30	50	U	71	76	UU	571
MW-505	04/22/10	NA		NA		NA	NA		30	50	U	69	75	UU	572
MW-505	07/21/10	NA		NA		NA	NA		220	50	U	67	279		517
MW-505	10/29/10	0.5	U	NA		NA	NA		130	50	U	74	192		526
MW-505	06/17/11	NA		NA		NA	NA		100	50	U	67	159		531

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)						
		B	T	E	X													
		CUL=16		--	--	--	CUL=0.05	--	--	--	see note 6							
MW-505	12/15/11	0.2	U	NA	NA	NA	0.007	UU	29	U	50	U	67	U	73	UU	574	
MW-505	07/02/12	NA		NA	NA	NA	NA		31	U	50	U	73	U	77	UU	569	
MW-505 (Duplicate)	07/02/12	NA		NA	NA	NA	NA		32		50	U	75	U	95		555	
MW-505	12/18/12	0.2	U	NA	NA	NA	0.008	UU	31	U	50	U	71	U	76	UU	570	
MW-505	06/27/13	NA		NA	NA	NA	NA		30	U	50	U	70	U	75	UU	571	
MW-505	12/19/13	0.2	U	NA	NA	NA	0.008	UU	28	U	50	U	66	U	72	UU	575	
MW-505	06/19/14	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574	
MW-505	12/11/14	0.2	U	NA	NA	NA	0.009		29	U	50	U	67	U	73	UU	574	
MW-505	06/25/15	NA		NA	NA	NA	NA		31	U	50	U	72	U	77	UU	570	
MW-505	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	45	U	50	U	100	U	98	UU	553
MW-505 (Duplicate)	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	46	U	50	U	100	U	98	UU	553
MW-505	07/26/17	0.5	U	NA	NA	NA	0.008	UU	45	U	50	U	100	U	98	UU	553	
MW-506	10/24/08	0.50	U	0.50	U	0.50	U	1.00	U	245	U	50	U	490	U	393	UU	512
MW-506	12/12/08	0.50	U	0.50	U	0.50	U	1.00	U	248	U	50	U	495	U	397	UU	512
MW-506	02/27/09	0.5	U	NA	NA	NA	0.007	UU	37		50	U	70	U	97		553	
MW-506	04/24/09	0.5	U	NA	NA	NA	0.008	UU	31	U	50	U	72	U	77	UU	570	
MW-506	06/26/09	0.5	U	NA	NA	NA	0.007	UU	38		50	U	140		203		524	
MW-506	08/21/09	0.5	U	NA	NA	NA	0.013	UU	85		50	U	75	U	148		534	
MW-506	10/30/09	0.5	U	NA	NA	NA	0.016	UU	50		50	U	74	U	112		546	
MW-506	01/21/10	NA		NA	NA	NA	NA		28	U	50	U	66	U	72	UU	575	
MW-506	04/22/10	NA		NA	NA	NA	NA		36		50	U	75	U	99		553	
MW-506	07/21/10	NA		NA	NA	NA	NA		57		50	U	68	U	116		544	
MW-506	10/29/10	0.50	U	NA	NA	NA	0.012	UU	97		50	U	72	U	158		532	
MW-506 (Duplicate)	10/29/10	0.5	U	NA	NA	NA	0.012	UU	72		50	U	71	U	133		538	
MW-506	06/16/11	NA		NA	NA	NA	NA		50		50	U	67	U	109		547	
MW-506	12/15/11	0.2	U	NA	NA	NA	0.007	UU	29	U	50	U	67	U	73	UU	574	
MW-506	06/29/12	NA		NA	NA	NA	NA		30	U	50	U	70	U	75	UU	571	
MW-506	12/19/12	0.2	U	NA	NA	NA	0.008	UU	29	U	50	U	67	U	73	UU	574	
MW-506	06/27/12	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574	
MW-506	12/19/13	0.2	U	NA	NA	NA	0.008	UU	28	U	50	U	66	U	72	UU	575	
MW-506 (Duplicate)	12/19/13	0.2	U	NA	NA	NA	0.008	UU	28	U	50	U	60	U	69	UU	579	
MW-506	06/19/14	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574	
MW-506	12/11/14	0.2	U	NA	NA	NA	0.008	UU	29	U	50	U	67	U	73	UU	574	
MW-506	06/25/15	NA		NA	NA	NA	NA		28	U	50	U	66	U	72	UU	575	
MW-506	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	46	U	50	U	100	U	98	UU	553
MW-506	07/27/17	0.5	U	NA	NA	NA	0.008	UU	46	U	50	U	100	U	98	UU	553	
MW-507	10/24/08	0.995		0.50	U	0.50	U	1.00	U	240	U	523		481	U	884		643
MW-507	12/12/08	0.605		0.50	U	0.50	U	1.00	U	245	U	194		490	U	562		574
MW-507	02/27/09	0.5	U	NA	NA	NA	0.007	UU	610		120		310		1,040		523	
MW-507 (Duplicate)	02/27/09	5	U	NA	NA	NA	0.007	UU	560		130		120		810		532	
MW-507	04/24/09	0.5	U	NA	NA	NA	0.007	UU	520		59		74	U	616		519	
MW-507	06/26/09	0.5	U	NA	NA	NA	0.007	UU	640		62		440		1,142		510	
MW-507	08/21/09	0.5	U	NA	NA	NA	0.013	UU	450		54		69	U	539		520	
MW-507 (Duplicate)	08/21/09	0.5	U	NA	NA	NA	0.012	UU	500		50	U	72	U	561		508	
MW-507	10/28/09	0.5	U	NA	NA	NA	0.013	UU	900		50	U	88		1,013		505	
MW-507	01/21/10	NA		NA	NA	NA	NA		270		50	U	88		383		513	
MW-507	04/22/10	NA		NA	NA	NA	NA		290		50	U	91		406		512	
MW-507	07/21/10	NA		NA	NA	NA	NA		330		50	U	80		435		511	
MW-507	10/29/10	0.5	U	NA	NA	NA	0.012	UU	370		50	U	220		615		508	
MW-507	06/17/11	NA		NA	NA	NA	NA		200		50	U	88		313		515	
MW-507	12/16/11	0.2	U	NA	NA	NA	0.007	UU	28	U	50	U	66	U	72	UU	575	
MW-507 (Duplicate)	12/16/11	0.2	U	NA	NA	NA	0.007	UU	29	U	50	U	67	U	73	UU	574	

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Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-507	06/29/12	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-507	12/19/12	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-507	06/27/13	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-507	12/19/13	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-507	06/19/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-507	12/11/14	0.2 U	NA	NA	NA	0.009	29 U	50 U	68 U	74 UU	573
MW-507	06/25/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-507	10/25/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	46 U	50 U	100 U	98 UU	553
MW-507	07/27/17	0.5 U	NA	NA	NA	0.008 UU	46 U	50 U	100 U	98 UU	553
MW-507 (Duplicate)	07/27/17	0.5 U	NA	NA	NA	0.008 UU	46 U	50 U	100 U	98 UU	553
MW-508	10/24/08	0.50 U	0.50 U	0.50 U	1.00 U	0.008 UU	243 U	50 U	485 U	389 UU	512
MW-508	12/11/08	0.50 U	0.50 U	0.50 U	1.00 U	0.008 UU	243 U	50 U	485 U	389 UU	512
MW-508	02/26/09	0.5 U	NA	NA	NA	0.007 UU	85	50 U	74 U	147	534
MW-508	04/23/09	0.5 U	NA	NA	NA	0.008 UU	90	50 U	70 U	150	533
MW-508	06/25/09	0.5 U	NA	NA	NA	0.007 UU	430	50 U	290	745	506
MW-508 (Duplicate)	06/25/09	0.5 U	NA	NA	NA	0.007 UU	310	50 U	310	645	507
MW-508	08/21/09	0.5 U	NA	NA	NA	0.012 UU	200	50 U	67 U	259	519
MW-508	10/28/09	0.5 U	NA	NA	NA	0.012 UU	71	50 U	67 U	130	539
MW-508 (Duplicate)	10/28/09	0.5 U	NA	NA	NA	0.013 UU	68	50 U	70 U	128	540
MW-508	01/20/10	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-508 (Duplicate)	01/20/10	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-508	04/22/10	NA	NA	NA	NA	NA	31 U	50 U	72 U	77 UU	570
MW-508	07/21/10	NA	NA	NA	NA	NA	270	50 U	76 U	333	514
MW-508	10/28/10	0.5 U	NA	NA	NA	0.012 UU	64	50 U	66 U	122	542
MW-508	06/16/11	NA	NA	NA	NA	NA	150	50 U	67 U	209	524
MW-508	12/15/11	0.2 U	NA	NA	NA	0.007 UU	29 U	50 U	67 U	73 UU	574
MW-508	06/29/12	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-508	12/19/12	0.2 U	NA	NA	NA	0.008 UU	46	50 U	67 U	105	549
MW-508	06/27/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-508 (Duplicate)	06/27/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-508	12/19/13	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-508	06/19/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-508	12/11/14	0.2 U	NA	NA	NA	0.008	29 U	50 U	67 U	73 UU	574
MW-508	06/25/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-508	10/25/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	47 U	50 U	100 U	99 UU	553
MW-508	07/27/17	0.5 U	NA	NA	NA	0.008 UU	47 U	50 U	100 U	99 UU	553
MW-509	10/23/08	0.50 U	0.50 U	0.50 U	1.00 U	0.007 UU	243 U	50 U	485 U	389 UU	512
MW-509	12/11/08	0.50 U	0.50 U	0.50 U	1.00 U	0.007 UU	243 U	50 U	485 U	389 UU	512
MW-509	02/25/09	0.5 U	NA	NA	NA	0.008 UU	32 U	50 U	75 U	79 UU	568
MW-509	04/23/09	0.5 U	NA	NA	NA	0.007 UU	31 U	50 U	71 U	76 UU	570
MW-509	06/25/09	0.5 U	NA	NA	NA	0.007 UU	29	50 U	68 U	88	560
MW-509	08/21/09	0.5 U	NA	NA	NA	0.012 UU	46	50 U	70 U	106	549
MW-509	10/28/09	0.5 U	NA	NA	NA	0.012 UU	48	50 U	76 U	111	546
MW-509	01/20/10	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-509	04/21/10	NA	NA	NA	NA	NA	43	50 U	68 U	102	551
MW-509	07/21/10	NA	NA	NA	NA	NA	34	50 U	75 U	97	554
MW-509 (Duplicate)	07/21/10	NA	NA	NA	NA	NA	34	50 U	74 U	96	554
MW-509	10/28/10	0.5 U	NA	NA	NA	0.012 UU	40	50 U	76 U	103	550
MW-509	06/16/11	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-509	12/15/11	0.2 U	NA	NA	NA	0.007 UU	29 U	50 U	67 U	73 UU	574
MW-509	06/29/12	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-509	12/19/12	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575

Table 3-4
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Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-509	06/27/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-509	12/19/13	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-509	06/19/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-509 (Duplicate)	06/19/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-509	12/11/14	0.2 U	NA	NA	NA	0.008	28 U	50 U	66 U	72 UU	575
MW-509	06/25/15	NA	NA	NA	NA	NA	30 U	50 U	70 U	75 UU	571
MW-509 (Duplicate)	06/25/15	NA	NA	NA	NA	NA	31 U	50 U	72 U	77 UU	570
MW-509	10/25/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	47 U	50 U	100 U	99 UU	553
MW-509	07/27/17	0.5 U	NA	NA	NA	0.008 UU	45 U	50 U	100 U	98 UU	553
MW-510*	10/23/08	6.89	0.832	0.54	4.93	0.149 UU	3,400	332 JZ	495 U	3,980	516
MW-510*	12/11/08	5.44	0.50 U	0.50 U	3.98	0.075 UU	4,920	244	485 U	5,407	509
MW-510*	02/26/09	9.4	NA	NA	NA	0.032 UU	14,000	430	3900 U	16,380	505
MW-510*	04/27/09	14	NA	NA	NA	0.007 UU	21,000	530	1,400	22,930	504
MW-510*	06/24/09	18	NA	NA	NA	0.015	22,000	490	2,600	25,090	504
MW-510*	08/20/09	8.4	NA	NA	NA	0.012 UU	16,000	430	3,300 U	18,080	504
MW-510*	10/28/09						Not sampled due to the presence of LNAPL				NA
MW-510*	01/19/10						Not sampled due to the presence of LNAPL				NA
MW-510*	04/20/10						Not sampled due to the presence of LNAPL				NA
MW-510*	07/19/10						Not sampled due to the presence of LNAPL				NA
MW-510*	10/25/10						Not sampled due to the presence of LNAPL				NA
MW-510*	03/22/11						Not sampled due to the presence of LNAPL				NA
MW-510*	06/20/11	NA	NA	NA	NA	NA	12,000	200	3,100	15,300	502
MW-510*	09/28/11						Not sampled due to the presence of LNAPL				NA
MW-510*	12/13/11						Not Sampled				NA
MW-510*	06/29/12						Not sampled due to the presence of LNAPL				NA
MW-510*	09/26/12						Not sampled due to the presence of LNAPL				NA
MW-510*	12/19/12	0.2 U	NA	NA	NA	0.078	1,300	69	390	1,759	507
MW-510*	03/27/13	NA	NA	NA	NA	NA	1,100	130	500	1,730	514
MW-510* (Duplicate)	03/27/13	NA	NA	NA	NA	NA	920	130	450	1,500	517
MW-510*	06/26/13	NA	NA	NA	NA	NA	1,000	180	440	1,620	522
MW-510*	09/24/13	NA	NA	NA	NA	NA	2,400	130	1,100	3,630	507
MW-510*	12/18/13	0.2 U	NA	NA	NA	0.029	1,000	130	360	1,490	517
MW-510*	03/26/14	NA	NA	NA	NA	NA	4,400	140	1,600	6,140	504
MW-510* (Duplicate)	03/26/14	NA	NA	NA	NA	NA	3,300	160	1,300	4,760	506
MW-510*	06/18/14	NA	NA	NA	NA	NA	620	50 U	230	875	505
MW-510*	09/30/14	NA	NA	NA	NA	NA	4,000	50 U	1,800	5,825	501
MW-510*	12/10/14	0.3	NA	NA	NA	0.008 UU	180	50 U	130	335	514
MW-510* (Duplicate)	12/10/14	0.2 U	NA	NA	NA	0.008 UU	240	50 U	180	445	511
MW-510*	03/24/15	NA	NA	NA	NA	NA	250	50 U	95	370	513
MW-510* (Duplicate)	03/24/15	NA	NA	NA	NA	NA	240	50 U	150	415	512
MW-510*	06/23/15	NA	NA	NA	NA	NA	290	65	150	505	525
MW-510*	10/26/16	0.5 U	0.5 U	0.5 U	1.5 U	0.040	1,500	82	900	2,482	506
MW-510*	07/26/17	0.5 U	NA	NA	NA	0.008 UU	46 U	86	100 U	159	627
MW-511	10/24/08	0.50 U	0.50 U	0.50 U	1.00 U	0.008 UU	250 U	50 U	500 U	400 UU	512
MW-511	12/12/08	0.50 U	0.50 U	0.50 U	1.00 U	0.007 UU	243 U	50 U	485 U	389 UU	512
MW-511	02/25/09	0.5 U	NA	NA	NA	0.007 UU	30 U	50 U	70 U	75 UU	571
MW-511	04/21/09	0.5 U	NA	NA	NA	0.007 UU	28 U	50 U	66 U	72 UU	575
MW-511	06/24/09	0.5 U	NA	NA	NA	0.007 UU	28 U	50 U	66 U	72 UU	575
MW-511 (Duplicate)	06/24/09	0.5 U	NA	NA	NA	0.007 UU	28 U	50 U	66 U	72 UU	575
MW-511	08/19/09	0.5 U	NA	NA	NA	0.012 UU	32	50 U	74 U	94	555
MW-511	10/28/09	0.5 U	NA	NA	NA	0.012 UU	33	50 U	65 U	91	558
MW-511 (Duplicate)	10/28/09	0.5 U	NA	NA	NA	0.012 UU	28 U	50 U	65 U	72 UU	575

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-511	01/20/10	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-511	04/22/10	NA	NA	NA	NA	NA	32 U	50 U	75 U	79 UU	568
MW-511	07/22/10	NA	NA	NA	NA	NA	72	50 U	67 U	131	539
MW-511	10/28/10	0.5 U	NA	NA	NA	0.012 UU	36	50 U	67 U	95	555
MW-511	06/17/11	NA	NA	NA	NA	NA	100	50 U	70 U	160	531
MW-511	12/19/11	0.2 U	NA	NA	NA	0.007 UU	29 U	50 U	67 U	73 UU	574
MW-511	06/28/12	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-511 (Duplicate)	06/28/12	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-511	12/14/12	0.2 U	NA	NA	NA	0.008 UU	44	50 U	240	309	516
MW-511	06/27/13	NA	NA	NA	NA	NA	30 U	50 U	71 U	76 UU	571
MW-511	12/19/13	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	68 U	74 UU	573
MW-511 (Duplicate)	12/19/13	0.2 U	NA	NA	NA	0.008 UU	31 U	50 U	71 U	76 UU	570
MW-511	06/18/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-511	12/10/14	0.3	NA	NA	NA	0.008 UU	29 U	50 U	68 U	74 UU	573
MW-511	03/25/15	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-511	06/24/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-511 (Duplicate)	06/24/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-511	10/24/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	45 U	50 U	100 U	98 UU	553
MW-511	07/27/17	0.5 U	NA	NA	NA	0.008 UU	46 U	50 U	100 U	98 UU	553
MW-512	10/23/08	1.97	0.50 U	2.96	5.23	0.008 UU	250 U	348	500 U	723	610
MW-512	12/11/08	2.5	0.50 U	2.17	3.58	0.007 UU	243 U	320	485 U	684	606
MW-512	02/25/09	1.5	NA	NA	NA	0.007 UU	390	280	78	748	582
MW-512	04/21/09	2.7	NA	NA	NA	0.007 UU	260	240	67 U	534	601
MW-512 (Duplicate)	04/21/09	3.7	NA	NA	NA	0.007 UU	220	280	66 U	533	623
MW-512	06/24/09	0.8	NA	NA	NA	0.007 UU	180	84	78	342	551
MW-512	08/19/08	1.3	NA	NA	NA	0.012 UU	220	110	66 U	363	564
MW-512	10/27/09	0.6	NA	NA	NA	0.012 UU	190	92	67 U	316	561
MW-512	01/20/10	NA	NA	NA	NA	NA	300	200	75	575	575
MW-512	04/21/10	NA	NA	NA	NA	NA	420	110	140	670	533
MW-512	07/21/10	NA	NA	NA	NA	NA	150	82	67 U	266	565
MW-512	10/28/10	0.5 U	NA	NA	NA	0.012 UU	220	93	67 U	347	556
MW-512	06/16/11	NA	NA	NA	NA	NA	200	74	67 U	308	550
MW-512 (Duplicate)	06/16/11	NA	NA	NA	NA	NA	190	79	67 U	303	554
MW-512	12/15/11	0.40	NA	NA	NA	0.007 UU	33	120	68 U	187	658
MW-512	06/29/12	NA	NA	NA	NA	NA	57	190	68 U	281	670
MW-512	12/17/12	0.3	NA	NA	NA	0.008 UU	32	120	67 U	186	660
MW-512	06/26/13	NA	NA	NA	NA	NA	29 U	62	68 U	111	633
MW-512	12/18/13	0.2 U	NA	NA	NA	0.008 UU	44	140	67 U	218	659
MW-512	06/17/14	NA	NA	NA	NA	NA	48	110	68 U	192	637
MW-512	12/11/14	0.2 U	NA	NA	NA	0.008 UU	42	50 U	68 U	101	551
MW-512	06/24/15	NA	NA	NA	NA	NA	31	58	66 U	122	608
MW-512	10/25/16	0.5 U	0.50 U	0.50 U	1.50 U	0.008 UU	62	90	100 U	202	600
MW-512	07/26/17	0.5 U	NA	NA	NA	0.008 UU	46 U	120	100 U	193	652
MW-513	10/23/08	0.702	0.50 U	0.50 U	3.81	0.008 UU	245 U	564 JZ	490 U	932	647
MW-513	12/10/08	0.793	0.50 U	0.50 U	1.21	0.007 UU	245 U	439	490 U	807	628
MW-513	02/25/09	0.5 U	NA	NA	NA	0.008 UU	330	470	72.00 U	836	634
MW-513 (Duplicate)	02/25/09	5 U	NA	NA	NA	0.008 UU	300	440	74.00 U	777	635
MW-513	04/22/09	0.5 U	NA	NA	NA	0.007 UU	290	330	66 U	653	617
MW-513	06/24/09	0.5 U	NA	NA	NA	0.007 UU	170	280	75 U	488	637
MW-513	08/20/09	0.5 U	NA	NA	NA	0.013 UU	290	280	75 U	608	604
MW-513	10/27/09	0.5 U	NA	NA	NA	0.013 UU	320	180	68 U	534	572
MW-513 (Duplicate)	10/27/09	5 U	NA	NA	NA	0.012 UU	320	240	68 U	594	589

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Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-513	01/20/10	NA	NA	NA	NA	NA	300	210	67 U	544	585
MW-513	04/21/10	NA	NA	NA	NA	NA	290	160	74 U	487	570
MW-513	07/21/10	NA	NA	NA	NA	NA	360	140	67 U	534	555
MW-513	10/28/10	0.50 U	NA	NA	NA	0.013 UU	270	150	74 U	457	570
MW-513 (Duplicate)	10/28/10	0.50 U	NA	NA	NA	0.013 UU	290	160	67 U	484	571
MW-513	06/16/11	NA	NA	NA	NA	NA	230	100	67 U	364	558
MW-513	12/15/11	0.3	NA	NA	NA	0.007 UU	38	97	67 U	169	638
MW-513	06/29/12	NA	NA	NA	NA	NA	62	59	75 U	159	581
MW-513	12/17/12	0.2 U	NA	NA	NA	0.008 UU	28 U	65	66 U	112	639
MW-513	06/26/13	NA	NA	NA	NA	NA	52	110	68 U	196	633
MW-513	12/18/13	0.2 U	NA	NA	NA	0.008 UU	50	120	66 U	203	642
MW-513	06/17/14	NA	NA	NA	NA	NA	47	72	67 U	153	608
MW-513	12/10/14	0.5 U	NA	NA	NA	0.008 UU	52	50 U	66 U	110	547
MW-513	06/24/15	NA	NA	NA	NA	NA	35	75	66 U	143	622
MW-513 (Duplicate)	06/24/15	NA	NA	NA	NA	NA	45	50 U	65 U	103	550
MW-513	10/25/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	47 U	97	100 U	171	636
MW-513	07/25/17	0.5 U	NA	NA	NA	0.008 UU	46 U	110	100 U	183	646
MW-514	10/23/08	2.98	0.64	1.54	4.69	0.007 UU	253	1020 JZ	490 U	1,518	668
MW-514	12/10/08	3.15	0.84	1.82	4.98	0.007 UU	248 U	801	495 U	1,173	672
MW-514 (Duplicate)	12/10/08	3.40	0.82	1.89	4.95	0.008 UU	245 U	831	490 U	1,199	676
MW-514	02/24/09	2.9	NA	NA	NA	0.008 UU	710	830	75 U	1,578	623
MW-514	04/21/09	3.5	NA	NA	NA	0.015 UU	370	680	69 U	1,085	654
MW-514	06/24/09	2	NA	NA	NA	0.007 UU	280	510	70 U	825	651
MW-514	08/19/09	3.2	NA	NA	NA	0.012 UU	290	520	73 U	847	650
MW-514 (Duplicate)	08/19/09	2.7	NA	NA	NA	0.013 UU	270	450	70 U	755	644
MW-514	10/27/09	2.2	NA	NA	NA	0.012 UU	400	400	66 U	833	610
MW-514	01/20/10	NA	NA	NA	NA	NA	200	340	69 U	575	643
MW-514	04/21/10	NA	NA	NA	NA	NA	340	270	71 U	646	593
MW-514	07/21/10	NA	NA	NA	NA	NA	420	170	67 U	624	557
MW-514	10/27/10	1.5	NA	NA	NA	0.012 UU	250	290	70 U	575	617
MW-514	06/16/11	NA	NA	NA	NA	NA	230	170	67 U	434	586
MW-514	12/14/11	0.5	NA	NA	NA	0.007 UU	39	150	67 U	223	669
MW-514	06/29/12	NA	NA	NA	NA	NA	42	97	67 U	173	634
MW-514	12/17/12	0.5	NA	NA	NA	0.008 UU	29 U	84	67 U	132	657
MW-514 (Duplicate)	12/17/12	0.7	NA	NA	NA	0.008 UU	34 U	92	66 U	159	639
MW-514	06/26/13	NA	NA	NA	NA	NA	31	140	71 U	207	670
MW-514	12/18/13	0.2 U	NA	NA	NA	0.008 UU	29 U	100	67 U	148	670
MW-514	06/17/14	NA	NA	NA	NA	NA	43	76	66 U	152	615
MW-514	12/11/14	0.2 U	NA	NA	NA	0.008 UU	33	50 U	69 U	93	556
MW-514	06/24/15	NA	NA	NA	NA	NA	32	50 U	68 U	91	557
MW-514 (Duplicate)	06/24/15	NA	NA	NA	NA	NA	29 U	50 U	69 U	74 UU	573
MW-514	10/25/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	46 U	50 U	100 U	98 UU	553
MW-514	07/27/17	0.5 U	NA	NA	NA	0.008 UU	47 U	50 U	110 U	104 UU	550
MW-515	10/22/08	1.86	1.35	1.00	4.47	0.007 UU	248 U	575 JZ	495 U	947	648
MW-515 (Duplicate)	10/22/08	1.92	1.40	1.07	4.70	0.007 UU	248 U	603 JZ	495 U	975	651
MW-515	12/10/08	0.50 U	0.50 U	0.50 U	1.00 U	0.007 UU	243 U	100	485 U	464	544
MW-515	02/24/09	0.5 U	NA	NA	NA	0.008 UU	71	69	68 U	174	587
MW-515	04/22/09	0.5 U	NA	NA	NA	0.007 UU	77	59	69 U	171	575
MW-515	06/24/09	0.5 U	NA	NA	NA	0.007 UU	170	85	76 U	293	561
MW-515	08/20/09	0.5 U	NA	NA	NA	0.012 UU	200	63	75 U	301	543
MW-515 (Duplicate)	08/20/09	0.5 U	NA	NA	NA	0.013 UU	340	110	75 U	488	546

Table 3-4
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Former Unocal Terminal
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Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)						
		B	T	E	X												
		CUL=16		--	--	--	--	--	see note 6								
MW-515	10/27/09	0.5	U	NA	NA	NA	0.012	UU	79	50	U	70	U	139	UU	536	
MW-515	01/20/10	NA		NA	NA	NA	NA		34	50	U	69	U	94		556	
MW-515	04/21/10	NA		NA	NA	NA	NA		32	50	U	67	U	91		558	
MW-515	07/21/10	NA		NA	NA	NA	NA		120	50	U	66	U	178		528	
MW-515	10/27/10	0.5	U	NA	NA	NA	0.012	UU	52	50	U	67	U	111		546	
MW-515	06/16/11	NA		NA	NA	NA	NA		200	50	U	67	U	259		519	
MW-515	12/14/11	0.2	U	NA	NA	NA	0.008		28	50	U	66	U	72	UU	575	
MW-515	06/29/12	NA		NA	NA	NA	NA		29	50	U	67	U	73	UU	574	
MW-515	12/17/12	0.2	U	NA	NA	NA	0.008	UU	29	50	U	67	U	73	UU	574	
MW-515	06/27/13	NA		NA	NA	NA	NA		29	50	U	67	U	73	UU	574	
MW-515	12/18/13	0.2	U	NA	NA	NA	0.008	UU	30	50	U	70	U	75	UU	571	
MW-515	06/19/14	NA		NA	NA	NA	NA		29	50	U	67	U	73	UU	574	
MW-515	12/11/14	0.2	U	NA	NA	NA	0.008	UU	29	50	U	67	U	73	UU	574	
MW-515	06/25/15	NA		NA	NA	NA	NA		28	50	U	66	U	72	UU	575	
MW-515	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	47	U	50	U	100	UU	553	
MW-515	07/25/17	0.5	U	NA	NA	NA	0.008	UU	45	50	U	100	U	98	UU	553	
MW-516	10/22/08	0.779		0.711	U	0.50	U	3.96	UU	248	U	429	JZ	495	U	801	626
MW-516	12/10/08	0.50	U	0.50	U	0.50	U	1.00	U	243	U	114		485	U	478	549
MW-516	02/24/09	0.5	U	NA		NA		NA	0.008	UU	30	U	70	U	75	UU	571
MW-516	04/22/09	0.5	U	NA		NA		NA	0.008	UU	31	U	73	U	77	UU	569
MW-516	06/24/09	0.5	U	NA		NA		NA	0.007	UU	210		50	U	69	U	270
MW-516	08/20/09	0.5	U	NA		NA		NA	0.013	UU	260		50	U	75	U	323
MW-516	10/27/09	0.5	U	NA		NA		NA	0.012	UU	140		50	U	67	U	199
MW-516	01/20/10	NA		NA		NA		NA	NA		29	U	50	U	67	U	73
MW-516	04/21/10	NA		NA		NA		NA	NA		30	U	50	U	70	U	75
MW-516	07/21/10	NA		NA		NA		NA	NA		150		50	U	67	U	209
MW-516	10/27/10	0.50	U	NA		NA		NA	0.012	UU	49		50	U	67	U	108
MW-516 (Duplicate)	10/27/10	0.5	U	NA		NA		NA	0.012	UU	40		50	U	66	U	98
MW-516	06/16/11	NA		NA		NA		NA	NA		170		50	U	67	U	229
MW-516	12/14/11	0.2	U	NA		NA		NA	0.007	UU	29	U	50	U	69	U	74
MW-516	06/29/12	NA		NA		NA		NA	NA		28	U	50	U	66	U	72
MW-516	12/17/12	0.2	U	NA		NA		NA	0.008	UU	29	U	50	U	67	U	73
MW-516	06/27/13	NA		NA		NA		NA	NA		30	U	50	U	69	U	75
MW-516	12/18/13	0.2	U	NA		NA		NA	0.008	UU	31	U	50	U	72	U	77
MW-516	06/19/14	NA		NA		NA		NA	NA		28	U	50	U	66	U	72
MW-516 (Duplicate)	06/19/14	NA		NA		NA		NA	NA		29	U	50	U	67	U	73
MW-516	12/11/14	0.2	U	NA		NA		NA	0.008		29	U	50	U	67	U	73
MW-516	06/25/15	NA		NA		NA		NA	NA		28	U	50	U	66	U	72
MW-516	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	47	U	50	U	100	UU	99	UU
MW-516	07/25/17	0.5	U	NA	NA	NA	0.008	UU	45	50	U	100	U	98	UU	553	
MW-516 (Duplicate)	07/25/17	0.5	U	NA	NA	NA	0.008	UU	46	50	U	100	U	98	UU	553	
MW-517	10/22/08	1.24		0.50	U	0.884		1.56	UU	248	U	275	JZ	495	U	647	595
MW-517	12/10/08	0.50	U	0.50	U	0.50	U	1.00	U	240	U	130		481	U	491	555
MW-517	02/24/09	0.5	U	NA		NA		NA	0.008	UU	50	U	72	U	111		546
MW-517	04/22/09	0.5	U	NA		NA		NA	0.008	UU	100	U	71	U	161		531
MW-517	06/24/09	0.5	U	NA		NA		NA	0.007	UU	460	U	86		571		508
MW-517	08/20/09	0.5	U	NA		NA		NA	0.012	UU	230		69	U	385		566
MW-517	10/27/09	0.5	U	NA		NA		NA	0.012	UU	160		73	U	251		544
MW-517	01/20/10	NA		NA		NA		NA	NA		40	U	69	U	100		552
MW-517	04/21/10	NA		NA		NA		NA	NA		75	U	67	U	134		538
MW-517 (Duplicate)	04/21/10	NA		NA		NA		NA	NA		94	U	70	U	154		532
MW-517	07/20/10	NA		NA		NA		NA	NA		200	U	66	U	258		519

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11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)						
		B	T	E	X													
		CUL=16		--	--	--	CUL=0.05	--	--	--	see note 6							
MW-517	10/27/10	0.5	U	NA	NA	NA	0.012	UU	77	50	U	72	U	138	UU	536		
MW-517	06/16/11	NA		NA	NA	NA	NA		89	50	U	67	U	148		534		
MW-517	12/14/11	0.2	U	NA	NA	NA	0.007	UU	28	50	U	66	U	72	UU	575		
MW-517	06/29/12	NA		NA	NA	NA	NA		28	50	U	66	U	72	UU	575		
MW-517	12/17/12	0.2	U	NA	NA	NA	0.008	UU	29	50	U	67	U	73	UU	574		
MW-517	06/27/13	NA		NA	NA	NA	NA		29	50	U	67	U	73	UU	574		
MW-517	12/18/13	0.2	U	NA	NA	NA	0.008	UU	30	50	U	70	U	75	UU	571		
MW-517	06/19/14	NA		NA	NA	NA	NA		28	50	U	66	U	72	UU	575		
MW-517	12/11/14	0.2	U	NA	NA	NA	0.008		29	50	U	67	U	73	UU	574		
MW-517	06/25/15	NA		NA	NA	NA	NA		29	50	U	67	U	73	UU	574		
MW-517	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	49	U	50	U	110	UU	549		
MW-517	07/25/17	0.5	U	NA	NA	NA	NA	NA	46	U	61	100	U	134		603		
MW-518*	10/22/08	0.503		0.50	U	0.50	U	1.92	UU	248	U	770	JZ	495	U	1,142	669	
MW-518*	12/10/08	0.50	U	0.50	U	0.50	U	2.12	UU	245	U	796	JZ	490	U	1,164	673	
MW-518*	02/25/09	0.5	U	NA		NA		NA	UU	450		880		73		1,403	654	
MW-518*	04/22/09	0.5	U	NA		NA		NA	UU	480		650		72		1,202	627	
MW-518*	06/25/09	0.5	U	NA		NA		NA	UU	200		440	U	70		675	662	
MW-518*	08/20/09	0.5	U	NA		NA		NA	UU	300		730	U	71		1,066	673	
MW-518*	10/30/09	0.5	U	NA		NA		NA	UU	310		660	U	74		1,007	663	
MW-518*	01/20/10	NA		NA		NA		NA		230		660	U	67		924	683	
MW-518*	04/21/10	NA		NA		NA		NA		240		630	U	75		908	676	
MW-518*	07/21/10	NA		NA		NA		NA		310		350	U	73		697	616	
MW-518* (Duplicate)	07/21/10	NA		NA		NA		NA		400		270	U	78		709	583	
MW-518*	10/28/10	0.5	U	NA		NA		NA	UU	290		600	U	67		924	661	
MW-518*	03/23/11	NA		NA		NA		NA		390		330	U	68		754	598	
MW-518*	06/16/11	NA		NA		NA		NA		200		140	U	67		374	582	
MW-518*	09/27/11	NA		NA		NA		NA		66		230	U	68		330	677	
MW-518*	12/14/11	0.2	U	NA		NA		NA	UU	40		440	U	67		514	737	
MW-518*	03/28/12	NA		NA		NA		NA		28	U	50	U	66		72	UU	575
MW-518*	06/29/12	NA		NA		NA		NA		29	U	93		69		142	663	
MW-518*	09/27/12	NA		NA		NA		NA		59		240	U	68		333	685	
MW-518*	12/17/12	0.2	U	NA		NA		NA	UU	29	U	180	U	69		229	709	
MW-518*	03/27/13	NA		NA		NA		NA		48		510	U	66		591	739	
MW-518*	06/27/13	NA		NA		NA		NA		29	U	50	U	67		73	UU	574
MW-518*	09/25/13	NA		NA		NA		NA		79	U	50	U	69		99	UU	552
MW-518*	12/19/13	0.2	U	NA		NA		NA	UU	78		860	U	71		974	748	
MW-518*	03/28/14	NA		NA		NA		NA		29	U	110	U	68		159	676	
MW-518*	06/18/14	NA		NA		NA		NA		28	U	63	U	66		110	637	
MW-518* (Duplicate)	06/18/14	NA		NA		NA		NA		28	U	62	U	66		109	636	
MW-518*	10/01/14	NA		NA		NA		NA		68		260	U	72		364	683	
MW-518*	12/11/14	0.2	U	NA		NA		NA		43		290	U	66		366	711	
MW-518*	03/25/15	NA		NA		NA		NA		39		390	U	67		463	731	
MW-518*	06/25/15	NA		NA		NA		NA		59		600	U	66		692	741	
MW-518*	10/25/16	0.5	U	0.5	U	0.5	U	1.5	U	46	U	990	U	100		1,063	768	
MW-518*	07/25/17	0.5	U	NA	NA	NA	NA	NA	UU	46	U	190	U	100		263	686	
MW-519	10/22/08	0.5	U	0.5	U	0.5	U	1.00	U	248	U	80		495	U	451	536	
MW-519 (Duplicate)	10/22/08	5	U	5	U	5	U	1.00	U	248	U	84		495	U	455	537	
MW-519	12/09/08	0.50	U	0.50	U	0.50	U	1.00	U	250	U	64.1		500	U	439	529	
MW-519	02/24/09	0.5	U	NA		NA		NA	UU	83		50	U	71		144	535	
MW-519	04/21/09	0.5	U	NA		NA		NA	UU	150		50	U	74		212	523	
MW-519	06/24/09	0.5	U	NA		NA		NA	UU	220		50	U	70		280	517	

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)								
		B	T	E	X															
		CUL=16		--	--	--	CUL=0.05	--	--	--	see note 6									
MW-519	08/18/09	0.5	U	NA	NA	NA	0.013	UU	290	50	U	75	U	353	UU	514				
MW-519 (Duplicate)	08/18/09	0.5	U	NA	NA	NA	0.119	UU	250	50	U	72	U	311	UU	516				
MW-519	10/27/09	0.5	U	NA	NA	NA	0.013	UU	58	50	U	66	U	116	UU	544				
MW-519	01/19/10	NA		NA	NA	NA	NA		170	50	U	67	U	229	UU	521				
MW-519	04/21/10	NA		NA	NA	NA	NA		82	50	U	71	U	143	UU	535				
MW-519	07/20/10	NA		NA	NA	NA	NA		290	50	U	67	U	349	UU	514				
MW-519	10/26/10	0.50	U	NA	NA	NA	0.012	UU	43	50	U	73	U	105	UU	549				
MW-519 (Duplicate)	10/26/10	0.50	U	NA	NA	NA	0.012	UU	54	50	U	79	U	119	UU	543				
MW-519	06/15/11	NA		NA	NA	NA	NA		260	50	U	68	U	319	UU	515				
MW-519	12/14/11	0.2	U	NA	NA	NA	0.008	UU	29	U	50	U	67	U	73	UU	574			
MW-519	06/28/12	NA		NA	NA	NA	NA		30	U	50	U	71	U	76	UU	571			
MW-519	12/17/12	0.2	U	NA	NA	NA	0.008	UU	28	U	50	U	66	U	72	UU	575			
MW-519	06/25/13	NA		NA	NA	NA	NA		29	U	50	U	68	U	74	UU	573			
MW-519	12/17/13	0.2	U	NA	NA	NA	0.008	UU	28	U	50	U	66	U	72	UU	575			
MW-519	06/18/14	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574			
MW-519	12/10/14	0.2	U	NA	NA	NA	0.008	UU	28	U	50	U	65	U	72	UU	575			
MW-519	06/24/15	NA		NA	NA	NA	NA		29	U	50	U	67	U	73	UU	574			
MW-519	10/24/16	0.5	U	0.5	U	0.5	U	1.5	U	47	U	50	U	110	UU	104	UU	550		
MW-519	07/25/17	0.5	U	NA	NA	NA	NA	NA	0.008	UU	45	U	50	U	100	UU	98	UU	553	
MW-520	10/21/08	1.45		0.50	U	0.50	U	1.00	U	0.008	UU	250	U	356	U	500	U	731	UU	612
MW-520	12/09/08	3.77		0.50	U	0.50	U	1.00	U	0.008	UU	243	U	125	U	485	U	489	UU	553
MW-520	02/23/09	1.6		NA		NA		NA		0.008	UU	160		110		76	U	308	UU	577
MW-520	04/22/09	7.6		NA		NA		NA		0.007	UU	110		50	U	66	U	168	UU	530
MW-520 (Duplicate)	04/22/09	7.3		NA		NA		NA		0.007	UU	110		50	U	67	U	169	UU	529
MW-520	06/24/09	0.5		NA		NA		NA		0.007	UU	180		50	U	69	U	240	UU	520
MW-520	08/18/09	0.5	U	NA		NA		NA		0.012	UU	140		50	U	72	U	201	UU	524
MW-520	10/27/09	0.5	U	NA		NA		NA		0.012	UU	130		50	U	73	U	192	UU	526
MW-520	01/19/10	NA		NA		NA		NA		NA		30	U	50	U	70	U	75	UU	571
MW-520	04/20/10	NA		NA		NA		NA		NA		52		50	U	68	U	111	UU	546
MW-520	07/20/10	NA		NA		NA		NA		NA		320		50	U	67	U	379	UU	513
MW-520	10/27/10	0.5	U	NA		NA		NA		0.012	UU	110		50	U	66	U	168	UU	530
MW-520	06/15/11	NA		NA		NA		NA		NA		120		50	U	67	U	179	UU	528
MW-520	12/14/11	0.2	U	NA		NA		NA		0.007	UU	29	U	50	U	67	U	73	UU	574
MW-520	06/28/12	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-520	12/14/12	0.2	U	NA		NA		NA		0.008	UU	28		50	U	110		163	UU	531
MW-520	06/25/13	NA		NA		NA		NA		NA		29	U	62		67	U	110	UU	634
MW-520 (Duplicate)	06/25/13	NA		NA		NA		NA		NA		30	U	50	U	70	U	75	UU	571
MW-520	12/17/13	0.2	U	NA		NA		NA		0.008	UU	30	U	50	U	70	U	75	UU	571
MW-520	06/18/14	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-520	12/10/14	0.2	U	NA		NA		NA		0.008	UU	28	U	50	U	66	U	72	UU	575
MW-520	06/24/15	NA		NA		NA		NA		NA		28	U	50	U	65	U	72	UU	575
MW-520	10/24/16	0.5	U	0.5	U	0.5	U	1.5	U	0.008	UU	47	U	50	U	100	U	99	UU	553
MW-520	07/25/17	0.5	U	NA	NA	NA	NA	NA	NA	0.008	UU	46	U	50	U	100	U	98	UU	553
MW-521	10/21/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	245	U	57.9		490	U	425	UU	527
MW-521	12/09/08	0.50	U	0.50	U	0.50	U	1.00	U	0.008	UU	250	U	98.4		500	U	473	UU	542
MW-521	02/23/09	1.7		NA		NA		NA		0.008	UU	90		50	U	78	U	154	UU	532
MW-521	04/21/09	0.5	U	NA		NA		NA		0.008	UU	31	U	50	U	73	U	77	UU	569
MW-521	06/23/09	0.5	U	NA		NA		NA		0.008	UU	47		50	U	71	U	108	UU	548
MW-521	08/19/09	0.5	U	NA		NA		NA		0.012	UU	45		50	U	71	U	106	UU	549
MW-521	10/26/09	0.5	U	NA		NA		NA		0.012	UU	120		50	U	69	U	180	UU	528
MW-521 (Duplicate)	10/26/09	0.5	U	NA		NA		NA		0.012	UU	78		50	U	74	U	140	UU	536

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-521	01/19/10	NA	NA	NA	NA	NA	30 U	50 U	70 U	75 UU	571
MW-521	04/20/10	NA	NA	NA	NA	NA	31 U	50 U	73 U	77 UU	569
MW-521	07/20/10	NA	NA	NA	NA	NA	70	50 U	67 U	129	539
MW-521	10/27/10	0.5 U	NA	NA	NA	0.013 UU	77	50 U	72 U	138	536
MW-521	06/15/11	NA	NA	NA	NA	NA	47	50 U	67 U	106	549
MW-521	12/14/11	0.2 U	NA	NA	NA	0.007 UU	29 U	50 U	67 U	73 UU	574
MW-521	06/28/12	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-521	12/17/12	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-521	06/25/13	NA	NA	NA	NA	NA	29 U	50 U	69 U	74 UU	573
MW-521	12/17/13	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-521	06/18/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-521	12/10/14	0.3	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-521	06/24/15	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-521	10/24/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	48 U	50 U	110 U	104 UU	550
MW-521	07/25/17	0.5 U	NA	NA	NA	0.008 UU	45 U	50 U	100 U	98 UU	553
MW-522*	10/21/08	1.46	0.50 U	0.50 U	1.41 U	0.036 UU	250 U	534 JZ	500 U	909	641
MW-522*	12/09/08	0.782	0.5 U	0.5 U	1.00 U	0.007 UU	245 U	183	490 U	551	571
MW-522* (Duplicate)	12/09/08	0.805	5 U	5 U	1.00 U	0.008 UU	245 U	186	490 U	554	572
MW-522*	02/23/09	0.5 U	NA	NA	NA	0.007 UU	490	160	71 U	686	548
MW-522*	04/21/09	0.5 U	NA	NA	NA	0.008 UU	620	62	97	779	515
MW-522*	06/23/09	0.5 U	NA	NA	NA	0.007 UU	330	100	67 U	464	544
MW-522*	08/18/09	0.5	NA	NA	NA	0.012 UU	300	94	67 U	428	545
MW-522*	10/26/09	0.5	NA	NA	NA	0.012 UU	650	50 U	280	955	505
MW-522*	01/19/10	NA	NA	NA	NA	NA	39	50 U	66 U	97	553
MW-522*	04/20/10	NA	NA	NA	NA	NA	220	50 U	81 U	286	517
MW-522*	07/20/10	NA	NA	NA	NA	NA	470	50 U	76 U	533	509
MW-522*	10/26/10	0.5 U	NA	NA	NA	0.012 UU	260	50 U	66 U	318	515
MW-522*	03/22/11	NA	NA	NA	NA	NA	150	50 U	66 U	208	524
MW-522*	06/15/11	NA	NA	NA	NA	NA	380	50 U	72 U	441	511
MW-522*	09/27/11	NA	NA	NA	NA	NA	29	50 U	67 U	88	560
MW-522* (Duplicate)	09/27/11	NA	NA	NA	NA	NA	42	50 U	66 U	100	552
MW-522*	12/14/11	0.2 U	NA	NA	NA	0.007 UU	29 U	50 U	67 U	73 UU	574
MW-522*	03/28/12	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-522*	06/28/12	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-522*	09/26/12	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-522*	12/14/12	0.2 U	NA	NA	NA	0.008 UU	41	50 U	140	206	524
MW-522*	03/26/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-522* (Duplicate)	03/26/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-522*	06/25/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-522*	09/25/13	NA	NA	NA	NA	NA	36 U	50 U	70 U	78 UU	568
MW-522*	12/17/13	0.2 U	NA	NA	NA	0.008 UU	31 U	50 U	72 U	77 UU	570
MW-522*	03/26/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-522*	06/18/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-522*	10/01/14	NA	NA	NA	NA	NA	30 U	50 U	71 U	76 UU	571
MW-522* (Duplicate)	10/01/14	NA	NA	NA	NA	NA	30 U	50 U	70 U	75 UU	571
MW-522*	12/10/14	0.3	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-522*	03/26/15	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-522* (Duplicate)	03/26/15	NA	NA	NA	NA	NA	29 U	50 U	69 U	74 UU	573
MW-522*	06/24/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-522*	10/24/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	47 U	50 U	100 U	99 UU	553
MW-522*	07/25/17	0.5 U	NA	NA	NA	0.008 UU	80	50 U	700	805	506

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)								Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)		Gasoline ⁴ (µg/L)		Heavy Oil ³ (µg/L)		TPH ⁵ (µg/L)		TPH CUL ⁶ (µg/L)
		B		T		E		X												
		CUL=16		--		--		--		CUL=0.05		--		--		--		see note 6		
MW-523*	10/21/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	245	U	63		490	U	431		529
MW-523*	12/09/08	0.50	U	0.50	U	0.50	U	1.00	U	0.008	UU	248	U	50	U	495	U	397	UU	512
MW-523*	02/23/09	0.5	U	NA		NA		NA		0.007	UU	32	U	50	U	68	U	91		557
MW-523*	04/21/09	0.5	U	NA		NA		NA		0.007	UU	30	U	50	U	69	U	75	UU	572
MW-523*	06/23/09	0.5	U	NA		NA		NA		0.007	UU	39		50	U	68	U	98		553
MW-523* (Duplicate)	06/23/09	0.5	U	NA		NA		NA		0.008	UU	78		50	U	68	U	137		537
MW-523*	08/18/09	0.5	U	NA		NA		NA		0.012	UU	140		50	U	66	U	198		525
MW-523*	10/26/09	0.5	U	NA		NA		NA		0.012	UU	120		50	U	66	U	178		528
MW-523*	01/19/10	NA		NA		NA		NA		NA		32		50	U	69	U	92		557
MW-523*	04/20/10	NA		NA		NA		NA		NA		35	U	50	U	83	U	84	UU	563
MW-523*	07/20/10	NA		NA		NA		NA		NA		61		50	U	80	U	126		540
MW-523*	10/26/10	0.5	U	NA		NA		NA		0.013	UU	160		50	U	74	U	222		522
MW-523*	03/22/11	NA		NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-523*	06/15/11	NA		NA		NA		NA		NA		73		50	U	67	U	132		538
MW-523*	09/27/11	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-523*	12/13/11	0.2	U	NA		NA		NA		0.007	UU	28	U	50	U	66	U	72	UU	575
MW-523*	03/28/12	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-523*	06/28/12	NA		NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-523*	09/26/12	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-523* (Duplicate)	09/26/12	NA		NA		NA		NA		NA		31	U	50	U	71	U	76	UU	570
MW-523*	12/14/12	0.2	U	NA		NA		NA		0.008	UU	30	U	50	U	71	U	76	UU	571
MW-523*	03/26/13	NA		NA		NA		NA		NA		29	U	50	U	69	U	74	UU	573
MW-523*	06/25/13	NA		NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-523*	09/25/13	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-523*	12/17/13	0.2	U	NA		NA		NA		0.008	UU	30	U	50	U	160		200		525
MW-523*	03/27/14	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-523* (Duplicate)	03/27/14	NA		NA		NA		NA		NA		30	U	50	U	70	U	75	UU	571
MW-523*	06/18/14	NA		NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-523*	09/30/14	NA		NA		NA		NA		NA		30	U	50	U	69	U	75	UU	572
MW-523*	12/10/14	0.3		NA		NA		NA		0.008	UU	30	U	50	U	69	U	75	UU	572
MW-523*	03/25/15	NA		NA		NA		NA		NA		29	U	50	U	68	U	74	UU	573
MW-523*	06/23/15	NA		NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-524*	10/21/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	240	U	50	U	481	U	386	UU	512
MW-524*	12/09/08	0.50	U	0.50	U	0.50	U	1.00	U	0.007	UU	243	U	50	U	485	U	389	UU	512
MW-524*	02/23/09	0.5	U	NA		NA		NA		0.008	UU	32	U	50	U	74	U	78	UU	568
MW-524*	04/21/09	0.5	U	NA		NA		NA		0.007	UU	29	U	50	U	67	U	73	UU	574
MW-524*	06/23/09	0.5	U	NA		NA		NA		0.007	UU	29	U	50	U	67	U	73	UU	574
MW-524*	08/18/09	0.5	U	NA		NA		NA		0.012	UU	29	U	50	U	67	U	73	UU	574
MW-524*	10/26/09	0.5	U	NA		NA		NA		0.012	UU	270		50	U	150		445		511
MW-524*	01/19/10	NA		NA		NA		NA		NA		30	U	50	U	71	U	76	UU	571
MW-524*	04/20/10	NA		NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-524*	07/20/10	NA		NA		NA		NA		NA		32	U	50	U	75	U	79	UU	568
MW-524*	10/26/10	0.5	U	NA		NA		NA		0.012	UU	28	U	50	U	66	U	72	UU	575
MW-524*	03/22/11	NA		NA		NA		NA		NA		28	U	50	U	66	U	72	UU	575
MW-524*	06/17/11	NA		NA		NA		NA		NA		36		50	U	67	U	95		555
MW-524*	09/27/11	NA		NA		NA		NA		NA		29	U	50	U	67.0	U	73	UU	574
MW-524*	12/13/11	0.2	U	NA		NA		NA		0.007	UU	29	U	50	U	68	U	74	UU	573
MW-524*	03/28/12	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-524*	06/28/12	NA		NA		NA		NA		NA		30	U	50	U	70	U	75	UU	571
MW-524*	09/26/12	NA		NA		NA		NA		NA		29	U	50	U	67	U	73	UU	574
MW-524*	12/14/12	0.2	U	NA		NA		NA		0.008	UU	28	U	50	U	66	U	72	UU	575
MW-524* (Duplicate)	12/14/12	0.2	U	NA		NA		NA		0.008	UU	29	U	50	U	67	U	73	UU	574

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16	--	--	--	CUL=0.05	--	--	--	see note 6	
MW-524*	03/26/13	NA	NA	NA	NA	NA	32 U	50 U	74 U	78 UU	568
MW-524*	06/25/13	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-524*	09/24/13	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-524*	06/25/13	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-524*	12/17/13	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-524*	03/28/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-524*	06/18/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-524*	09/30/14	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-524*	12/09/14	0.2 U	NA	NA	NA	0.008 UU	31 U	50 U	71 U	76 UU	570
MW-524*	03/25/15	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-524*	06/23/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-525	06/29/12	NA	NA	NA	NA	NA	330	13,000	66 U	13,363	787
MW-525 (Duplicate)	06/29/12	NA	NA	NA	NA	NA	360	11,000	68 U	11,394	784
MW-525	12/14/12	5,900	NA	NA	NA	0.012	380	23,000	72 U	23,416	792
MW-525	06/26/13	980	NA	NA	NA	NA	150	5,800	68 U	5,984	786
MW-525 (Duplicate)	06/26/13	NA	NA	NA	NA	NA	130	5,400	68 U	5,564	786
MW-525	12/17/13	990	NA	NA	NA	0.008 UU	140	4,000	69 U	4,175	780
MW-525	06/17/14	NA	NA	NA	NA	NA	180	7,800	67 U	8,014	787
MW-525	12/09/14	6,200	NA	NA	NA	0.008 UU	720	28,000	66 U	28,753	788
MW-525	06/23/15	NA	NA	NA	NA	NA	230	2,700	66 U	2,963	760
MW-525	10/26/16	350	2.0	140	86	0.008 UU	150	3,900	100 U	4,100	777
MW-525 (Duplicate)	10/26/16	360	1.9	140	85	0.008 UU	140	3,300	100 U	3,490	775
MW-525	07/26/17	1,200	NA	NA	NA	0.008 UU	130	4,700	110 U	4,885	782
MW-526	06/29/12	NA	NA	NA	NA	NA	82	450	67 U	566	713
MW-526	12/14/12	2.0	NA	NA	NA	0.008 UU	32	980	66 U	1,045	771
MW-526	06/26/13	2.0	NA	NA	NA	NA	82	1100	67 U	1,216	757
MW-526	12/18/13	1.6	NA	NA	NA	0.090	93	850	68 U	977	742
MW-526	06/17/14	NA	NA	NA	NA	NA	150	780	67 U	964	718
MW-526	12/10/14	1.5	NA	NA	NA	0.008 UU	64	350	66 U	447	708
MW-526	06/23/15	NA	NA	NA	NA	NA	140	750	66 U	923	719
MW-526 (Duplicate)	06/23/15	NA	NA	NA	NA	NA	100	790	66 U	923	736
MW-526	10/24/16	0.5 U	0.5 U	0.5 U	20	0.008 UU	47 U	1000	100 U	1,074	768
MW-526 (Duplicate)	10/24/16	0.5 U	0.5 U	0.5 U	18	0.008 UU	45 U	960	100 U	1,033	768
MW-526	07/26/17	1.5	NA	NA	NA	0.008 UU	120	1600	100 U	1,770	756
MW-527	07/02/12	NA	NA	NA	NA	NA	30 U	50 U	71 U	76 UU	571
MW-527	12/19/12	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-527	06/28/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-527 (Duplicate)	06/28/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-527	12/20/13	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-527	06/19/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-527	12/12/14	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-527 (Duplicate)	12/12/14	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-527	06/28/15	NA	NA	NA	NA	NA	28 U	50 U	65 U	72 UU	575
MW-528	07/02/12	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-528	12/19/12	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	68 U	74 UU	573
MW-528 (Duplicate)	12/19/12	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	68 U	74 UU	573
MW-528	06/28/13	NA	NA	NA	NA	NA	29 U	50 U	69 U	74 UU	573
MW-528	12/20/13	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	68 U	74 UU	573
MW-528	06/19/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-528	12/12/14	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-528 (Duplicate)	12/12/14	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-528	06/26/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575

Table 3-4
Summary of Groundwater Analytical Data
Petroleum and Polynuclear Aromatic Hydrocarbons
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16		--	--	--	--	--	see note 6		
MW-529*	07/02/12	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-529*	09/27/12	NA	NA	NA	NA	NA	32 U	50 U	74 U	78 UU	568
MW-529*	12/17/12	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	68 U	74 UU	573
MW-529*	03/26/13	NA	NA	NA	NA	NA	31 U	50 U	71 U	76 UU	570
MW-529*	06/26/13	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-529*	09/24/13	NA	NA	NA	NA	NA	31 U	50 U	73 U	77 UU	569
MW-529*	12/18/13	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	69 U	74 UU	573
MW-529*	03/27/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-529*	06/17/14	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-529*	09/30/14	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-529*	12/09/14	0.2 U	NA	NA	NA	0.008 UU	28 U	50 U	66 U	72 UU	575
MW-529*	03/25/15	NA	NA	NA	NA	NA	30 U	50 U	69 U	75 UU	572
MW-529*	06/23/15	NA	NA	NA	NA	NA	28 U	50 U	65 U	72 UU	575
MW-529*	10/26/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	46 U	50 U	100 U	98 UU	553
MW-529*	07/27/17	0.5 U	NA	NA	NA	0.008 UU	47 U	50 U	100 U	99 UU	553
MW-530*	07/02/12	NA	NA	NA	NA	NA	30 U	50 U	70 U	75 UU	571
MW-530*	09/27/12	NA	NA	NA	NA	NA	29 U	50 U	100	140	536
MW-530*	12/17/12	0.2 U	NA	NA	NA	0.008 UU	90	50 U	260	375	513
MW-530*	03/27/13	NA	NA	NA	NA	NA	32 U	50 U	74 U	78 UU	568
MW-530*	06/26/13	NA	NA	NA	NA	NA	30 U	50 U	71 U	76 UU	571
MW-530*	09/24/13	NA	NA	NA	NA	NA	31 U	50 U	72 U	77 UU	570
MW-530*	12/18/13	0.2 U	NA	NA	NA	0.008 UU	31 U	50 U	71 U	76 UU	570
MW-530*	03/27/14	NA	NA	NA	NA	NA	28 U	50 U	64 U	71 UU	576
MW-530*	06/17/14	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-530*	09/30/14	NA	NA	NA	NA	NA	31 U	50 U	73 U	77 UU	569
MW-530*	12/09/14	0.4	NA	NA	NA	0.010	29 U	50 U	68 U	74 UU	573
MW-530*	03/24/15	NA	NA	NA	NA	NA	29 U	50 U	68 U	74 UU	573
MW-530*	06/23/15	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-530*	10/26/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	48 U	50 U	110 U	104 UU	550
MW-530*	07/26/17	0.5 U	NA	NA	NA	0.010 UU	47 U	50 U	100 U	99 UU	553
MW-531	06/28/12	NA	NA	NA	NA	NA	62	73	67 U	169	597
MW-531	12/18/12	0.2 U	NA	NA	NA	0.008 UU	29 U	50 U	67 U	73 UU	574
MW-531	06/26/13	NA	NA	NA	NA	NA	29	83	68 U	146	635
MW-531	12/17/13	0.4	NA	NA	NA	0.008 UU	30 U	77	69 U	127	648
MW-531	06/17/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-531	12/09/14	0.2 U	NA	NA	NA	0.008 UU	30 U	50 U	70 U	75 UU	571
MW-531	06/23/15	NA	NA	NA	NA	NA	29 U	50 U	69 U	74 UU	573
MW-531	10/24/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	47 U	50 U	110 U	104 UU	550
MW-531	07/26/17	0.6	NA	NA	NA	0.008 UU	46 U	95	100 U	168	635
MW-532	06/29/12	NA	NA	NA	NA	NA	41	50 U	68 U	100	552
MW-532	12/14/12	0.2 U	NA	NA	NA	0.008 UU	48	50 U	140	213	523
MW-532	06/26/13	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-532	12/17/13	0.2 U	NA	NA	NA	0.008 UU	30 U	50 U	69 U	75 UU	572
MW-532	06/17/14	NA	NA	NA	NA	NA	29 U	50 U	67 U	73 UU	574
MW-532	12/09/14	0.2	NA	NA	NA	0.008 UU	36	50 U	66 U	94	555
MW-532	06/23/15	NA	NA	NA	NA	NA	28 U	50 U	66 U	72 UU	575
MW-532	10/24/16	0.5 U	0.5 U	0.5 U	1.5 U	0.008 UU	450	90	110	650	527
MW-532	07/26/17	0.5 U	NA	NA	NA	0.021	380	50 U	110 U	460	510
MW-8R*	10/21/08	0.505	0.50 U	0.50 U	1.00 U	0.007 UU	243 U	145 JZ	485 U	509	560
MW-8R*	12/09/08	0.51	0.50 U	0.50 U	1.00 U	0.007 UU	240 U	97.1	481 U	458	543
MW-8R*	02/23/09	0.5	NA	NA	NA	0.007 UU	68	50 U	70 U	128	540

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Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)		Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)					
		B	T	E	X												
		CUL=16		--	--	--	CUL=0.05	--	--	--	see note 6						
MW-8R*	04/21/09	0.5	U	NA	NA	NA	0.007	UU	29	50	U	67	U	88	UU	560	
MW-8R*	06/23/09	0.5	U	NA	NA	NA	0.007	UU	49	50	U	67	U	108	UU	548	
MW-8R*	08/18/09	0.5	U	NA	NA	NA	0.012	UU	62	50	U	66	U	120	UU	542	
MW-8R*	10/26/09	0.5	U	NA	NA	NA	0.012	UU	300	50	U	66	U	358	UU	513	
MW-8R*	01/19/10	NA		NA	NA	NA	NA		34	50	U	67	U	93	UU	556	
MW-8R* (Duplicate)	01/19/10	NA		NA	NA	NA	NA		32	50	U	68	U	91	UU	557	
MW-8R*	04/20/10	NA		NA	NA	NA	NA		28	50	U	66	U	72	UU	575	
MW-8R*	07/20/10	NA		NA	NA	NA	NA		79	50	U	67	U	138	UU	537	
MW-8R*	10/26/10	0.5	U	NA	NA	NA	0.013	UU	440	50	U	77	U	504	UU	509	
MW-8R*	03/22/11	NA		NA	NA	NA	NA		28	50	U	66	U	72	UU	575	
MW-8R* (Duplicate)	03/22/11	NA		NA	NA	NA	NA		32	50	U	67	U	91	UU	558	
MW-8R*	06/15/11	NA		NA	NA	NA	NA		44	50	U	67	U	103	UU	550	
MW-8R*	09/27/11	NA		NA	NA	NA	NA		30	50	U	70	U	75	UU	571	
MW-8R*	12/14/11	0.2	U	NA	NA	NA	0.007	UU	28	50	U	66	U	72	UU	575	
MW-8R*	03/28/12	NA		NA	NA	NA	NA		29	50	U	67	U	73	UU	574	
MW-8R*	06/28/12	NA		NA	NA	NA	NA		30	50	U	70	U	75	UU	571	
MW-8R* (Duplicate)	06/28/12	NA		NA	NA	NA	NA		30	50	U	71	U	76	UU	571	
MW-8R*	09/26/12	NA		NA	NA	NA	NA		31	50	U	73	U	77	UU	569	
MW-8R*	12/14/12	0.2	U	NA	NA	NA	0.008	UU	28	50	U	66	U	72	UU	575	
MW-8R*	03/26/13	NA		NA	NA	NA	NA		28	50	U	66	U	72	UU	575	
MW-8R*	06/25/13	NA		NA	NA	NA	NA		29	50	U	67	U	73	UU	574	
MW-8R*	09/25/13	NA		NA	NA	NA	NA		30	50	U	69	U	75	UU	572	
MW-8R*	12/17/13	0.2	U	NA	NA	NA	0.008	UU	30	50	U	70	U	75	UU	571	
MW-8R*	03/27/14	NA		NA	NA	NA	NA		29	50	U	67	U	73	UU	574	
MW-8R*	06/18/14	NA		NA	NA	NA	NA		29	50	U	67	U	73	UU	574	
MW-8R* (Duplicate)	06/18/14	NA		NA	NA	NA	NA		28	50	U	66	U	72	UU	575	
MW-8R*	09/30/14	NA		NA	NA	NA	NA		31	50	U	73	U	77	UU	569	
MW-8R*	12/10/14	0.2		NA	NA	NA	0.008	UU	28	50	U	66	U	72	UU	575	
MW-8R*	03/25/15	NA		NA	NA	NA	NA		29	50	U	68	U	74	UU	573	
MW-8R*	06/23/15	NA		NA	NA	NA	NA		28	50	U	66	U	72	UU	575	
MW-8R*	10/24/16	0.5	U	0.5	U	0.5	U	1.5	U	46	U	50	U	100	UU	553	
MW-8R*	07/25/17	0.5	U	NA		NA		NA	UU	45	U	50	U	100	UU	553	
MW-E	07/26/17	0.5	U	NA		NA		NA	UU	1500		260		100	U	1,810	528

Notes:

¹B= benzene, T= toluene, E= ethylbenzene, X= xylenes. BTEX analyzed by EPA Method 8021B.

²cPAHs = Carcinogenic Polynuclear Aromatic Hydrocarbons. Analyzed by EPA Method 8270C-HVI. cPAHs adjusted for toxicity according to WAC 173-340-708(8) and Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II Technical Support Document for Describing Available Cancer Potency Factors. Office of Environmental Health Hazard Assessment, California EPA. May 2005. If one or more adjusted cPAH constituents were reported as Non-Detect, half of the reporting limit was used in calculations.

³Diesel and Heavy Oil (Lube) analyzed by method NWTPH-D Extended.

⁴Gasoline analyzed by method NWTPH-G.

⁵TPH = Total petroleum hydrocarbons. TPH calculated by summing the concentrations of gasoline, diesel and heavy oil. For results which did not exceed method reporting limits, half of the reporting limit was added to determine TPH.

-- = not applicable

⁶ Sample specific TPH CULs are developed by setting a hazard index for all TPH mixtures (GRO, DRO, HO) to 1, and adjusting the compositions relative to their mixtures and MTCA A CULs for groundwater. The calculation used is from Section 5.3 of the Interim Action Report (SLR, 2007) and is as follows: TPH CUL = 1/(%GRO/800+%DRO/500+%HO/500). For constituents that are less than detection limits, half of the detection limit was used in the calculation.

(µg/L) = micrograms per liter.

CUL = Cleanup level.

EPA = Environmental Protection Agency.

* = Denotes perimeter wells.

[] = Bracketed data indicate duplicate samples.

Highlighted cell = Exceeds site specific CUL.

Shaded values indicate the most recent sampling event.

LNAPL = Light non-aqueous phase liquid.

NA = Not Analyzed.

Table 3-4
 Summary of Groundwater Analytical Data
 Petroleum and Polynuclear Aromatic Hydrocarbons
 Former Unocal Terminal
 11720 Unoco Road
 Edmonds, Washington

Monitoring Well	Date Sampled	BTEX ¹ (µg/L)				Total cPAHs Adjusted for Toxicity ² (µg/L)	Diesel ³ (µg/L)	Gasoline ⁴ (µg/L)	Heavy Oil ³ (µg/L)	TPH ⁵ (µg/L)	TPH CUL ⁶ (µg/L)
		B	T	E	X						
		CUL=16	--	--	--	CUL=0.05	--	--	--	see note 6	

Lab Qualifiers	Definition
D	Compound quantitated using a secondary dilution.
J	Indicates an estimated value.
JX	Results in the diesel organic range are primarily due to overlap from a gasoline range product.
JZ	Detected hydrocarbons in the gasoline range appear to be due to overlap of diesel range hydrocarbons.
U	The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
UJ	The compound was analyzed for but not detected. The associated value is the estimated compound quantitation limit.
UU	The constituents making up the total are all non-detects.
W	Due to excessive foaming of the sample, normal reporting limits were not attained.
XX	Sample was collected as part of a matrix spike/ matrix spike duplicate (MS/MSD). Anomalous detection of HO was re-analyzed. The sample extract was re-injected and confirmed the reported results. The sample was re-

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
LM-2	10/23/08	57.54	3.51	17,373.54	0.39	222.94	5 U	914	1 UJ	28.1	0.349	4.0
LM-2	12/11/08	53.17	3.89	13,859.08	0.17	338.86	5 U	942	0.2 U	46.9	0.358	5.0
LM-2	02/26/09	49.78	3.82	12,912.70	1.62	371.08	0.46 U	915	0.250 U	59	0.367	3.2
LM-2	04/23/09	51.06	4.91	11,367.56	7.37	133.42	9.7	768	0.250 U	50	0.298	6.0
LM-2	06/25/09	55.63	5.36	17,476.72	3.18	-38.23	43.4	1,280	0.640	41	0.239	6.0
LM-2	08/20/09	60.42	6.03	23,943.90	5.43	-93.49	90.6	2,220	0.250 UW	25 P	0.277	6.0
LM-2	10/30/09	56.50	4.16	5,546.90	0.91	325.52	30.2	401	0.250 U	15	0.292	7.5
LM-2	10/29/10	59.54	5.27	12,292.11	1.08	27.03	90.4	385	5.000 U	760	0.196	5.2
LM-2	12/16/11	49.80	4.12	17,054.02	0.85	370	460 U	829	0.250 U	85	0.309	3.4
LM-2	12/18/12	50.34	4.98	14,232.66	1.15	112	35.9	652	0.250 U	2,300	0.263	5.5
LM-2	12/18/13	50.45	6.08	6,670.25	0.23	-39.01	43	337	0.250 U	1,800	0.213	6.0
LM-2	12/09/14	54.22	6.02	15,451.56	0.43	-191.87	101	563	0.250 U	1,700	0.569	>10
LM-2	07/26/17	64.92	6.29	4,426.9	0.07	-79.2	NA	10.0	0.250 U	5,600	0.184	10
MW-101	10/22/08	59.63	6.13	2,773.56	0.19	64.36	42	96.2	0.21	170	1.33	3.6
MW-101	12/10/08	55.79	5.99	1,807.60	0.41	132.69	50	41	0.45	708	3.32	2.2
MW-101	02/24/09	43.38	6.32	870.43	0.78	49.88	110	70.6	0.39	3,000	2.38	2.4
MW-101	04/22/09	49.80	6.19	452.57	3.79	24.22	83	83.3	0.98	300	0.977	1.0
MW-101	06/25/09	57.14	6.10	901.96	1.65	129.31	56	135	0.250 U	71	1.55	0.5
MW-101	08/20/09	64.03	6.15	1,864.72	0.66	48.55	75.8	110	0.250 UW	250 P	2.98	6.0
MW-101	10/27/09	59.81	6.11	877.98	1.56	141.54	101	37.5	1.20	1.7	0.185	0.5
MW-101	10/27/10	59.43	6.12	3,096.41	2.12	-48.48	108	107	0.250 U	200	1.33	5.0
MW-101	12/14/11	54.44	6.54	1,095.90	0.95	100	130	35.3	0.910	320	0.0501	0.0
MW-101	12/18/12	52.84	6.63	180.44	9.59	119.91	109	16.3	1.300	3 U	0.0012	0.0
MW-101	12/20/13	52.58	6.22	1,631.96	1.43	94.46	203	9.7	0.490	2,600	0.0509	0.0
MW-101	12/10/14	56.57	6.65	347.63	5.55	135.62	90	20	1.800	25	0.0013	0.0
MW-101	07/25/17	58.75	6.50	445.74	2.28	116.9	NA	38.5	0.250 U	8.5	0.043	0.25
MW-101* (Duplicate)	07/25/17	--	--	--	--	--	--	33.7	0.290	9.8	0.036	--
MW-104	10/22/08	58.72	6.26	2,428.46	-0.01	-13.09	35.6	66.6	0.200 U	594	1.02	4.0
MW-104	12/10/08	55.07	6.24	982.41	0.22	30.53	53.8	23.1	0.200 U	1,160	1.13	3.0
MW-104	02/24/09	49.93	6.08	967.89	0.21	-26.14	58.8	17	0.250 U	2,200	1.19	3.2
MW-104	04/23/09	48.22	6.23	566.34	1.01	-121.29	59.2	60.2	0.73	1,800	0.959	4.0
MW-104	06/24/09	58.33	6.34	506.78	0.21	-62.91	63.9	39.2	0.25 U	1,200	0.714	6.0
MW-104	08/19/09	62.87	6.32	1,353.13	0.29	-61.28	75.6	45	0.25 U	950	0.901	6.0
MW-104	10/27/09	60.10	6.12	2,590.00	0.43	-27.46	110	92.4	0.3	3,200	1.4	4.5
MW-104	10/27/10	58.17	6.16	1,640.32	0.04	-86.19	95.1	31.2	0.25 U	1,300	1.3	2.1
MW-104	12/13/11	53.28	6.19	863.19	0.14	-10.00	112	52.8	0.53 U	1,700	0.765	3.0
MW-104	12/18/12	50.70	6.35	229.74	3.31	197.61	96.4	17.2	1.6	37	0.061	1.0
MW-104	12/17/13	53.92	6.17	323.93	0.13	-66.63	108	18.3	0.3	980	0.287	0.12
MW-104	12/09/14	56.77	6.36	358.53	0.06	11.37	109	26	0.250 U	1,300	0.367	0.6
MW-104	07/26/17	60.48	6.53	360.84	0.18	17.2	NA	6.8	0.250 U	440	0.254	2.5
MW-108	10/23/08	53.88	6.26	14,851.80	0.20	-83.53	509	373	1 UJ	2,390 D	0.208	1.4

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-108	12/11/08	50.51	6.29	14,241.04	0.01	-184.14	557	288	0.200 U	1,410 D	0.242	1.2
MW-108	02/26/09	50.02	6.28	15,209.47	0.19	-268.28	549	456	0.250 U	3,000	0.263	3.0
MW-108	04/23/09	49.14	6.36	14,218.55	0.02	-270.38	517	315	0.250 U	2,400	0.278	3.0
MW-108	06/25/09	54.05	6.30	15,829.18	0.72	-132.71	486	507	0.52	2,100	0.284	4.5
MW-108	08/20/09	56.41	6.31	16,788.72	0.07	-158.78	525	401	0.25 UW	3,500	0.254	2.0
MW-108	10/30/09	55.36	6.31	18,050.49	0.12	-88.09	495	566	0.25 U	2,100	0.267	5.0
MW-108	10/29/10	54.88	6.31	23,517.97	0.02	-260.17	475	508	5 U	1,600	0.191	1.2
MW-108	12/16/11	51.90	6.27	20,084.25	0.07	-110.00	356	426	0.25 U	1,100	0.318	2.0
MW-108	12/18/12	45.21	6.17	12,903.42	0.63	-156.33	376	391	0.25 U	1,000	0.141	2.7
MW-108	12/19/13	50.97	6.51	21,819.37	-0.03	-267.22	545	381	0.25 U	2,100	0.124	0.2
MW-108	12/09/14	55.06	6.49	22,617.16	0.04	-321.05	605	404	0.250 U	3300	0.107	1.0
MW-109	10/23/08	54.91	6.22	16,332.14	1.34	-194.55	342	693	1 UJ	785	1.59	0.6
MW-109	12/12/08	51.03	6.29	12,565.11	0.80	-193.01	291	640	0.200 U	560	0.528	0.2
MW-109	02/26/09	47.82	6.38	13,623.75	3.97	-179.39	300	993	0.250 U	820	1.21	0.4
MW-109	04/23/09	47.97	6.03	8,713.56	1.84	-192.93	316	546	0.250 U	350	1.58	1.0
MW-109	06/25/09	54.17	6.21	22,124.79	0.52	-138.25	202	1,660	1.4	570	1.09	3.0
MW-109	08/20/09	55.99	6.37	23,873.46	2.33	-155.34	331	1,540	0.25 UW	320 P	1,650	1.0
MW-109	10/30/09	55.51	6.00	14,892.73	0.76	-41.77	332	1,200	0.25 U	400	1.38	1.0
MW-109	10/29/10	54.34	6.54	23,528.21	3.14	-262.04	348	824	0.25 U	420	1.93	0.1
MW-109	12/16/11	50.80	6.35	13,573.50	1.60	-120.00	259	597	0.25 U	310	1.58	1.6
MW-109	12/18/12	46.13	5.94	3,373.44	1.39	-92.39	153	193	0.250 U	390	0.381	3.1
MW-109	12/19/13	49.84	6.70	22,150.19	6.62	-204.45	440	547	0.25 U	160	1.84	0.0
MW-109	12/09/14	54.73	6.63	14,320.49	6.42	-244.96	361	450	0.250 U	1300	1.520	0.2
MW-126	12/18/12	49.66	6.75	301.47	2.81	13.21	249	19.6	0.250 U	3.0 U	0.126	2.0
MW-126	12/17/13	50.04	6.69	666.12	1.75	48.55	264	39.1	0.280	3.0 U	0.294	3.0
MW-126	12/10/14	52.14	6.73	730.22	0.13	38.63	283	25.3	0.250 U	3.0 U	0.0592	0.0
MW-126	07/25/17	55.16	6.09	461.04	0.95	232.7	NA	33.2	0.250 U	3.0 U	0.008	0.95
MW-129R	10/24/08	54.76	6.45	839.57	-0.02	-33.84	502	23.8	0.200 U	1,930	5.74	5.8
MW-129R	12/12/08	51.10	6.62	867.09	0.12	-76.86	469	91.6	0.200 U	1,600 D	10.3	5.4
MW-129R	02/27/09	47.80	6.50	836.19	0.18	-70.26	505	47.1	0.250 U	6,000	8.56	5.8
MW-129R	04/27/09	49.18	6.56	822.66	0.17	-116.70	485	60.4	0.250 U	10,000	8.21	10.0
MW-129R	06/26/09	54.44	6.54	1,301.40	0.07	-79.11	493	64.4	0.250 U	9,100	7.81	9.0
MW-129R	08/21/09	57.58	6.58	1,013.56	0.06	-286.98	597	51.3	0.250 U	5,400	7.88	9.0
MW-129R	10/28/09	55.23	6.75	1,919.06	0.05	-161.96	1,150	1.7	0.250 U	15,000	5.22	8.0
MW-129R	11/01/10	55.53	6.58	1,397.48	0.10	-155.22	742	75.3	0.250 U	5,500	8.92	2.8
MW-129R	12/19/11	52.20	6.52	1,679.97	0.01	-110.00	1,000	25.2	0.250 U	11,000	7.00	5.0
MW-129R	12/18/12	51.77	6.60	1,485.27	0.29	-82.07	687	102	0.250 U	3900	10.3	5.0
MW-129R	12/18/13	52.41	6.73	1,113.53	0.08	-117.71	699	66.3	0.250 U	2,300	11.3	4.5
MW-129R	12/09/14	54.53	6.69	1,490.49	0.06	-134.58	710	11	0.05 U	5200	10.5	>10
MW-129R	07/26/17	58.59	6.64	1,435.1	0.11	-41.5	NA	112	0.250 U	4,200	8.270	7.0
MW-134X	12/14/12	51.75	6.42	306.96	10.37	109.28	124	32.2	0.890	3.00 U	0.102	2.0

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-134X	12/19/13	50.93	6.23	256.29	2.61	1.35	139	34	1.200	3 U	0.0	2.5
MW-134X	12/10/14	55.84	6.29	422.07	3.12	41.77	133	38	1.300	13	0.003	0.6
MW-135	10/27/08	54.94	6.51	1,848.03	-0.03	-60.48	959	4.12	0.200 U	10,800 D	2.68	4.0
MW-135	12/15/08	49.73	6.59	1,954.54	-0.09	-81.98	1070	1.43	0.200 U	7,170 D	2.69	2.2
MW-135	02/27/09	52.61	6.38	760.32	0.27	22.19	402	79.1	0.250 U	1,100	1.31	3.4
MW-135	04/24/09	50.76	6.48	649.63	0.13	-134.17	382	67.2	0.250 U	620	0.743	2.0
MW-135	06/29/09	51.44	6.47	1,319.24	1.09	-31.25	752	33	0.43	2,600	1.66	6.0
MW-135	08/24/09	53.02	6.56	2,049.88	0.29	-60.39	1140	6	0.250 U	11,000	1.67	7.0
MW-135	10/29/09	52.90	6.54	2,162.52	0.14	-87.07	1220	2.4	0.250 U	12,000	1.75	8.0
MW-135	11/01/10	54.37	6.46	2,818.70	0.06	-74.99	1160	1.5 U	0.250 U	12,000	1.24	5.6
MW-135	12/16/11	51.80	6.57	1,200.88	0.04	-20.00	425	101	0.250 U	250	0.37	7.0
MW-135	12/19/12	50.79	6.42	504.30	4.73	15.82	291	32.5	1.5	1,200	0.142	3.4
MW-135	12/20/13	50.87	6.50	1,914.40	0.03	549.43	1080	1.5 U	0.250 U	20,000	0.755	4.9
MW-135	12/12/14	54.03	6.36	818.48	1.44	-13.44	291	49	0.250 U	740	0.080	7.5
MW-136	10/27/08	53.88	6.34	2,330.80	0.06	-57.07	851	0.42	0.200 U	16,800 D	3.19	4.2
MW-136	12/15/08	46.47	6.31	1,092.68	0.17	-99.68	629	32.5	0.200 U	9,050 D	4.31	2.8
MW-136	02/27/09	47.97	6.34	990.82	0.43	-56.64	474	72.1	0.250 U	8,900	4.05	5.6
MW-136	04/24/09	49.91	6.41	925.24	0.07	-193.85	405	91.1	0.250 U	13,000	4.62	8.0
MW-136	06/29/09	51.53	6.43	975.31	0.37	-75.06	492	72.1	0.250 U	16,000	4.86	7.0
MW-136	08/24/09	54.28	6.43	1,020.67	0.14	-92.53	544	36.3	0.250 U	21,000	4.82	10.0
MW-136	10/29/09	53.78	6.35	981.76	0.25	-113.64	574	1.5 U	0.250 U	19,000	4.63	7.0
MW-136	11/01/10	54.50	6.44	1,147.64	0.05	-140.56	576	1.5 U	0.250 U	17,000	6.13	1.8
MW-136	12/16/11	51.90	6.43	2,964,572.75	-0.01	-94.97	523	2.8	0.250 U	20,000	12.6	2.0
MW-136	12/19/12	49.27	6.61	771.17	0.06	-216.79	416	14.8	0.250 U	8,200	10.2	7.0
MW-136	12/20/13	49.48	6.30	696.18	0.07	-202.27	488	1.5 U	0.250 U	25,000	12.9	6.0
MW-136	12/12/14	52.88	6.76	734.70	1.96	-54.76	405	5	0.250 U	10000	10.700	9.5
MW-139R	10/22/08	63.60	6.87	664.62	0.01	-22.31	243	64.8	0.200 U	864	2.48	1.0
MW-139R	12/10/08	54.36	6.96	708.71	0.78	15.38	167	76.1	0.2	12.5	0.902	0.5
MW-139R	02/25/09	43.11	7.06	334.12	3.34	136.11	105	53	0.4	5 U	0.115	0.4
MW-139R	04/23/09	47.34	7.08	180.00	1.66	-104.66	81.4	32.3	0.250 U	10 U	0.0102	0.4
MW-139R	06/25/09	62.38	7.14	365.34	0.50	-96.96	134	51.5	0.250 U	34	0.523	2.0
MW-139R	08/20/09	69.85	7.10	439.97	0.22	-108.16	156	49.7	0.250 UW	77 P	0.512	1.0
MW-139R	10/28/09	60.58	6.95	277.93	1.41	71.75	110	37.5	0.250 U	5.2	0.0215	0.5
MW-139R	10/28/10	61.92	6.86	447.33	2.11	-69.41	185	60.4	0.250 U	52	0.189	1.0
MW-139R	12/15/11	51.33	6.99	258.44	2.69	70.00	114	35.2	0.250 U	5 U	0.027	0.0
MW-139R	12/18/12	49.36	6.93	258.61	4.11	196.75	85.2	16.3	0.260	3.0 U	0.0024	0.0
MW-139R	12/18/13	53.40	6.89	374.82	1.21	-103.26	139	33.8	0.250 U	5.6	0.0272	1.2
MW-139R	12/10/14	56.26	7.01	416.71	1.78	102.78	135	31	0.25 U	3 U	0.0185	0.1
MW-139R	07/27/17	63.47	6.88	467.67	0.29	--	NA	25.9	0.250 U	160	0.176	1.25
MW-13U	12/14/12	23.38	33.19^	53,946.56	2.96	-1,395.87	116	14.9	0.850	3.00 U	0.0019	0.0

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-13U	12/20/13	52.45	6.25	181.31	2.40	-66.63	109	67.3	0.670	3.0 U	0.00073 U	0.0
MW-13U	12/10/14	57.94	6.48	281.43	3.25	147.77	104	16	0.950	3 U	0.001	0.0
MW-143	10/22/08	59.41	6.49	383.51	0.01	-49.00	142	34.4	0.200 U	2,210 D	1.26	5.4
MW-143	12/16/08	50.76	6.39	367.82	0.06	-73.14	194	12.9	0.200 U	7,630 D	3.82	3.2
MW-143	02/25/09	49.77	6.32	391.78	0.23	-61.12	229	1.5 U	0.250 U	18,000	4.47	4.2
MW-143	04/21/09	51.98	6.44	395.08	0.12	-167.60	220	1.8	0.250 U	17,000	4.28	5.8
MW-143	06/24/09	59.07	6.39	418.65	0.37	-130.39	210	1.5 U	0.250 U	15,000	3.67	6.0
MW-143	08/19/09	61.70	6.42	379.94	0.06	-84.88	182	9.1	0.250 U	4,100	1.86	2.0
MW-143	10/27/09	60.32	6.35	356.97	0.17	-144.82	154	14.5	0.360	4,900	0.868	6.5
MW-143	10/27/10	59.34	6.56	268.76	0.51	-174.12	68.5	55.7	0.250 U	620	0.214	3.0
MW-143	12/14/11	52.72	6.36	392.01	0.08	-81.55	229	1.5 U	0.250 U	19,000	4.01	5.5
MW-143	12/20/12	52.68	6.34	403.71	0.10	-76.85	244	1.5 U	0.250 U	17,000	4.37	5.3
MW-143	12/18/13	53.20	6.34	398.11	1.18	-41.69	206	1.5 U	0.250 U	22,000	3.7	4.6
MW-143	12/10/14	55.73	6.39	595.43	1.10	-63.38	227	2	0.25 U	19000	4.04	>10
MW-143	07/25/17	59.95	6.40	660.49	0.19	-55.3	NA	1.5 U	0.250 U	20,000	4.450	>7
MW-147	10/21/08	58.43	6.24	516.46	-0.02	-18.40	131	67.2	0.200 U	330	2.38	5.2
MW-147	12/09/08	52.49	6.42	692.37	0.18	-104.13	301	141	0.200 U	895	4.16	6.4
MW-147	02/23/09	49.80	6.42	776.76	0.12	-93.21	407	111	0.250 U	1,000	4.86	5.4
MW-147	04/21/09	50.50	6.50	629.49	0.09	634.02	334	86.9	0.250 U	1,500	4.08	6.0
MW-147	06/23/09	55.54	6.50	696.30	0.04	-108.35	393	49.6	0.250 U	340	3.92	7.0
MW-147	08/18/09	60.57	6.46	605.85	0.06	-45.34	272	74.2	0.250 U	610	3.01	7.0
MW-147	10/26/09	58.00	6.35	518.53	0.10	-41.83	205	84.6	0.250 U	890	3.26	8.0
MW-147	10/26/10	56.07	6.34	426.81	0.20	-74.33	162	83.6	0.250 U	340	2.96	5.2
MW-147	12/13/11	52.52	5.99	440.75	0.12	-13.48	181	134	0.640	15	2.61	1.6
MW-147	12/14/12	52.59	6.05	399.49	3.72	141.88	147	144	0.250 U	5.40	3.61	3.6
MW-147	12/17/13	53.28	6.05	510.40	0.31	147.70	145	189	0.290	36	2.13	1.0
MW-147	12/09/14	52.65	5.95	466.27	4.61	229.44	92.3	136	0.250 U	3 U	1.190	0.1
MW-149R	10/21/08	58.41	6.56	521.83	0.09	-34.31	225	52.5	0.200 U	1,610 D	0.963	1.6
MW-149R	12/09/08	52.55	6.22	466.01	0.17	101.87	117	165	0.200 U	224	1.06	0.6
MW-149R	02/23/09	48.40	6.43	441.39	0.09	82.90	161	133	0.250 U	420	0.507	0.6
MW-149R	04/21/09	48.99	6.37	329.88	1.25	589.02	115	117	0.71	60	0.216	0.2
MW-149R	06/23/09	56.35	6.56	556.71	0.01	15.84	217	118	0.250 U	860	0.338	3.0
MW-149R	08/18/09	62.17	6.56	643.81	0.15	-22.07	256	121	0.250 U	1,100	0.48	3.0
MW-149R	10/26/09	58.37	6.21	404.24	3.57	203.93	76.4	160	1.600	7.9	0.0113	1.0
MW-149R	10/26/10	57.49	6.36	501.89	0.55	50.72	150	135	0.770	28	0.14	0.5
MW-149R	12/13/11	50.53	6.39	277.74	0.67	210.00	79.1	122	1.6	5 U	0.0163	0.0
MW-149R	12/14/12	49.79	6.42	442.76	5.35	227.31	154	172	0.770	3.00 U	0.0074	0.5
MW-149R	12/17/13	51.91	6.32	446.22	0.22	150.77	83.2	128	1.5	3 U	0.0051	1.0
MW-149R	12/09/14	51.67	6.41	306.80	5.37	258.01	84.7	57	1.800	3 U	0.001	0.1
MW-150	10/21/08	58.35	6.52	748.62	-0.05	25.37	444	68.7	0.200 U	622	1.52	1.4
MW-150	12/09/08	52.71	6.54	761.44	0.20	32.64	440	134	0.200 U	389	1.52	1.8

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-150	02/23/09	48.38	6.56	586.85	0.14	71.82	371	101	0.250 U	180	1.24	1.0
MW-150	04/21/09	48.86	6.69	570.05	0.15	-80.49	341	86.5	0.250 U	50	1.14	1.0
MW-150	06/23/09	57.16	6.77	569.79	0.27	31.03	347	60.8	0.250 U	220	0.945	1.0
MW-150	08/18/09	62.67	6.61	708.96	0.06	-5.64	403	69.3	0.250 U	350	1.24	1.8
MW-150	10/26/09	58.83	6.64	587.23	0.96	70.66	316	73	0.380	51	0.295	1.0
MW-150	10/26/10	58.28	6.34	2,521,506.50	0.60	33.14	347	63.6	1.1	110	0.812	1.8
MW-150	12/13/11	51.57	6.54	619.48	0.06	3.17	390	89.4	0.380	150	1.37	2.0
MW-150	12/14/12	51.94	6.59	409.93	0.48	101.66	263	41.1	0.250 U	26.0	0.179	0.0
MW-150	12/17/13	52.39	6.55	822.42	0.29	19.61	386	64.6	0.250 U	980	2.24	3.0
MW-150	12/09/14	54.45	6.39	591.47	1.31	235.42	309	54	0.250 U	280	0.440	0.1
MW-203	12/17/12	51.62	6.23	197.93	5.66	229.49	79.1	10.2	2.0	3.0 U	0.00083	NA
MW-203	12/19/13	48.13	6.33	143.10	4.97	2.03	80.7	9.2	1.9	3.0 U	0.0021	1.5
MW-203	12/10/14	53.67	6.35	233.78	5.29	130.18	77.1	11	2.300	3 U	0.001 U	0.1
MW-20R	10/22/08	55.85	6.68	10,026.36	0.15	-63.43	306	283	0.200 U	771	2.97	6.0
MW-20R	12/10/08	54.77	6.63	7,040.07	0.00	-88.61	263	238	0.200 U	886	1.63	4.0
MW-20R	02/24/09	49.87	6.89	2,668.49	0.11	-94.36	271	77.7	0.250 U	3,300	0.404	2.0
MW-20R	04/22/09	48.29	6.77	1,613.57	0.53	-71.76	250	33.6	0.250 U	2,800	0.293	5.5
MW-20R	06/24/09	54.32	6.73	6,859.37	0.44	-54.70	234	287	0.39	160	1.24	3.5
MW-20R	08/19/09	58.26	6.72	12,573.84	0.18	-122.78	229	592	0.250 U	900	2.49	6.0
MW-20R	10/27/09	57.49	6.43	11,374.52	0.61	-95.09	153	520	2.80	340	1.41	2.0
MW-20R	10/27/10	57.29	6.80	30,822.78	0.07	-143.50	128	1,710	1.2	51	0.839	2.6
MW-20R	12/14/11	53.47	6.56	10,515.91	-0.01	-39.92	220	566	0.250 U	1,400	0.488	2.6
MW-20R	12/17/12	51.84	5.76	177.51	7.57	236.30	39.9	63.6	0.250 U	3.0 U	0.127	0.5
MW-20R	12/18/13	53.27	6.72	6,772.63	0.07	-113.24	231	315	0.250 U	1,400	0.22	0.6
MW-20R	12/10/14	55.64	6.44	5,415.46	2.64	-208.01	129	232	0.25 U	140	0.116	0.1
MW-20R	07/26/17	58.29	6.51	17,957	3.14	40.8	NA	835	0.250 U	410	1.520	4.75
MW-500	10/27/08	60.04	6.44	4,499.73	0.05	-10.17	977	172	0.200 U	8,590 D	0.97	4.2
MW-500	12/15/08	48.50	6.73	641.64	0.50	76.79	362	134	0.23	1,940 D	0.511	0.0
MW-500	02/27/09	44.74	6.77	475.25	0.29	111.07	334	37.7	0.250 U	6,400	0.2	1.2
MW-500	04/24/09	50.90	6.73	339.34	0.44	-143.85	263	18.6	0.250 U	39	0.0808	0.4
MW-500	06/29/09	59.99	6.38	1,001.85	-0.08	-44.59	464	17,900	0.250 U	16,000	1,340	3.0
MW-500	08/21/09	67.41	6.38	1,341.80	0.10	-233.97	647	2.20	0.250 U	15,000	1.82	2.5
MW-500	10/29/09	59.42	6.42	734.24	0.16	-104.24	362	131	0.350	13,000	1.97	1.5
MW-500	11/01/10	58.82	6.16	735.00	0.07	-145.52	451	22.4	0.250 U	12,000	1.8	5.5
MW-500	12/16/11	52.50	6.26	1,101,366.63	0.13	-103.35	175	4.3	0.250 U	9,400	0.344	5.2
MW-500	12/19/12	49.54	6.97	120.55	7.19	124.35	86.8	4.6	0.350	3 U	0.0012	0.6
MW-500	12/20/13	47.66	6.09	2,125.76	7.41	-25.52	401	1.5 U	0.250 U	19,000	1.38	0.14
MW-500	12/11/14	51.79	6.62	243.84	0.59	11.00	98.5	8	0.250 U	8400	0.100	0.2
MW-501	10/24/08	60.21	6.53	3,805.79	-0.02	-27.98	1,700	59.2	0.200 U	10,500 DJ	3.49	5.0
MW-501	12/15/08	51.44	6.66	475.85	4.55	91.22	269	55.4	1.73	91.9	0.0552	0.0
MW-501	03/02/09	49.42	6.49	434.37	2.35	216.95	317	34.7	1.2	56	0.67	0.8

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-501	04/24/09	51.05	6.53	374.33	1.03	-42.42	248	29.7	0.250 U	140	0.694	1.0
MW-501	06/26/09	59.01	6.40	1,025.69	0.04	37.36	NA	12.6	0.250 U	16,000	2.8	0.0
MW-501	08/21/09	67.17	6.44	1,361.38	0.19	-47.09	752	2.7	0.250 U	13,000	5	7.0
MW-501	10/29/09	58.23	6.43	366.98	0.24	-105.85	242	26.1	0.250 U	380	4.9	5.0
MW-501	11/01/10	59.18	6.26	844.99	0.10	-102.31	509	1.5	U 0.250 U	14,000	4.95	7.2
MW-501	12/16/11	52.30	6.31	1,364,320.50	0.02	-162.31	219	5.8	0.250 U	1,400	1.65	4.2
MW-501	12/19/12	50.03	6.29	135.87	3.04	-19.66	82.5	3.0	0.250 U	220	0.0812	1.0
MW-501	12/20/13	46.25	6.22	352.27	0.51	80.35	247	11.2	0.250 U	17,000	2.45	5.5
MW-501	12/11/14	52.36	6.24	312.79	0.07	-115.67	118	4	0.250 U	4400	1.530	5.0
MW-502	10/24/08	59.77	6.31	558.51	0.05	-36.88	98	70.2	0.200 U	98.8 D	1.1	6.4
MW-502	12/12/08	53.20	6.36	482.08	0.04	-33.02	87.2	63.4	0.200 U	67	0.739	3.0
MW-502	02/25/09	48.02	6.37	343.38	0.11	-24.32	67.9	56.8	0.250 U	53	0.681	6.4
MW-502	04/22/09	50.96	6.36	314.18	0.03	226.34	67.7	48	0.250 U	40	0.635	7.0
MW-502	06/26/09	61.26	6.37	379.61	0.14	-57.95	95	52.8	0.250 U	33	0.627	6.5
MW-502	08/21/09	64.60	6.17	364.92	0.10	-38.59	107	27.6	0.250 U	20 P	0.585	6.0
MW-502	10/28/09	60.10	6.34	413.99	0.14	-65.94	153	41.4	0.250 U	45	0.568	6.0
MW-502	10/28/10	59.88	6.09	377.99	0.11	31.93	100	30.2	0.250 U	5.2	0.407	4.8
MW-502	12/16/11	53.40	6.12	280.64	0.05	127.40	84.3	31.4	0.250 U	5.7	0.244	0.8
MW-502	12/19/12	49.12	6.13	201.10	0.50	100.97	101	27.4	1.2	56	0.149	1.0
MW-502	12/20/13	50.47	6.26	431.25	0.10	33.60	79	34	0.250 U	3	0.355	3.6
MW-502	12/11/14	51.82	6.20	390.23	0.75	206.18	118	26	2.8	3 U	0.0724	0.1
MW-502	07/26/17	58.28	6.24	315.05	0.14	48.2	NA	29.1	0.250 U	3 U	0.258	4.25
MW-502 (Duplicate)	07/26/17	--	--	--	--	--	--	26.9	0.250 U	3 U	0.251	--
MW-503	10/27/08	58.09	6.21	359.03	0.00	-44.22	189	8.44	0.200 U	478	0.139	3.0
MW-503	12/12/08	54.35	6.36	302.27	0.07	-38.20	169	9.51	0.200 U	306	0.188	4.6
MW-503	02/26/09	50.47	6.29	280.63	0.12	-14.44	155	11.8	0.250 U	210	0.196	2.0
MW-503	04/22/09	51.85	6.36	273.33	0.02	259.93	152	12.3	0.250 U	150	0.245	7.0
MW-503	06/26/09	55.34	6.36	281.37	0.05	-56.57	156	16.3	0.250 U	190	0.225	6.5
MW-503	08/21/09	60.08	6.34	311.25	0.02	-37.47	158	11.7	0.250 U	180 P	0.238	7.0
MW-503	10/28/09	58.50	6.31	314.43	0.04	-44.90	159	12.1	0.250 U	190	0.241	10.0
MW-503	10/28/10	58.32	6.18	512.56	0.10	-23.74	145	14.9	0.250 U	180	0.318	5.6
MW-503	12/15/11	54.30	6.26	443.34	0.00	-17.75	137	24.2	0.250 U	130	0.478	5.2
MW-503	12/18/12	55.26	6.22	494.81	0.02	-90.25	155	37.8	0.250 U	100	0.534	1.0
MW-503	12/19/13	55.23	6.14	1,265.08	0.01	-23.91	145	40.3	0.250 U	74	0.567	5.2
MW-503	12/11/14	55.83	6.28	651.61	0.15	-21.99	142	39	0.25 U	61	0.518	9.5
MW-504	10/24/08	58.92	6.73	1,157.92	0.08	5.06	435	64.2	0.200 U	1,970 D	3.24	0.8
MW-504	12/12/08	49.76	6.98	958.10	0.24	36.78	261	188	0.71	269	1.14	0.2
MW-504	02/27/09	46.92	7.04	572.72	0.28	473.30	251	119	0.4	120	0.376	0.2
MW-504	04/24/09	49.13	7.08	566.26	0.92	-47.37	227	129	0.71	56	0.228	0.2
MW-504	06/26/09	59.97	7.08	595.29	0.14	33.80	274	106	0.250 U	170	0.419	0.0
MW-504	08/21/09	66.52	6.88	797.96	0.04	28.06	338	84.7	0.250 U	840	1.19	0.0

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-504	10/28/09	60.48	6.81	637.65	0.41	52.25	311	86.7	0.650	380	0.676	1.5
MW-504	10/28/10	60.75	6.76	786.39	0.73	-63.57	301	47.8	0.250 U	180	0.804	0.5
MW-504	12/16/11	54.30	6.83	412.10	0.96	153.17	225	66.3	0.250 U	170	0.4	0.0
MW-504	12/18/12	48.08	7.44	235.83	8.60	69.47	115.0	8.4	0.250 U	3.0 U	0.0015	0.0
MW-504	12/19/13	53.95	6.22	351.95	0.03	-40.96	223	17	0.250 U	700	1.08	2.0
MW-504	12/11/14	50.76	7.15	309.59	6.81	72.46	115	16	0.25 U	620	0.0011	0.1
MW-504	07/26/17	62.32	6.84	420.98	0.10	46.3	NA	12.0	0.250 U	570	0.650	0.0
MW-505	10/24/08	56.61	6.77	1,292.49	0.42	23.88	289	119	0.54	961	2.41	0.6
MW-505	12/15/08	51.14	6.89	823.56	2.25	68.13	216	144	0.63	219	1.42	0.0
MW-505	02/27/09	46.85	6.85	659.23	2.72	182.77	181	167	0.39	130	1.16	0.0
MW-505	04/22/09	49.75	7.04	586.48	1.48	-144.75	184	134	0.43	100	1.1	0.0
MW-505	06/26/09	62.11	7.01	637.54	1.42	-17.29	190	133	0.34	190	9.11	0.5
MW-505	08/21/09	64.00	6.88	719.54	0.60	-15.81	185	72.9	0.25 U	190 P	0.997	1.0
MW-505	10/28/09	57.61	6.87	620.60	1.83	26.22	187	136	0.38	230	1.1	0.5
MW-505	10/29/10	59.58	6.75	613.95	0.05	-59.16	219	58.6	0.25 U	1,000	1.17	1.8
MW-505	12/15/11	53.63	6.77	530.14	0.65	0.00	245	92.3	0.25 U	390	1.41	1.2
MW-505	12/18/12	52.29	6.91	260.87	6.66	71.61	125	69.7	0.250 U	5.0	0.143	1.0
MW-505	12/19/13	53.04	6.25	1,300.95	0.01	-8.82	237	66.3	0.250 U	490	1.24	2.5
MW-505	12/11/14	52.91	6.87	328.26	5.83	138.69	97.8	21	0.25 U	460	0.366	0.2
MW-505	07/26/17	63.49	6.78	542.29	0.18	-19.6	NA	44.4	0.250 U	1,300	1.230	3.5
MW-506	10/24/08	58.38	6.90	851.73	-0.03	-3.02	238	147	0.200 U	2,820 D	1.42	0.8
MW-506	12/12/08	49.85	6.88	863.65	0.35	52.81	186	90.7	0.21	1,770 D	1.61	0.4
MW-506	02/27/09	47.32	7.10	363.65	0.50	76.54	121	59.9	0.56	140	0.105	0.0
MW-506	04/24/09	48.74	7.12	272.22	0.56	-138.25	115	53.6	1	36	0.0139	0.0
MW-506	06/26/09	57.74	7.11	601.49	0.11	85.41	183	74.3	320	1,800	0.135	0.0
MW-506	08/21/09	62.46	7.06	329.13	0.07	46.69	141	28.1	0.25 U	2,200	0.434	0.5
MW-506	10/30/09	59.70	6.89	363.42	0.37	4.84	132	71.7	0.25 U	1,600	0.729	0.5
MW-506	10/29/10	58.82	6.83	518.80	0.09	-28.40	207	29.8	0.25 U	5,200	1.97	0.6
MW-506	12/15/11	52.57	7.04	283.39	0.15	38.13	183	36.1	0.85	140	0.273	0.0
MW-506	12/19/12	51.08	6.94	226.17	4.59	158.02	143	27.1	0.250 U	42	0.0897	0.0
MW-506	12/19/13	52.82	6.75	422.56	0.03	-38.21	192	17.8	0.25 U	2,700	2.15	1.0
MW-506	12/11/14	54.27	7.29	429.59	6.55	110.57	153	32	1	45	0.139	0.1
MW-506	07/27/17	59.29	6.98	416.24	0.12	92.7	NA	4.3	0.250 U	4,900	1.630	0.5
MW-507	10/24/08	58.31	6.54	642.48	0.01	-93.26	214	80.7	0.200 U	1,110 D	5.1	6.0
MW-507	12/12/08	52.21	6.61	795.60	0.07	-46.04	297	151	0.200 U	850	3.31	3.8
MW-507	02/27/09	48.70	6.51	909.55	0.26	37.35	290	279	0.250 U	1,600	3.97	3.2
MW-507	04/24/09	51.10	6.53	992.50	0.14	-38.69	293	364	0.250 U	1,600	3.4	3.0
MW-507	06/26/09	56.60	6.52	1,350.93	0.03	-29.33	252	282	0.250 U	1,100	4.27	7.0
MW-507	08/21/09	61.75	6.48	964.71	0.20	-46.15	279	297	0.250 U	2,300	6.04	7.0
MW-507	10/28/09	59.50	6.59	1,034.93	0.38	-20.79	350	302	0.250 U	280	3.39	2.0
MW-507	10/29/10	59.85	6.62	1,097.89	0.36	-66.97	347	243	0.250 U	59	1.67	1.5

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-507	12/16/11	54.20	6.65	843.34	0.21	113.30	307	314	0.250 U	150	1.4	0.8
MW-507	12/19/12	48.76	6.65	809.79	1.61	6.98	213	174	0.330	6.7	0.175	1.5
MW-507	12/19/13	53.46	6.55	1,087.97	0.08	-76.22	365	203	0.250 U	250	1.08	1.2
MW-507	12/11/14	53.84	6.62	863.67	3.13	-97.50	218	171	0.68	3 U	0.0288	0.1
MW-507	07/27/17	60.09	6.74	905.45	0.42	197.4	NA	142	0.250 U	22	0.746	1.75
MW-507 (Duplicate)	07/27/17	--	--	--	--	--	--	142	0.250 U	37	0.689	--
MW-508	10/24/08	58.26	6.80	1,614.86	0.09	-18.99	430	141	0.200 U	1,630 D	0.248	0.4
MW-508	12/11/08	53.93	6.52	750.26	0.12	79.75	209	205	0.66	641	1.38	0.2
MW-508	02/26/09	48.90	6.40	786.61	0.22	-210.79	212	243	0.560	1,300	0.963	0.0
MW-508	04/23/09	49.87	6.29	882.52	0.22	-116.34	177	267	0.78	350	0.942	0.4
MW-508	06/26/09	57.68	6.54	949.43	0.18	-79.16	216	274	0.250 U	6,100	1,010	0.0
MW-508	08/21/09	61.65	6.39	1,031.70	0.21	-269.40	304	364	0.640	5,900	0.467	0.0
MW-508	10/28/09	59.81	6.13	704.28	0.49	159.01	216	224	0.750	3,500	0.767	0.0
MW-508	10/28/10	60.58	6.25	740.35	1.00	-106.68	223	176	0.250 U	6,600	0.735	2.0
MW-508	12/15/11	54.52	6.41	723.53	0.01	-17.85	270	268	0.250 U	8,200	0.570	5.0
MW-508	12/19/12	54.39	6.18	554.34	0.11	4.78	228	188	0.290	5,900	0.696	4.0
MW-508	12/19/13	51.96	6.15	736.98	0.46	-70.89	246	171	0.250 U	2,600	0.395	4.0
MW-508	12/11/14	55.00	6.15	508.40	2.08	186.27	117	136	0.25 U	14	0.146	0.0
MW-508	07/27/17	63.35	6.49	596.45	0.12	-63.9	NA	2.3	0.250 U	6,800	1.040	6.5
MW-509	10/23/08	59.60	6.62	489.68	0.23	44.82	185	66	0.26	514	0.926	0.4
MW-509	12/11/08	50.47	6.83	445.56	1.34	113.25	90	66.2	1.92	52.5	0.45	0.4
MW-509	02/25/09	44.22	6.98	256.98	6.04	391.88	80.8	44.4	0.250 U	5 U	0.0127	0.2
MW-509	04/23/09	51.31	7.07	192.88	4.78	-52.52	74.8	40.6	0.250 U	10 U	0.0063	0.0
MW-509	06/25/09	64.34	6.98	321.70	0.12	-14.93	117	55.9	0.250 U	9	0.0996	0.5
MW-509	08/21/09	67.68	6.90	365.42	0.21	-268.87	129	38.9	0.250 U	120	0.365	0.5
MW-509	10/28/09	57.40	6.80	219.09	2.56	99.13	95.8	29.5	0.250 U	29	0.131	0.0
MW-509	10/28/10	59.45	6.71	387.07	0.40	68.41	128	43.5	0.250 U	20	0.113	0.4
MW-509	12/15/11	49.65	6.86	236.46	1.05	90	108	43.5	0.250 U	5 U	0.0413	0.0
MW-509	12/19/12	49.43	7.01	138.92	6.55	131.63	81.7	14.8	0.250 U	3 U	0.007	0.7
MW-509	12/19/13	49.66	6.79	225.92	0.62	144.66	184	50.4	0.250 U	240	0.222	0.0
MW-509	12/11/14	52.90	6.60	108.65	5.60	158.07	44.1	6	0.25 U	3 U	0.0168	0.1
MW-509	07/27/17	65.33	6.76	415.49	0.39	-3.6	NA	49.3	0.250 U	170	0.427	0.5
MW-510	10/23/08	57.02	6.60	942.28	0.16	-1.59	512	9.78	0.200 U	7,480 D	0.221	1.2
MW-510	12/11/08	52.98	6.60	795.47	0.28	-81.60	468	12	0.200 U	3,990 D	0.483	1.4
MW-510	02/26/09	47.88	6.42	873.63	0.10	-55.76	468	17	0.250 U	9,700	2.32	1.6
MW-510	04/27/09	50.18	6.44	851.95	0.17	-181.81	437	21.2	0.250 U	11,000	2.46	7.0
MW-510	06/24/09	58.28	6.64	918.04	0.14	-123.30	475	10.1	0.250 U	14,000	1.11	6.0
MW-510	08/20/09	62.64	6.60	937.57	0.06	-301.39	446	1.5 U	0.250 UW	15,000	0.698	6.0
MW-510	10/28/09											Not sampled due to the presence of LNAPL
MW-510	10/25/10											Not sampled due to the presence of LNAPL
MW-510	12/13/11											Not sampled due to the presence of LNAPL

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-510	12/19/12	49.07	6.33	409.20	0.68	-57.34	260	22.5	0.250 U	300	2.2	5.0
MW-510	12/18/13	55.02	6.17	464.10	0.01	-118.25	225	1.50 U	0.250 U	4,300	0.563	5.2
MW-510	12/10/14	51.81	6.98	245.35	8.38	174.53	92.4	8	0.25 U	3 U	0.0036	0.0
MW-510	07/26/17	60.13	6.33	496.18	0.08	-36.0	NA	1.5 U	0.250 U	6,100	0.936	8.0
MW-511	10/24/08	55.73	6.59	248.56	0.41	25.86	122	23.1	0.35	1.63	0.289	0.2
MW-511	12/12/08	51.90	6.44	235.10	1.84	122.09	110	25.2	0.94	1.2 U	0.446	0.2
MW-511	02/25/09	48.43	6.12	350.22	3.73	140.09	77.9	23.3	1.1	5 U	0.169	0.0
MW-511	04/21/09	49.64	6.23	240.99	4.34	143.96	77.3	30.4	0.93	5 U	0.0887	0.0
MW-511	06/24/09	54.46	6.27	213.52	2.87	178.32	87.1	27.2	0.94	6.4	0.0855	NA
MW-511	08/19/09	58.96	6.30	211.69	3.17	145.06	86.1	22.3	0.94	5.4	0.0573	0.5
MW-511	10/28/09	54.96	6.20	211.44	3.68	91.82	94.4	23.2	1.4	5 U	0.0439	0.0
MW-511	10/28/10	55.71	6.26	263.83	3.75	26.79	88.4	24.2	830	5 U	0.0046	0.1
MW-511	12/19/11	50.80	6.30	255.22	5.16	196.26	95.2	31.9	0.72	10 U	0.0015	0.0
MW-511	12/14/12	50.49	-18.06^	399.71	4.93	1408.24	112	28.5	0.250 U	3.00 U	0.0026	0.5
MW-511	12/19/13	51.27	6.67	319.02	3.01	23.45	114	28.4	0.25 U	3 U	0.00073 U	NA
MW-511	12/10/14	53.78	6.47	376.51	2.53	160.12	122	30	0.25 U	3.2	0.0016	0.0
MW-511	07/27/17	55.41	6.20	300.62	1.78	148.0	NA	19.2	1.000	3.0 U	0.008	0.0
MW-512	10/23/08	60.03	6.54	396.67	-0.04	14.55	150	30.8	0.200 U	1,200 D	1.56	1.2
MW-512	12/11/08	53.48	6.58	480.74	0.01	-48.08	199	31.4	0.200 U	765	2.3	2.0
MW-512	02/25/09	47.91	6.59	441.66	0.64	-3.83	205	34.3	0.250 U	1,200	1.15	2.6
MW-512	04/21/09	51.96	7.05	460.06	0.37	-144.28	179	52.3	0.28	2,100	0.775	2.0
MW-512	06/24/09	61.82	6.65	368.86	0.38	-40.13	152	37	0.250 U	720	0.367	2.0
MW-512	08/19/09	66.20	6.55	346.88	0.23	-23.55	127	33.6	0.250 U	1,200	0.324	2.0
MW-512	10/27/09	59.92	6.66	369.90	2.04	-47.20	157	37.5	0.450	1,600	0.351	1.0
MW-512	10/28/10	59.67	6.72	444.53	0.88	-131.58	164	23.4	0.250 U	930	0.414	2.0
MW-512	12/15/11	51.70	6.90	306.64	0.02	-92.48	174	23.7	0.250 U	1,400	0.556	3.2
MW-512	12/17/12	52.54	6.87	508.74	0.59	-98.08	191	22.6	0.250 U	1,900	0.485	5.0
MW-512	12/18/13	52.11	6.78	291.10	0.13	-66.95	178	17.6	0.250 U	1,000	0.662	2.6
MW-512	12/11/14	53.99	6.89	568.20	6.52	-199.75	181	15	0.25 U	1700	0.635	0.1
MW-512	07/26/17	61.67	6.99	558.10	0.15	-95.0	NA	9.3	0.250 U	1,300	0.433	5.0
MW-513	10/23/08	58.08	6.78	405.45	-0.06	-63.03	182	19.3	0.200 U	523	2.09	2.0
MW-513	12/10/08	55.20	6.73	491.21	-0.06	-103.79	197	23.9	0.200 U	465	2.18	2.8
MW-513	02/25/09	49.12	6.76	342.53	0.10	-45.95	210	14.8	0.250 U	490	1.9	2.4
MW-513	04/22/09	50.10	6.81	342.40	0.12	-225.74	182	26.6	0.250 U	650	1.89	3.5
MW-513	06/24/09	59.64	6.82	321.78	0.09	-89.07	167	13.1	0.28	300	1.38	3.0
MW-513	08/20/09	62.58	6.73	343.96	0.11	-81.20	168	15.5	0.250 UW	320 P	1.38	2.8
MW-513	10/27/09	59.76	6.73	374.84	0.08	-96.67	178	24.3	0.250 U	550	1.8	4.0
MW-513	10/28/10	58.03	6.63	395.68	0.10	-103.39	164	11.2	0.250 U	690	1.36	3.8
MW-513	12/15/11	52.17	6.69	289.77	0.05	-60	156	16.7	0.250 U	370	1.28	3.1
MW-513	12/17/12	52.34	6.69	280.90	0.29	-82.64	159	10.4	0.250 U	920	1.17	4.1
MW-513	12/18/13	54.18	6.69	188.41	-0.01	-77.71	182	8.9	0.250 U	840	1.29	3.9

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-513	12/10/14	55.63	6.75	471.76	-0.01	-59.79	171	13	0.25 U	790	1.07	5.0
MW-513	07/25/17	62.95	6.47	469.48	0.11	7.6	NA	11.8	0.250 U	460	1.050	4.5
MW-514	10/23/08	59.15	6.81	368.79	-0.05	-69.84	182	17.4	0.23	200	1.62	2.2
MW-514	12/10/08	55.53	6.74	410.41	0.01	-105.01	191	29.2	0.200 U	428	2.89	2.8
MW-514	02/24/09	50.68	6.74	330.80	0.15	-84.41	189	21.5	0.250 U	680	2.07	2.2
MW-514	04/21/09	51.33	6.83	345.19	0.43	-150.08	176	28.5	0.250 U	710	1.93	4.0
MW-514	06/24/09	60.09	6.89	340.42	0.21	-133.74	167	17.8	0.31	400	1.54	3.0
MW-514	08/19/09	64.22	6.77	362.34	0.10	-88.48	153	12.7	0.250 U	580	1.47	4.0
MW-514	10/27/09	60.17	6.72	342.77	0.18	-90.96	169	13.8	0.250 U	690	1.67	4.0
MW-514	10/27/10	58.93	6.62	403.73	0.07	-128.19	160	19.2	0.250 U	210	1.94	4.2
MW-514	12/14/11	51.76	6.53	389.84	0.10	-0.09	152	19.3	0.250 U	340	1.69	3.0
MW-514	12/17/12	53.14	6.55	396.25	0.39	-101.68	162	20.4	0.250 U	390	1.510	4.0
MW-514	12/18/13	53.06	6.58	175.41	0.01	-56.60	155	16.9	0.250 U	420	1.68	2.4
MW-514	12/11/14	54.02	6.62	454.38	0.27	-226.67	151	17.1	0.25	360	1.47	2.0
MW-514	07/27/17	64.48	6.73	352.17	0.29	15.5	NA	11.1	0.250 U	620	0.330	0.5
MW-515	10/22/08	62.15	6.60	451.90	0.00	23.35	174	36.2	0.200 U	395	2.46	1.1
MW-515	12/10/08	53.51	6.66	444.71	0.03	73.86	131	78.2	0.56	12.7	1.32	0.0
MW-515	02/24/09	49.14	6.63	382.79	1.00	76.95	125	61.6	0.250 U	99	0.541	0.0
MW-515	04/22/09	49.78	6.86	288.96	1.29	-156.87	112	54.1	0.250 U	45	0.569	0.0
MW-515	06/24/09	62.81	6.64	514.96	0.11	29.36	185	55.6	0.250 U	510	1.43	0.5
MW-515	08/20/09	67.66	6.65	526.87	0.29	14.84	194	33	0.250 UW	410	1.56	0.2
MW-515	10/27/09	60.81	6.76	319.95	1.41	40.71	137	33	0.250 U	270	0.97	0.5
MW-515	10/27/10	61.29	6.76	334.75	1.35	-91.25	150	30.2	0.250 U	240	0.645	1.0
MW-515	12/14/11	50.52	6.90	278.52	0.05	40	145	50	0.250 U	86	0.419	0.0
MW-515	12/17/12	52.38	6.85	202.11	5.71	111.67	87.6	18.2	0.250 U	9.0	0.119	<1
MW-515	12/18/13	51.48	6.80	279.20	0.21	-68.34	140	24.4	0.250 U	36	0.188	0.8
MW-515	12/11/14	53.51	6.87	379.34	1.32	110.50	126	23	0.25 U	3 U	0.0811	0.1
MW-515	07/25/17	65.67	6.73	390.53	0.15	13.4	NA	20.1	0.250 U	330	0.318	0.5
MW-516	10/22/08	60.37	6.75	410.68	0.21	22.93	175	43.2	0.200 U	439	2.23	0.4
MW-516	12/10/08	53.18	6.64	391.95	0.03	54.04	149	57.6	0.33	22	1.58	0.0
MW-516	02/24/09	45.41	6.85	296.90	2.83	109.91	111	55.6	0.75	5.7	0.26	0.0
MW-516	04/22/09	49.82	6.86	290.47	3.59	-7.72	110	54.1	0.5	10 U	0.0591	1.0
MW-516	06/24/09	65.26	6.67	525.02	0.61	24.67	182	48.8	0.250 U	450	0.592	0.0
MW-516	08/20/09	68.95	6.68	474.28	0.83	42.34	184	25.7	0.250 UW	300 P	1.02	0.0
MW-516	10/27/09	60.04	6.69	339.91	1.48	38.92	149	34.4	0.250 U	25	0.831	0.0
MW-516	10/27/10	60.44	6.59	373.46	1.74	-27.12	142	31.4	0.250 U	26	0.386	0.1
MW-516	12/14/11	50.40	6.67	399.03	2.39	110	0.46 U	21.4	0.250 U	150	0.402	0.0
MW-516	12/17/12	49.35	7.26	127.11	10.16	91.17	62.6	3.6	0.250 U	3 U	0.0328	0.0
MW-516	12/18/13	51.00	6.75	249.92	0.45	-13.89	134	21.4	0.250 U	62	0.336	0.9
MW-516	12/11/14	53.36	6.85	279.66	3.54	94.10	111	13	0.25 U	7.1	.228	0.0
MW-516	07/25/17	66.21	6.72	330.69	0.90	51.9	NA	23.3	0.250 U	150	0.095	0.0

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-516 (Duplicate)	07/25/17	--	--	--	--	--	--	21.4	0.250 U	130	0.089	--
MW-517	10/22/08	59.72	6.52	361.40	0.10	15.95	156	39.3	0.200 U	1,080 D	3.17	0.6
MW-517	12/10/08	52.71	6.51	374.55	-0.04	63.88	161	47.4	0.200 U	394	1.81	0.0
MW-517	02/24/09	46.38	6.71	355.26	1.97	101.76	127	65.8	1.2	11	0.892	0.4
MW-517	04/22/09	50.90	6.70	348.44	1.21	-81.24	128	66.7	0.250 U	43	0.584	1.0
MW-517	06/24/09	64.49	6.72	463.93	0.61	-52.18	184	50.5	0.250 U	1,700	1.14	1.0
MW-517	08/20/09	67.06	6.60	437.32	0.33	7.39	184	20.6	0.250 UW	4,400	1.36	0.5
MW-517	10/27/09	60.36	6.66	355.06	0.41	15.34	148	41.9	0.250 U	99	1.09	1.5
MW-517	10/27/10	59.99	6.68	381.89	0.56	-12.51	145	35.3	0.250 U	270	0.641	0.5
MW-517	12/14/11	50.41	6.76	292.70	0.07	43.46	165	26	0.250 U	75	0.788	0.6
MW-517	12/17/12	50.94	7.19	184.80	9.90	73.30	101	8.6	0.250 U	12	0.0913	0.0
MW-517	12/18/13	50.64	6.71	273.51	0.24	-13.52	150	21.8	0.250 U	18	0.474	0.4
MW-517	12/11/14	52.76	6.89	308.53	5.90	77.27	124	15	0.25 U	4.4	0.687	0.1
MW-517	07/25/17	65.75	6.56	232.95	0.36	29.2	NA	11.8	0.250 U	520	0.338	0.5
MW-518	10/22/08	61.89	6.46	2,403.10	0.10	6.25	194	93.4	0.200 U	2,380 D	1.6	3.0
MW-518	12/10/08	56.07	6.64	590.16	0.08	22.59	247	32.5	0.200 U	1,920 D	2.22	1.6
MW-518	02/25/09	47.59	6.55	482.43	0.15	-9.02	209	61.1	0.250 U	2,900	1.99	2.2
MW-518	04/22/09	48.17	6.52	519.99	0.27	-182.35	163	63.6	0.6	3,100	1.48	2.0
MW-518	06/25/09	58.02	6.48	1,501.29	0.24	6.00	117	97.6	0.5	1,500	1.67	2.0
MW-518	08/20/09	65.80	6.49	2,674.51	0.12	-247.61	176	119	0.250 UW	4,500	1.5	3.0
MW-518	10/30/09	62.35	6.50	1,278.14	0.45	-46.31	224	51.6	0.250 U	4,000	1.57	4.0
MW-518	10/28/10	60.96	6.57	1,587.58	0.04	-116.69	200	70.4	0.250 U	3,500	1.38	8.0
MW-518	12/14/11	54.16	6.57	645.67	0.56	0.00	213	85.6	0.530	1,500	0.807	4.0
MW-518	12/17/12	54.97	6.60	676.38	1.03	-39.40	223	132	0.480	1400	0.484	0.7
MW-518	12/19/13	53.90	6.78	319.92	0.25	-40.51	198	7.4	0.250 U	3,700	0.64	1.8
MW-518	12/11/14	57.43	6.69	671.16	1.01	56.96	214	62	0.34	1900	0.35	0.1
MW-518	07/25/17	62.68	6.91	388.33	--	22.2	NA	32.5	0.250 U	500	0.181	0.25
MW-519	10/22/08	58.05	6.55	535.69	-0.02	-34.53	217	29.8	0.200 U	6,780 D	1.31	3.6
MW-519	12/09/08	53.23	6.64	610.07	0.11	-70.36	250	30	0.200 U	9,760 D	1.34	3.2
MW-519	02/24/09	46.76	6.65	405.26	0.10	-41.65	186	43.1	0.46	8,800	0.847	2.7
MW-519	04/21/09	51.87	6.63	478.38	0.13	638.95	255	21.5	0.250 U	14,000	1.22	2.7
MW-519	06/24/09	60.02	6.58	618.06	0.06	-67.35	290	9.7	0.25 U	13,000	1.15	5.0
MW-519	08/18/09	66.09	6.61	691.65	0.14	-57.02	258	36.7	0.250 U	14,000	1.16	2.5
MW-519	10/27/09	59.84	6.59	364.97	0.31	-72.83	124	49.6	0.250 U	6,400	0.61	2.0
MW-519	10/26/10	59.52	6.53	469.46	0.18	-61.26	170	71.6	0.250 U	3,900	0.473	4.2
MW-519	12/14/11	51.03	6.69	402.43	-0.01	-40	266	38.8	0.370	11,000	0.822	0.0
MW-519	12/17/12	50.40	6.73	300.97	2.09	47.42	145	54.6	0.310	1300	0.186	0.0
MW-519	12/17/13	50.70	6.66	464.83	-0.01	-50.27	253	17.9	0.250 U	12,000	0.814	3.0
MW-519	12/10/14	51.80	7.00	344.69	5.02	56.84	109	34	0.25 U	170	0.0374	0.1
MW-519	07/25/17	67.16	6.56	647.57	0.25	-36.3	NA	7.0	0.250 U	13,000	0.545	3.5
MW-520	10/21/08	59.76	6.79	944.21	0.02	-14.62	212	32	0.200 U	2,230 D	1.58	1.4

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-520	12/09/08	53.17	6.81	584.24	0.12	-89.46	189	28.7	0.200 U	2,240 D	1.48	1.4
MW-520	02/23/09	47.79	6.84	477.54	0.16	-57.60	187	22.1	0.250 U	2,500	1.18	1.6
MW-520	04/22/09	48.74	6.75	397.91	0.40	-161.40	162	33.6	0.250 U	2,200	746	2.0
MW-520	06/24/09	60.08	6.67	584.31	0.04	-54.65	202	19.3	0.250 U	4,900	1.46	3.0
MW-520	08/18/09	67.93	6.60	587.53	0.06	27.15	194	5.5	0.250 U	1,600	1.09	2.0
MW-520	10/27/09	60.06	6.50	483.54	0.09	9.18	153	33.6	0.250 U	1,100	1.03	1.0
MW-520	10/27/10	60.39	6.48	731.32	0.20	-82.10	201	16	0.250 U	1,600	1.46	1.8
MW-520	12/14/11	51.35	6.58	612.41	0.16	40	161	51	0.250 U	740	1.08	1.0
MW-520	12/14/12	52.50	6.75	303.23	0.07	-80.88	137	38.4	0.250 U	130	0.833	1.0
MW-520	12/17/13	52.02	6.69	489.30	0.14	-189.75	176	68.3	0.250 U	750	0.676	1.0
MW-520	12/10/14	54.54	7.11	472.05	3.86	125.06	95.6	84	0.25 U	53	0.0639	0.0
MW-520	07/25/17	65.71	6.74	786.68	0.15	183.5	NA	21.7	0.250 U	820	3.550	0.0
MW-521	10/21/08	59.50	6.57	818.08	-0.01	4.73	172	63.9	0.200 U	888	1.42	0.9
MW-521	12/09/08	53.28	6.77	555.86	0.38	-70.66	174	37.3	0.200 U	1,310	1.48	0.5
MW-521	02/23/09	46.76	6.78	408.37	0.11	-33.28	150	50.8	0.250 U	1,200	1.44	0.6
MW-521	04/21/09	52.18	6.65	282.87	0.33	643.50	105	43.5	0.250 U	66	0.587	0.2
MW-521	06/23/09	62.33	6.68	366.61	0.35	12.69	142	33.4	0.250 U	530	0.649	1.0
MW-521	08/19/09	66.65	6.54	504.12	0.14	-9.28	172	46.1	0.250 U	740	0.899	1.5
MW-521	10/26/09	60.51	6.71	701.29	0.15	-191.41	154	52.3	0.250 U	3,100	1.73	1.5
MW-521	10/27/10	59.20	6.50	541.24	0.18	-90.60	177	38.2	0.250 U	1,200	1.25	1.6
MW-521	12/14/11	45.43	7.11	220.14	11.97	90	145	143	0.250 U	200	1.04	1.4
MW-521	12/17/12	49.57	6.66	171.31	6.93	158.90	60.6	51.2	0.250 U	3.0 U	0.0157	0.5
MW-521	12/17/13	51.60	6.66	388.24	0.67	40.58	150	64.4	0.250 U	150	0.305	0.5
MW-521	12/10/14	51.76	7.20	227.11	6.97	-69.70	48.7	33	0.25 U	3 U	0.0065	0.1
MW-521	07/25/17	67.15	6.19	632.67	0.70	18.4	NA	21.6	0.250 U	310	0.620	1.25
MW-522	10/21/08	62.31	6.57	756.65	0.06	-47.72	251	18	0.200 U	972	1.7	5.2
MW-522	12/09/08	53.30	6.71	548.80	0.14	-98.92	200	73.9	0.200 U	297	1.07	5.2
MW-522	02/23/09	48.06	6.56	503.15	0.12	-50.16	171	108	0.250 U	260	1.16	4.6
MW-522	04/21/09	49.60	6.65	393.02	0.11	699.67	154	76.6	0.250 U	74	0.88	5.2
MW-522	06/23/09	59.64	6.61	442.11	0.05	-75.88	186	51	0.250 U	140	0.963	3.0
MW-522	08/18/09	68.79	6.61	621.20	0.07	-68.46	244	29.5	0.250 U	580	1.26	3.0
MW-522	10/26/09	61.92	6.43	1,166.69	0.09	-25.26	206	560	0.280	400	0.947	3.0
MW-522	10/26/10	59.92	6.30	4,979,442.00	0.43	-104.90	208	628	0.250 U	180	0.758	0.8
MW-522	12/14/12	53.35	6.54	552.82	0.04	-16.41	203	106	0.250 U	230	1.04	1.5
MW-522	12/14/12	50.74	7.06	545.49	6.53	138.56	163	264	0.250 U	3.0 U	0.0019	0.0
MW-522	12/17/13	54.67	6.54	591.41	0.09	-207.15	221	68.7	0.250 U	560	0.991	0.0
MW-522	12/10/14	52.72	7.08	802.18	5.09	183.44	157	196	0.25 U	3 U	0.00055 U	0.0
MW-522	07/25/17	58.45	6.45	451.80	--	102.4	NA	14.0	0.250 U	1,000	1.780	0.0
MW-523	10/21/08	61.66	6.66	870.33	0.01	24.73	221	45.7	0.200 U	1,940 D	3.28	0.8
MW-523	12/09/08	54.24	6.71	587.13	0.31	31.67	218	53.2	0.200 U	482	3.01	0.6
MW-523	02/23/09	47.46	6.67	420.64	0.41	98.18	164	70	0.250 U	31	1.12	0.0

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-523	04/21/09	49.53	6.76	353.07	0.35	-56.71	146	56.8	0.250 U	280	1.39	0.0
MW-523	06/23/09	62.92	6.77	437.56	2.42	141.87	164	42.4	0.250 U	5 U	0.593	0.0
MW-523	08/18/09	68.16	6.64	614.62	0.16	53.81	199	21	0.250 U	1,600	1.38	0.0
MW-523	10/26/09	62.44	6.65	720.56	0.28	62.64	248	46.5	0.250 U	420	2.95	1.0
MW-523	10/26/10	60.60	6.57	815.65	0.58	31.43	220	102	0.250 U	400	1.15	1.0
MW-523	12/13/11	53.06	6.64	599.47	0.29	70	224	44.2	0.400	72	1.31	0.8
MW-523	12/14/12	53.57	6.71	372.50	6.84	217.62	146	87.2	0.250 U	5.4	0.0707	NA
MW-523	12/17/13	52.41	6.59	385.69	0.31	-195.99	183	49.9	0.250 U	25	0.47	0.0
MW-523	12/10/14	54.18	6.58	620.59	2.77	-20.73	192	63	0.390	3 U	0.008	0.0
MW-524	10/21/08	60.03	6.46	965.29	-0.04	16.91	115	402	0.34	51	0.623	1.6
MW-524	12/09/08	52.74	6.58	421.64	2.81	154.94	70.6	172	0.62	2.1	0.0353	0.0
MW-524	02/23/09	47.66	6.62	337.04	2.35	118.32	76.5	141	0.48	6.2	0.0159	0.2
MW-524	04/21/09	48.81	6.60	309.12	4.93	68.52	73.2	119	0.250 U	12	0.0308	0.0
MW-524	06/23/09	59.55	6.59	374.54	0.55	139.04	86	121	0.250 U	5 U	0.0235	0.0
MW-524	08/18/09	65.03	6.49	468.64	0.50	108.31	104	154	0.250 U	7.9	0.0537	0.0
MW-524	10/26/09	59.41	6.27	685.50	0.66	259.84	38	410	0.450	5 U	0.0106	1.0
MW-524	10/26/10	59.22	6.45	1,908,568.00	4.24	131.09	52.6	225	0.260	5 U	0.84	0.4
MW-524	12/13/11	48.68	6.60	287.04	4.27	200	44.4	200	0.550 U	5 U	0.0048	0.0
MW-524	12/14/12	49.55	6.54	159.72	8.71	245.64	59.3	50.5	0.250 U	3.0 U	0.00048	1.0
MW-524	12/17/13	52.89	6.66	327.49	1.68	228.79	69.9	137	0.250 U	3.0 U	0.0031	0.0
MW-524	12/09/14	54.12	6.63	263.18	4.54	233.36	60.0	63	0.250 U	3 U	0.001 U	0.0
MW-525	12/14/12	55.41	6.42	485.07	0.10	-160.05	243	4.9	0.250 U	5,100	2.25	6.0
MW-525	12/17/13	53.85	6.37	274.47	0.01	-106.94	165	4.5	0.250 U	1,800	0.96	1.0
MW-525	12/09/14	56.56	6.41	550.92	0.09	-131.07	240	4	0.25 U	8900	2.86	>10
MW-525	07/26/17	60.26	6.53	353.07	0.11	-66.6	NA	5.9	0.250 U	6,700	0.705	6.5
MW-526	12/14/12	53.11	6.38	765.25	0.02	-58.05	340	27.5	0.250 U	950	1.36	3.0
MW-526	12/18/13	51.73	6.44	716.30	0.02	-91.82	332	1.5 U	0.250 U	1,500	1.34	1.0
MW-526	12/10/14	54.56	6.64	783.77	0.19	-278.66	293	3	0.25 U	1500	1.53	>10
MW-526	07/26/17	64.69	6.50	383.76	0.04	-19.3	NA	1.5 U	0.250 U	2,100	1.060	6.75
MW-527	12/19/12	48.18	6.60	356.45	3.32	-29.37	206	12.6	0.250 U	24	0.56	0.3
MW-527	12/20/13	48.37	6.45	994.66	0.16	107.81	849	9.8	0.250 U	20,000	15.30	5.0
MW-527	12/12/14	51.72	6.61	401.96	1.25	23.20	251	14	0.250 U	2300	2.280	3.0
MW-528	12/19/12	50.69	6.55	628.52	0.72	-13.19	433	32.4	0.250 U	5,400	9.27	4.0
MW-528	12/20/13	50.42	6.56	1034.89	0.03	-35.07	517	22.7	0.250 U	11,000	18.50	6.8
MW-528	12/12/14	53.69	6.67	785.71	0.07	-54.36	398	22	0.250 U	7000	11.400	6.0
MW-529	12/17/12	49.88	6.83	13407.29	0.02	-201.83	262	803.0	0.250 U	1,200	0.49	0.0
MW-529	12/18/13	47.68	6.72	23665.38	-0.01	-203.12	171	1000.0	0.250 U	750	0.52	0.8
MW-529	12/09/14	53.13	6.87	15,913.73	0.01	-272.61	285	769	0.25 U	1100	0.306	0.1
MW-529	07/27/17	63.65	6.73	30,169	--	--	NA	1,410	0.250 U	59	0.584	3.5
MW-530	12/17/12	47.82	6.66	26642.38	0.14	-189.47	140	1290.0	0.250 U	16	0.20	0.3
MW-530	12/18/13	47.60	6.83	17872.35	0.07	-230.02	141	1080.0	0.250 U	130	0.21	0.5

Table 3-5
Summary of Groundwater Analytical Data
Natural Attenuation Parameters
Former Unocal Terminal
11720 Unoco Road
Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
MW-530	12/09/14	51.28	7.05	23,463.17	-0.02	-215.89	131	935	0.25 U	20	0.187	0.1
MW-530	07/26/17	61.35	6.41	27,495	0.21	-142.2	NA	1,480	0.250 U	44	0.194	0.0
MW-531	12/18/12	47.22	6.72	408.24	0.98	-4.57	176	130.0	0.510	120	0.08	0.7
MW-531	12/17/13	52.70	6.46	313.43	0.05	-58.89	172	6.1	0.250 U	1,100	0.60	0.3
MW-531	12/09/14	51.09	6.49	292.36	0.06	-8.26	107	33	0.25 U	1200	0.115	0.6
MW-531	07/26/17	61.39	6.56	254.24	--	-3.0	NA	1.5 U	0.250 U	3,300	0.532	3.25
MW-532	12/14/12	53.44	6.35	259.66	0.04	-92.42	113	39.3	0.250 U	220	0.24	1.0
MW-532	12/17/13	53.07	6.20	252.35	0.02	-60.71	105	36.1	0.250 U	210	0.13	0.2
MW-532	12/09/14	54.89	6.34	242.53	0.12	-99.77	112	27	0.25 U	730	0.329	2.5
MW-532	07/26/17	60.82	6.29	373.47	0.07	-62.9	NA	1.5 U	0.250 U	2,500	0.825	7.0
MW-8R	10/21/08	61.34	6.65	860.34	-0.02	-100.66	217	50.6	0.200 U	304	1.49	1.2
MW-8R	12/09/08	54.32	6.83	494.30	0.40	-132.57	180	58.1	0.200 U	299	0.664	1.2
MW-8R	02/23/09	47.03	6.75	426.42	0.42	-23.66	155	69.9	0.250 U	210	0.682	1.0
MW-8R	04/21/09	49.17	6.81	309.61	0.54	-167.35	134	47.5	0.250 U	21	0.375	0.0
MW-8R	06/23/09	61.01	6.69	404.48	0.22	17.20	168	45.7	0.250 U	100	0.719	2.0
MW-8R	08/18/09	68.36	6.55	568.94	0.11	-5.74	208	40.6	0.250 U	240	0.945	1.0
MW-8R	10/26/09	62.15	6.73	1,126.47	3.00	201.58	138	503	0.380	120	0.418	0.5
MW-8R	10/26/10	60.46	6.68	1,272.61	3.23	-24.65	223	376	0.250 U	220	0.497	1.0
MW-8R	12/14/11	52.84	6.57	663.65	0.75	-10.00	185	70.9	0.250 U	150	0.780	0.2
MW-8R	12/14/12	53.45	6.88	476.09	8.02	219.79	155	163	0.250 U	3.0 U	0.0061	1.0
MW-8R	12/17/13	54.35	6.66	470.98	0.43	-183.41	187	37.4	0.250 U	62	0.229	0.2
MW-8R	12/10/14	56.31	6.97	604.21	6.50	214.86	150	84	0.25 U	3 U	0.0206	0.0
MW-8R	07/25/17	63.08	6.29	428.73	0.78	129.8	NA	20.6	0.250 U	110	0.085	0.0
MW-E	07/26/17	59.72	6.68	1,317.2	0.07	-96.6	NA	42.3	0.250 U	6,200	3.800	7.0

Notes:

¹: Temperature, pH, DO, conductivity and ORP measured using an In-Situ® 9500 and flow through cell.

²: Total Alkalinity analyzed using EPA method 310.1

³: Sulfate and nitrate analyzed by EPA method 300.0.

⁴: Methane analyzed using method RSK 175.

⁵: Manganese analyzed using EPA method 6020.

⁶: Ferrous iron field measurement analyzed using a Hach field kit.

°F = Degrees Fahrenheit

µS/cm = microsiemens per centimeter

DO = Dissolved oxygen

mg/L = milligrams per liter

µg/L = micrograms per liter

ORP = Oxidation-reduction potential

mV = millivolts

CaCO₃ = Calcium carbonate

EPA = Environmental Protection Agency

NA = Not Analyzed

^ = Measurement error.

Table 3-5
 Summary of Groundwater Analytical Data
 Natural Attenuation Parameters
 Former Unocal Terminal
 11720 Unoco Road
 Edmonds, Washington

Monitoring Well	Date Sampled	Temperature (°F) ¹	pH ¹	Conductivity (µS/cm) ¹	DO (mg/L) ¹	ORP (mV) ¹	Total Alkalinity (mg/L as CaCO ₃) ²	Sulfate (mg/L) ³	Nitrate (mg/L) ³	Methane (µg/L) ⁴	Manganese (mg/L) ⁵	Ferrous Iron by Field Measurement (mg/L) ⁶
Lab Qualifiers	Definition											
D	Sample required dilution due to high concentrations of target analyte.											
U	The compound was analyzed for but not detected. The associated value is the compound quantitation limit.											
UJ	The compound was analyzed for but not detected. The associated value is the estimated compound quantitation limit.											
W	The analysis holding time was not met.											
P	Due to interfering peaks on the chromatogram, the value reported for methane represents the lowest reporting limit attainable.											

Table 4-1
 Summary of TWT Treated Water Discharge Volumes and Flows
 Former Unocal Terminal
 11720 Unoco Road
 Edmonds, Washington

Discharge Date	Discharge Water	Daily Volume (gallons)	Average Daily Flow (gpm)
NPDES Permit No. WA0991007 Discharge Limits	Treated water	21,600	15
From 01/01/2017 to 09/11/2017	Stormwater	NA	NA
Sample OUTFALL#002-091117 collected on 9/11/17 before any discharge of treated water.			
9/12/2017	Treated Water Discharge Beginning		
9/12/2017	Treated water	5,667	3.94
9/13/2017	Treated water	15,746	10.93
9/14/2017	Treated water	19,638	13.64
Sample OUTFALL#002-091417 collected on 9/14/17			
9/15/2017	Treated water	15,040	10.44
9/16/2017	No discharge - weekend		
9/17/2017	No discharge - weekend		
9/18/2017	Treated water	18,635	12.94
9/19/2017	Treated water	11,118	7.72
Sample OUTFALL#002-091917 collected on 9/19/17			
9/20/2017	Treated water	11,194	7.77
9/21/2017	Treated water	9,622	6.68
9/22/2017	Treated water	6,126	4.25
9/23/2017	No discharge - weekend		
9/24/2017	No discharge - weekend		
9/25/2017	Treated water	20,008	13.89
9/26/2017	Treated water	10,563	7.34
Sample OUTFALL#002-092617 collected on 9/26/17			
9/27/2017	Treated water	12,650	8.78
9/28/2017	Treated water	5,249	3.65
9/29/2017	Treated water	11,879	8.25
9/30/2017	No discharge - weekend		
10/1/2017	No discharge - weekend		
10/2/2017	Treated water	12,408	8.62
Sample OUTFALL#002-100217 collected on 10/02/17			
10/3/2017	Treated water	12,386	8.60
10/4/2017	Treated water	9,097	6.32
10/5/2017	Treated water	18,015	12.51
10/6/2017	Treated water	18,703	12.99
10/7/2017	No discharge - weekend		
10/8/2017	No discharge - weekend		
10/9/2017	Treated Water Discharge End		
Total TWT Treated Water Volume (gallons) and Average Flow (gpm)		243,744	8.91

Notes:

NPDES = National Pollutant Discharge Elimination System

gpm = gallon per minute

Day 1 daily volume = Day 2 AM Totalizer Reading - Day 1 AM Totalizer Reading

Average daily flow = daily volume / 24 hours / 60 minutes

TWT = Temporary Water Treatment

Table 4-2
 Summary of TWT Treated Water Discharge Analytical Data and Field Parameters
 Former Unocal Terminal
 11720 Unoco Road
 Edmonds, Washington

Sample Date	Sample Name NPDES Permit No. WA0991007 Discharge Limits	Laboratory Analyzes										Field Parameters	
		Benzene		cPAHs		Gasoline		Diesel		Heavy Oil		pH	Chitosan
		16 ug/L		0.05 ug/L		800 ug/L		500 ug/L		500 ug/L		6-9	Absence
		ug/L	Q	ug/L	Q	ug/L	Q	ug/L	Q	ug/L	Q	pH unit	--
9/11/2017	OUTFALL#002-091117	2	U	0.018	U	250	U	28	JB	250	U	8.1	Absence
9/14/2017	OUTFALL#002-091417	2	U	0.020	U	250	U	50	JB	260	U	7.4	Absence
9/19/2017	OUTFALL#002-091917	2	U	0.019	U	250	U	40	JB	270	U	7.0	Absence
9/26/2017	OUTFALL#002-092617	2	U	0.017	U	250	U	100	U	260	U	8.0	Absence
10/2/2017	OUTFALL#002-100217	2	U	0.018	U	250	U	100	U	250	U	7.3	Absence

Notes

NPDES = National Pollutant Discharge Elimination System

Benzene by Method United States Environmental Protection Agency (USEPA) 624

Carcinogenic Polynuclear Aromatic Hydrocarbons (cPAHs) analyzed by USEPA Method 625. Total cPAHs calculated by summing the concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene and adjusted for toxicity using toxic equivalency factors to represent a total benzo(a)pyrene concentration (WAC 173-340-900). For results which do not exceed lab. method detection limit (MDL), half of the lab. MDL is added to determine cPAHs concentration.

Gasoline by Washington State Department of Ecology (Ecology) Method NWTPH-Gx

Diesel and Heavy Oil by Ecology Method NWTPH-Dx (after silica gel cleanup)

pH by pH meter onsite

Chitosan acetate by chitosan acetate field screening test: absence/presence

ug/L = micrograms per liter.

Q: Laboratory (lab.) qualifier

U: Not detected at the lab. reporting limit (RL). Values shown are the lab. RLs besides for cPAHs where value shown are the lab. MDLs.

B: Compound was found in the lab. method blank and the sample. [The sample may have been cross-contaminated at the lab.]

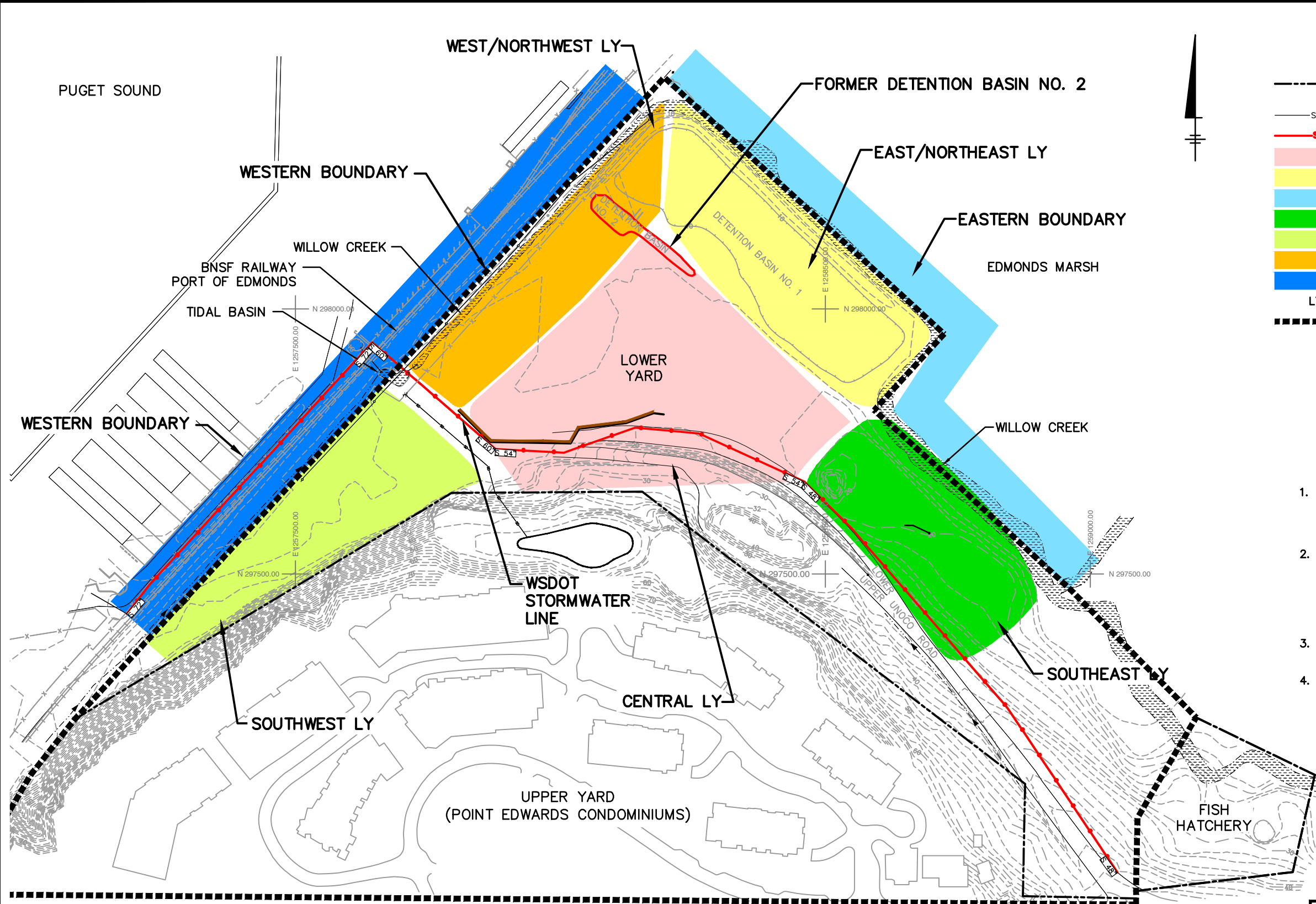
J: Result is less than the lab. RL but greater than or equal to the lab. MDL and the concentration is an approximate value.

gpm = gallon per minute

FIGURES



CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD DB: R. OBERLANDER LD: R. OBERLANDER PIC: (Opt) PM: (Rept) TM: (Rept) Lyr: (Opt) OFF: REF
 C:\ENV\CAD\minneapolis-MN\ACT\B0045382\008\00005\GOR 2017\DWG\45382D02-1.dwg LAYOUT: 2-1 SAVED: 10/20/2017 3:08 PM ACADVER: 20.1S (LMS TECH) PAGES: 2-1 PLOTSETUP: PLOTSTYLETABLE: PLOTTED: 10/20/2017 3:08 PM BY: OBERLANDER, ROSEANNE
 XREFS: IMAGES: PROJECTNAME:



LEGEND:

	FORMER UNOCAL BULK FUEL PROPERTY BOUNDARY
	POINT EDWARDS STORM DRAIN LINE
	WSDOT STORMWATER LINE
	CENTRAL LY
	EAST/NORTHEAST LY
	EASTERN BOUNDARY
	SOUTHEAST LY
	SOUTHWEST LY
	WEST/NORTHWEST LY
	WESTERN BOUNDARY
	LOWER YARD
	SITE BOUNDARY

NOTES:

- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
- HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98).
VERTICAL DATUM: N.A.V.D. 88
UNITS: U.S. SURVEY FEET
HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
- SOUTHEAST PORTION OF WSDOT STORMWATER LINE HAS NOT BEEN SURVEYED.
- THE SITE IS NOW COMPRISED OF THE AREAS OF THE LOWER YARD AND THE UPPER YARD WHERE A HAZARDOUS SUBSTANCE HAS COME TO BE LOCATED. THE FISH HATCHERY IS NO LONGER INCLUDED AS PART OF THE SITE AS A RESULT OF THE REVIEW OF HISTORICAL INFORMATION.

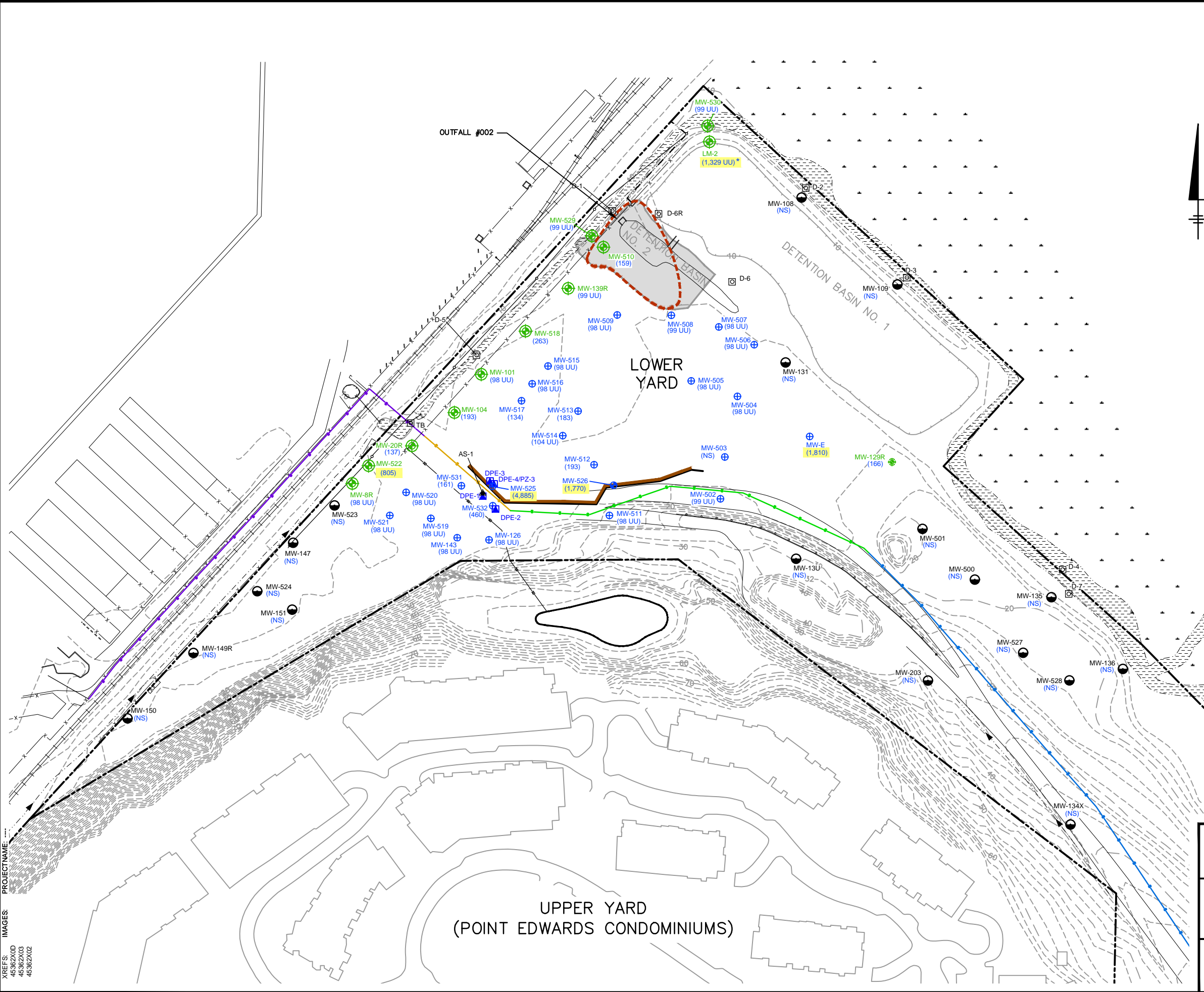


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON
2017 GROUNDWATER AND OPERATION REPORT

SITE LAYOUT



CITY: MINNEAPOLIS, MN DIV: GROUP: ENV/CAD DB: R. OBERLANDER LD: R. OBERLANDER PIC: (Opt) PM: (Rep) TM: (Opt) Lyr: (Option) OFF: REF
 C:\ENV\CAD\minneapolis\minneapolis\minneapolis\GOR 2017\DWG\45362\03-3.dwg LAYOUT: 3-3 SAVED: 10/20/2017 4:12 PM ACADVER: 20.1S (LMS TECH) PAGES: 3-3 PLOT: 10/20/2017 4:12 PM BY: OBERLANDER, ROSEANNE
 XREFS: IMAGES: PROJECT NAME:



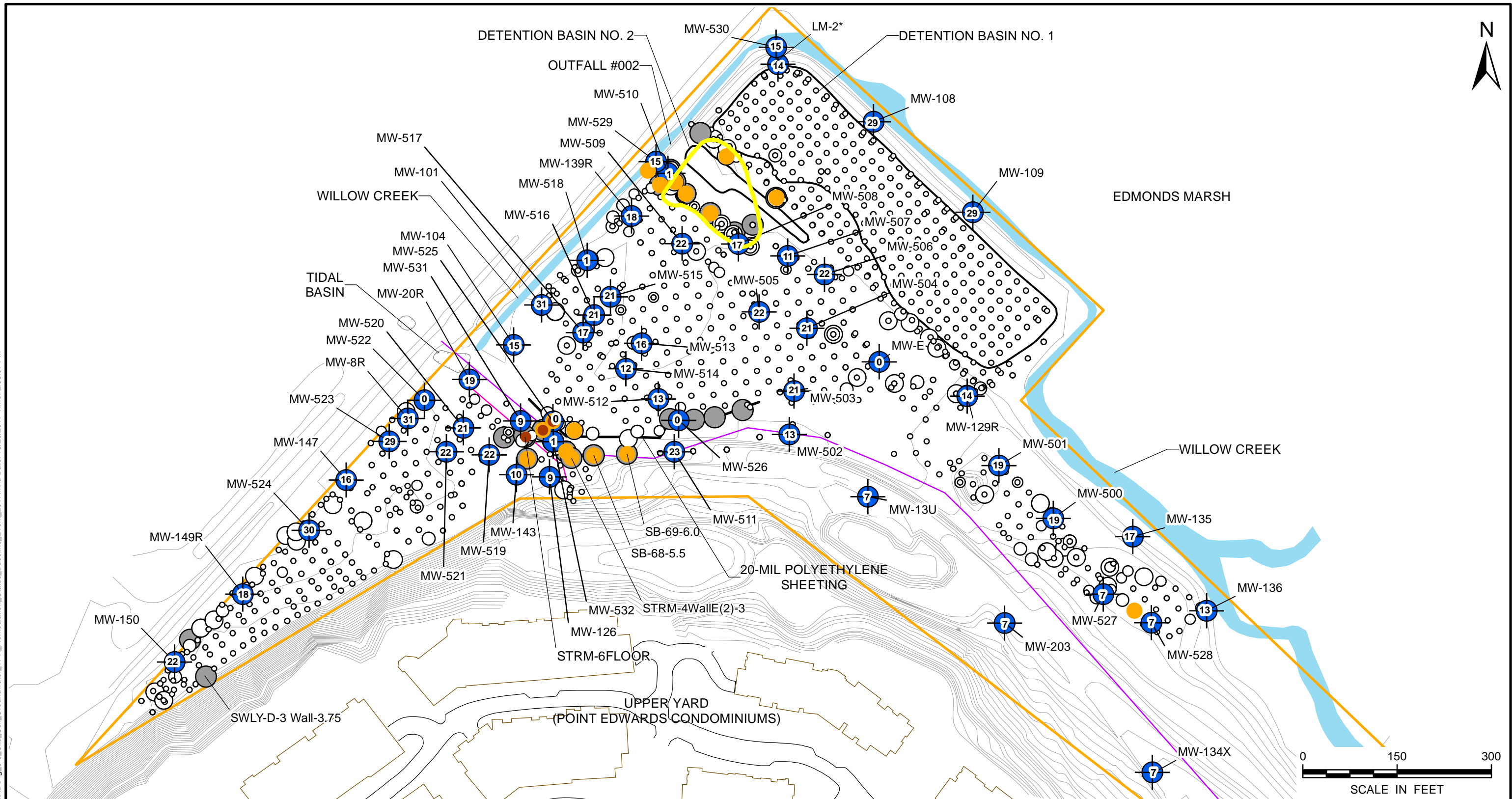
- LEGEND:**
- ESTIMATED RECOVERABLE LNAPL BOUNDARY
 - MW-515 + INTERIOR MONITORING WELL LOCATION AND DESIGNATION
 - MW-518 + PERIMETER MONITORING WELL LOCATION
 - MW-13 ● MONITORING WELL
 - D-1 ■ STAFF GAUGE
 - AS-1 ▲ AIR SPARGE WELL LOCATION
 - DPE-1 ■ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
 - PROPERTY BOUNDARY
 - - - WSDOT STORMWATER LINE
 - - - POINT EDWARDS STORM DRAIN LINE
 - █ EXCAVATION BOUNDARY
- (159) TOTAL PETROLEUM HYDROCARBON (TPH) CONCENTRATION IN MICROGRAMS PER LITER
- Highlighted yellow box: HIGHLIGHTED CONCENTRATIONS EXCEED SAMPLE SPECIFIC TPH CLEANUP LEVEL
- NS NOT SAMPLED
- UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
- * TPH WAS NOT DETECTED IN THIS SAMPLE HOWEVER THE DETECTION LIMITS ARE ABOVE CLEANUP LEVEL DUE TO A LABORATORY SAMPLE DILUTION FACTOR OF 50

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
 2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88 UNITS: U.S. SURVEY FEET HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
 3. SOUTHEAST PORTION OF WSDOT STORMWATER LINE HAS NOT BEEN SURVEYED.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON
2017 GROUNDWATER AND OPERATION REPORT
**BASELINE EVENT GROUNDWATER
 TPH CONCENTRATION
 JULY 2017**

CITY: HIGHLANDS RANCH, CO DIV/GROUP: (ENV/GIS) DB: B.GRIFFITH Path: Z:\GIS\Projects\ENV\Chevron_Edmonds\MMDFig_3-6_Site_Soil_Groundwater_TPH_Remediation_Status_Baseline_Event_2017.mxd Date: 10/20/2017 Time: 2:56:07 PM



LEGEND

- | | | | | | |
|--|---|--|---|--|--|
| | WELL AND NUMBER OF CONSECUTIVE SAMPLING ROUNDS SHOWING CONCENTRATIONS OF TOTAL PETROLEUM HYDROCARBONS LESS THAN PROPOSED GROUNDWATER (GW) CLEANUP LEVELS (CULs) | | SOIL TPH CONCENTRATION < 250 mg/kg | | LOWER YARD PROPERTY BOUNDARY |
| | SOIL BENZENE CONCENTRATION > CUL (18 mg/kg) | | SOIL TPH CONCENTRATION OF 250 - 500 mg/kg | | ESTIMATED LIGHT NONAQUEOUS PHASE LIQUID BOUNDARY |
| | SOIL cPAH CONCENTRATION > CUL (0.14 mg/kg) | | SOIL TPH CONCENTRATION OF 500 - 1,000 mg/kg | | |
| | WSDOT STORMWATER LINE | | SOIL TPH CONCENTRATION OF 1,000 - 2,775 mg/kg | | |
| | POINT EDWARDS STORM DRAIN LINE | | SOIL TPH CONCENTRATION > 2,775 mg/kg | | |

NOTES:

- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
- SOUTHEAST PORTION OF WSDOT STORMWATER LINE HAS NOT BEEN SURVEYED.
- * : TPH WAS NOT DETECTED IN THE SAMPLE COLLECTED FROM MONITORING WELL LM-2 HOWEVER THE DETECTION LIMITS WERE ABOVE THE SAMPLE SPECIFIC CUL DUE TO A LABORATORY SAMPLE DILUTION FACTOR OF 50. THE BASELINE EVENT 2017 SAMPLING ROUND IS THEREFORE NOT ACCOUNTED FOR THIS WELL.

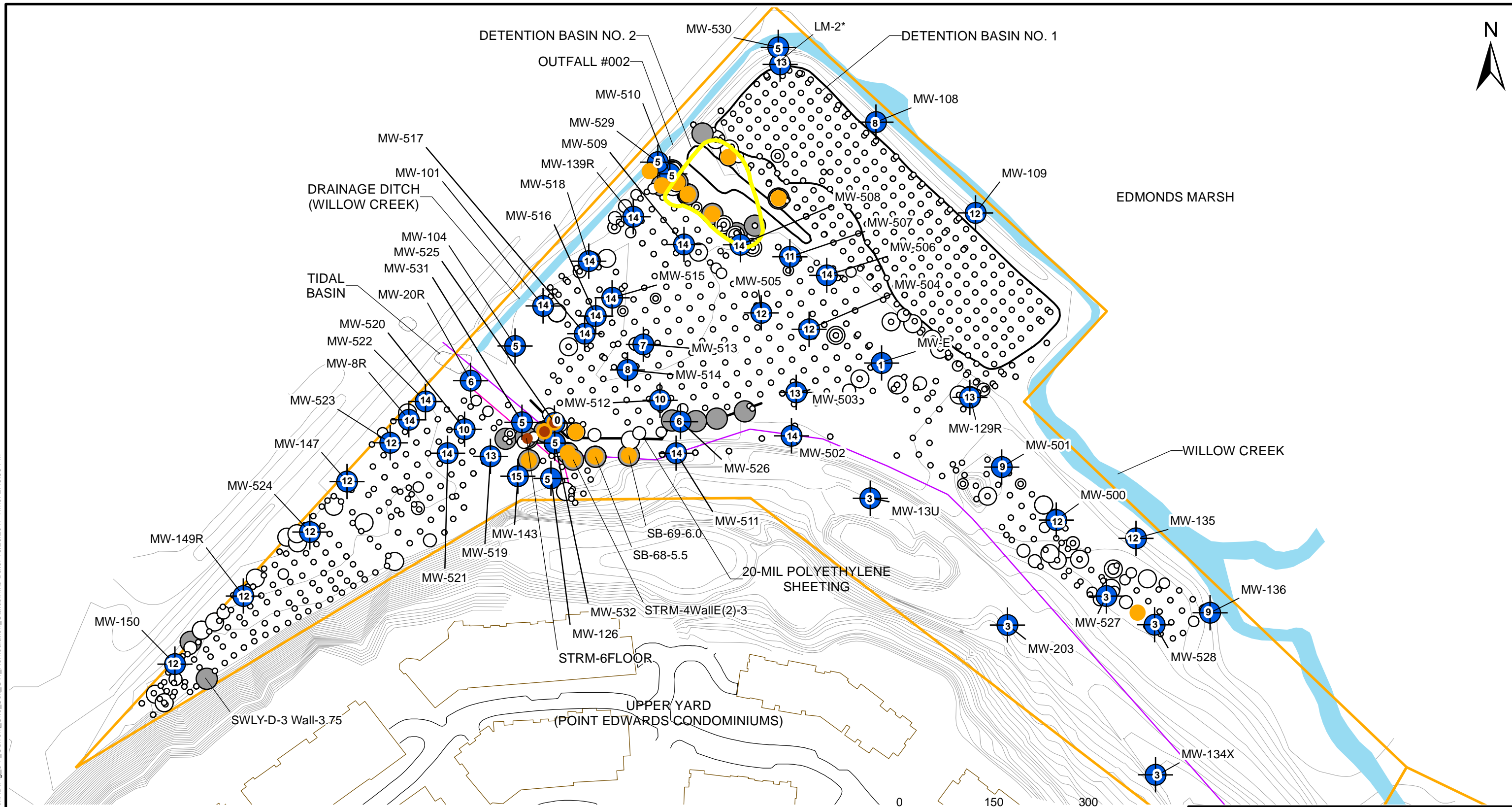
MG/KG - MILLIGRAMS PER KILOGRAM
 CPAH - CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS, ADJUSTED FOR TOXICITY
 WSDOT = WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON
2017 GROUNDWATER AND OPERATION REPORT

**SITE SOIL AND GROUNDWATER TPH REMEDIATION
 STATUS - BASELINE EVENT 2017**

ARCADIS

FIGURE
3-6



LEGEND

- | | | | | | |
|--|--|--|---|--|--------------------------------|
| | WELL AND NUMBER OF CONSECUTIVE SAMPLING ROUNDS SHOWING CONCENTRATIONS OF BENZENE LESS THAN OR EQUAL TO PROPOSED GW CUL (16 µg/L) AND THE GW SOIL VAPOR SCREENING LEVEL - METHOD B (2.4 µg/L) | | SOIL TPH CONCENTRATION <250 mg/kg | | WSDOT STORMWATER LINE |
| | SOIL BENZENE CONCENTRATION > CUL (18 mg/kg) | | SOIL TPH CONCENTRATION OF 250 - 500 mg/kg | | POINT EDWARDS STORM DRAIN LINE |
| | SOIL cPAH CONCENTRATION > CUL (0.14 mg/kg) | | SOIL TPH CONCENTRATION OF 500 - 1,000 mg/kg | | LOWER YARD PROPERTY BOUNDARY |
| | | | SOIL TPH CONCENTRATION OF 1,000 - 2,775 mg/kg | | ESTIMATED LNAPL BOUNDARY |
| | | | SOIL TPH CONCENTRATION > 2,775 mg/kg | | |

NOTES:
 1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
 2. SOUTHEAST PORTION OF WSDOT STORMWATER LINE HAS NOT BEEN SURVEYED.
 3. BENZENE WAS ANALYZED DURING 14 EVENTS FOR MOST OF THE WELL SINCE OCTOBER 2008.
 TPH - TOTAL PETROLEUM HYDROCARBONS
 MG/KG - MILLIGRAMS PER KILOGRAM
 CPAH - CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS, ADJUSTED FOR TOXICITY
 CUL - CLEANUP LEVEL
 * - BENZENE WAS NOT DETECTED IN THE SAMPLE COLLECTED FROM MONITORING WELL LM-2 HOWEVER THE DETECTION LIMIT WAS ABOVE THE CUL DUE TO A LABORATORY SAMPLE DILUTION FACTOR OF 50. THE BASELINE EVENT 2017 SAMPLING ROUND IS THEREFORE NOT ACCOUNTED FOR THIS WELL.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON
2017 GROUNDWATER AND OPERATION REPORT

**SITE SOIL AND GROUNDWATER BENZENE
 REMEDIATION STATUS - FOURTH QUARTER 2016**

ARCADIS | **FIGURE 3-7**

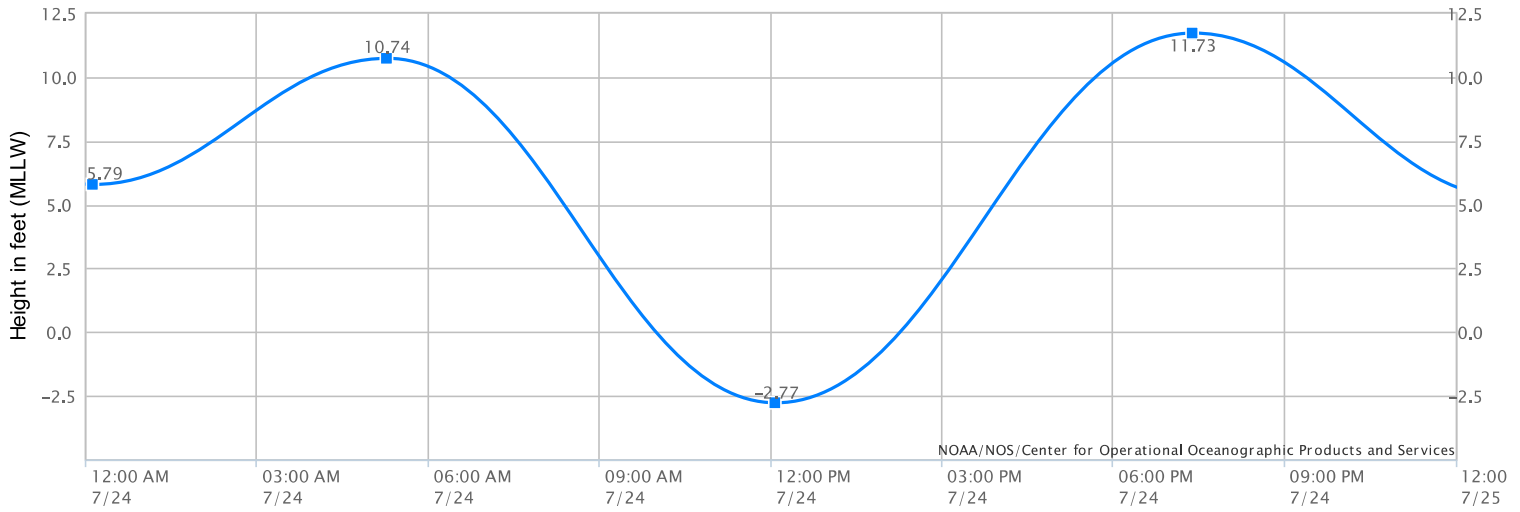
APPENDIX A

NOAA Edmonds Tide Charts





NOAA/NOS/CO-OPS
Tide Predictions at 9447427, EDMONDS WA
From 2017/07/24 12:00 AM LST/LDT to 2017/07/24 11:59 PM LST/LDT
Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: *0.96 ft. low: *0.99 ft.)



Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.
 Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

High/Low Tide Prediction Data Listing

Station Name: EDMONDS, WA
 Action: Daily
 Product: Tide Predictions
 Start Date & Time: 2017/7/24 12:00 AM
 End Date & Time: 2017/7/24 11:59 PM

Source: NOAA/NOS/CO-OPS
 Prediction Type: Subordinate
 Datum: MLLW
 Height Units: Feet
 Time Zone: LST/LDT

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2017/07/24	Mon	12:08 AM	5.79 L	05:17 AM	10.74 H	12:05 PM	-2.77 L	7:24 PM	11.73 H

APPENDIX B

Baseline Groundwater Sampling Event Field Notes



Well	Time	PID (ppm)	DTW (ft btoc)	Other (DTP, DTB, etc.)
LM-2	1140	0.0	1.62	
MW-E	1245	10.4	7.29	
MW-8R	1131	0.0	8.31	
MW-13U	1215	1.9	17.03	
MW-20R	1141	0.0	6.88	
MW-101	1144	12.7	8.99	
MW-104	1143	0.2	8.35	
MW-108	1125	0.0	7.08	
MW-109	unable to access			
MW-126	1143	1.0	5.95	
MW-129R	1257	71500	5.62	NO measurable product, SHEEN
MW-134X	1231	0.0	26.02	
MW-135	1150	0.0	10.88	
MW-136	1152	0.2	8.12	
MW-139R	1150	0.0	7.42	
MW-143	1141	41.6	5.65	
MW-147	1128	1.1	5.78	
MW-149R	1121	0.0	7.28	
MW-150	1119	0.8	6.96	
MW-203	1225	0.0	22.29	
MW-500	1158	0.0	5.85	
MW-501	1202	2.0	4.67	
MW-502	1151	0.1	5.35	
MW-503	1153	4.1	5.38	Bottom of well?
MW-504	1200	7.3	6.85	
MW-505	1217	62.2	4.92	
MW-506	1201	0.4	6.91	

Well	Time	PID (ppm)	DTW (ft btoc)	Other (DTP, DTB, etc.)
MW-507	1205	7.2	7.07	
MW-508	1206	6.3	6.81	
MW-509	1153	0.0	3.80	
MW-510	1300	0.0	6.60	
MW-511	1149	3.9	8.06	
MW-512	1225	0.0	6.73	
MW-513	1201	0.0	4.62	
MW-514	1239	0.0	4.92	
MW-515	1155	0.0	5.11	
MW-516	1158	0.0	4.82	
MW-517	1200	0.0	5.55	
MW-518	1147	0.0	8.62	
MW-519	1145	0.0	7.02	
MW-520	1134	0.0	7.71	
MW-521	1136	0.0	6.67	
MW-522	1132	0.0	5.36	
MW-523	1129	0.0	7.96	
MW-524	1125	83.5	7.78	
MW-525	1306	251.4	6.65	
MW-526	1103	363.9	5.49	
MW-527	1156	2.7	9.90	
MW-528	1154	0.0	10.59	
MW-529	1215	0.0	4.99	
MW-530	1130	0.0	4.97	
MW-531	1145	0.0	7.69	
MW-532	1113	47.7	7.49	

? mw-151

7/24/17

3Q17 Baseline GWM Event

E. Krueger
R. Brauch
J. Lathraun
E. Nicoli
S. Miles

~~0900~~ ANA onsite, don PPE, conduct
0900 H&S Tailgate meeting, review HASP, JSAs
and today's SOW

0940 Rosemary from Landau onsite

weather: 80
Sunny

0953 Begin ~~gauging~~ ^{preping for} round the gauging round,
remove well lids, record PID headspace's

0955 CCC onsite, don PPE, conduct H&S meeting
& review HASP, SOW

1020 CCC offsite, removed 13 empty ^{55 gal} drums (12 steel & 1
poly) & flammable cabinet

1100 Begin gauging round - S. Miles turns on DB-1/DB-2 pump

1300 S. Miles offsite
End gauging round (Rosemary from Landau observed MW-E, MW-
MW-510 & MW-S)

1430 End staff gauging see below for details

Staff Gauging Notes

Staff Gauge	Pre-gauging round time & DTW	Post-gauging Round time & DTW
TB	1109 3.29' btag	1358 3.64' btag
D-1	1115 2.29' btag	1403 2.67' btag
D-2	1128 4.50' btag	1410 2.70' btag
D-3	not gauged per S. Miles**	not gauged per S. Miles**
D-4*	1146 2.74' btag	1422 2.90' btag
D-5	1112 2.61' btag	1400 3.00' btag
D-6R	1120 2.41' btag	1405 2.46' btag

btag - below top of gauge; * D-4 & D-7 were in similar area & only one was visible; ** path to MW-109/D-3 overgrown with blackberries - removed it from scope

1345 Eric's prepare sample kits for tomorrow

1520 Turn DB-2 pump ~~off~~ on Auto

1530 ANA offsite

7/25/17

3Q17 Baseline ERM

E. Kueger
R. Brauchla
J. Latham
E. Nicoli

0730 ANA onsite, don PPE, conduct tailgate meeting, review HASP, JSAs and today's SOW

Weather: 80°F,
Sunny

0745 Begin preping for sampling round & calibrate equipment

0830 Begin sampling round

	Well ID	Sample Time	Final DTW	Final RDO	Ferrous Iron
	MW-8R*	1145	8.25'	0.78 mg/L	0.0 mg/L
(MS/MSD)	MW-20R	1250	7.01'	3.14 mg/L	4.75 mg/L
(DUP-2)	MW-101	1320	9.10'	2.28 mg/L	0.25 mg/L
	MW-126	0940	8.08'	0.95 mg/L	0.25 mg/L
	MW-143	1110	8.14'	0.19 mg/L	> 7 mg/L
	MW-515	1415	5.15'	0.15 mg/L	0.5 mg/L
(DUP-1)	MW-516	1325	^{4.80'} 0.90 mg/L	0.90 mg/L	0.0 mg/L
	MW-517	1245	5.56'	0.36 mg/L	0.5 mg/L
	MW-518	1445	8.85'	0.95 mg/L	0.25 mg/L
	MW-519	1150	7.05'	0.25 mg/L	3.5 mg/L
	MW-520	1015	7.71'	0.15 mg/L	0.0 mg/L
	MW-521	1030	6.60'	0.7 mg/L	1.25 mg/L
	MW-513	1500	6.66'	0.11 mg/L	4.5 mg/L
	MW-522	1100	8.42'	0.12 mg/L	0.0 mg/L

* Dissolved manganese sample collected in Metals Batch QC bottle

1345 R. Brauchla begins packing coolers, updating field notes & writing COCs

1515 End sampling round, decon equip and pack coolers

1615 ANA offsite, R. Brauchla will drop off coolers at UPS

E. Kueger 7/25/17

7/26/17

3Q 17 Baseline GWM

E. Krueger
R. Brauchla
J. Latham
E. Nicolai

0730 Arcadis on site - performs H&S tailgate /PTW, review H&SP/JSA, calibrates instruments

0830 Begin sampling round - see below for details

Weather: overcast in sunny w/ highs ~80°F

0945 Landau on site to observe sampling of LM-2, MW-E, MW-104, MW-129R, MW-510, MW-525, MW-526, MW-529, MW-530, MW-531, MW-532 and gauging of piezometers to be removed (P-12, P-13, & P-15)

1422 Low tide - gauge piezometers P-12; P-13; & P-15

	Time	DTP	DTW
P-12	1615	7.10'	7.42'
P-13	1532	6.61'	6.63'
P-15	1630	7.18'	7.52'

Sampling Details:

Well ID	Sample Time	Final DTW	Final RDD	Ferrous Iron
LM-2	1445	3.65'	0.07 mg/L	10 mg/L
MW-104	1210	6.85'	0.18 mg/L	2.5 mg/L
MW-129R	1400	6.81'	0.11 mg/L	7.0 mg/L
(ms/mSP/DUP-3) MW-502	0900	5.62'	0.14 mg/L	4.25 mg/L
MW-504	0910	6.85'	0.10 mg/L	0.0 mg/L
MW-505	1030	5.00'	0.17 mg/L	3.5 mg/L
MW-510	1300	8.82'	0.08 mg/L	8.0 mg/L
MW-512	0850	6.76'	0.15 mg/L	5.0 mg/L
MW-525	1120	6.82'	0.11 mg/L	6.5 mg/L
MW-526	1135	5.81'	0.04 mg/L	6.75 mg/L
MW-529	1500	6.10'	0.18 mg/L	3.5 mg/L
MW-530	1530	7.65 6.08'	0.21 mg/L	0.0 mg/L
MW-531	1015	7.65'	0.06 mg/L	3.25 mg/L
MW-532	1020	8.10'	0.07 mg/L	7.0 mg/L

1645 End sampling round, begin to pack coolers, fill out COG and pack up equipment

~~1730~~

1700 Landau offsite.

1730 ANA offsite

7/27/17

3Q17 Baseline GWM Event

E. Krueger
R. Brauchla
J. Latham

0730 ANA onsite, don PPE, conduct H&S tailgate meeting, review HASP, JSAs & today's SOW, calibrate equipment

Weather: 65°
cloudy

0815 Begin sampling round

well ID	Sample Time	Final DTW ft. btoe	Final KDO mg/L	Ferrous Iron mg/L
MW-139R	0925	7.39	0.29	1.25
MW-506	0930	7.03	0.12	0.5
(DUP-4) MW-507	0855	7.25	0.42	1.75
MW-508	1025	7.70	0.12	6.5
MW-509	1030	3.82	0.39	0.5
MW-511	1035	8.20	1.77	0.0
MW-514	1155	5.55	0.29	0.5
Equipment Blank RB-1	1120	—	—	—

1230 End sampling round, begin packing coolers, decon equipment, and pack up vans

1400 J. Latham offsite to return equipment to the office

1410 R. Brauchla offsite to deliver coolers to ~~the~~ Fedex call S. Miles to inform him of DB-1 pump not working (there seems to be something wrong w/ a fuse, no lights working on the panel)

1430 E. Krueger offsite

E. Krueger

7/27/17

Low-Flow Test Report:

Test Date / Time: 7/26/2017 3:22:13 PM

Project: Edmonds Terminal

Operator Name: EAN

Location Name: LM-2 Well Diameter: 2 in Casing Type: PVC Screen Length: 5.5 ft Top of Screen: 2.5 ft Total Depth: 8 ft Initial Depth to Water: 1.92 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 7 ft Estimated Total Volume Pumped: 1350 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1.73 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 515918
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/26/2017 3:22 PM	00:00	6.32 pH	64.92 °F	4,621.9 µS/cm	0.06 mg/L	38.46 NTU	-89.4 mV	1.92 ft	150.00 ml/min
7/26/2017 3:25 PM	03:00	6.31 pH	64.93 °F	4,445.3 µS/cm	0.08 mg/L	33.06 NTU	-82.6 mV	1.92 ft	150.00 ml/min
7/26/2017 3:28 PM	05:59	6.30 pH	64.92 °F	4,439.7 µS/cm	0.08 mg/L	38.35 NTU	-80.9 mV	1.92 ft	150.00 ml/min
7/26/2017 3:31 PM	09:00	6.29 pH	64.92 °F	4,426.9 µS/cm	0.08 mg/L	32.33 NTU	-79.2 mV	1.92 ft	150.00 ml/min

Samples

Sample ID:	Description:
LM-2	Sample Time: 14:45 Final DTW: 3.65 ft btoc Final RDO: 0.07 mg/L Ferrous iron: 10 mg/L

Low-Flow Test Report:

Test Date / Time: 7/25/2017 12:12:01 PM

Project: Edmonds Terminal

Operator Name: EAN

<p>Location Name: MW-8R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 8.24 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 2247.499 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 515918</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/25/2017 12:12 PM	00:00	6.33 pH	63.40 °F	480.81 µS/cm	0.27 mg/L	4.71 NTU	82.8 mV	8.24 ft	150.00 ml/min
7/25/2017 12:15 PM	02:59	6.32 pH	63.20 °F	459.48 µS/cm	0.53 mg/L	10.38 NTU	95.8 mV	8.24 ft	150.00 ml/min
7/25/2017 12:18 PM	05:59	6.31 pH	63.17 °F	460.73 µS/cm	0.68 mg/L	3.05 NTU	107.7 mV	8.24 ft	150.00 ml/min
7/25/2017 12:21 PM	08:59	6.30 pH	63.08 °F	442.64 µS/cm	0.80 mg/L	1.13 NTU	117.7 mV	8.24 ft	150.00 ml/min
7/25/2017 12:24 PM	11:58	6.29 pH	63.09 °F	428.36 µS/cm	0.81 mg/L	1.01 NTU	123.6 mV	8.24 ft	150.00 ml/min
7/25/2017 12:27 PM	14:58	6.29 pH	63.08 °F	428.73 µS/cm	0.78 mg/L	1.00 NTU	129.8 mV	8.24 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-8R	<p>Sample Time: 11:45 Final DTW: 8.25 ft btoc Final RDO: 0.78 mg/L Ferrous iron: 0.0 mg/L</p>

Low-Flow Test Report:

Test Date / Time: 7/26/2017 1:19:16 AM

Project: Edmonds Terminal

Operator Name: RB

Location Name: MW-20R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 4 ft Total Depth: 14.5 ft Initial Depth to Water: 6.83 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 5241.668 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0.2 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 502797
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
7/26/2017 1:19 AM	00:00	6.39 pH	61.96 °F	6,142.9 µS/cm	4.36 mg/L	671.75 NTU	38.7 mV	6.83 ft	250.00 ml/min
7/26/2017 1:22 AM	02:59	6.44 pH	60.05 °F	9,546.4 µS/cm	4.19 mg/L	628.10 NTU	30.1 mV	6.83 ft	250.00 ml/min
7/26/2017 1:25 AM	05:58	6.50 pH	59.09 °F	13,516 µS/cm	3.55 mg/L	595.16 NTU	30.5 mV	6.83 ft	250.00 ml/min
7/26/2017 1:28 AM	08:58	6.51 pH	58.74 °F	15,258 µS/cm	3.34 mg/L	591.52 NTU	33.8 mV	6.83 ft	250.00 ml/min
7/26/2017 1:31 AM	11:58	6.51 pH	58.50 °F	16,449 µS/cm	3.23 mg/L	586.94 NTU	36.5 mV	6.83 ft	250.00 ml/min
7/26/2017 1:34 AM	14:58	6.51 pH	58.42 °F	17,205 µS/cm	3.12 mg/L	569.80 NTU	38.5 mV	6.83 ft	250.00 ml/min
7/26/2017 1:37 AM	17:58	6.51 pH	58.38 °F	17,683 µS/cm	3.12 mg/L	562.48 NTU	40.2 mV	6.83 ft	250.00 ml/min
7/26/2017 1:40 AM	20:58	6.51 pH	58.29 °F	17,957 µS/cm	3.14 mg/L	564.01 NTU	40.8 mV	6.83 ft	250.00 ml/min

Samples

Sample ID:	Description:
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MW-20R	Sample Time: 1250 Final DTW: 7.01ft btoc Final RDO: 3.14mg/L Ferrous Iron: 4.75 mg/L MS/MSD collected
MW-20R-MS	
MW-20R-MSD	

Low-Flow Test Report:

Test Date / Time: 25/07/2017 13:26:06

Project: Edmonds Terminal

Operator Name: JTL

Location Name: MW-101 Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 m Top of Screen: 5 m Total Depth: 15 m Initial Depth to Water: 8.95 m	Pump Type: Geotech Geopump Series 2 Tubing Type: 13 Pump Intake From TOC: 8.95 m Estimated Total Volume Pumped: 8393.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.15 m	Instrument Used: AquaTROLL 600 Vented Serial Number: 462758
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
25/07/2017 13:26	00:00	6.81 pH	59.49 °F	252.76 µS/cm	4.37 mg/L	3.02 NTU	171.1 mV	8.95 m	200.00 ml/min
25/07/2017 13:29	02:59	6.78 pH	59.16 °F	260.89 µS/cm	4.75 mg/L	5.37 NTU	163.2 mV	8.95 m	200.00 ml/min
25/07/2017 13:32	05:59	6.77 pH	59.04 °F	223.44 µS/cm	5.02 mg/L	2.55 NTU	155.9 mV	8.95 m	200.00 ml/min
25/07/2017 13:35	08:59	6.75 pH	58.92 °F	228.96 µS/cm	5.22 mg/L	3.23 NTU	151.6 mV	8.95 m	200.00 ml/min
25/07/2017 13:38	11:59	6.73 pH	58.75 °F	264.97 µS/cm	5.11 mg/L	2.12 NTU	149.2 mV	8.95 m	200.00 ml/min
25/07/2017 13:41	14:59	6.71 pH	58.76 °F	237.15 µS/cm	4.88 mg/L	1.99 NTU	150.5 mV	8.95 m	200.00 ml/min
25/07/2017 13:44	17:59	6.69 pH	58.80 °F	285.03 µS/cm	4.53 mg/L	3.34 NTU	150.9 mV	8.95 m	200.00 ml/min
25/07/2017 13:47	20:58	6.66 pH	58.78 °F	276.86 µS/cm	4.24 mg/L	3.69 NTU	150.5 mV	8.95 m	200.00 ml/min
25/07/2017 13:50	23:58	6.64 pH	58.83 °F	279.58 µS/cm	3.81 mg/L	7.22 NTU	149.2 mV	8.95 m	200.00 ml/min
25/07/2017 13:53	26:58	6.61 pH	58.82 °F	324.36 µS/cm	3.52 mg/L	8.51 NTU	145.8 mV	8.95 m	200.00 ml/min
25/07/2017 13:56	29:58	6.59 pH	58.68 °F	378.31 µS/cm	3.16 mg/L	10.28 NTU	141.7 mV	8.95 m	200.00 ml/min
25/07/2017 13:59	32:58	6.57 pH	58.67 °F	403.71 µS/cm	2.91 mg/L	9.75 NTU	136.2 mV	8.95 m	200.00 ml/min

25/07/2017 14:02	35:58	6.54 pH	58.78 °F	422.39 µS/cm	2.63 mg/L	11.90 NTU	130.1 mV	8.95 m	200.00 ml/min
25/07/2017 14:05	38:58	6.52 pH	58.66 °F	453.93 µS/cm	2.45 mg/L	13.14 NTU	124.8 mV	8.95 m	200.00 ml/min
25/07/2017 14:08	41:57	6.50 pH	58.75 °F	445.74 µS/cm	2.30 mg/L	14.42 NTU	116.9 mV	8.95 m	200.00 ml/min

Samples

Sample ID:	Description:
MW-101	Sample time: 1320 Final DTW: 9.10 Final RDO: 2.28 Ferrous Iron: 0.25
DUP-2	

Low-Flow Test Report:

Test Date / Time: 7/26/2017 12:21:02 PM

Project: Edmonds terminal

Operator Name: EK

Location Name: MW-104 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 8.2 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 6822.499 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.02 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 449684
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Test Notes:

Stick up well

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/26/2017 12:21 PM	00:00	6.94 pH	65.18 °F	0.29 µS/cm	8.80 mg/L	1.06 NTU	144.4 mV	8.20 ft	150.00 ml/min
7/26/2017 12:24 PM	03:00	6.52 pH	60.72 °F	271.36 µS/cm	1.02 mg/L	39.41 NTU	41.1 mV	8.20 ft	150.00 ml/min
7/26/2017 12:27 PM	06:00	6.52 pH	59.88 °F	265.80 µS/cm	0.35 mg/L	8.29 NTU	38.6 mV	8.20 ft	150.00 ml/min
7/26/2017 12:30 PM	08:59	6.53 pH	59.45 °F	265.26 µS/cm	0.24 mg/L	19.74 NTU	36.7 mV	8.20 ft	150.00 ml/min
7/26/2017 12:33 PM	12:00	6.52 pH	59.63 °F	264.59 µS/cm	0.20 mg/L	6.91 NTU	37.4 mV	8.20 ft	150.00 ml/min
7/26/2017 12:36 PM	14:59	6.52 pH	59.81 °F	261.09 µS/cm	0.18 mg/L	5.66 NTU	39.7 mV	8.20 ft	150.00 ml/min
7/26/2017 12:39 PM	18:00	6.50 pH	60.14 °F	263.48 µS/cm	0.18 mg/L	4.13 NTU	46.6 mV	8.20 ft	150.00 ml/min
7/26/2017 12:42 PM	21:00	6.48 pH	60.19 °F	279.12 µS/cm	0.19 mg/L	3.44 NTU	52.0 mV	8.20 ft	150.00 ml/min
7/26/2017 12:45 PM	24:00	6.48 pH	60.20 °F	297.87 µS/cm	0.20 mg/L	2.41 NTU	51.9 mV	8.20 ft	150.00 ml/min
7/26/2017 12:48 PM	26:59	6.48 pH	60.40 °F	313.73 µS/cm	0.20 mg/L	1.88 NTU	49.6 mV	8.20 ft	150.00 ml/min
7/26/2017 12:51 PM	29:59	6.48 pH	60.39 °F	325.60 µS/cm	0.19 mg/L	1.52 NTU	44.7 mV	8.20 ft	150.00 ml/min
7/26/2017 12:54 PM	32:59	6.50 pH	60.65 °F	340.06 µS/cm	0.20 mg/L	2.52 NTU	39.1 mV	8.20 ft	150.00 ml/min

7/26/2017 12:57 PM	35:59	6.50 pH	60.72 °F	350.34 µS/cm	0.19 mg/L	1.26 NTU	33.7 mV	8.20 ft	150.00 ml/min
7/26/2017 1:00 PM	39:00	6.51 pH	60.55 °F	349.50 µS/cm	0.19 mg/L	1.20 NTU	28.0 mV	8.20 ft	150.00 ml/min
7/26/2017 1:00 PM	39:28	6.51 pH	60.48 °F	351.41 µS/cm	0.18 mg/L	1.18 NTU	27.4 mV	8.20 ft	150.00 ml/min
7/26/2017 1:03 PM	42:28	6.52 pH	60.51 °F	359.17 µS/cm	0.18 mg/L	1.18 NTU	22.9 mV	8.20 ft	150.00 ml/min
7/26/2017 1:06 PM	45:28	6.53 pH	60.48 °F	360.84 µS/cm	0.18 mg/L	1.10 NTU	17.2 mV	8.20 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-104	<p>Sample time @ 1210 Final DTW =8.99 ft btoc Final RDO= 0.18 mg/L Ferrous iron = 2.5 mg/L ORP didn't stabilize after 45 minutes of purging</p>

Low-Flow Test Report:

Test Date / Time: 7/25/2017 10:07:41 PM

Project: Edmonds Terminal

Operator Name: RB

<p>Location Name: MW-126 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3.7 ft Total Depth: 14.2 ft Initial Depth to Water: 5.63 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 10 m Estimated Total Volume Pumped: 8990 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 2 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 502797</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
7/25/2017 10:07 PM	00:00	6.09 pH	56.43 °F	463.97 µS/cm	1.91 mg/L	5.92 NTU	236.7 mV	5.63 ft	200.00 ml/min
7/25/2017 10:10 PM	02:59	6.00 pH	56.43 °F	454.13 µS/cm	2.17 mg/L	5.55 NTU	238.1 mV	5.63 ft	200.00 ml/min
7/25/2017 10:13 PM	05:59	5.96 pH	56.41 °F	461.82 µS/cm	2.31 mg/L	2.27 NTU	241.4 mV	5.63 ft	200.00 ml/min
7/25/2017 10:16 PM	08:59	5.95 pH	56.30 °F	467.71 µS/cm	2.18 mg/L	1.49 NTU	243.7 mV	5.63 ft	200.00 ml/min
7/25/2017 10:19 PM	11:59	5.96 pH	56.17 °F	462.54 µS/cm	1.88 mg/L	1.28 NTU	240.2 mV	5.63 ft	200.00 ml/min
7/25/2017 10:22 PM	14:59	5.99 pH	56.06 °F	455.00 µS/cm	1.81 mg/L	1.15 NTU	238.1 mV	5.63 ft	200.00 ml/min
7/25/2017 10:25 PM	17:59	6.02 pH	56.18 °F	449.31 µS/cm	1.83 mg/L	1.12 NTU	237.8 mV	5.63 ft	200.00 ml/min
7/25/2017 10:28 PM	21:00	6.03 pH	56.27 °F	434.18 µS/cm	1.65 mg/L	1.50 NTU	238.8 mV	5.63 ft	200.00 ml/min
7/25/2017 10:31 PM	23:59	6.04 pH	56.31 °F	431.26 µS/cm	1.36 mg/L	1.80 NTU	239.2 mV	5.63 ft	200.00 ml/min
7/25/2017 10:34 PM	26:59	6.06 pH	56.11 °F	428.00 µS/cm	1.17 mg/L	5.05 NTU	238.2 mV	5.63 ft	200.00 ml/min
7/25/2017 10:37 PM	29:58	6.07 pH	56.03 °F	423.24 µS/cm	1.03 mg/L	3.51 NTU	237.3 mV	5.63 ft	200.00 ml/min
7/25/2017 10:40 PM	32:58	6.07 pH	56.02 °F	421.63 µS/cm	0.94 mg/L	1.97 NTU	236.4 mV	5.63 ft	200.00 ml/min

7/25/2017 10:43 PM	35:58	6.09 pH	55.64 °F	414.99 µS/cm	0.89 mg/L	4.27 NTU	234.1 mV	5.63 ft	200.00 ml/min
7/25/2017 10:46 PM	38:57	6.09 pH	55.31 °F	460.33 µS/cm	0.93 mg/L	6.25 NTU	234.3 mV	5.63 ft	200.00 ml/min
7/25/2017 10:49 PM	41:57	6.09 pH	55.26 °F	463.78 µS/cm	1.00 mg/L	3.74 NTU	234.3 mV	5.63 ft	200.00 ml/min
7/25/2017 10:52 PM	44:57	6.09 pH	55.16 °F	461.04 µS/cm	0.95 mg/L	3.55 NTU	232.7 mV	5.63 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-126	Sample Time: 0940 Final DTW: 8.08 ft btoc Final RDO: 0.95 mg/L Ferrous Iron: 0.25 mg/L

Low-Flow Test Report:

Test Date / Time: 26/07/2017 14:30:21

Project: Edmonds Terminal

Operator Name: JTL

Location Name: MW-129R Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 m Top of Screen: 3 m Total Depth: 13 m Initial Depth to Water: 4.65 m	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 3599.998 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.85 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 462758
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
26/07/2017 14:30	00:00	6.56 pH	72.46 °F	1,286.6 µS/cm	4.28 mg/L	13.26 NTU	64.3 mV	4.65 m	200.00 ml/min
26/07/2017 14:33	02:59	6.59 pH	62.26 °F	1,416.6 µS/cm	0.18 mg/L	1.91 NTU	-21.9 mV	4.65 m	200.00 ml/min
26/07/2017 14:36	05:59	6.60 pH	60.61 °F	1,436.1 µS/cm	0.13 mg/L	2.07 NTU	-30.5 mV	4.65 m	200.00 ml/min
26/07/2017 14:39	09:00	6.61 pH	59.76 °F	1,439.8 µS/cm	0.12 mg/L	2.35 NTU	-34.8 mV	4.65 m	200.00 ml/min
26/07/2017 14:42	11:59	6.63 pH	59.40 °F	1,445.0 µS/cm	0.12 mg/L	2.55 NTU	-37.8 mV	4.65 m	200.00 ml/min
26/07/2017 14:45	14:59	6.64 pH	58.87 °F	1,447.9 µS/cm	0.11 mg/L	2.87 NTU	-41.1 mV	4.65 m	200.00 ml/min
26/07/2017 14:48	17:59	6.64 pH	58.59 °F	1,435.1 µS/cm	0.11 mg/L	3.04 NTU	-41.5 mV	4.65 m	200.00 ml/min

Samples

Sample ID:	Description:
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MW-129R

Sample Time: 1400
Final DTW: 6:81 ft btoc
Final RDO: 0.11 mg/L
Ferrous Iron: 7.0 mg/L

Low-Flow Test Report:

Test Date / Time: 7/27/2017 9:37:26 PM

Project: Edmonds Terminal

Operator Name: RB

<p>Location Name: MW-139R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 4.4 ft Total Depth: 14.9 ft Initial Depth to Water: 7.41 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 7 ft Estimated Total Volume Pumped: 8989.999 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 502797</p>
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Test Notes:

Weather Conditions:

Mist

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15	+/- 15 %		
7/27/2017 9:37 PM	00:00	6.83 pH	63.39 °F	479.97 µS/cm	1.22 mg/L	4.64 NTU	51.1 mV	7.41 ft	200.00 ml/min
7/27/2017 9:40 PM	02:59	6.84 pH	63.42 °F	481.42 µS/cm	0.31 mg/L	2.26 NTU	25.7 mV	7.41 ft	200.00 ml/min
7/27/2017 9:43 PM	05:59	6.85 pH	63.39 °F	479.93 µS/cm	0.25 mg/L	1.31 NTU	12.8 mV	7.41 ft	200.00 ml/min
7/27/2017 9:46 PM	08:59	6.86 pH	63.40 °F	476.41 µS/cm	0.29 mg/L	1.19 NTU	2.8 mV	7.41 ft	200.00 ml/min
7/27/2017 9:49 PM	11:58	6.86 pH	63.42 °F	475.85 µS/cm	0.28 mg/L	1.19 NTU	-3.5 mV	7.41 ft	200.00 ml/min
7/27/2017 9:52 PM	14:57	6.86 pH	63.41 °F	475.05 µS/cm	0.27 mg/L	1.16 NTU	-9.5 mV	7.41 ft	200.00 ml/min
7/27/2017 9:55 PM	17:58	6.87 pH	63.43 °F	474.04 µS/cm	0.27 mg/L	1.18 NTU	-12.1 mV	7.41 ft	200.00 ml/min
7/27/2017 9:58 PM	20:58	6.87 pH	63.45 °F	472.30 µS/cm	0.30 mg/L	1.18 NTU	-13.4 mV	7.41 ft	200.00 ml/min
7/27/2017 10:01 PM	23:58	6.87 pH	63.44 °F	471.33 µS/cm	0.29 mg/L	1.16 NTU	-16.4 mV	7.41 ft	200.00 ml/min
7/27/2017 10:04 PM	26:58	6.88 pH	63.44 °F	470.08 µS/cm	0.31 mg/L	1.18 NTU	-19.4 mV	7.41 ft	200.00 ml/min
7/27/2017 10:07 PM	29:58	6.88 pH	63.43 °F	470.18 µS/cm	0.28 mg/L	1.10 NTU	-22.2 mV	7.41 ft	200.00 ml/min
7/27/2017 10:10 PM	32:57	6.88 pH	63.48 °F	469.74 µS/cm	0.30 mg/L	1.18 NTU	-24.2 mV	7.41 ft	200.00 ml/min

7/27/2017 10:13 PM	35:57	6.88 pH	63.45 °F	468.64 µS/cm	0.29 mg/L	1.12 NTU	-25.4 mV	7.41 ft	200.00 ml/min
7/27/2017 10:16 PM	38:57	6.88 pH	63.46 °F	468.11 µS/cm	0.31 mg/L	1.25 NTU	-25.6 mV	7.41 ft	200.00 ml/min
7/27/2017 10:19 PM	41:57	6.88 pH	63.47 °F	467.71 µS/cm	0.32 mg/L	1.20 NTU	-25.7 mV	7.41 ft	200.00 ml/min
7/27/2017 10:22 PM	44:56	6.88 pH	63.47 °F	467.67 µS/cm	0.29 mg/L	1.15 NTU	-25.9 mV	7.41 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-139R	<p>Sample Time: 0925 Final DTW: 7.39 mg/L Final RDO: 0.29 mg/L Ferrous Iron: 1.25 mg/L</p> <p>ORP not stable after 45 minutes.</p>

Low-Flow Test Report:

Test Date / Time: 7/25/2017 11:33:19 PM

Project: Edmonds Terminal

Operator Name: RB

Location Name: MW-143 Well Diameter: 2 in Casing Type: PVC Screen Length: 10.1 ft Top of Screen: 3.5 ft Total Depth: 14.1 ft Initial Depth to Water: 5.45 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4800 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 2.6 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 502797
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
7/25/2017 11:33 PM	00:00	6.09 pH	60.47 °F	624.95 µS/cm	0.27 mg/L	1.75 NTU	-11.7 mV	5.45 ft	200.00 ml/min
7/25/2017 11:36 PM	03:00	6.18 pH	60.96 °F	618.53 µS/cm	0.16 mg/L	1.70 NTU	-29.0 mV	5.45 ft	200.00 ml/min
7/25/2017 11:39 PM	05:59	6.25 pH	61.21 °F	607.65 µS/cm	0.13 mg/L	1.77 NTU	-40.3 mV	5.45 ft	200.00 ml/min
7/25/2017 11:42 PM	08:59	6.32 pH	61.37 °F	604.79 µS/cm	0.14 mg/L	1.44 NTU	-48.1 mV	5.45 ft	200.00 ml/min
7/25/2017 11:45 PM	11:59	6.36 pH	61.17 °F	622.25 µS/cm	0.18 mg/L	1.25 NTU	-52.0 mV	5.45 ft	200.00 ml/min
7/25/2017 11:48 PM	15:00	6.39 pH	60.80 °F	639.92 µS/cm	0.17 mg/L	1.36 NTU	-53.9 mV	5.45 ft	200.00 ml/min
7/25/2017 11:51 PM	17:59	6.40 pH	60.60 °F	652.14 µS/cm	0.16 mg/L	1.19 NTU	-55.2 mV	5.45 ft	200.00 ml/min
7/25/2017 11:54 PM	20:59	6.40 pH	60.20 °F	658.22 µS/cm	0.16 mg/L	1.31 NTU	-55.5 mV	5.45 ft	200.00 ml/min
7/25/2017 11:57 PM	24:00	6.40 pH	59.95 °F	660.49 µS/cm	0.18 mg/L	1.17 NTU	-55.3 mV	5.45 ft	200.00 ml/min

Samples

Sample ID:	Description:
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MW-143

Sample Time: 1110
Final DTW: 8.14 ft btoc
Final RDO: 0.19 mg/L
Ferrous Iron: >7mg/L

Low-Flow Test Report:

Test Date / Time: 7/26/2017 9:23:59 PM

Project: Edmonds Terminal

Operator Name: RB

Location Name: MW-502 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.38 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4199.997 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.2 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 502797
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15	+/- 15 %		
7/26/2017 9:23 PM	00:00	6.23 pH	57.75 °F	313.76 µS/cm	0.30 mg/L	49.90 NTU	71.8 mV	5.38 ft	200.00 ml/min
7/26/2017 9:26 PM	02:59	6.24 pH	57.71 °F	314.55 µS/cm	0.16 mg/L	47.81 NTU	63.9 mV	5.38 ft	200.00 ml/min
7/26/2017 9:29 PM	05:59	6.24 pH	58.08 °F	316.15 µS/cm	0.15 mg/L	51.49 NTU	57.8 mV	5.38 ft	200.00 ml/min
7/26/2017 9:32 PM	08:59	6.25 pH	58.19 °F	317.51 µS/cm	0.14 mg/L	31.42 NTU	54.2 mV	5.38 ft	200.00 ml/min
7/26/2017 9:35 PM	11:59	6.25 pH	58.29 °F	317.65 µS/cm	0.14 mg/L	32.06 NTU	51.5 mV	5.38 ft	200.00 ml/min
7/26/2017 9:38 PM	15:00	6.25 pH	58.32 °F	316.07 µS/cm	0.14 mg/L	28.06 NTU	49.5 mV	5.38 ft	200.00 ml/min
7/26/2017 9:41 PM	17:59	6.25 pH	58.33 °F	316.94 µS/cm	0.14 mg/L	29.25 NTU	48.2 mV	5.38 ft	200.00 ml/min
7/26/2017 9:44 PM	20:59	6.24 pH	58.28 °F	315.05 µS/cm	0.14 mg/L	29.51 NTU	48.2 mV	5.38 ft	200.00 ml/min

Samples

Sample ID:	Description:
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MW-502	Sample Time: 0900 Final DTW: 5.62 ft btoc Final RDO: 0.14 mg/L Ferrous Iron: 4.25 mg/L MS/MSD & DUP-3 collected
MW-502-MS	
MW-502-MSD	
DUP-3	

Low-Flow Test Report:

Test Date / Time: 7/26/2017 9:32:41 AM

Project: Edmonds terminal

Operator Name: EK

<p>Location Name: MW-504 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.67 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4945.001 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.18 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 449684</p>
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/26/2017 9:32 AM	00:00	6.77 pH	63.73 °F	405.71 µS/cm	3.13 mg/L	8.41 NTU	180.2 mV	6.67 ft	150.00 ml/min
7/26/2017 9:35 AM	02:59	6.79 pH	63.06 °F	407.36 µS/cm	0.31 mg/L	1.78 NTU	119.8 mV	6.67 ft	150.00 ml/min
7/26/2017 9:38 AM	06:00	6.79 pH	62.88 °F	407.65 µS/cm	0.19 mg/L	1.54 NTU	99.0 mV	6.67 ft	150.00 ml/min
7/26/2017 9:41 AM	09:00	6.80 pH	62.72 °F	407.92 µS/cm	0.15 mg/L	1.46 NTU	88.1 mV	6.67 ft	150.00 ml/min
7/26/2017 9:44 AM	12:00	6.80 pH	62.66 °F	408.73 µS/cm	0.13 mg/L	1.45 NTU	80.7 mV	6.67 ft	150.00 ml/min
7/26/2017 9:47 AM	15:00	6.80 pH	62.71 °F	410.86 µS/cm	0.12 mg/L	1.38 NTU	74.3 mV	6.67 ft	150.00 ml/min
7/26/2017 9:50 AM	17:59	6.81 pH	62.59 °F	412.24 µS/cm	0.11 mg/L	1.45 NTU	68.6 mV	6.67 ft	150.00 ml/min
7/26/2017 9:53 AM	20:59	6.81 pH	62.50 °F	414.14 µS/cm	0.11 mg/L	1.50 NTU	63.7 mV	6.67 ft	150.00 ml/min
7/26/2017 9:56 AM	23:59	6.82 pH	62.39 °F	415.93 µS/cm	0.10 mg/L	1.49 NTU	58.7 mV	6.67 ft	150.00 ml/min
7/26/2017 9:59 AM	26:59	6.83 pH	62.40 °F	417.88 µS/cm	0.10 mg/L	1.67 NTU	53.2 mV	6.67 ft	150.00 ml/min
7/26/2017 10:02 AM	29:59	6.83 pH	62.35 °F	419.63 µS/cm	0.10 mg/L	1.78 NTU	49.2 mV	6.67 ft	150.00 ml/min
7/26/2017 10:05 AM	32:58	6.84 pH	62.32 °F	420.98 µS/cm	0.10 mg/L	2.03 NTU	46.3 mV	6.67 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-504	Sample time @0910 Final DTW =6.85 ft btoc Final RDO =0.10 mg/L Ferrous iron= 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 7/26/2017 10:48:10 AM

Project: Edmonds terminal

Operator Name: EK

Location Name: MW-505 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.97 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 5845 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.03 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 449684
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/26/2017 10:48 AM	00:00	6.67 pH	62.31 °F	443.96 µS/cm	2.23 mg/L	108.81 NTU	71.5 mV	4.97 ft	150.00 ml/min
7/26/2017 10:51 AM	02:59	6.65 pH	62.61 °F	448.56 µS/cm	0.35 mg/L	105.56 NTU	38.3 mV	4.97 ft	150.00 ml/min
7/26/2017 10:54 AM	05:59	6.66 pH	62.75 °F	455.14 µS/cm	0.23 mg/L	92.32 NTU	26.2 mV	4.97 ft	150.00 ml/min
7/26/2017 10:57 AM	08:59	6.67 pH	62.84 °F	466.11 µS/cm	0.18 mg/L	79.58 NTU	18.0 mV	4.97 ft	150.00 ml/min
7/26/2017 11:00 AM	11:59	6.69 pH	63.24 °F	480.59 µS/cm	0.16 mg/L	59.18 NTU	9.8 mV	4.97 ft	150.00 ml/min
7/26/2017 11:03 AM	14:59	6.71 pH	63.16 °F	493.06 µS/cm	0.14 mg/L	42.89 NTU	2.9 mV	4.97 ft	150.00 ml/min
7/26/2017 11:06 AM	17:59	6.72 pH	63.17 °F	503.86 µS/cm	0.13 mg/L	33.79 NTU	-2.7 mV	4.97 ft	150.00 ml/min
7/26/2017 11:09 AM	20:58	6.76 pH	63.49 °F	525.53 µS/cm	0.13 mg/L	24.38 NTU	-10.0 mV	4.97 ft	150.00 ml/min
7/26/2017 11:12 AM	23:58	6.75 pH	63.68 °F	521.80 µS/cm	0.13 mg/L	24.93 NTU	-13.1 mV	4.97 ft	150.00 ml/min
7/26/2017 11:15 AM	26:58	6.76 pH	63.46 °F	530.54 µS/cm	0.12 mg/L	22.98 NTU	-14.6 mV	4.97 ft	150.00 ml/min
7/26/2017 11:18 AM	29:58	6.80 pH	63.72 °F	554.55 µS/cm	0.13 mg/L	11.08 NTU	-18.7 mV	4.97 ft	150.00 ml/min
7/26/2017 11:21 AM	32:58	6.81 pH	63.85 °F	565.00 µS/cm	0.16 mg/L	7.05 NTU	-21.3 mV	4.97 ft	150.00 ml/min

7/26/2017 11:24 AM	35:58	6.82 pH	63.89 °F	573.80 µS/cm	0.18 mg/L	5.39 NTU	-22.6 mV	4.97 ft	150.00 ml/min
7/26/2017 11:27 AM	38:58	6.78 pH	63.49 °F	542.29 µS/cm	0.18 mg/L	15.67 NTU	-19.6 mV	4.97 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-505	Sample time @ 1030 Final DTW=5.00 ft btoc Final RDO=0.17 mg/L Ferrous iron=3.5 mg/L

Low-Flow Test Report:

Test Date / Time: 7/27/2017 9:37:05 AM

Project: Edmonds terminal

Operator Name: EK

Location Name: MW-506 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.93 ft	Pump Type: Geotech geopumo series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 5394.999 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.1 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 449684
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Test Notes:

Weather Conditions:

Over cast and a slight drizzle

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/27/2017 9:37 AM	00:00	6.84 pH	64.01 °F	0.92 µS/cm	8.63 mg/L	1.34 NTU	214.3 mV	6.93 ft	150.00 ml/min
7/27/2017 9:40 AM	02:59	7.01 pH	60.27 °F	407.87 µS/cm	0.33 mg/L	12.31 NTU	194.9 mV	6.93 ft	150.00 ml/min
7/27/2017 9:43 AM	06:00	7.00 pH	59.74 °F	408.06 µS/cm	0.17 mg/L	4.52 NTU	193.6 mV	6.93 ft	150.00 ml/min
7/27/2017 9:46 AM	09:00	6.99 pH	59.51 °F	408.74 µS/cm	0.15 mg/L	6.51 NTU	187.5 mV	6.93 ft	150.00 ml/min
7/27/2017 9:49 AM	11:59	7.00 pH	59.42 °F	409.99 µS/cm	0.15 mg/L	3.78 NTU	169.4 mV	6.93 ft	150.00 ml/min
7/27/2017 9:52 AM	14:59	7.00 pH	59.46 °F	410.99 µS/cm	0.14 mg/L	1.70 NTU	153.6 mV	6.93 ft	150.00 ml/min
7/27/2017 9:55 AM	17:59	6.99 pH	59.43 °F	410.51 µS/cm	0.13 mg/L	2.01 NTU	144.9 mV	6.93 ft	150.00 ml/min
7/27/2017 9:58 AM	20:58	7.00 pH	59.41 °F	412.36 µS/cm	0.12 mg/L	1.69 NTU	134.3 mV	6.93 ft	150.00 ml/min
7/27/2017 10:01 AM	23:59	6.99 pH	59.35 °F	414.43 µS/cm	0.12 mg/L	1.79 NTU	125.0 mV	6.93 ft	150.00 ml/min
7/27/2017 10:04 AM	26:59	6.99 pH	59.34 °F	414.93 µS/cm	0.12 mg/L	1.28 NTU	115.8 mV	6.93 ft	150.00 ml/min
7/27/2017 10:07 AM	29:58	6.99 pH	59.34 °F	417.00 µS/cm	0.12 mg/L	1.47 NTU	106.4 mV	6.93 ft	150.00 ml/min
7/27/2017 10:10 AM	32:58	6.99 pH	59.32 °F	417.33 µS/cm	0.11 mg/L	1.30 NTU	98.0 mV	6.93 ft	150.00 ml/min

7/27/2017 10:13 AM	35:57	6.98 pH	59.29 °F	416.24 µS/cm	0.12 mg/L	1.31 NTU	92.7 mV	6.93 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-506	Sample time @ 0930 Final DTW=7.03 ft btoc Final RDO=0.12 mg/L Ferrous iron=0.5 mg/L

Low-Flow Test Report:

Test Date / Time: 27/07/2017 09:39:25

Project: Edmonds Terminal

Operator Name: JTL

Location Name: MW-507 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.2 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 1196.667 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.5 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 462758
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15	+/- 10 %	+/- 15 %		
27/07/2017 09:39	00:00	6.74 pH	61.56 °F	930.59 µS/cm	1.98 mg/L	39.24 NTU	216.8 mV	7.20 ft	200.00 ml/min
27/07/2017 09:42	02:59	6.73 pH	60.46 °F	914.16 µS/cm	0.50 mg/L	19.27 NTU	209.4 mV	7.20 ft	200.00 ml/min
27/07/2017 09:45	05:59	6.74 pH	60.09 °F	905.45 µS/cm	0.42 mg/L	11.85 NTU	197.4 mV	7.20 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-507	Sample Time: 0855 Final depth: 7.25 ft btoc Final RDO: 0.42 mg/L Ferrous Iron: 1.75 mg/L

Low-Flow Test Report:

Test Date / Time: 27/07/2017 11:06:48

Project: Edmonds Terminal

Operator Name: JTL

Location Name: MW-508 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.95 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 2993.335 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.75 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 462758
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
27/07/2017 11:06	00:00	6.53 pH	62.17 °F	609.51 µS/cm	2.88 mg/L	128.26 NTU	0.6 mV	6.95 ft	200.00 ml/min
27/07/2017 11:09	02:59	6.51 pH	62.47 °F	588.23 µS/cm	0.20 mg/L	7.90 NTU	-47.2 mV	6.95 ft	200.00 ml/min
27/07/2017 11:12	05:59	6.49 pH	63.05 °F	584.80 µS/cm	0.14 mg/L	11.40 NTU	-55.4 mV	6.95 ft	200.00 ml/min
27/07/2017 11:15	08:58	6.49 pH	63.31 °F	591.25 µS/cm	0.13 mg/L	15.03 NTU	-59.0 mV	6.95 ft	200.00 ml/min
27/07/2017 11:18	11:58	6.49 pH	63.37 °F	595.26 µS/cm	0.12 mg/L	18.84 NTU	-62.2 mV	6.95 ft	200.00 ml/min
27/07/2017 11:21	14:58	6.49 pH	63.35 °F	596.45 µS/cm	0.12 mg/L	21.37 NTU	-63.9 mV	6.95 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-508	Sample Time: 1025 Final DTW: 7.70 ft btoc Final RDO: 0.12 mg/L Ferrous Iron: 6.50 mg/L

Low-Flow Test Report:

Test Date / Time: 7/27/2017 10:54:58 AM

Project: Edmonds terminal

Operator Name: EK

Location Name: MW-509 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 3.81 ft	Pump Type: Geotech geopumo series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 8 ft Estimated Total Volume Pumped: 4495.002 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 449684
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Test Notes:

Weather Conditions:

Over cast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/27/2017 10:54 AM	00:00	6.87 pH	60.86 °F	0.40 µS/cm	8.04 mg/L	15.11 NTU	172.4 mV	3.81 ft	150.00 ml/min
7/27/2017 10:57 AM	02:59	6.88 pH	62.48 °F	479.13 µS/cm	0.22 mg/L	3.47 NTU	30.1 mV	3.81 ft	150.00 ml/min
7/27/2017 11:00 AM	05:59	6.87 pH	63.11 °F	476.18 µS/cm	0.23 mg/L	2.53 NTU	8.5 mV	3.81 ft	150.00 ml/min
7/27/2017 11:03 AM	08:59	6.87 pH	63.47 °F	468.70 µS/cm	0.22 mg/L	1.91 NTU	-1.2 mV	3.81 ft	150.00 ml/min
7/27/2017 11:06 AM	11:59	6.86 pH	63.94 °F	457.37 µS/cm	0.31 mg/L	1.71 NTU	-7.6 mV	3.81 ft	150.00 ml/min
7/27/2017 11:09 AM	14:59	6.84 pH	64.31 °F	441.26 µS/cm	0.34 mg/L	1.04 NTU	-12.5 mV	3.81 ft	150.00 ml/min
7/27/2017 11:12 AM	17:58	6.82 pH	64.64 °F	429.42 µS/cm	0.41 mg/L	1.08 NTU	-13.4 mV	3.81 ft	150.00 ml/min
7/27/2017 11:15 AM	20:58	6.79 pH	64.82 °F	420.62 µS/cm	0.42 mg/L	1.09 NTU	-11.0 mV	3.81 ft	150.00 ml/min
7/27/2017 11:18 AM	23:58	6.77 pH	65.07 °F	419.71 µS/cm	0.44 mg/L	1.04 NTU	-7.9 mV	3.81 ft	150.00 ml/min
7/27/2017 11:21 AM	26:58	6.76 pH	65.13 °F	414.77 µS/cm	0.41 mg/L	1.14 NTU	-5.2 mV	3.81 ft	150.00 ml/min
7/27/2017 11:24 AM	29:58	6.76 pH	65.33 °F	415.49 µS/cm	0.39 mg/L	1.09 NTU	-3.6 mV	3.81 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-509	Sample time @ 1030 Final DTW= 3.82 ft btoc Final RDO= 0.39 mg/L Ferrous iron =0.5 mg/L

Low-Flow Test Report:

Test Date / Time: 7/26/2017 1:08:21 PM

Project: Edmonds Terminal

Operator Name: EAN

<p>Location Name: MW-510 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.33 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 5399.999 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 2.49 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 515918</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/26/2017 1:08 PM	00:00	6.33 pH	60.17 °F	516.98 µS/cm	0.25 mg/L	8.25 NTU	0.2 mV	6.33 ft	150.00 ml/min
7/26/2017 1:11 PM	02:59	6.34 pH	60.05 °F	515.27 µS/cm	0.16 mg/L	5.91 NTU	-10.1 mV	6.33 ft	150.00 ml/min
7/26/2017 1:14 PM	05:59	6.34 pH	60.02 °F	514.03 µS/cm	0.14 mg/L	6.89 NTU	-15.0 mV	6.33 ft	150.00 ml/min
7/26/2017 1:17 PM	08:59	6.33 pH	60.02 °F	512.87 µS/cm	0.12 mg/L	6.94 NTU	-18.1 mV	6.33 ft	150.00 ml/min
7/26/2017 1:20 PM	11:59	6.33 pH	60.09 °F	511.35 µS/cm	0.11 mg/L	8.85 NTU	-21.0 mV	6.33 ft	150.00 ml/min
7/26/2017 1:23 PM	14:59	6.34 pH	60.06 °F	509.37 µS/cm	0.11 mg/L	10.18 NTU	-25.4 mV	6.33 ft	150.00 ml/min
7/26/2017 1:26 PM	17:59	6.33 pH	60.01 °F	507.67 µS/cm	0.12 mg/L	11.16 NTU	-28.1 mV	6.33 ft	150.00 ml/min
7/26/2017 1:29 PM	20:59	6.33 pH	60.00 °F	506.68 µS/cm	0.15 mg/L	12.83 NTU	-30.6 mV	6.33 ft	150.00 ml/min
7/26/2017 1:32 PM	23:59	6.33 pH	60.11 °F	496.95 µS/cm	0.19 mg/L	14.11 NTU	-33.8 mV	6.33 ft	150.00 ml/min
7/26/2017 1:35 PM	26:59	6.33 pH	60.10 °F	502.95 µS/cm	0.13 mg/L	16.25 NTU	-33.8 mV	6.33 ft	150.00 ml/min
7/26/2017 1:38 PM	29:59	6.33 pH	60.14 °F	499.97 µS/cm	0.09 mg/L	13.85 NTU	-33.6 mV	6.33 ft	150.00 ml/min
7/26/2017 1:41 PM	32:59	6.33 pH	60.13 °F	497.58 µS/cm	0.09 mg/L	16.40 NTU	-35.1 mV	6.33 ft	150.00 ml/min

7/26/2017 1:44 PM	35:59	6.33 pH	60.13 °F	496.18 µS/cm	0.08 mg/L	14.36 NTU	-36.0 mV	6.33 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-510	Sample Time: 13:00 Final DTW: 8.82 ft btoc Final RDO: 0.08 mg/L Ferrous iron: 8.0 mg/L

Low-Flow Test Report:

Test Date / Time: 7/27/2017 11:11:48 PM

Project: Edmonds Terminal

Operator Name: RB

Location Name: MW-511 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 3599.998 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.1 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 502797
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15	+/- 15 %	
7/27/2017 11:11 PM	00:00	6.20 pH	57.28 °F	299.47 µS/cm	2.77 mg/L	1.87 NTU	123.9 mV	200.00 ml/min
7/27/2017 11:14 PM	02:59	6.19 pH	56.43 °F	302.01 µS/cm	2.46 mg/L	1.24 NTU	131.6 mV	200.00 ml/min
7/27/2017 11:17 PM	06:00	6.21 pH	56.03 °F	302.10 µS/cm	2.31 mg/L	1.20 NTU	135.4 mV	200.00 ml/min
7/27/2017 11:20 PM	08:59	6.21 pH	55.81 °F	301.80 µS/cm	2.10 mg/L	1.40 NTU	139.4 mV	200.00 ml/min
7/27/2017 11:23 PM	11:59	6.21 pH	55.64 °F	301.24 µS/cm	1.93 mg/L	1.41 NTU	142.8 mV	200.00 ml/min
7/27/2017 11:26 PM	14:59	6.21 pH	55.54 °F	301.04 µS/cm	1.82 mg/L	1.44 NTU	145.5 mV	200.00 ml/min
7/27/2017 11:29 PM	17:59	6.20 pH	55.41 °F	300.62 µS/cm	1.78 mg/L	1.58 NTU	148.0 mV	200.00 ml/min

Samples

Sample ID:	Description:
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MW-511	Sample Time: 1035 Final DTW: 8.20 ft btoc Final RDO: 1.77 mg/L Ferrous Iron: 0.0 mg/L
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Low-Flow Test Report:

Test Date / Time: 7/26/2017 9:23:44 AM

Project: Edmonds Terminal

Operator Name: EAN

<p>Location Name: MW-512 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.73 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 2249.999 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.03 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 515918</p>
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/26/2017 9:23 AM	00:00	7.02 pH	61.28 °F	590.82 µS/cm	0.31 mg/L	4.06 NTU	-88.5 mV	6.73 ft	150.00 ml/min
7/26/2017 9:26 AM	02:59	7.02 pH	61.14 °F	560.06 µS/cm	0.24 mg/L	4.45 NTU	-95.9 mV	6.73 ft	150.00 ml/min
7/26/2017 9:29 AM	05:59	7.01 pH	61.33 °F	477.42 µS/cm	0.20 mg/L	5.48 NTU	-99.3 mV	6.73 ft	150.00 ml/min
7/26/2017 9:32 AM	09:00	7.01 pH	61.27 °F	588.44 µS/cm	0.18 mg/L	6.37 NTU	-99.2 mV	6.73 ft	150.00 ml/min
7/26/2017 9:35 AM	12:00	7.00 pH	61.49 °F	584.60 µS/cm	0.17 mg/L	6.38 NTU	-98.5 mV	6.73 ft	150.00 ml/min
7/26/2017 9:38 AM	14:59	6.99 pH	61.67 °F	558.10 µS/cm	0.18 mg/L	6.48 NTU	-95.0 mV	6.73 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-512	<p>Sample Time: 08:50 Final DTW: 6.76 ft btoc Final RDO: 0.15 mg/L Ferrous iron: 5.0 mg/L</p>

Low-Flow Test Report:

Test Date / Time: 7/25/2017 3:26:45 PM

Project: Edmonds terminal

Operator Name: EK

Location Name: MW-513 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.65 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 8 ft Estimated Total Volume Pumped: 3600 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 449684
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/25/2017 3:26 PM	00:00	6.26 pH	75.10 °F	0.26 µS/cm	7.88 mg/L	1.46 NTU	177.5 mV	4.65 ft	150.00 ml/min
7/25/2017 3:29 PM	03:00	6.81 pH	64.59 °F	482.91 µS/cm	0.28 mg/L	6.20 NTU	-24.0 mV	4.65 ft	150.00 ml/min
7/25/2017 3:32 PM	06:00	6.84 pH	62.55 °F	479.69 µS/cm	0.15 mg/L	3.00 NTU	-39.2 mV	4.65 ft	150.00 ml/min
7/25/2017 3:35 PM	09:00	6.85 pH	62.23 °F	476.85 µS/cm	0.12 mg/L	4.02 NTU	-44.8 mV	4.65 ft	150.00 ml/min
7/25/2017 3:38 PM	12:00	6.80 pH	62.01 °F	471.15 µS/cm	0.11 mg/L	4.60 NTU	-45.3 mV	4.65 ft	150.00 ml/min
7/25/2017 3:41 PM	15:00	6.70 pH	62.06 °F	469.06 µS/cm	0.10 mg/L	4.25 NTU	-39.3 mV	4.65 ft	150.00 ml/min
7/25/2017 3:44 PM	18:00	6.59 pH	62.28 °F	471.17 µS/cm	0.10 mg/L	3.66 NTU	-34.0 mV	4.65 ft	150.00 ml/min
7/25/2017 3:47 PM	21:00	6.52 pH	62.82 °F	470.64 µS/cm	0.11 mg/L	4.84 NTU	-33.5 mV	4.65 ft	150.00 ml/min
7/25/2017 3:50 PM	24:00	6.47 pH	62.95 °F	469.48 µS/cm	0.11 mg/L	7.56 NTU	-33.2 mV	4.65 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-513	Sample time @ 1500 Final DTW=4.66 ft btoc Final RDO=0.11 mg/L Ferrous iron=4.5 mg/L
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Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 27/07/2017 12:14:21

Project: Edmonds Terminal

Operator Name: JTL

<p>Location Name: MW-514 Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 m Top of Screen: 3 m Total Depth: 13 m Initial Depth to Water: 5.5 ft</p>	<p>Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 5393.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.05 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 462758</p>
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
27/07/2017 12:14	00:00	6.78 pH	63.07 °F	371.72 µS/cm	5.83 mg/L	13.59 NTU	61.0 mV	5.50 ft	200.00 ml/min
27/07/2017 12:17	02:59	6.73 pH	62.63 °F	360.63 µS/cm	0.27 mg/L	4.73 NTU	37.2 mV	5.50 ft	200.00 ml/min
27/07/2017 12:20	05:59	6.72 pH	63.03 °F	355.67 µS/cm	0.20 mg/L	3.13 NTU	33.6 mV	5.50 ft	200.00 ml/min
27/07/2017 12:23	08:59	6.72 pH	63.60 °F	360.55 µS/cm	0.18 mg/L	3.50 NTU	29.5 mV	5.50 ft	200.00 ml/min
27/07/2017 12:26	11:59	6.72 pH	63.85 °F	356.48 µS/cm	0.22 mg/L	4.79 NTU	26.2 mV	5.50 ft	200.00 ml/min
27/07/2017 12:29	14:59	6.73 pH	64.06 °F	352.86 µS/cm	0.29 mg/L	6.74 NTU	23.7 mV	5.50 ft	200.00 ml/min
27/07/2017 12:32	17:59	6.73 pH	64.26 °F	350.79 µS/cm	0.30 mg/L	7.09 NTU	20.3 mV	5.50 ft	200.00 ml/min
27/07/2017 12:35	20:58	6.72 pH	64.35 °F	354.66 µS/cm	0.27 mg/L	9.17 NTU	17.2 mV	5.50 ft	200.00 ml/min
27/07/2017 12:38	23:58	6.73 pH	64.45 °F	350.37 µS/cm	0.28 mg/L	12.59 NTU	15.6 mV	5.50 ft	200.00 ml/min
27/07/2017 12:41	26:57	6.73 pH	64.48 °F	352.17 µS/cm	0.29 mg/L	11.33 NTU	15.5 mV	5.50 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-514	Sample Time: 1155 Final DTW: 5.55 Final RDO: 0.29 Ferrous Iron: 0.5

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 7/25/2017 2:27:57 PM

Project: Edmonds Terminal

Operator Name: EAN

Location Name: MW-515 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.14 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 5392.498 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 515918
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/25/2017 2:27 PM	00:00	7.04 pH	65.26 °F	398.66 µS/cm	0.18 mg/L	1.38 NTU	47.8 mV	5.14 ft	150.00 ml/min
7/25/2017 2:30 PM	02:59	7.00 pH	65.86 °F	401.95 µS/cm	0.22 mg/L	1.11 NTU	45.2 mV	5.14 ft	150.00 ml/min
7/25/2017 2:33 PM	05:59	6.96 pH	66.48 °F	402.14 µS/cm	0.39 mg/L	1.02 NTU	46.5 mV	5.14 ft	150.00 ml/min
7/25/2017 2:36 PM	08:58	6.91 pH	66.41 °F	393.77 µS/cm	0.20 mg/L	1.12 NTU	45.6 mV	5.14 ft	150.00 ml/min
7/25/2017 2:39 PM	11:58	6.89 pH	65.62 °F	392.44 µS/cm	0.18 mg/L	1.15 NTU	31.7 mV	5.14 ft	150.00 ml/min
7/25/2017 2:42 PM	14:58	6.86 pH	65.49 °F	393.08 µS/cm	0.17 mg/L	1.23 NTU	26.0 mV	5.14 ft	150.00 ml/min
7/25/2017 2:45 PM	17:57	6.83 pH	65.51 °F	392.74 µS/cm	0.18 mg/L	1.44 NTU	21.3 mV	5.14 ft	150.00 ml/min
7/25/2017 2:48 PM	20:57	6.80 pH	65.62 °F	392.65 µS/cm	0.16 mg/L	1.63 NTU	18.8 mV	5.14 ft	150.00 ml/min
7/25/2017 2:51 PM	23:57	6.78 pH	65.65 °F	392.56 µS/cm	0.16 mg/L	2.19 NTU	15.6 mV	5.14 ft	150.00 ml/min
7/25/2017 2:54 PM	26:57	6.77 pH	65.69 °F	391.91 µS/cm	0.15 mg/L	2.91 NTU	15.1 mV	5.14 ft	150.00 ml/min
7/25/2017 2:57 PM	29:57	6.75 pH	65.64 °F	391.89 µS/cm	0.15 mg/L	3.43 NTU	13.4 mV	5.14 ft	150.00 ml/min
7/25/2017 3:00 PM	32:56	6.74 pH	65.69 °F	391.11 µS/cm	0.15 mg/L	4.35 NTU	12.9 mV	5.14 ft	150.00 ml/min

7/25/2017 3:03 PM	35:56	6.73 pH	65.67 °F	390.53 µS/cm	0.15 mg/L	4.93 NTU	13.4 mV	5.14 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-515	Sample Time: 14:15 Final DTW: 5.15 ft btoc Final RDO: 0.15 mg/L Ferrous iron: 0.5 mg/L

Low-Flow Test Report:

Test Date / Time: 7/25/2017 1:39:53 PM

Project: Edmonds Terminal

Operator Name: EK

Location Name: MW-516 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.78 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 5840 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.2 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 449684
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/25/2017 1:39 PM	00:00	6.66 pH	72.30 °F	0.27 µS/cm	7.91 mg/L	1.24 NTU	141.2 mV	4.78 ft	150.00 ml/min
7/25/2017 1:42 PM	02:59	6.70 pH	65.88 °F	306.56 µS/cm	0.31 mg/L	11.95 NTU	-9.9 mV	4.78 ft	150.00 ml/min
7/25/2017 1:45 PM	05:59	6.71 pH	65.28 °F	308.01 µS/cm	0.15 mg/L	7.58 NTU	-8.0 mV	4.78 ft	150.00 ml/min
7/25/2017 1:48 PM	08:58	6.72 pH	65.35 °F	307.35 µS/cm	0.16 mg/L	2.92 NTU	6.6 mV	4.78 ft	150.00 ml/min
7/25/2017 1:51 PM	11:57	6.73 pH	65.54 °F	313.10 µS/cm	0.34 mg/L	2.68 NTU	20.0 mV	4.78 ft	150.00 ml/min
7/25/2017 1:54 PM	14:57	6.73 pH	65.56 °F	318.90 µS/cm	0.35 mg/L	1.41 NTU	23.8 mV	4.78 ft	150.00 ml/min
7/25/2017 1:57 PM	17:56	6.73 pH	65.62 °F	320.95 µS/cm	0.32 mg/L	1.04 NTU	23.7 mV	4.78 ft	150.00 ml/min
7/25/2017 2:00 PM	20:56	6.73 pH	65.81 °F	323.43 µS/cm	0.41 mg/L	1.14 NTU	27.9 mV	4.78 ft	150.00 ml/min
7/25/2017 2:03 PM	23:55	6.73 pH	65.85 °F	324.66 µS/cm	0.56 mg/L	1.09 NTU	32.4 mV	4.78 ft	150.00 ml/min
7/25/2017 2:06 PM	26:56	6.73 pH	65.90 °F	327.07 µS/cm	0.69 mg/L	1.06 NTU	37.0 mV	4.78 ft	150.00 ml/min
7/25/2017 2:09 PM	29:55	6.72 pH	65.90 °F	328.48 µS/cm	0.76 mg/L	1.18 NTU	41.0 mV	4.78 ft	150.00 ml/min
7/25/2017 2:12 PM	32:55	6.72 pH	65.99 °F	328.42 µS/cm	0.83 mg/L	1.08 NTU	45.3 mV	4.78 ft	150.00 ml/min

7/25/2017 2:15 PM	35:55	6.72 pH	66.16 °F	329.00 µS/cm	0.94 mg/L	1.06 NTU	49.8 mV	4.78 ft	150.00 ml/min
7/25/2017 2:18 PM	38:56	6.72 pH	66.21 °F	330.69 µS/cm	0.90 mg/L	1.07 NTU	51.9 mV	4.78 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-516	Sample time @ 1325 Final DTW=4.80 ft btoc Final RDO=0.90 mg/L Ferrous iron=0.0 mg/L
DUP-1	

Low-Flow Test Report:

Test Date / Time: 7/25/2017 1:17:34 PM

Project: Edmonds Terminal

Operator Name: EAN

Location Name: MW-517 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 m Top of Screen: 3 m Total Depth: 13 m Initial Depth to Water: 5.55 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 2697.501 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 515918
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/25/2017 1:17 PM	00:00	6.62 pH	65.49 °F	287.18 µS/cm	0.19 mg/L	3.03 NTU	54.6 mV	5.55 ft	150.00 ml/min
7/25/2017 1:20 PM	03:00	6.61 pH	65.47 °F	262.64 µS/cm	0.17 mg/L	1.83 NTU	46.6 mV	5.55 ft	150.00 ml/min
7/25/2017 1:23 PM	06:00	6.60 pH	65.54 °F	249.20 µS/cm	0.21 mg/L	2.28 NTU	41.2 mV	5.55 ft	150.00 ml/min
7/25/2017 1:26 PM	08:59	6.58 pH	65.67 °F	249.29 µS/cm	0.28 mg/L	2.36 NTU	35.5 mV	5.55 ft	150.00 ml/min
7/25/2017 1:29 PM	11:59	6.57 pH	65.77 °F	249.19 µS/cm	0.32 mg/L	1.61 NTU	32.5 mV	5.55 ft	150.00 ml/min
7/25/2017 1:32 PM	14:59	6.57 pH	65.76 °F	241.97 µS/cm	0.37 mg/L	3.08 NTU	30.0 mV	5.55 ft	150.00 ml/min
7/25/2017 1:35 PM	17:59	6.56 pH	65.75 °F	232.95 µS/cm	0.37 mg/L	1.58 NTU	29.2 mV	5.55 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-517

Sample Time: 12:45
Final DTW: 5.56 ft btoc
Final RDO: 0.36 mg/L
Ferrous iron: 0.5 mg/L

Low-Flow Test Report:

Test Date / Time: 25/07/2017 15:31:04

Project: Edmonds Terminal

Operator Name: JTL

Location Name: MW-518 Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 m Top of Screen: 2.5 m Total Depth: 12.5 m Initial Depth to Water: 8.85 m	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 1200 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 462758
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
25/07/2017 15:31	00:00	6.93 pH	63.62 °F	378.09 µS/cm	1.02 mg/L	12.92 NTU	25.4 mV	8.85 m	200.00 ml/min
25/07/2017 15:34	02:59	6.92 pH	62.91 °F	381.70 µS/cm	0.92 mg/L	4.38 NTU	22.3 mV	8.85 m	200.00 ml/min
25/07/2017 15:37	05:59	6.91 pH	62.68 °F	388.33 µS/cm	0.95 mg/L	3.75 NTU	22.2 mV	8.85 m	200.00 ml/min

Samples

Sample ID:	Description:
MW-518	Sample Time: 1445 Final DTW: 8.85 btoc Final RDO: Not recorded Ferrous Iron: 0.25 mg/L

Low-Flow Test Report:

Test Date / Time: 7/25/2017 12:07:58 PM

Project: Edmonds Terminal

Operator Name: EK

<p>Location Name: MW-519 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.99 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4947.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.06 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 449684</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15	+/- 10	+/- 15 %		
7/25/2017 12:07 PM	00:00	5.40 pH	69.17 °F	0.27 µS/cm	8.01 mg/L	1.17 NTU	182.4 mV	6.99 ft	150.00 ml/min
7/25/2017 12:10 PM	02:59	6.64 pH	66.36 °F	675.68 µS/cm	0.27 mg/L	3.56 NTU	6.4 mV	6.99 ft	150.00 ml/min
7/25/2017 12:13 PM	05:59	6.62 pH	66.11 °F	672.16 µS/cm	0.19 mg/L	3.70 NTU	-7.6 mV	6.99 ft	150.00 ml/min
7/25/2017 12:16 PM	08:59	6.61 pH	66.34 °F	670.45 µS/cm	0.16 mg/L	4.48 NTU	-14.1 mV	6.99 ft	150.00 ml/min
7/25/2017 12:19 PM	11:59	6.60 pH	66.42 °F	668.16 µS/cm	0.14 mg/L	5.06 NTU	-18.8 mV	6.99 ft	150.00 ml/min
7/25/2017 12:22 PM	14:59	6.59 pH	66.50 °F	666.14 µS/cm	0.14 mg/L	3.00 NTU	-20.9 mV	6.99 ft	150.00 ml/min
7/25/2017 12:25 PM	17:59	6.58 pH	66.64 °F	664.26 µS/cm	0.17 mg/L	3.90 NTU	-26.9 mV	6.99 ft	150.00 ml/min
7/25/2017 12:28 PM	20:59	6.57 pH	66.68 °F	661.88 µS/cm	0.19 mg/L	4.37 NTU	-30.0 mV	6.99 ft	150.00 ml/min
7/25/2017 12:31 PM	23:59	6.57 pH	66.86 °F	657.98 µS/cm	0.20 mg/L	5.09 NTU	-32.2 mV	6.99 ft	150.00 ml/min
7/25/2017 12:34 PM	26:59	6.57 pH	66.95 °F	656.39 µS/cm	0.20 mg/L	4.46 NTU	-33.7 mV	6.99 ft	150.00 ml/min
7/25/2017 12:37 PM	29:59	6.56 pH	67.15 °F	650.76 µS/cm	0.25 mg/L	5.33 NTU	-35.0 mV	6.99 ft	150.00 ml/min
7/25/2017 12:40 PM	32:58	6.56 pH	67.16 °F	647.57 µS/cm	0.26 mg/L	5.46 NTU	-36.3 mV	6.99 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-519	Sample time @1150 Final DTW =7.05 ft btoc Final RDO =0.25 mg/L Ferrous iron= 3.5 mg/L

Low-Flow Test Report:

Test Date / Time: 7/25/2017 10:57:09 AM

Project: Edmonds Terminal

Operator Name: EK

<p>Location Name: MW-520 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.7 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 1800 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 449684</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
7/25/2017 10:57 AM	00:00	6.80 pH	65.81 °F	819.60 µS/cm	0.11 mg/L	1.16 NTU	202.6 mV	7.70 ft	150.00 ml/min
7/25/2017 11:00 AM	02:59	6.78 pH	65.74 °F	800.05 µS/cm	0.12 mg/L	1.22 NTU	197.4 mV	7.70 ft	150.00 ml/min
7/25/2017 11:03 AM	06:00	6.76 pH	65.71 °F	788.50 µS/cm	0.13 mg/L	1.06 NTU	191.1 mV	7.70 ft	150.00 ml/min
7/25/2017 11:06 AM	09:00	6.75 pH	65.76 °F	790.93 µS/cm	0.14 mg/L	1.07 NTU	187.3 mV	7.70 ft	150.00 ml/min
7/25/2017 11:09 AM	11:59	6.74 pH	65.71 °F	786.68 µS/cm	0.15 mg/L	1.10 NTU	183.5 mV	7.70 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-520	<p>Sample time @ 1015 Final DTW = 7.71 ft btoc Final RDO =0.15 mg/L Ferrous iron =0.0 mg/L</p>

Low-Flow Test Report:

Test Date / Time: 7/25/2017 10:53:58 AM

Project: Edmonds Terminal

Operator Name: EAN

Location Name: MW-521 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 m Top of Screen: 3 m Total Depth: 13 m Initial Depth to Water: 6.58 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 3597.501 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.02 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 515918
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/25/2017 10:53 AM	00:00	6.83 pH	68.07 °F	730.21 µS/cm	0.40 mg/L	1.34 NTU	-28.4 mV	6.58 ft	150.00 ml/min
7/25/2017 10:56 AM	03:00	6.66 pH	67.85 °F	703.44 µS/cm	0.75 mg/L	1.81 NTU	-14.0 mV	6.58 ft	150.00 ml/min
7/25/2017 10:59 AM	06:00	6.45 pH	67.65 °F	685.21 µS/cm	0.53 mg/L	1.31 NTU	-0.8 mV	6.58 ft	150.00 ml/min
7/25/2017 11:02 AM	08:59	6.33 pH	67.50 °F	671.71 µS/cm	0.52 mg/L	1.38 NTU	7.8 mV	6.58 ft	150.00 ml/min
7/25/2017 11:05 AM	11:59	6.27 pH	67.27 °F	656.04 µS/cm	0.64 mg/L	0.98 NTU	11.4 mV	6.58 ft	150.00 ml/min
7/25/2017 11:08 AM	14:58	6.23 pH	67.24 °F	644.93 µS/cm	0.64 mg/L	1.01 NTU	14.8 mV	6.58 ft	150.00 ml/min
7/25/2017 11:11 AM	17:59	6.20 pH	67.35 °F	622.05 µS/cm	0.77 mg/L	1.05 NTU	17.9 mV	6.58 ft	150.00 ml/min
7/25/2017 11:14 AM	20:59	6.20 pH	67.23 °F	635.63 µS/cm	0.75 mg/L	1.00 NTU	17.1 mV	6.58 ft	150.00 ml/min
7/25/2017 11:17 AM	23:59	6.19 pH	67.15 °F	632.67 µS/cm	0.69 mg/L	1.05 NTU	18.4 mV	6.58 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-521

Time: 10:30

Final DTW: 6.60 ft btoc

Final RDO: 0.70 mg/L

Ferrous iron: 1.25 mg/L

Low-Flow Test Report:

Test Date / Time: 25/07/2017 11:08:21

Project: Edmonds Terminal

Operator Name: JTL

Location Name: MW-522 Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 m Top of Screen: 3 m Total Depth: 13 m Initial Depth to Water: 8.23 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11 m Estimated Total Volume Pumped: 8999.999 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.1 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 462758
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
25/07/2017 11:08	00:00	6.54 pH	58.99 °F	581.27 µS/cm	1.98 mg/L	50.62 NTU	85.4 mV	8.23 ft	200.00 ml/min
25/07/2017 11:11	03:00	6.53 pH	58.74 °F	518.57 µS/cm	1.75 mg/L	18.93 NTU	100.9 mV	8.23 ft	200.00 ml/min
25/07/2017 11:14	06:00	6.51 pH	58.57 °F	456.77 µS/cm	1.25 mg/L	13.44 NTU	114.1 mV	8.23 ft	200.00 ml/min
25/07/2017 11:17	09:00	6.50 pH	58.62 °F	474.93 µS/cm	0.90 mg/L	12.02 NTU	122.2 mV	8.23 ft	200.00 ml/min
25/07/2017 11:20	11:59	6.50 pH	58.40 °F	531.19 µS/cm	0.66 mg/L	11.11 NTU	126.5 mV	8.23 ft	200.00 ml/min
25/07/2017 11:23	14:59	6.48 pH	58.30 °F	491.51 µS/cm	0.45 mg/L	18.94 NTU	126.5 mV	8.23 ft	200.00 ml/min
25/07/2017 11:26	17:59	6.47 pH	58.29 °F	454.00 µS/cm	0.33 mg/L	9.50 NTU	124.7 mV	8.23 ft	200.00 ml/min
25/07/2017 11:29	21:00	6.46 pH	58.38 °F	414.19 µS/cm	0.26 mg/L	47.83 NTU	123.2 mV	8.23 ft	200.00 ml/min
25/07/2017 11:32	23:59	6.46 pH	58.39 °F	422.56 µS/cm	0.22 mg/L	13.38 NTU	122.1 mV	8.23 ft	200.00 ml/min
25/07/2017 11:35	27:00	6.45 pH	58.36 °F	364.60 µS/cm	0.19 mg/L	12.17 NTU	119.8 mV	8.23 ft	200.00 ml/min
25/07/2017 11:38	29:59	6.45 pH	58.37 °F	373.39 µS/cm	0.15 mg/L	16.48 NTU	116.7 mV	8.23 ft	200.00 ml/min
25/07/2017 11:41	32:59	6.44 pH	58.39 °F	419.88 µS/cm	0.15 mg/L	16.65 NTU	113.5 mV	8.23 ft	200.00 ml/min

25/07/2017 11:44	36:00	6.44 pH	58.47 °F	395.75 µS/cm	0.13 mg/L	21.68 NTU	110.6 mV	8.23 ft	200.00 ml/min
25/07/2017 11:47	38:59	6.45 pH	58.44 °F	369.28 µS/cm	0.13 mg/L	23.77 NTU	107.7 mV	8.23 ft	200.00 ml/min
25/07/2017 11:50	42:00	6.45 pH	58.45 °F	468.39 µS/cm	0.12 mg/L	25.67 NTU	104.7 mV	8.23 ft	200.00 ml/min
25/07/2017 11:53	44:59	6.45 pH	58.45 °F	451.80 µS/cm	0.12 mg/L	29.62 NTU	102.4 mV	8.23 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-522	Sample time: 1100 Final DTW: 8.42 ft btoc FINAL RDO: did not record Ferrous Iron: 0 mg/L

Low-Flow Test Report:

Test Date / Time: 7/26/2017 11:49:04 AM

Project: Edmonds Terminal

Operator Name: EAN

Location Name: MW-525 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.45 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 3597.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.37 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 515918
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Test Notes:

Weather Conditions:

Overcast; partly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/26/2017 11:49 AM	00:00	6.34 pH	61.89 °F	389.74 µS/cm	0.27 mg/L	49.91 NTU	-31.3 mV	6.45 ft	150.00 ml/min
7/26/2017 11:52 AM	03:00	6.36 pH	61.46 °F	383.50 µS/cm	0.20 mg/L	15.51 NTU	-40.8 mV	6.45 ft	150.00 ml/min
7/26/2017 11:55 AM	05:59	6.40 pH	61.28 °F	377.47 µS/cm	0.18 mg/L	18.21 NTU	-47.8 mV	6.45 ft	150.00 ml/min
7/26/2017 11:58 AM	08:59	6.43 pH	61.04 °F	370.98 µS/cm	0.16 mg/L	8.51 NTU	-52.3 mV	6.45 ft	150.00 ml/min
7/26/2017 12:01 PM	11:59	6.46 pH	60.75 °F	365.80 µS/cm	0.14 mg/L	10.17 NTU	-57.1 mV	6.45 ft	150.00 ml/min
7/26/2017 12:04 PM	14:58	6.48 pH	60.69 °F	362.69 µS/cm	0.13 mg/L	5.07 NTU	-59.8 mV	6.45 ft	150.00 ml/min
7/26/2017 12:07 PM	17:59	6.50 pH	60.51 °F	359.60 µS/cm	0.13 mg/L	3.00 NTU	-62.4 mV	6.45 ft	150.00 ml/min
7/26/2017 12:10 PM	20:59	6.51 pH	60.39 °F	354.81 µS/cm	0.12 mg/L	2.21 NTU	-64.4 mV	6.45 ft	150.00 ml/min
7/26/2017 12:13 PM	23:58	6.53 pH	60.26 °F	353.07 µS/cm	0.11 mg/L	2.97 NTU	-66.6 mV	6.45 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-525

Sample Time: 11:20
Final DTW: 6.82 ft btoc
Final RDO: 0.11 mg/L
Ferrous iron: 6.5 mg/L

Low-Flow Test Report:

Test Date / Time: 26/07/2017 12:00:21

Project: Edmonds Terminal

Operator Name: JTL

Location Name: MW-526 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.51 m	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 4173.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.3 m	Instrument Used: AquaTROLL 600 Vented Serial Number: 462758
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Test Notes:

HCLO

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
26/07/2017 12:00	00:00	6.54 pH	62.62 °F	559.44 µS/cm	0.08 mg/L	5.55 NTU	-0.5 mV	5.51 m	200.00 ml/min
26/07/2017 12:03	02:59	6.53 pH	63.00 °F	531.67 µS/cm	0.06 mg/L	12.37 NTU	-8.2 mV	5.51 m	200.00 ml/min
26/07/2017 12:06	05:59	6.51 pH	63.55 °F	476.32 µS/cm	0.06 mg/L	27.07 NTU	-11.5 mV	5.51 m	200.00 ml/min
26/07/2017 12:09	09:00	6.50 pH	64.01 °F	407.09 µS/cm	0.05 mg/L	38.19 NTU	-11.9 mV	5.51 m	200.00 ml/min
26/07/2017 12:12	12:00	6.50 pH	64.23 °F	397.71 µS/cm	0.05 mg/L	27.51 NTU	-14.0 mV	5.51 m	200.00 ml/min
26/07/2017 12:15	15:00	6.50 pH	64.36 °F	394.98 µS/cm	0.05 mg/L	25.38 NTU	-16.8 mV	5.51 m	200.00 ml/min
26/07/2017 12:18	18:00	6.50 pH	64.53 °F	389.36 µS/cm	0.05 mg/L	20.42 NTU	-17.9 mV	5.51 m	200.00 ml/min
26/07/2017 12:21	20:51	6.50 pH	64.69 °F	383.76 µS/cm	0.04 mg/L	17.96 NTU	-19.3 mV	5.51 m	200.00 ml/min

Samples

Sample ID:	Description:
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MW-526

Sample Time: 1135
Final DTW: 5.81
Final RDO: 0.04 mg/L
Ferrous Iron: 6.75 mg/L

Low-Flow Test Report:

Test Date / Time: 7/27/2017 3:15:00 AM

Project: Edmonds Terminal

Operator Name: RB

Location Name: MW-529 Well Diameter: 1 cm Casing Type: PVC Screen Length: 5 m Top of Screen: 3 m Total Depth: 8 m Initial Depth to Water: 4.7 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 7 ft Estimated Total Volume Pumped: 8993.335 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 1.4 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 502797
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15	+/- 15 %		
7/27/2017 3:15 AM	00:00	6.69 pH	63.90 °F	23,819 µS/cm	1.15 mg/L	107.51 NTU	-79.8 mV	4.70 ft	200.00 ml/min
7/27/2017 3:18 AM	02:59	6.73 pH	63.23 °F	28,878 µS/cm	1.00 mg/L	33.30 NTU	-98.0 mV	4.70 ft	200.00 ml/min
7/27/2017 3:21 AM	05:59	6.75 pH	62.86 °F	29,931 µS/cm	0.37 mg/L	14.65 NTU	-108.4 mV	4.70 ft	200.00 ml/min
7/27/2017 3:24 AM	09:00	6.75 pH	63.66 °F	30,232 µS/cm	0.32 mg/L	6.85 NTU	-113.1 mV	4.70 ft	200.00 ml/min
7/27/2017 3:27 AM	11:59	6.74 pH	63.61 °F	30,373 µS/cm	0.33 mg/L	4.46 NTU	-116.8 mV	4.70 ft	200.00 ml/min
7/27/2017 3:29 AM	14:59	6.74 pH	63.77 °F	30,390 µS/cm	0.29 mg/L	2.98 NTU	-121.7 mV	4.70 ft	200.00 ml/min
7/27/2017 3:32 AM	17:59	6.74 pH	63.89 °F	30,286 µS/cm	0.29 mg/L	1.69 NTU	-128.5 mV	4.70 ft	200.00 ml/min
7/27/2017 3:35 AM	20:59	6.74 pH	63.93 °F	30,309 µS/cm	0.23 mg/L	1.37 NTU	-141.2 mV	4.70 ft	200.00 ml/min
7/27/2017 3:38 AM	23:59	6.74 pH	63.92 °F	30,236 µS/cm	0.23 mg/L	1.32 NTU	-159.3 mV	4.70 ft	200.00 ml/min
7/27/2017 3:41 AM	26:59	6.74 pH	63.83 °F	30,260 µS/cm	0.20 mg/L	1.18 NTU	-173.7 mV	4.70 ft	200.00 ml/min
7/27/2017 3:44 AM	29:59	6.74 pH	63.85 °F	30,214 µS/cm	0.24 mg/L	1.23 NTU	-185.9 mV	4.70 ft	200.00 ml/min
7/27/2017 3:47 AM	32:58	6.74 pH	63.77 °F	30,230 µS/cm	0.22 mg/L	1.20 NTU	-191.5 mV	4.70 ft	200.00 ml/min

7/27/2017 3:50 AM	35:58	6.73 pH	63.84 °F	30,267 µS/cm	0.22 mg/L	1.18 NTU	-196.6 mV	4.70 ft	200.00 ml/min
7/27/2017 3:53 AM	38:59	6.73 pH	63.69 °F	30,228 µS/cm	0.23 mg/L	1.15 NTU	-201.7 mV	4.70 ft	200.00 ml/min
7/27/2017 3:56 AM	41:58	6.73 pH	63.67 °F	30,186 µS/cm	0.21 mg/L	1.17 NTU	-202.0 mV	4.70 ft	200.00 ml/min
7/27/2017 3:59 AM	44:58	6.73 pH	63.65 °F	30,169 µS/cm	0.18 mg/L	1.15 NTU	-209.1 mV	4.70 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-529	<p>Sample Time: 1500 Final DTW: 6.10 ft btoc Final RDO: 0.18 mg/L Ferrous Iron: 3.5 mg/L</p> <p>RDO and ORP were not stable after 45 minutes.</p>

Low-Flow Test Report:

Test Date / Time: 26/07/2017 16:11:52

Project: Edmonds Terminal

Operator Name: JTL

Location Name: MW-530 Well Diameter: 1 cm Casing Type: PVC Screen Length: 5 m Top of Screen: 3 m Total Depth: 8 m Initial Depth to Water: 5.46 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 7 ft Estimated Total Volume Pumped: 4193.334 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.62 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 462758
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Test Notes:

HCLO

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
26/07/2017 16:11	00:00	6.32 pH	67.86 °F	29,638 µS/cm	1.86 mg/L	11.37 NTU	-5.3 mV	5.46 ft	200.00 ml/min
26/07/2017 16:14	02:59	6.30 pH	64.20 °F	27,796 µS/cm	1.07 mg/L	19.11 NTU	-20.6 mV	5.46 ft	200.00 ml/min
26/07/2017 16:17	05:58	6.33 pH	62.66 °F	30,091 µS/cm	0.42 mg/L	62.77 NTU	-39.4 mV	5.46 ft	200.00 ml/min
26/07/2017 16:20	08:58	6.34 pH	62.15 °F	30,016 µS/cm	0.29 mg/L	181.00 NTU	-55.6 mV	5.46 ft	200.00 ml/min
26/07/2017 16:23	11:58	6.36 pH	61.83 °F	28,905 µS/cm	0.23 mg/L	318.25 NTU	-80.7 mV	5.46 ft	200.00 ml/min
26/07/2017 16:26	14:58	6.39 pH	61.53 °F	27,952 µS/cm	0.22 mg/L	952.24 NTU	-110.0 mV	5.46 ft	200.00 ml/min
26/07/2017 16:29	17:58	6.40 pH	61.41 °F	26,897 µS/cm	0.21 mg/L	370.71 NTU	-129.5 mV	5.46 ft	200.00 ml/min
26/07/2017 16:32	20:58	6.41 pH	61.35 °F	27,495 µS/cm	0.22 mg/L	813.75 NTU	-142.2 mV	5.46 ft	200.00 ml/min

Samples

Sample ID:	Description:
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MW-530

Sample Time: 1530
Final DTW: 6.08 ft btoc
Final RDO: 0.21 mg/L
Ferrous Iron: 0 mg/L

Low-Flow Test Report:

Test Date / Time: 26/07/2017 10:03:02

Project: Edmonds Terminal

Operator Name: JTL

Location Name: MW-531 Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 m Top of Screen: 3 m Total Depth: 13 m Initial Depth to Water: 7.63 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 11393.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.02 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 462758
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Test Notes:

HCLO

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
26/07/2017 10:03	00:00	6.61 pH	61.58 °F	320.01 µS/cm	1.71 mg/L	59.70 NTU	64.9 mV	7.63 ft	200.00 ml/min
26/07/2017 10:06	03:00	6.62 pH	60.37 °F	305.50 µS/cm	0.50 mg/L	21.33 NTU	37.8 mV	7.63 ft	200.00 ml/min
26/07/2017 10:09	05:59	6.62 pH	60.17 °F	277.41 µS/cm	0.43 mg/L	28.04 NTU	30.7 mV	7.63 ft	200.00 ml/min
26/07/2017 10:12	08:59	6.61 pH	60.08 °F	268.80 µS/cm	0.41 mg/L	27.59 NTU	28.2 mV	7.63 ft	200.00 ml/min
26/07/2017 10:15	11:59	6.61 pH	60.17 °F	264.22 µS/cm	0.37 mg/L	38.10 NTU	26.8 mV	7.63 ft	200.00 ml/min
26/07/2017 10:18	14:59	6.61 pH	60.30 °F	257.67 µS/cm	0.31 mg/L	33.68 NTU	25.8 mV	7.63 ft	200.00 ml/min
26/07/2017 10:21	17:59	6.62 pH	60.39 °F	263.58 µS/cm	0.23 mg/L	30.32 NTU	22.3 mV	7.63 ft	200.00 ml/min
26/07/2017 10:24	20:59	6.62 pH	60.50 °F	259.05 µS/cm	0.16 mg/L	37.22 NTU	17.8 mV	7.63 ft	200.00 ml/min
26/07/2017 10:27	23:59	6.61 pH	60.59 °F	259.96 µS/cm	0.11 mg/L	45.28 NTU	13.7 mV	7.63 ft	200.00 ml/min
26/07/2017 10:30	26:59	6.60 pH	60.72 °F	259.45 µS/cm	0.09 mg/L	39.40 NTU	10.3 mV	7.63 ft	200.00 ml/min
26/07/2017 10:33	29:59	6.60 pH	60.76 °F	256.75 µS/cm	0.08 mg/L	58.99 NTU	7.3 mV	7.63 ft	200.00 ml/min
26/07/2017 10:36	32:59	6.60 pH	60.87 °F	252.53 µS/cm	0.08 mg/L	74.51 NTU	5.2 mV	7.63 ft	200.00 ml/min

26/07/2017 10:39	35:59	6.59 pH	60.91 °F	253.19 µS/cm	0.07 mg/L	90.61 NTU	3.7 mV	7.63 ft	200.00 ml/min
26/07/2017 10:42	38:59	6.59 pH	60.98 °F	245.48 µS/cm	0.07 mg/L	95.36 NTU	2.5 mV	7.63 ft	200.00 ml/min
26/07/2017 10:45	41:59	6.58 pH	61.06 °F	237.56 µS/cm	0.07 mg/L	110.07 NTU	1.9 mV	7.63 ft	200.00 ml/min
26/07/2017 10:48	44:59	6.58 pH	61.10 °F	237.25 µS/cm	0.07 mg/L	121.73 NTU	0.8 mV	7.63 ft	200.00 ml/min
26/07/2017 10:51	47:59	6.58 pH	61.19 °F	239.10 µS/cm	0.07 mg/L	135.76 NTU	-0.3 mV	7.63 ft	200.00 ml/min
26/07/2017 10:54	50:59	6.57 pH	61.23 °F	227.58 µS/cm	0.06 mg/L	172.88 NTU	-1.5 mV	7.63 ft	200.00 ml/min
26/07/2017 10:57	53:58	6.57 pH	61.31 °F	232.19 µS/cm	0.06 mg/L	172.98 NTU	-2.3 mV	7.63 ft	200.00 ml/min
26/07/2017 11:00	56:57	6.56 pH	61.39 °F	245.24 µS/cm	0.06 mg/L	260.63 NTU	-3.0 mV	7.63 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-531	Sample Time: 1015 Final DTW: 7.65 ft btoc RDO: not recorded Ferrous Iron: 3.25 mg/L

Low-Flow Test Report:

Test Date / Time: 7/26/2017 10:35:20 AM

Project: Edmonds Terminal

Operator Name: EAN

Location Name: MW-532 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.29 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 4050.001 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.84 ft	Instrument Used: AquaTROLL 600 Vented Serial Number: 515918
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/26/2017 10:35 AM	00:00	6.21 pH	63.82 °F	374.47 µS/cm	0.12 mg/L	11.88 NTU	-42.3 mV	7.29 ft	150.00 ml/min
7/26/2017 10:38 AM	03:00	6.20 pH	63.51 °F	375.67 µS/cm	0.10 mg/L	15.17 NTU	-48.4 mV	7.29 ft	150.00 ml/min
7/26/2017 10:41 AM	06:00	6.23 pH	63.09 °F	379.55 µS/cm	0.09 mg/L	12.55 NTU	-56.0 mV	7.29 ft	150.00 ml/min
7/26/2017 10:44 AM	08:59	6.24 pH	62.60 °F	378.65 µS/cm	0.08 mg/L	11.75 NTU	-60.0 mV	7.29 ft	150.00 ml/min
7/26/2017 10:47 AM	12:00	6.26 pH	62.02 °F	376.94 µS/cm	0.08 mg/L	9.10 NTU	-63.4 mV	7.29 ft	150.00 ml/min
7/26/2017 10:50 AM	15:00	6.26 pH	61.71 °F	376.62 µS/cm	0.08 mg/L	8.86 NTU	-61.8 mV	7.29 ft	150.00 ml/min
7/26/2017 10:53 AM	18:00	6.28 pH	61.32 °F	373.75 µS/cm	0.08 mg/L	9.16 NTU	-63.4 mV	7.29 ft	150.00 ml/min
7/26/2017 10:56 AM	20:59	6.29 pH	61.03 °F	370.01 µS/cm	0.08 mg/L	22.91 NTU	-62.8 mV	7.29 ft	150.00 ml/min
7/26/2017 10:59 AM	24:00	6.29 pH	60.82 °F	373.47 µS/cm	0.07 mg/L	9.16 NTU	-62.9 mV	7.29 ft	150.00 ml/min
7/26/2017 11:02 AM	27:00	6.31 pH	60.75 °F	215.02 µS/cm	0.14 mg/L	8.75 NTU	-66.0 mV	7.29 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-532	Sample Time: 10:20 Final DTW: 8.10 ft btoc Final RDO: 0.07 mg/L Ferrous iron: 7.0 mg/L Note: disregard the last set of parameters; water quality meter probe knocked over right before last reading was recorded; parameters stabilized prior to this last reading when waiting for Landeu personnel to observe stabilized readings

Low-Flow Test Report:

Test Date / Time: 7/26/2017 2:37:35 PM

Project: Edmonds terminal

Operator Name: EK

<p>Location Name: MW-E Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 8 ft Total Depth: 18.68 ft Initial Depth to Water: 7.51 ft</p>	<p>Pump Type: Geotech geooump series 2 Tubing Type: Polyethylene 0.170 x 1/4" Pump Intake From TOC: 13 ft Estimated Total Volume Pumped: 4042.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.03 ft</p>	<p>Instrument Used: AquaTROLL 600 Vented Serial Number: 449684</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
7/26/2017 2:37 PM	00:00	6.24 pH	68.59 °F	0.29 µS/cm	8.45 mg/L	103.37 NTU	206.6 mV	7.51 ft	150.00 ml/min
7/26/2017 2:40 PM	02:57	6.81 pH	61.98 °F	1,369.4 µS/cm	0.55 mg/L	14.04 NTU	-86.4 mV	7.51 ft	150.00 ml/min
7/26/2017 2:43 PM	05:57	6.81 pH	61.07 °F	1,383.3 µS/cm	0.23 mg/L	15.91 NTU	-93.9 mV	7.51 ft	150.00 ml/min
7/26/2017 2:46 PM	08:56	6.80 pH	60.54 °F	1,372.5 µS/cm	0.16 mg/L	11.43 NTU	-94.6 mV	7.51 ft	150.00 ml/min
7/26/2017 2:49 PM	11:56	6.78 pH	60.33 °F	1,377.0 µS/cm	0.14 mg/L	12.25 NTU	-94.3 mV	7.51 ft	150.00 ml/min
7/26/2017 2:52 PM	14:56	6.75 pH	60.27 °F	1,365.8 µS/cm	0.12 mg/L	12.09 NTU	-94.1 mV	7.51 ft	150.00 ml/min
7/26/2017 2:55 PM	17:56	6.73 pH	60.05 °F	1,356.4 µS/cm	0.09 mg/L	12.00 NTU	-92.9 mV	7.51 ft	150.00 ml/min
7/26/2017 2:58 PM	20:56	6.71 pH	59.90 °F	1,339.6 µS/cm	0.08 mg/L	13.06 NTU	-92.8 mV	7.51 ft	150.00 ml/min
7/26/2017 3:01 PM	23:57	6.69 pH	59.72 °F	1,327.3 µS/cm	0.08 mg/L	12.30 NTU	-95.0 mV	7.51 ft	150.00 ml/min
7/26/2017 3:04 PM	26:56	6.68 pH	59.72 °F	1,317.2 µS/cm	0.07 mg/L	8.97 NTU	-96.6 mV	7.51 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-E	Sample time @ 1410 Final DTW=7.67 ft btoc Final RDO =0.07 mg/L Ferrous iron = 7.0 mg/L

Created using VuSitu from In-Situ, Inc.

APPENDIX C

Baseline Groundwater Sampling Event Laboratory Analytical Reports
and Chain-of-Custody Documents



ANALYSIS REPORT

Prepared by:

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

Prepared for:

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

Report Date: September 18, 2017

Project: Edmonds Terminal

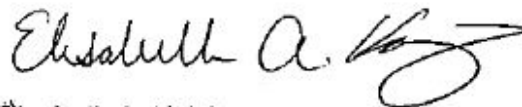
Account #: 11964
Group Number: 1830692
PO Number: 0015255876
Release Number: JOLITZ
State of Sample Origin: WA

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Chevron
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Jason Little
Attn: Sam Miles
Attn: Scott Zorn
Attn: Rebecca Andresen

Respectfully Submitted,



Elisabeth A. Knisley
Project Manager

(717) 556-7262

SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Collection Information</u>	<u>ELLE#</u>
MW-8R-W-170725 Grab Groundwater	07/25/2017 11:45	9124369
MW-20R-W-170725 Grab Groundwater	07/25/2017 12:50	9124370
MW-20R-W-170725-MS Grab Groundwater	07/25/2017 12:50	9124371
MW-20R-W-170725-SD Grab Groundwater	07/25/2017 12:50	9124372
MW-20R-W-170725-DUP Grab Groundwater	07/25/2017 12:50	9124373
MW-101-W-170725 Grab Groundwater	07/25/2017 13:20	9124374
MW-126-W-170725 Grab Groundwater	07/25/2017 09:40	9124375
MW-143-W-170725 Grab Groundwater	07/25/2017 11:10	9124376
MW-513-W-170725 Grab Groundwater	07/25/2017 15:00	9124377
MW-515-W-170725 Grab Groundwater	07/25/2017 14:15	9124378
MW-516-W-170725 Grab Groundwater	07/25/2017 13:25	9124379
MW-517-W-170725 Grab Groundwater	07/25/2017 12:45	9124380
MW-518-W-170725 Grab Groundwater	07/25/2017 14:45	9124381
MW-519-W-170725 Grab Groundwater	07/25/2017 11:50	9124382
MW-522-W-170725 Grab Groundwater	07/25/2017 11:00	9124383
MW-520-W-170725 Grab Groundwater	07/25/2017 10:15	9124384
MW-521-W-170725 Grab Groundwater	07/25/2017 10:30	9124385
DUP-1-W-170725 Grab Groundwater	07/25/2017	9124386
DUP-2-W-170725 Grab Groundwater	07/25/2017	9124387
Trip Blank NA Water	07/25/2017	9124388

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

Sample Description: MW-8R-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124369
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 11:45

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	110	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	84.9	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with a recoveries of 82% and 79%. Sample was reanalyzed past hold on 07/27/2017 with a result of ND and had acceptable bracketing CCV's.					
00228	Sulfate	14808-79-8	20,600	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: MW-8R-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124369
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 11:45

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017	03:41	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017	08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017	17:08	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017	17:08	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017	17:08	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	07/31/2017	21:49	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/02/2017	20:43	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017	08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017	15:15	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017	21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	2	17208972109A	07/27/2017	14:06	Alexandria M Lanager	5
00228	Sulfate	EPA 300.0	1	17208972109A	07/27/2017	19:25	Clinton M Wilson	5

Sample Description: MW-20R-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124370
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 12:50

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM			ug/l	ug/l	
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx			ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	64	50	1
GC Volatiles SW-846 8021B			ug/l	ug/l	
02102	Benzene	71-43-2	1.6	0.5	1
GC Miscellaneous RSKSOP-175 modified			ug/l	ug/l	
07105	Methane	74-82-8	410	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx			ug/l	ug/l	
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4			ug/l	ug/l	
06037	Manganese	7439-96-5	1,520	0.90	1
Wet Chemistry EPA 300.0			ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	835,000	30,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 04:09	Edward C Monborne	1

Sample Description: MW-20R-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124370
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 12:50

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 12:30	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 12:30	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 12:30	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	07/31/2017 19:21	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/02/2017 21:06	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:06	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972117A	07/27/2017 12:28	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 21:30	Clinton M Wilson	100

Sample Description: MW-20R-W-170725-MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124371
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 12:50

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	1.1	0.010	1
14243	Benzo(a)pyrene	50-32-8	0.66	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	1.1	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	1.0	0.010	1
14243	Chrysene	218-01-9	1.1	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	0.72	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	0.68	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	1,400	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	23	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	510	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	210	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	1,500	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	1,700	250	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with a recoveries of 82% and 79%. Sample was reanalyzed past hold on 07/27/2017 at a DF10 with a result of 50.3 mg/l and had acceptable bracketing CCV's.					
00228	Sulfate	14808-79-8	1,380,000	30,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: MW-20R-W-170725-MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124371
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 12:50

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 04:37	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 13:54	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 12:58	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 12:58	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	2	17209A53A	07/28/2017 13:54	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	07/31/2017 19:40	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/02/2017 21:47	Thomas C Wilderdmuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:11	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	2	17208972117A	07/27/2017 12:33	Alexandria M Lanager	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 21:45	Clinton M Wilson	100

Sample Description: MW-20R-W-170725-SD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124372
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 12:50

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM			ug/l	ug/l	
14243	Benzo(a)anthracene	56-55-3	1.2	0.010	1
14243	Benzo(a)pyrene	50-32-8	0.83	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	1.2	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	1.1	0.010	1
14243	Chrysene	218-01-9	1.1	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	0.80	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	0.75	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx			ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,200	50	1
GC Volatiles SW-846 8021B			ug/l	ug/l	
02102	Benzene	71-43-2	23	0.5	1
GC Miscellaneous RSKSOP-175 modified			ug/l	ug/l	
07105	Methane	74-82-8	470	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx			ug/l	ug/l	
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	220	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 05:05	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 14:21	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 13:26	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 13:26	Marie D Beamenderfer	1

Sample Description: MW-20R-W-170725-SD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124372
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 12:50

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	2	17209A53A	07/28/2017 14:21	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	07/31/2017 19:58	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/02/2017 22:11	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Oswaldo R Sanchez	1

Sample Description: MW-20R-W-170725-DUP Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124373
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 12:50

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals Dissolved					
	EPA 200.8 rev 5.4		ug/l	ug/l	
06037	Manganese	7439-96-5	1,420	0.90	1
Wet Chemistry					
	EPA 300.0		ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	822,000	30,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:09	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972117A	07/27/2017 12:37	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 22:01	Clinton M Wilson	100

Sample Description: MW-101-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124374
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 13:20

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	8.5	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	42.6	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	38,500	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 05:33	Edward C Monborne	1

Sample Description: MW-101-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124374
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 13:20

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 17:37	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 17:37	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 17:37	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	07/31/2017 22:06	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/02/2017 22:34	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:17	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972117A	07/27/2017 12:45	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 12:45	Clinton M Wilson	5

Sample Description: MW-126-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124375
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 09:40

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	N.D.	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	8.0	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
00228	Sulfate	14808-79-8	33,200	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: MW-126-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124375
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 09:40

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017	06:00	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017	08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017	18:05	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017	18:05	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017	18:05	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	07/31/2017	22:24	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/02/2017	22:58	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017	08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017	15:19	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017	21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972109A	07/27/2017	18:08	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17208972109A	07/27/2017	18:08	Clinton M Wilson	5

Sample Description: MW-143-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124376
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 11:10

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	20,000	600	200
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	4,450	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with a recoveries of 82% and 79%. Sample was reanalyzed past hold on 07/27/2017 with a result of ND and had acceptable bracketing CCV's.					
00228	Sulfate	14808-79-8	N.D.	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: MW-143-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124376
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 11:10

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 15:37	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 18:32	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 18:32	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 18:32	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	08/01/2017 20:11	Johanna C Kennedy	200
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/02/2017 23:21	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:24	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	2	17208972109A	07/27/2017 13:53	Alexandria M Lanager	5
00228	Sulfate	EPA 300.0	1	17208972109A	07/27/2017 19:10	Clinton M Wilson	5

Sample Description: MW-513-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124377
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 15:00

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	110	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	460	15	5
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	1,050	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	11,800	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-513-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124377
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 15:00

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 16:05	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 19:00	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 19:00	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 19:00	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	08/01/2017 20:30	Johanna C Kennedy	5
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/03/2017 00:32	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:26	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972117A	07/27/2017 13:52	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 13:52	Clinton M Wilson	5

Sample Description: MW-515-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124378
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 14:15

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM07

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	330	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	318	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	20,100	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-515-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124378
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 14:15

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 16:33	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 19:28	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 19:28	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 19:28	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	07/31/2017 23:20	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/03/2017 00:55	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:28	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972117A	07/27/2017 13:18	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 13:18	Clinton M Wilson	5

Sample Description: MW-516-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124379
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 13:25

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM08

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	150	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	94.5	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	23,300	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-516-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124379
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 13:25

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 17:00	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 19:56	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 19:56	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 19:56	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	07/31/2017 23:56	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/03/2017 01:19	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:30	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972117A	07/27/2017 13:02	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 13:02	Clinton M Wilson	5

Sample Description: MW-517-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124380
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 12:45

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM09

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	61	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	520	15	5
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	338	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	11,800	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-517-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124380
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 12:45

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 17:28	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 21:47	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 21:47	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 21:47	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	08/01/2017 20:48	Johanna C Kennedy	5
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/03/2017 01:42	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Osvaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:31	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972117A	07/27/2017 12:11	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 12:11	Clinton M Wilson	5

Sample Description: MW-518-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124381
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 14:45

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	190	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	500	15	5
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	181	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	32,500	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-518-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124381
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 14:45

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17208WAI026	08/04/2017 17:56	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17208WAI026	07/28/2017 08:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 22:16	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 22:16	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 22:16	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	08/01/2017 21:06	Johanna C Kennedy	5
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090018A	08/03/2017 02:06	Thomas C Wildermuth	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090018A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705004A	07/31/2017 15:33	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705004	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972117A	07/27/2017 13:35	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 13:35	Clinton M Wilson	5

Sample Description: MW-519-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124382
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 11:50

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	13,000	300	100
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	545	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	7,000	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17209WAH026	08/04/2017 18:23	Catherine E Bachman	1

Sample Description: MW-519-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124382
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 11:50

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	17209WAH026	07/30/2017 03:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 22:43	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 22:43	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 22:43	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172120020A	08/01/2017 21:24	Johanna C Kennedy	100
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090019A	08/03/2017 06:14	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090019A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705003A	07/28/2017 15:31	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705003	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17208972117A	07/27/2017 11:54	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17208972117A	07/27/2017 11:54	Clinton M Wilson	5

Sample Description: MW-522-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124383
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 11:00

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	1,000	30	10
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	80	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	700	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	1,780	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with a recoveries of 82% and 79%. Sample was reanalyzed past hold on 07/27/2017 with a result of ND and had acceptable bracketing CCV's.					
00228	Sulfate	14808-79-8	14,000	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: MW-522-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124383
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 11:00

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17209WAH026	08/04/2017 18:51	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17209WAH026	07/30/2017 03:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 23:12	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 23:12	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 23:12	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172130007A	08/02/2017 17:27	Johanna C Kennedy	10
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 05:53	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	2	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705003A	07/28/2017 15:11	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705003	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	2	17208972109A	07/27/2017 13:40	Alexandria M Lanager	5
00228	Sulfate	EPA 300.0	1	17208972109A	07/27/2017 18:54	Clinton M Wilson	5

Sample Description: MW-520-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124384
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 10:15

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM13

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	820	15	5
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	3,550	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with a recoveries of 82% and 79%. Sample was reanalyzed past hold on 07/27/2017 with a result of ND and had acceptable bracketing CCV's.					
00228	Sulfate	14808-79-8	21,700	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: MW-520-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124384
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 10:15

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EDM13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17209WAH026	08/04/2017 19:19	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17209WAH026	07/30/2017 03:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 23:39	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 23:39	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 23:39	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172130007A	08/02/2017 17:45	Johanna C Kennedy	5
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090019A	08/03/2017 07:00	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090019A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705003A	07/28/2017 15:33	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705003	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	2	17208972109A	07/27/2017 13:13	Alexandria M Lanager	5
00228	Sulfate	EPA 300.0	1	17208972109A	07/27/2017 18:23	Clinton M Wilson	5

Sample Description: MW-521-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124385
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 10:30

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM14

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	310	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	620	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with a recoveries of 82% and 79%. Sample was reanalyzed past hold on 07/27/2017 with a result of ND and had acceptable bracketing CCV's.					
00228	Sulfate	14808-79-8	21,600	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: MW-521-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124385
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017 10:30

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17209WAH026	08/04/2017 19:46	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17209WAH026	07/30/2017 03:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/29/2017 00:07	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/29/2017 00:07	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/29/2017 00:07	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172130007A	08/01/2017 14:23	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090019A	08/03/2017 07:23	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090019A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705003A	07/28/2017 15:34	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705003	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	2	17208972109A	07/27/2017 13:26	Alexandria M Lanager	5
00228	Sulfate	EPA 300.0	1	17208972109A	07/27/2017 18:39	Clinton M Wilson	5

Sample Description: DUP-1-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124386
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017

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

Submitted: 07/27/2017 09:40

Reported: 09/18/2017 15:00

EDM15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	130	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	89.3	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with a recoveries of 82% and 79%. Sample was reanalyzed past hold on 07/27/2017 with a result of ND and had acceptable bracketing CCV's.					
00228	Sulfate	14808-79-8	21,400	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: DUP-1-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124386
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17209WAH026	08/04/2017 20:14	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17209WAH026	07/30/2017 03:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/29/2017 00:35	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/29/2017 00:35	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/29/2017 00:35	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172130007A	08/01/2017 14:41	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 06:16	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	2	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705003A	07/28/2017 15:36	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705003	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	2	17208972109A	07/27/2017 12:20	Alexandria M Lanager	5
00228	Sulfate	EPA 300.0	1	17208972109A	07/27/2017 17:37	Clinton M Wilson	5

Sample Description: DUP-2-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124387
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017

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

Submitted: 07/27/2017 09:40

Reported: 09/18/2017 15:00

EDM16

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	9.8	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	36.4	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	290	250	5
The holding time was not met.					
00228	Sulfate	14808-79-8	33,700	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17209WAH026	08/04/2017 23:54	Edward C Monborne	1

Sample Description: DUP-2-W-170725 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124387
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction	SIM SW-846 3510C	1	17209WAH026	07/30/2017 03:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/29/2017 01:03	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/29/2017 01:03	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/29/2017 01:03	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140003A	08/02/2017 14:42	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172090019A	08/03/2017 08:09	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172090019A	07/29/2017 08:00	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	172080705003A	07/28/2017 15:38	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172080705003	07/27/2017 21:30	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987106A	07/29/2017 01:13	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987106A	07/29/2017 01:13	Clinton M Wilson	5

Sample Description: Trip Blank NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9124388
ELLE Group # 1830692
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/25/2017

Chevron Environmental Mgmt Co

Submitted: 07/27/2017 09:40

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EDM17

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	1

Sample Comments

State of Washington Lab Certification No. C457

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17209A53A	07/28/2017 12:02	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	17209A53A	07/28/2017 12:02	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	17209A53A	07/28/2017 12:02	Marie D Beamenderfer	1

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1830692

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

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

Method Blank

Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 17208WAI026	Sample number(s): 9124369-9124372,9124374-9124381	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
Batch number: 17209WAH026	Sample number(s): 9124382-9124387	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
Batch number: 17209A53A	Sample number(s): 9124369-9124372,9124374-9124388	
Benzene	N.D.	0.2
NWTPH-Gx water C7-C12	N.D.	50
Batch number: 172120020A	Sample number(s): 9124369-9124372,9124374-9124382	
Methane	N.D.	3.0
Batch number: 172130007A	Sample number(s): 9124383-9124386	
Methane	N.D.	3.0
Batch number: 172140003A	Sample number(s): 9124387	
Methane	N.D.	3.0
Batch number: 172090018A	Sample number(s): 9124369-9124372,9124374-9124381	
DX DRO C12-C24 w/ SiGel	N.D.	45
DX HRO C24-C40 w/ SiGel	N.D.	100
Batch number: 172090019A	Sample number(s): 9124382,9124384-9124385,9124387	
DX DRO C12-C24 w/ SiGel	N.D.	45
DX HRO C24-C40 w/ SiGel	N.D.	100
Batch number: 172190008A	Sample number(s): 9124383,9124386	
DX DRO C12-C24 w/ SiGel	N.D.	45
DX HRO C24-C40 w/ SiGel	N.D.	100
Batch number: 172080705003A	Sample number(s): 9124382-9124387	
Manganese	N.D.	0.90

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1830692

Method Blank (continued)

Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 172080705004A Manganese	Sample number(s): 9124369-9124371,9124373-9124381 N.D.	0.90
Batch number: 17208972109A Nitrate Nitrogen Sulfate	Sample number(s): 9124369,9124375-9124376,9124383-9124386 N.D. N.D.	50 300
Batch number: 17208972117A Nitrate Nitrogen Sulfate	Sample number(s): 9124370-9124371,9124373-9124374,9124377-9124382 N.D. N.D.	50 300
Batch number: 17209987106A Nitrate Nitrogen Sulfate	Sample number(s): 9124387 N.D. N.D.	50 300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 17208WAI026	Sample number(s): 9124369-9124372,9124374-9124381								
Benzo(a)anthracene	1.00	0.886			89		75-119		
Benzo(a)pyrene	1.00	0.961			96		75-115		
Benzo(b)fluoranthene	1.00	0.973			97		75-120		
Benzo(k)fluoranthene	1.00	1.00			100		71-118		
Chrysene	1.00	0.923			92		73-111		
Dibenz(a,h)anthracene	1.00	0.938			94		57-125		
Indeno(1,2,3-cd)pyrene	1.00	0.937			94		58-122		
Batch number: 17209WAH026	Sample number(s): 9124382-9124387								
Benzo(a)anthracene	1.00	1.06	1.00	1.04	106	104	75-119	2	30
Benzo(a)pyrene	1.00	1.06	1.00	0.995	106	99	75-115	6	30
Benzo(b)fluoranthene	1.00	1.15	1.00	1.10	115	110	75-120	5	30
Benzo(k)fluoranthene	1.00	1.10	1.00	0.992	110	99	71-118	10	30
Chrysene	1.00	1.05	1.00	1.01	105	101	73-111	4	30
Dibenz(a,h)anthracene	1.00	1.06	1.00	0.786	106	79	57-125	30	30
Indeno(1,2,3-cd)pyrene	1.00	1.03	1.00	0.817	103	82	58-122	23	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 17209A53A	Sample number(s): 9124369-9124372,9124374-9124388								
Benzene	20	19.73			99		80-120		
NWTPH-Gx water C7-C12	1100	1154.78			105		79-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 172120020A	Sample number(s): 9124369-9124372,9124374-9124382								
Methane	59.8	64.02			107		85-115		

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1830692

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: 172130007A Methane	59.8	66.14	59.8	66.37	111	111	85-115	0	20
Batch number: 172140003A Methane	59.8	64.46	59.8	66.07	108	110	85-115	2	20
Batch number: 172090018A DX DRO C12-C24 w/ SiGel	600	161.84			27*		30-115		
Batch number: 172090019A DX DRO C12-C24 w/ SiGel	600	227.1	600	260.84	38	43	30-115	14	20
Batch number: 172190008A DX DRO C12-C24 w/ SiGel	600	223.21			37		30-115		
Batch number: 172080705003A Manganese	50	47.33			95		85-115		
Batch number: 172080705004A Manganese	50	47.28			95		85-115		
Batch number: 17208972109A Nitrate Nitrogen Sulfate	750 7500	765.76 7969.92			102 106		90-110 90-110		
Batch number: 17208972117A Nitrate Nitrogen Sulfate	750 7500	764.09 7600.47			102 101		90-110 90-110		
Batch number: 17209987106A Nitrate Nitrogen Sulfate	750 7500	746.59 7000.85			100 93		90-110 90-110		

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: 17208WAI026 Benzo(a)anthracene Benzo(a)pyrene	N.D. N.D.	1.01 1.01	1.10 0.660	1.02 1.02	1.17 0.830	109 65*	115 82	75-119 75-115	6 23	30 30

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1830692

MS/MSD (continued)

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
Benzo(b)fluoranthene	N.D.	1.01	1.07	1.02	1.18	105	116	75-120	10	30
Benzo(k)fluoranthene	N.D.	1.01	1.00	1.02	1.09	99	107	71-118	8	30
Chrysene	N.D.	1.01	1.07	1.02	1.10	106	108	73-111	2	30
Dibenz(a,h)anthracene	N.D.	1.01	0.717	1.02	0.799	71	79	57-125	11	30
Indeno(1,2,3-cd)pyrene	N.D.	1.01	0.682	1.02	0.745	67	73	58-122	9	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 17209A53A	Sample number(s): 9124369-9124372,9124374-9124388 UNSPK: 9124370									
Benzene	1.56	20	23.36	20	22.83	109	106	80-120	2	30
NWTPH-Gx water C7-C12	63.63	1100	1358.33	1100	1245.92	118	107	79-120	9	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 172120020A	Sample number(s): 9124369-9124372,9124374-9124382 UNSPK: 9124370									
Methane	414.34	59.8	508.17	59.8	472.86	157 (2)	98 (2)	73-125	7	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 172090018A	Sample number(s): 9124369-9124372,9124374-9124381 UNSPK: 9124370									
DX DRO C12-C24 w/ SiGel	N.D.	607	205.77	610	219.04	34	36	30-115	6	20
Batch number: 172190008A	Sample number(s): 9124383,9124386 UNSPK: P127497									
DX DRO C12-C24 w/ SiGel	N.D.	625	131.55	620	189.53	21*	31	30-115	36*	20
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 172080705003A	Sample number(s): 9124382-9124387 UNSPK: 9124383									
Manganese	1779.08	50	1909.26			260 (2)		70-130		
Batch number: 172080705004A	Sample number(s): 9124369-9124371,9124373-9124381 UNSPK: 9124370									
Manganese	1515.5	50	1503.32			-23 (2)		70-130		
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 17208972109A	Sample number(s): 9124369,9124375-9124376,9124383-9124386 UNSPK: 9124369									
Nitrate Nitrogen	N.D.	2500	2032.93			81*		90-110		
Sulfate	20614.88	25000	45044.74			98		90-110		
Batch number: 17208972117A	Sample number(s): 9124370-9124371,9124373-9124374,9124377-9124382 UNSPK: 9124370									
Nitrate Nitrogen	N.D.	2500	1669.37			67*		90-110		
Sulfate	835188.05	500000	1382355.4			109		90-110		
			5							
Batch number: 17209987106A	Sample number(s): 9124387 UNSPK: P127250									
Nitrate Nitrogen	1111.85	2500	3461.44			94		90-110		
Sulfate	46021.57	25000	68513.95			90		90-110		

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1830692

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 172080705003A Manganese	Sample number(s): 9124382-9124387 BKG: 9124383 1779.08	1853.41	4	20
Batch number: 172080705004A Manganese	Sample number(s): 9124369-9124371,9124373-9124381 BKG: 9124370 1515.5	1417.79	7	20
Batch number: 17208972109A Nitrate Nitrogen Sulfate	Sample number(s): 9124369,9124375-9124376,9124383-9124386 BKG: 9124369 N.D. 20614.88	N.D. 20591.31	0 (1) 0 (1)	15 15
Batch number: 17208972117A Nitrate Nitrogen Sulfate	Sample number(s): 9124370-9124371,9124373-9124374,9124377-9124382 BKG: 9124370 N.D. 835188.05	N.D. 822103.23	0 (1) 2	15 15
Batch number: 17209987106A Nitrate Nitrogen Sulfate	Sample number(s): 9124387 BKG: P127250 1111.85 46021.57	1110.76 46044.66	0 (1) 0	15 15

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SIM SVOAs 8270C MINI
Batch number: 17208WAI026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
9124369	94	99	77
9124370	95	55	81
9124371	102	71	93
9124372	108	93	94
9124374	96	87	81
9124375	97	101	79
9124376	86	99	82
9124377	90	99	64
9124378	85	80	71
9124379	84	87	68
9124380	93	89	78
9124381	96	96	71
Blank	88	90	70
LCS	96	103	83
MS	102	71	93

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1830692

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SIM SVOAs 8270C MINI
Batch number: 17208WAI026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
MSD	108	93	94
Limits:	42-136	26-137	22-129

Analysis Name: SIM SVOAs 8270C MINI
Batch number: 17209WAH026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
9124382	91	106	80
9124383	92	87	79
9124384	95	83	83
9124385	91	90	76
9124386	97	82	86
9124387	102	82	91
Blank	98	107	79
LCS	102	118	85
LCSD	103	111	88
Limits:	42-136	26-137	22-129

Analysis Name: Method 8021 Water Master
Batch number: 17209A53A

	Trifluorotoluene-P	Trifluorotoluene-F
9124369	97	99
9124370	102	102
9124371	102	116
9124372	101	115
9124374	97	100
9124375	95	100
9124376	96	97
9124377	95	96
9124378	95	100
9124379	96	99
9124380	96	107
9124381	94	97
9124382	94	95
9124383	95	98
9124384	95	99
9124385	94	99
9124386	95	102
9124387	94	99
9124388	96	119
Blank	95	121

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1830692

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: Method 8021 Water Master
Batch number: 17209A53A

	Trifluorotoluene-P	Trifluorotoluene-F
LCS	96	112
MS	102	116
MSD	101	115
Limits:	51-120	63-135

Analysis Name: DRO 250mL w/ 10g SiGel
Batch number: 172090018A

	Orthoterphenyl	Capric Acid
9124369	64	0
9124370	64	0
9124371	53	0
9124372	54	0
9124374	64	0
9124375	66	0
9124376	70	0
9124377	66	0
9124378	74	0
9124379	67	0
9124380	58	0
9124381	61	0
Blank	64	
LCS	49*	
MS	53	0
MSD	54	0
Limits:	50-150	0-1

Analysis Name: DRO 250mL w/ 10g SiGel
Batch number: 172090019A

	Orthoterphenyl	Capric Acid
9124382	77	0
9124384	65	0
9124385	79	0
9124387	81	0
Blank	80	
LCS	76	
LCSD	79	
Limits:	50-150	0-1

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1830692

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172120020A

	Propene
9124369	86
9124370	93
9124371	94
9124372	90
9124374	92
9124375	92
9124376	97
9124377	84
9124378	88
9124379	91
9124380	89
9124381	89
9124382	96
Blank	103
LCS	104
MS	94
MSD	90

Limits: 44-123

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172130007A

	Propene
9124383	93
9124384	85
9124385	88
9124386	93
Blank	106
LCS	105
LCSD	106

Limits: 44-123

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172140003A

	Propene
9124387	97
Blank	105
LCS	101
LCSD	104

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1830692

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172140003A

Limits: 44-123

Analysis Name: DRO 250mL w/ 10g SiGel
Batch number: 172190008A

	Orthoterphenyl	Capric Acid
9124383	70	0
9124386	79	0
Blank	64	
LCS	69	
MS	49*	0
MSD	60	0
Limits:	50-150	0-1

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Chevron Northwest Region Analysis Request/Chain of Custody

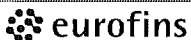


Lancaster Laboratories Environmental

Acct. # 11964 For Eurofins Lancaster Laboratories Environmental use only
 Group # 1830692 Sample # 7124369-88
Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks																													
Facility # <u>Edmonds Terminal</u>		WBS <u>NWENVPM6001430802</u>		Sediment <input type="checkbox"/>		Ground <input checked="" type="checkbox"/>		Surface <input type="checkbox"/>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Total Number of Containers</td> <td colspan="2">8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/></td> <td colspan="2">8260 full scan</td> <td colspan="2">Oxygenates</td> <td colspan="2">NWTPH-GX</td> <td colspan="2">NWTPH-DX with Silica Gel Cleanup <input checked="" type="checkbox"/></td> <td colspan="2">NWTPH-DX without Silica Gel Cleanup <input type="checkbox"/></td> <td colspan="2">WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/></td> <td colspan="2">Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method</td> <td colspan="2">CPAHS by method 8270 SIM</td> <td colspan="2">Methane USEPA RSK 175</td> <td colspan="2">Nitrate Nitrogen sulfate USEPA 306.0</td> <td colspan="2">Dissolved Manganese USEPA 200.8</td> </tr> </table>										Total Number of Containers		8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-GX		NWTPH-DX with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-DX without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>		Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method		CPAHS by method 8270 SIM		Methane USEPA RSK 175		Nitrate Nitrogen sulfate USEPA 306.0		Dissolved Manganese USEPA 200.8		SCR #: _____	
Total Number of Containers		8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-GX												NWTPH-DX with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-DX without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>		Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method		CPAHS by method 8270 SIM		Methane USEPA RSK 175		Nitrate Nitrogen sulfate USEPA 306.0		Dissolved Manganese USEPA 200.8													
Site Address <u>11720 Unoco Road, Edmonds, WA</u>				Potable <input type="checkbox"/>		NPDES <input type="checkbox"/>		Air <input type="checkbox"/>												<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits		<input type="checkbox"/>																									
Chevron PM <u>Kim Jolitz</u>				Soil <input type="checkbox"/>		Water <input type="checkbox"/>		Oil <input type="checkbox"/>																																							
Consultant/Office <u>Arcadis / 1100 Olive Way, Suite 800, Seattle, WA</u>				Composite <input type="checkbox"/>		Grab <input type="checkbox"/>		Total Number of Containers																																							
Consultant Project Mgr. <u>Scott Zorn</u>				Date		Time		Grab		Composite		Soil		Water		Oil		Total Number of Containers		8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-GX		NWTPH-DX with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-DX without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>		Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method		CPAHS by method 8270 SIM		Methane USEPA RSK 175		Nitrate Nitrogen sulfate USEPA 306.0		Dissolved Manganese USEPA 200.8					
Consultant Phone # <u>206.726.4709</u>				Date		Time		Grab		Composite		Soil		Water		Oil		Total Number of Containers		8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-GX		NWTPH-DX with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-DX without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>		Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method		CPAHS by method 8270 SIM		Methane USEPA RSK 175		Nitrate Nitrogen sulfate USEPA 306.0		Dissolved Manganese USEPA 200.8					
Sampler <u>Ryan Brauchle, Eric Kreuger, Eric Nicolin, Joe Latham</u>				Date		Time		Grab		Composite		Soil		Water		Oil		Total Number of Containers		8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-GX		NWTPH-DX with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-DX without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>		Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method		CPAHS by method 8270 SIM		Methane USEPA RSK 175		Nitrate Nitrogen sulfate USEPA 306.0		Dissolved Manganese USEPA 200.8					
Sample Identification				Date		Time		Grab		Composite		Soil		Water		Oil		Total Number of Containers		8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-GX		NWTPH-DX with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-DX without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>		Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method		CPAHS by method 8270 SIM		Methane USEPA RSK 175		Nitrate Nitrogen sulfate USEPA 306.0		Dissolved Manganese USEPA 200.8					
MW-8R				7-25-17		1145		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>							
MW-20R						1250		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>									
MW-20R-MS						1250		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>									
MW-20R-MSD						1250		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>									
MW-101						1320		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>											
MW-126						0940		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>											
MW-143						1110		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>											
MW-513						1500		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>											
MW-515						1415		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>											
MW-516						1325		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>											
MW-517						1245		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>											
MW-518						1415		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>											
MW-519						1150		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		12		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>											
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by				Date		Time		Received by				Date		Time																													
<input checked="" type="radio"/> Standard 5 day 4 day 72 hour 48 hour 24 hour				Ryan Brauchle				7-26		1130		Fed Ex																																			
8 Data Package (circle if required)				Relinquished by Commercial Carrier:				Date		Time		Received by				Date		Time																													
<input checked="" type="radio"/> Type I - Full Type VI (Raw Data)				<input type="radio"/> UPS <input checked="" type="radio"/> FedEx <input type="radio"/> Other								NWR				7/27/17		9:40																													
EDD (circle if required)				Temperature Upon Receipt				Date		Time		Custody Seals Intact?				Date		Time																													
CVX-RTBU-FL_05 (default)				0.7-4.7 °C								Yes				7/27/17		9:40																													
Other:																																															

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

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Acct. # 11964 Group # 1830697 Sample # 9124369-88

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix			5 Analyses Requested										6 Remarks													
Facility # <u>Edmonds Terminal</u>		WBS <u>NWENVPM6001430802</u>		<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air	Total Number of Containers <input type="checkbox"/> 8021 <input checked="" type="checkbox"/> 8260 8260 full scan	<input type="checkbox"/> Naphth Oxygenates NWTPH-GX * NWTPH-Dx with Silica Gel Cleanup NWTPH-Dx without Silica Gel Cleanup	<input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH	Lead Total Diss. Method	CPAMS by method 8270 SIM * Methane by USEPA DSK 175 * Nitrate Nitrogen Sulfate by USEPA 300.0 * Dissolved Manganese by USEPA 200.9 *	SCR #: _____		<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits																		
Site Address <u>11720 unoco rd, Edmonds, WA</u>		Chevron PM <u>Kim Solitz</u>								Lead Consultant <u>Arcadis</u>				Consultant/Office <u>Arcadis/1100 olive way, suite 800, seattle, WA</u>		Consultant Project Mgr. <u>Scott Zorn</u>		Consultant Phone # <u>206-726-4709</u>		Sampler <u>Brian Brauchler, Eric Krueger, Eric Nicoli, Joe Latham</u>										
2 Sample Identification		3 Collected								Grab	Composite			Soil	Water	Oil	Total	8260	NWTPH-GX	NWTPH-Dx	WA VPH	Lead	Total	Diss.	Method	CPAMS	Methane	Nitrate	Dissolved	
Date	Time	Date	Time																											
<u>MW-522</u>	<u>7/25/17</u>	<u>1100</u>	<input checked="" type="checkbox"/>							<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<u>MW-520</u>	<u>↓</u>	<u>1015</u>	<input checked="" type="checkbox"/>							<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<u>MW-521</u>	<u>↓</u>	<u>1030</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
<u>DUP-1</u>	<u>↓</u>	<u>---</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
<u>DUP-2</u>	<u>↓</u>	<u>---</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
<u>Trip Blank</u>	<u>---</u>	<u>---</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by		Date		Time		Received by		Date		Time		9														
Standard <input checked="" type="radio"/> 5 day 4 day 72 hour 48 hour 24 hour				<u>Ryan Brauchler</u>		<u>7-26</u>		<u>1130</u>		<u>FedEx</u>																				
8 Data Package (circle if required)				EDD (circle if required)		Relinquished by Commercial Carrier:						Received by		Date		Time														
Type I - Full <input checked="" type="radio"/> Type VI (Raw Data)				CVX-RTBU-FL_05 (default)		UPS _____ FedEx <input checked="" type="checkbox"/> Other _____						<u>[Signature]</u>		<u>7/27/17</u>		<u>9:40</u>														
				Other:		Temperature Upon Receipt <u>0.7-4.7 °C</u>						Custody Seals Intact?		<input checked="" type="radio"/> Yes		<input type="radio"/> No														



Client: CHEVRON

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/27/2017 9:40
 Number of Packages: 6 Number of Projects: 1

Arrival Condition Summary

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

Unpacked by Nicole Reiff (25684) at 11:41 on 07/27/2017

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	0.7	DT	Wet	Y	Bagged	N
2	DT146	1.0	DT	Wet	Y	Bagged	N
3	DT146	0.8	DT	Wet	Y	Bagged	N
4	DT146	1.2	DT	Wet	Y	Bagged	N
5	DT146	4.7	DT	Wet	Y	Bagged	N
6	DT146	0.5	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

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

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

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

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
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
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.

ANALYSIS REPORT

Prepared by:

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

Prepared for:

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

Report Date: September 18, 2017

Project: Edmonds Terminal

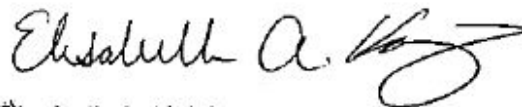
Account #: 11964
Group Number: 1831398
PO Number: 0015255876
Release Number: JOLITZ
State of Sample Origin: WA

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Chevron
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Jason Little
Attn: Sam Miles
Attn: Scott Zorn
Attn: Rebecca Andresen

Respectfully Submitted,



Elisabeth A. Knisley
Project Manager

(717) 556-7262

SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Collection Information</u>	<u>ELLE#</u>
LM-2-W-170726 Grab Groundwater	07/26/2017 14:45	9127493
MW-E-W-170726 Grab Groundwater	07/26/2017 14:10	9127494
MW-104-W-170726 Grab Groundwater	07/26/2017 12:10	9127495
MW-129R-W-170726 Grab Groundwater	07/26/2017 14:00	9127496
MW-502-W-170726 Grab Groundwater	07/26/2017 09:00	9127497
MW-502-W-170726 MS Grab Groundwater	07/26/2017 09:00	9127498
MW-502-W-170726 MSD Grab Groundwater	07/26/2017 09:00	9127499
MW-502-W-170726 DUP Grab Groundwater	07/26/2017 09:00	9127500
MW-504-W-170726 Grab Groundwater	07/26/2017 09:10	9127501
MW-505-W-170726 Grab Groundwater	07/26/2017 10:30	9127502
MW-510-W-170726 Grab Groundwater	07/26/2017 13:00	9127503
MW-512-W-170726 Grab Groundwater	07/26/2017 08:50	9127504
MW-525-W-170726 Grab Groundwater	07/26/2017 11:20	9127505
MW-526-W-170726 Grab Groundwater	07/26/2017 11:35	9127506
MW-529-W-170726 Grab Groundwater	07/26/2017 15:00	9127507
MW-530-W-170726 Grab Groundwater	07/26/2017 15:30	9127508
MW-531-W-170726 Grab Groundwater	07/26/2017 10:15	9127509
MW-532-W-170726 Grab Groundwater	07/26/2017 10:20	9127510
MW-139R-W-170727 Grab Groundwater	07/27/2017 09:25	9127511
MW-506-W-170727 Grab Groundwater	07/27/2017 09:30	9127512
MW-507-W-170727 Grab Groundwater	07/27/2017 08:55	9127513
MW-508-W-170727 Grab Groundwater	07/27/2017 10:25	9127514
MW-509-W-170727 Grab Groundwater	07/27/2017 10:30	9127515
MW-511-W-170727 Grab Groundwater	07/27/2017 10:35	9127516
MW-514-W-170727 Grab Groundwater	07/27/2017 11:55	9127517
DUP3-WD-170726 Grab Groundwater	07/26/2017	9127518
DUP4-WD-170727 Grab Groundwater	07/27/2017	9127519
RB-1-O-170727 Grab Water	07/27/2017 11:20	9127520
QA-T-170726 NA Water	07/26/2017	9127521

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

Sample Description: LM-2-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127493
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 14:45 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.011	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	1
14243	Chrysene	218-01-9	0.022	0.011	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.011	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.011	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	2,500	50
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	25	50
Reporting limits were raised due to sample foaming.					
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	5,600	150	50
The container used for this analysis was submitted with headspace.					
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	1
The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	184	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
00228	Sulfate	14808-79-8	10,000	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: LM-2-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127493
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 14:45 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/03/2017 03:33	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 14:43	Brett W Kenyon	50
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 14:43	Brett W Kenyon	50
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 14:43	Brett W Kenyon	50
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140003A	08/03/2017 20:23	Johanna C Kennedy	50
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 06:40	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 05:56	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 20:20	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 20:20	Clinton M Wilson	5

Sample Description: MW-E-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127494
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 14:10 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM			ug/l	ug/l	
14243	Benzo(a)anthracene	56-55-3	0.024	0.010	1
14243	Benzo(a)pyrene	50-32-8	0.013	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	0.046	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx			ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	260	50	1
GC Volatiles SW-846 8021B			ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified			ug/l	ug/l	
07105	Methane	74-82-8	6,200	150	50
GC Petroleum ECY 97-602 NWTPH-Dx			ug/l	ug/l	
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	1,500	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4			ug/l	ug/l	
06037	Manganese	7439-96-5	3,800	0.90	1
Wet Chemistry EPA 300.0			ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				
00228	Sulfate	14808-79-8	42,300	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
---------	---------------	--------	---------------	------------------------	---------	-----------------

Sample Description: MW-E-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127494
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 14:10 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/04/2017 12:51	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 15:11	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 15:11	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 15:11	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140003A	08/03/2017 20:42	Johanna C Kennedy	50
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 07:03	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 05:58	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 20:36	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 20:36	Clinton M Wilson	5

Sample Description: MW-104-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127495
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 12:10 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM			ug/l	ug/l	
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx			ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	120	50	1
GC Volatiles SW-846 8021B			ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified			ug/l	ug/l	
07105	Methane	74-82-8	440	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx			ug/l	ug/l	
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4			ug/l	ug/l	
06037	Manganese	7439-96-5	254	0.90	1
Wet Chemistry EPA 300.0			ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				
00228	Sulfate	14808-79-8	6,800	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-104-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127495
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 12:10 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/04/2017 13:19	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 15:39	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 15:39	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 15:39	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/02/2017 14:00	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 07:27	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 06:00	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 20:51	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 20:51	Clinton M Wilson	5

Sample Description: MW-129R-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127496
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 14:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.011	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	1
14243	Chrysene	218-01-9	N.D.	0.011	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.011	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.011	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	93	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	4,200	60	20
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	8,270	4.5	5
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
00228	Sulfate	14808-79-8	112,000	6,000	20

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-129R-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127496
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 14:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/04/2017 13:47	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 16:07	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 16:07	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 16:07	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/04/2017 01:25	Johanna C Kennedy	20
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 07:50	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 11:31	Scott P Cuff	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 22:01	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/30/2017 00:46	Clinton M Wilson	20

Sample Description: MW-502-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127497
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 09:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	N.D.	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	258	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	29,100	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-502-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127497
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 09:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/03/2017 18:03	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 12:24	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 12:24	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 12:24	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/02/2017 12:49	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 09:01	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 05:47	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 19:34	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 19:34	Clinton M Wilson	5

Sample Description: MW-502-W-170726 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127498
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 09:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM			ug/l	ug/l	
14243	Benzo(a)anthracene	56-55-3	1.2	0.010	1
14243	Benzo(a)pyrene	50-32-8	0.94	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	1.1	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	1.1	0.010	1
14243	Chrysene	218-01-9	1.1	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	0.97	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	1.0	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx			ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,300	50	1
GC Volatiles SW-846 8021B			ug/l	ug/l	
02102	Benzene	71-43-2	22	0.5	1
GC Miscellaneous RSKSOP-175 modified			ug/l	ug/l	
07105	Methane	74-82-8	60	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx			ug/l	ug/l	
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	130	47	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4			ug/l	ug/l	
06037	Manganese	7439-96-5	324	0.90	1
Wet Chemistry EPA 300.0			ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	2,600	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	55,700	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-502-W-170726 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127498
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 09:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/03/2017 18:31	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 13:47	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 12:51	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 12:51	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	2	17212A53A	07/31/2017 13:47	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/02/2017 13:24	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 09:24	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 05:53	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 20:05	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 20:05	Clinton M Wilson	5

Sample Description: MW-502-W-170726 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127499
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 09:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM			ug/l	ug/l	
14243	Benzo(a)anthracene	56-55-3	1.2	0.010	1
14243	Benzo(a)pyrene	50-32-8	0.89	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	1.2	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	1.1	0.010	1
14243	Chrysene	218-01-9	1.1	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	0.99	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	0.99	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx			ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,200	50	1
GC Volatiles SW-846 8021B			ug/l	ug/l	
02102	Benzene	71-43-2	22	0.5	1
GC Miscellaneous RSKSOP-175 modified			ug/l	ug/l	
07105	Methane	74-82-8	60	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx			ug/l	ug/l	
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	190	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/03/2017 18:59	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 14:15	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 13:19	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 13:19	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	2	17212A53A	07/31/2017 14:15	Brett W Kenyon	1

Sample Description: MW-502-W-170726 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127499
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 09:00 by RB

Chevron Environmental Mgmt Co

BR1 X5139C

Submitted: 07/28/2017 14:30

6101 Bollinger Canyon Road

Reported: 09/18/2017 15:00

San Ramon CA 94583

EQA05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/02/2017 13:42	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 09:48	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1

Sample Description: MW-502-W-170726 DUP Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127500
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 09:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals Dissolved					
	EPA 200.8 rev 5.4		ug/l	ug/l	
06037	Manganese	7439-96-5	242	0.90	1
Wet Chemistry					
	EPA 300.0		ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	29,700	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 05:51	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 19:49	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 19:49	Clinton M Wilson	5

Sample Description: MW-504-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127501
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 09:10 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	570	15	5
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	650	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	12,000	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-504-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127501
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 09:10 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/04/2017 14:14	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 16:35	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 16:35	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 16:35	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/04/2017 01:42	Johanna C Kennedy	5
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 10:11	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 06:07	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 22:16	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 22:16	Clinton M Wilson	5

Sample Description: MW-505-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127502
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 10:30 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA07

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	1,300	30	10
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	1,230	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	44,400	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-505-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127502
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 10:30 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/04/2017 14:42	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 17:03	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 17:03	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 17:03	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/04/2017 02:17	Johanna C Kennedy	10
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 10:35	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 06:09	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 23:03	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 23:03	Clinton M Wilson	5

Sample Description: MW-510-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127503
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 13:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA08

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	86	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	6,100	150	50
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.					
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	936	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
00228	Sulfate	14808-79-8	N.D.	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Sample Description: MW-510-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127503
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 13:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAI026	08/04/2017 15:10	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAI026	07/31/2017 16:00	Ryan J Dowdy	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 17:31	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 17:31	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 17:31	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/04/2017 02:35	Johanna C Kennedy	50
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190008A	08/10/2017 10:58	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190008A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 06:11	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 23:19	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 23:19	Clinton M Wilson	5

Sample Description: MW-512-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127504
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 08:50 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA09

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	120	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	1,300	30	10
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	433	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	9,300	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-512-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127504
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 08:50 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 02:57	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 17:59	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 17:59	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 17:59	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/04/2017 02:53	Johanna C Kennedy	10
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 06:09	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 06:13	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 23:34	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 23:34	Clinton M Wilson	5

Sample Description: MW-525-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127505
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 11:20 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	4,700	250	5
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	1,200	2.5	5
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	6,700	150	50
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	130	47	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	705	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	5,900	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-525-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127505
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 11:20 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 03:25	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	08/01/2017 00:01	Brett W Kenyon	5
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	08/01/2017 00:01	Brett W Kenyon	5
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	08/01/2017 00:01	Brett W Kenyon	5
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140004A	08/04/2017 03:10	Johanna C Kennedy	50
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 06:32	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705007A	08/02/2017 06:15	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705007	07/31/2017 05:46	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112A	07/28/2017 23:50	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112A	07/28/2017 23:50	Clinton M Wilson	5

Sample Description: MW-526-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127506
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 11:35 by RB

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

Submitted: 07/28/2017 14:30

Reported: 09/18/2017 15:00

EQA11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	1,600	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	1.5	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	2,100	30	10
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	120	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	1,060	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	N.D.	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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**Sample Description: MW-526-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA**

**ELLE Sample # WW 9127506
ELLE Group # 1831398
Account # 11964**

Project Name: Edmonds Terminal

Collected: 07/26/2017 11:35 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 03:52	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 18:27	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 18:27	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 18:27	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017 19:12	Johanna C Kennedy	10
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 06:55	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017 04:31	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017 16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017 00:05	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/29/2017 00:05	Clinton M Wilson	5

Sample Description: MW-529-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127507
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 15:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM			ug/l	ug/l	
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx			ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B			ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified			ug/l	ug/l	
07105	Methane	74-82-8	59	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx			ug/l	ug/l	
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4			ug/l	ug/l	
06037	Manganese	7439-96-5	584	0.90	1
Wet Chemistry EPA 300.0			ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
00228	Sulfate	14808-79-8	1,410,000	60,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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**Sample Description: MW-529-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA**

**ELLE Sample # WW 9127507
ELLE Group # 1831398
Account # 11964**

Project Name: Edmonds Terminal

Collected: 07/26/2017 15:00 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 04:20	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 19:50	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 19:50	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 19:50	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/02/2017 14:26	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 07:17	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017 04:40	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017 16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017 00:52	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/30/2017 01:02	Clinton M Wilson	200

Sample Description: MW-530-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127508
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 15:30 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA13

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM			ug/l	ug/l	
14243	Benzo(a)anthracene	56-55-3	N.D.	0.013	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.013	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.013	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.013	1
14243	Chrysene	218-01-9	N.D.	0.013	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.013	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.013	1
GC Volatiles ECY 97-602 NWTPH-Gx			ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B			ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified			ug/l	ug/l	
07105	Methane	74-82-8	44	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx			ug/l	ug/l	
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4			ug/l	ug/l	
06037	Manganese	7439-96-5	194	0.90	1
Wet Chemistry EPA 300.0			ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
			The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.		
00228	Sulfate	14808-79-8	1,480,000	60,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-530-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127508
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 15:30 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 04:48	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 20:18	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 20:18	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 20:18	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/02/2017 14:41	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 07:40	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017 04:42	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017 16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017 01:07	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/30/2017 01:17	Clinton M Wilson	200

Sample Description: MW-531-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127509
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 10:15 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA14

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	95	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	0.6	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	3,300	60	20
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	532	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	N.D.	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: MW-531-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127509
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 10:15 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 05:15	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 20:46	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 20:46	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 20:46	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017 19:28	Johanna C Kennedy	20
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 08:03	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017 06:16	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017 16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017 01:23	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/29/2017 01:23	Clinton M Wilson	5

Sample Description: MW-532-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127510
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 10:20 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.012	1
14243	Benzo(a)pyrene	50-32-8	0.015	0.012	1
14243	Benzo(b)fluoranthene	205-99-2	0.028	0.012	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.012	1
14243	Chrysene	218-01-9	N.D.	0.012	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.012	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	0.018	0.012	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	2,500	60	20
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	380	48	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	825	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	N.D.	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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**Sample Description: MW-532-W-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA**

**ELLE Sample # WW 9127510
ELLE Group # 1831398
Account # 11964**

Project Name: Edmonds Terminal

Collected: 07/26/2017 10:20 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 05:43	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 21:14	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 21:14	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 21:14	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017 19:44	Johanna C Kennedy	20
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 08:26	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017 04:49	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017 16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017 02:09	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/29/2017 02:09	Clinton M Wilson	5

Sample Description: MW-139R-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127511
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 09:25 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA16

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	160	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	176	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	25,900	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 06:11	Catherine E Bachman	1

Sample Description: MW-139R-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127511
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 09:25 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction	SIM SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 21:42	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 21:42	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 21:42	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017 20:00	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 08:48	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017 04:51	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017 16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017 02:25	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/29/2017 02:25	Clinton M Wilson	5

Sample Description: MW-506-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127512
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 09:30 by RB

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

Submitted: 07/28/2017 14:30

Reported: 09/18/2017 15:00

EQAL7

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	4,900	60	20
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	1,630	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	4,300	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 06:39	Catherine E Bachman	1

Sample Description: MW-506-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127512
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 09:30 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction	SIM SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 22:10	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 22:10	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 22:10	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017 20:16	Johanna C Kennedy	20
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 09:11	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017 04:53	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017 16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017 02:40	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/29/2017 02:40	Clinton M Wilson	5

Sample Description: MW-507-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127513
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 08:55 by RB

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

Submitted: 07/28/2017 14:30

Reported: 09/18/2017 15:00

EQA18

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	22	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	746	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	142,000	6,000	20

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 07:06	Catherine E Bachman	1

Sample Description: MW-507-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127513
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 08:55 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction	SIM SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 22:38	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 22:38	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 22:38	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017 20:36	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190009A	08/11/2017 09:34	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190009A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017 04:55	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017 16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017 02:56	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/30/2017 01:33	Clinton M Wilson	20

Sample Description: MW-508-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127514
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 10:25 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA19

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	6,800	150	50
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	1,040	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	2,300	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 07:34	Catherine E Bachman	1

Sample Description: MW-508-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127514
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 10:25 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA19

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction	SIM SW-846 3510C	1	17212WAP026	08/01/2017 08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017 23:06	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017 23:06	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017 23:06	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017 20:53	Johanna C Kennedy	50
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190010A	08/11/2017 01:37	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190010A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017 05:01	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017 16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017 03:12	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/29/2017 03:12	Clinton M Wilson	5

Sample Description: MW-509-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127515
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 10:30 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	170	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	427	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	49,300	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 08:02	Catherine E Bachman	1

Sample Description: MW-509-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127515
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 10:30 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAP026	08/01/2017	08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17212A53A	07/31/2017	23:34	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17212A53A	07/31/2017	23:34	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17212A53A	07/31/2017	23:34	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017	21:10	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190010A	08/11/2017	01:59	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190010A	08/07/2017	21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172090705008A	08/02/2017	05:03	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172090705008	07/31/2017	16:45	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987112B	07/29/2017	03:27	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987112B	07/29/2017	03:27	Clinton M Wilson	5

Sample Description: MW-511-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127516
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 10:35 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA21

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	N.D.	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	7.5	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	1,000	250	5
00228	Sulfate	14808-79-8	19,200	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAP026	08/03/2017 08:29	Catherine E Bachman	1

Sample Description: MW-511-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127516
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 10:35 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA21

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAP026	08/01/2017	08:00	Bradley W VanLeuven	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17213A53A	08/01/2017	15:31	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17213A53A	08/01/2017	15:31	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17213A53A	08/01/2017	15:31	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017	21:27	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190010A	08/11/2017	02:22	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190010A	08/07/2017	21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172130705002A	08/02/2017	12:46	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172130705002	08/02/2017	06:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987106A	07/28/2017	22:24	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987106A	07/28/2017	22:24	Clinton M Wilson	5

Sample Description: MW-514-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127517
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 11:55 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA22

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	620	15	5
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	330	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	11,100	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAS026	08/05/2017 01:55	Catherine E Bachman	1

Sample Description: MW-514-W-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127517
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 11:55 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA22

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	17212WAS026	08/01/2017	10:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17213A53A	08/01/2017	15:59	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17213A53A	08/01/2017	15:59	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17213A53A	08/01/2017	15:59	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017	22:00	Johanna C Kennedy	5
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190010A	08/11/2017	02:45	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190010A	08/07/2017	21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172130705002A	08/02/2017	12:37	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172130705002	08/02/2017	06:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987106A	07/28/2017	22:43	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987106A	07/28/2017	22:43	Clinton M Wilson	5

Sample Description: DUP3-WD-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127518
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA23

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	N.D.	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	251	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	26,900	1,500	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAS026	08/05/2017 02:23	Catherine E Bachman	1

Sample Description: DUP3-WD-170726 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127518
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA23

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10466	BNA Water Extraction	SIM SW-846 3510C	1	17212WAS026	08/01/2017	10:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17213A53A	08/01/2017	16:27	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17213A53A	08/01/2017	16:27	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17213A53A	08/01/2017	16:27	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172140005A	08/03/2017	22:17	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190010A	08/11/2017	03:08	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190010A	08/07/2017	21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172130705002A	08/02/2017	12:47	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172130705002	08/02/2017	06:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987106A	07/28/2017	23:02	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987106A	07/28/2017	23:02	Clinton M Wilson	5

Sample Description: DUP4-WD-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127519
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA24

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified					
07105	Methane	74-82-8	37	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4					
06037	Manganese	7439-96-5	689	0.90	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	142,000	6,000	20

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17212WAS026	08/05/2017 02:51	Catherine E Bachman	1

Sample Description: DUP4-WD-170727 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127519
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA24

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10466	BNA Water Extraction	SIM SW-846 3510C	1	17212WAS026	08/01/2017	10:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17213A53A	08/01/2017	16:55	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17213A53A	08/01/2017	16:55	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17213A53A	08/01/2017	16:55	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172150003A	08/03/2017	13:51	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190010A	08/11/2017	03:30	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190010A	08/07/2017	21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172130705002A	08/02/2017	12:49	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172130705002	08/02/2017	06:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987106A	07/28/2017	23:20	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17209987106A	07/30/2017	01:48	Clinton M Wilson	20

Sample Description: RB-1-O-170727 Grab Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127520
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 11:20 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C SIM ug/l					
14243	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
14243	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
14243	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	1
14243	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	1
14243	Chrysene	218-01-9	N.D.	0.010	1
14243	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	1
14243	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.					
GC Volatiles ECY 97-602 NWTPH-Gx ug/l					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles SW-846 8021B ug/l					
02102	Benzene	71-43-2	N.D.	0.5	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Methane	74-82-8	9.6	3.0	1
GC Petroleum ECY 97-602 NWTPH-Dx ug/l					
Hydrocarbons w/Si modified					
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	1
Metals Dissolved EPA 200.8 rev 5.4 ug/l					
06037	Manganese	7439-96-5	N.D.	0.90	1
Wet Chemistry EPA 300.0 ug/l					
00368	Nitrate Nitrogen	14797-55-8	61	50	1
00228	Sulfate	14808-79-8	N.D.	300	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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Sample Description: RB-1-O-170727 Grab Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127520
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/27/2017 11:20 by RB

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road

San Ramon CA 94583

EQA25

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14243	SIM SVOAs 8270C MINI	SW-846 8270C SIM	1	17213WAH026	08/09/2017 08:46	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	17213WAH026	08/02/2017 08:00	Kayla A Yuditsky	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17213A53A	08/01/2017 12:16	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17213A53A	08/01/2017 12:16	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17213A53A	08/01/2017 12:16	Brett W Kenyon	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	172150001A	08/03/2017 14:45	Johanna C Kennedy	1
12917	DRO 250mL w/ 10g SiGel	ECY 97-602 NWTPH-Dx modified	1	172190010A	08/11/2017 03:53	Amy Lehr	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	172190010A	08/07/2017 21:30	Christine E Gleim	1
06037	Manganese	EPA 200.8 rev 5.4	1	172120705005A	08/02/2017 00:19	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	172120705005	08/01/2017 16:15	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	17209987106A	07/28/2017 23:39	Clinton M Wilson	1
00228	Sulfate	EPA 300.0	1	17209987106A	07/28/2017 23:39	Clinton M Wilson	1

Sample Description: QA-T-170726 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

ELLE Sample # WW 9127521
ELLE Group # 1831398
Account # 11964

Project Name: Edmonds Terminal

Collected: 07/26/2017

Chevron Environmental Mgmt Co

Submitted: 07/28/2017 14:30

BR1 X5139C

Reported: 09/18/2017 15:00

6101 Bollinger Canyon Road
San Ramon CA 94583

EQA26

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles					
08274	NWTPH-Gx water C7-C12	ECY 97-602 n.a.	ug/l N.D.	ug/l 50	1
GC Volatiles					
02102	Benzene	SW-846 8021B 71-43-2	ug/l N.D.	ug/l 0.5	1

Sample Comments

State of Washington Lab Certification No. C457

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	17213A53A	08/01/2017 12:44	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	17213A53A	08/01/2017 12:44	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	17213A53A	08/01/2017 12:44	Brett W Kenyon	1

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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

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

Method Blank

Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 17212WAI026	Sample number(s): 9127493-9127499,9127501-9127503	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
Batch number: 17212WAP026	Sample number(s): 9127504-9127516	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
Batch number: 17212WAS026	Sample number(s): 9127517-9127519	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
Batch number: 17213WAH026	Sample number(s): 9127520	
Benzo(a)anthracene	N.D.	0.010
Benzo(a)pyrene	N.D.	0.010
Benzo(b)fluoranthene	N.D.	0.010
Benzo(k)fluoranthene	N.D.	0.010
Chrysene	N.D.	0.010
Dibenz(a,h)anthracene	N.D.	0.010
Indeno(1,2,3-cd)pyrene	N.D.	0.010
Batch number: 17212A53A	Sample number(s): 9127493-9127499,9127501-9127515	
Benzene	N.D.	0.2
NWTPH-Gx water C7-C12	N.D.	50
Batch number: 17213A53A	Sample number(s): 9127516-9127521	
Benzene	N.D.	0.2
NWTPH-Gx water C7-C12	N.D.	50

*- Outside of specification

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P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

Method Blank (continued)

Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 172140003A Methane	Sample number(s): 9127493-9127494 N.D.	3.0
Batch number: 172140004A Methane	Sample number(s): 9127495-9127499,9127501-9127505 N.D.	3.0
Batch number: 172140005A Methane	Sample number(s): 9127506-9127518 N.D.	3.0
Batch number: 172150001A Methane	Sample number(s): 9127520 N.D.	3.0
Batch number: 172150003A Methane	Sample number(s): 9127519 N.D.	3.0
Batch number: 172190008A DX DRO C12-C24 w/ SiGel DX HRO C24-C40 w/ SiGel	Sample number(s): 9127493-9127499,9127501-9127503 N.D. N.D.	45 100
Batch number: 172190009A DX DRO C12-C24 w/ SiGel DX HRO C24-C40 w/ SiGel	Sample number(s): 9127504-9127513 N.D. N.D.	45 100
Batch number: 172190010A DX DRO C12-C24 w/ SiGel DX HRO C24-C40 w/ SiGel	Sample number(s): 9127514-9127520 N.D. N.D.	45 100
Batch number: 172090705007A Manganese	Sample number(s): 9127493-9127498,9127500-9127505 N.D.	0.90
Batch number: 172090705008A Manganese	Sample number(s): 9127506-9127515 N.D.	0.90
Batch number: 172120705005A Manganese	Sample number(s): 9127520 N.D.	0.90
Batch number: 172130705002A Manganese	Sample number(s): 9127516-9127519 N.D.	0.90
Batch number: 17209987106A Nitrate Nitrogen Sulfate	Sample number(s): 9127516-9127520 N.D. N.D.	50 300
Batch number: 17209987112A Nitrate Nitrogen Sulfate	Sample number(s): 9127493-9127498,9127500-9127505 N.D. N.D.	50 300
Batch number: 17209987112B Nitrate Nitrogen Sulfate	Sample number(s): 9127506-9127515 N.D. N.D.	50 300

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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: 17212WAI026	Sample number(s): 9127493-9127499,9127501-9127503								
Benzo(a)anthracene	1.00	1.11			111		75-119		
Benzo(a)pyrene	1.00	1.09			109		75-115		
Benzo(b)fluoranthene	1.00	1.15			115		75-120		
Benzo(k)fluoranthene	1.00	1.16			116		71-118		
Chrysene	1.00	1.10			110		73-111		
Dibenz(a,h)anthracene	1.00	1.02			102		57-125		
Indeno(1,2,3-cd)pyrene	1.00	1.03			103		58-122		
Batch number: 17212WAP026	Sample number(s): 9127504-9127516								
Benzo(a)anthracene	1.00	1.04			104		75-119		
Benzo(a)pyrene	1.00	0.990			99		75-115		
Benzo(b)fluoranthene	1.00	1.05			105		75-120		
Benzo(k)fluoranthene	1.00	0.999			100		71-118		
Chrysene	1.00	0.982			98		73-111		
Dibenz(a,h)anthracene	1.00	0.868			87		57-125		
Indeno(1,2,3-cd)pyrene	1.00	0.896			90		58-122		
Batch number: 17212WAS026	Sample number(s): 9127517-9127519								
Benzo(a)anthracene	1.00	0.954			95		75-119		
Benzo(a)pyrene	1.00	0.919			92		75-115		
Benzo(b)fluoranthene	1.00	1.01			101		75-120		
Benzo(k)fluoranthene	1.00	0.920			92		71-118		
Chrysene	1.00	0.948			95		73-111		
Dibenz(a,h)anthracene	1.00	0.831			83		57-125		
Indeno(1,2,3-cd)pyrene	1.00	0.835			84		58-122		
Batch number: 17213WAH026	Sample number(s): 9127520								
Benzo(a)anthracene	1.00	1.09			109		75-119		
Benzo(a)pyrene	1.00	1.10			110		75-115		
Benzo(b)fluoranthene	1.00	1.10			110		75-120		
Benzo(k)fluoranthene	1.00	1.20			120*		71-118		
Chrysene	1.00	1.10			110		73-111		
Dibenz(a,h)anthracene	1.00	1.13			113		57-125		
Indeno(1,2,3-cd)pyrene	1.00	1.11			111		58-122		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 17212A53A	Sample number(s): 9127493-9127499,9127501-9127515								
Benzene	20	21.13			106		80-120		
NWTPH-Gx water C7-C12	1100	1069.75			97		79-120		
Batch number: 17213A53A	Sample number(s): 9127516-9127521								
Benzene	20	20.49			102		80-120		
NWTPH-Gx water C7-C12	1100	1083.96	1100	1117.77	99	102	79-120	3	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 172140003A	Sample number(s): 9127493-9127494								
Methane	59.8	64.46	59.8	66.07	108	110	85-115	2	20

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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: 172140004A Methane	Sample number(s): 9127495-9127499,9127501-9127505				99		85-115		
Batch number: 172140005A Methane	59.8	59.37							
Batch number: 172150001A Methane	Sample number(s): 9127506-9127518				108		85-115		
Batch number: 172150003A Methane	59.8	64.71							
Batch number: 172150001A Methane	Sample number(s): 9127520				110	109	85-115	2	20
Batch number: 172150003A Methane	59.8	65.9	59.8	64.89					
Batch number: 172150003A Methane	Sample number(s): 9127519				102		85-115		
	59.8	61.24							
	ug/l	ug/l	ug/l	ug/l					
Batch number: 172190008A DX DRO C12-C24 w/ SiGel	Sample number(s): 9127493-9127499,9127501-9127503				37		30-115		
Batch number: 172190009A DX DRO C12-C24 w/ SiGel	600	223.21							
Batch number: 172190009A DX DRO C12-C24 w/ SiGel	Sample number(s): 9127504-9127513				30	52	30-115	53*	20
Batch number: 172190010A DX DRO C12-C24 w/ SiGel	600	180.42	600	310.41					
Batch number: 172190010A DX DRO C12-C24 w/ SiGel	Sample number(s): 9127514-9127520				48	47	30-115	2	20
	600	285.88	600	281.57					
	ug/l	ug/l	ug/l	ug/l					
Batch number: 172090705007A Manganese	Sample number(s): 9127493-9127498,9127500-9127505				101		85-115		
Batch number: 172090705008A Manganese	50	50.58							
Batch number: 172090705008A Manganese	Sample number(s): 9127506-9127515				99		85-115		
Batch number: 172120705005A Manganese	50	49.26							
Batch number: 172120705005A Manganese	Sample number(s): 9127520				102		85-115		
Batch number: 172130705002A Manganese	50	51.16							
Batch number: 172130705002A Manganese	Sample number(s): 9127516-9127519				97		85-115		
	50	48.6							
	ug/l	ug/l	ug/l	ug/l					
Batch number: 17209987106A Nitrate Nitrogen	Sample number(s): 9127516-9127520				100		90-110		
Batch number: 17209987106A Sulfate	750	746.59							
Batch number: 17209987112A Nitrate Nitrogen	7500	7000.85			93		90-110		
Batch number: 17209987112A Nitrate Nitrogen	Sample number(s): 9127493-9127498,9127500-9127505				99		90-110		
Batch number: 17209987112A Sulfate	750	738.95							
Batch number: 17209987112B Nitrate Nitrogen	7500	7853.03			105		90-110		
Batch number: 17209987112B Sulfate	Sample number(s): 9127506-9127515				99		90-110		
	750	738.95							
	7500	7853.03			105		90-110		

*- Outside of specification

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

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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: 17212WAI026	Sample number(s): 9127493-9127499,9127501-9127503 UNSPK: 9127497									
Benzo(a)anthracene	N.D.	1.01	1.16	1.01	1.18	115	116	75-119	2	30
Benzo(a)pyrene	N.D.	1.01	0.938	1.01	0.894	93	88	75-115	5	30
Benzo(b)fluoranthene	N.D.	1.01	1.13	1.01	1.16	112	114	75-120	3	30
Benzo(k)fluoranthene	N.D.	1.01	1.08	1.01	1.08	107	106	71-118	0	30
Chrysene	N.D.	1.01	1.09	1.01	1.08	108	107	73-111	0	30
Dibenz(a,h)anthracene	N.D.	1.01	0.971	1.01	0.987	96	98	57-125	2	30
Indeno(1,2,3-cd)pyrene	N.D.	1.01	1.01	1.01	0.990	100	98	58-122	2	30
Batch number: 17212WAP026	Sample number(s): 9127504-9127516 UNSPK: P127940									
Benzo(a)anthracene	0.0122	1.01	1.01	1.04	0.984	99	93	75-119	3	30
Benzo(a)pyrene	N.D.	1.01	1.07	1.04	0.880	106	85	75-115	20	30
Benzo(b)fluoranthene	N.D.	1.01	1.17	1.04	0.980	116	94	75-120	18	30
Benzo(k)fluoranthene	N.D.	1.01	1.25	1.04	0.949	124*	91	71-118	28	30
Chrysene	0.178	1.01	0.934	1.04	0.912	75	70*	73-111	2	30
Dibenz(a,h)anthracene	N.D.	1.01	1.02	1.04	0.885	101	85	57-125	14	30
Indeno(1,2,3-cd)pyrene	N.D.	1.01	0.993	1.04	0.848	98	81	58-122	16	30
Batch number: 17212WAS026	Sample number(s): 9127517-9127519 UNSPK: P127947									
Benzo(a)anthracene	N.D.	1.00	0.0137	1.02	0.972	1*	96	75-119	194*	30
Benzo(a)pyrene	N.D.	1.00	0.758	1.02	0.804	76	79	75-115	6	30
Benzo(b)fluoranthene	N.D.	1.00	0.876	1.02	0.896	87	88	75-120	2	30
Benzo(k)fluoranthene	N.D.	1.00	0.823	1.02	0.874	82	86	71-118	6	30
Chrysene	N.D.	1.00	0.998	1.02	0.887	99	87	73-111	12	30
Dibenz(a,h)anthracene	N.D.	1.00	0.624	1.02	0.765	62	75	57-125	20	30
Indeno(1,2,3-cd)pyrene	N.D.	1.00	0.623	1.02	0.789	62	78	58-122	23	30
Batch number: 17213WAH026	Sample number(s): 9127520 UNSPK: P129470									
Benzo(a)anthracene	N.D.	1.01	1.11	1.00	1.00	109	100	75-119	10	30
Benzo(a)pyrene	N.D.	1.01	0.897	1.00	0.903	89	90	75-115	1	30
Benzo(b)fluoranthene	N.D.	1.01	1.19	1.00	1.19	117	119	75-120	0	30
Benzo(k)fluoranthene	N.D.	1.01	1.06	1.00	1.06	105	106	71-118	0	30
Chrysene	N.D.	1.01	0.980	1.00	1.12	97	112*	73-111	13	30
Dibenz(a,h)anthracene	N.D.	1.01	0.611	1.00	0.594	60	59	57-125	3	30
Indeno(1,2,3-cd)pyrene	N.D.	1.01	0.580	1.00	0.559	57*	56*	58-122	4	30
Batch number: 17212A53A	Sample number(s): 9127493-9127499,9127501-9127515 UNSPK: 9127497									
Benzene	N.D.	20	22.31	20	22.11	112	111	80-120	1	30
NWTPH-Gx water C7-C12	N.D.	1100	1263.59	1100	1193.57	115	109	79-120	6	30
Batch number: 17213A53A	Sample number(s): 9127516-9127521 UNSPK: P129433									
Benzene	0.406	20	22.43	20	22.56	110	111	80-120	1	30

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

MS/MSD (continued)

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: 172140004A Methane	Sample number(s): 9127495-9127499, 9127501-9127505 N.D.	59.8	60.38	59.8	59.62	101	100	73-125	1	30
Batch number: 172140005A Methane	Sample number(s): 9127506-9127518 2721.97	59.8	2812.35	59.8	2462.13	151 (2)	-434 (2)	73-125	13	30
Batch number: 172150003A Methane	Sample number(s): 9127519 1976.84	59.8	2474.77	59.8	2419.55	833 (2)	740 (2)	73-125	2	30
Batch number: 172190008A DX DRO C12-C24 w/ SiGel	Sample number(s): 9127493-9127499, 9127501-9127503 N.D.	625	131.55	620	189.53	21*	31	30-115	36*	20
Batch number: 172090705007A Manganese	Sample number(s): 9127493-9127498, 9127500-9127505 258.14	50	324.38			132 (2)		70-130		
Batch number: 172090705008A Manganese	Sample number(s): 9127506-9127515 1062.29	50	1105.52			86 (2)		70-130		
Batch number: 172120705005A Manganese	Sample number(s): 9127520 14.96	50	62.95			96		70-130		
Batch number: 172130705002A Manganese	Sample number(s): 9127516-9127519 329.65	50	373.74			88 (2)		70-130		
Batch number: 17209987106A Nitrate Nitrogen Sulfate	Sample number(s): 9127516-9127520 1111.85 46021.57	2500 25000	3461.44 68513.95			94 90		90-110 90-110		
Batch number: 17209987112A Nitrate Nitrogen Sulfate	Sample number(s): 9127493-9127498, 9127500-9127505 N.D. 29106.8	2500 25000	2557.02 55696.67			102 106		90-110 90-110		
Batch number: 17209987112B Nitrate Nitrogen Sulfate	Sample number(s): 9127506-9127515 N.D. N.D.	2500 25000	2598.8 25031.06			104 100		90-110 90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 172090705007A Manganese	Sample number(s): 9127493-9127498, 9127500-9127505 258.14	9127506-9127515 241.75	BKG: 9127497 7	20
Batch number: 172090705008A Manganese	Sample number(s): 9127506-9127515 1062.29	BKG: 9127506 1052.88	1	20
Batch number: 172120705005A Manganese	Sample number(s): 9127520 14.96	BKG: P128761 13.12	13	20
Batch number: 172130705002A Manganese	Sample number(s): 9127516-9127519 329.65	BKG: 9127517 306.5	7	20
Batch number: 17209987106A Nitrate Nitrogen Sulfate	Sample number(s): 9127516-9127520 1111.85 46021.57	BKG: P127250 1110.76 46044.66	0 (1) 0	15 15
Batch number: 17209987112A Nitrate Nitrogen Sulfate	Sample number(s): 9127493-9127498, 9127500-9127505 N.D. 29106.8	BKG: 9127497 N.D. 29659	0 (1) 2	15 15
Batch number: 17209987112B Nitrate Nitrogen Sulfate	Sample number(s): 9127506-9127515 N.D. N.D.	BKG: 9127506 N.D. N.D.	0 (1) 0 (1)	15 15

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SIM SVOAs 8270C MINI
Batch number: 17212WAI026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
9127493	87	44	75
9127494	83	102	85
9127495	88	76	68
9127496	89	103	78
9127497	97	97	78
9127498	105	104	87
9127499	108	100	90
9127501	102	98	79
9127502	96	95	75

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SIM SVOAs 8270C MINI
Batch number: 17212WAI026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
9127503	97	94	92
Blank	93	102	75
LCS	110	122	93
MS	105	104	87
MSD	108	100	90
Limits:	42-136	26-137	22-129

Analysis Name: SIM SVOAs 8270C MINI
Batch number: 17212WAP026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
9127504	103	101	82
9127505	92	87	90
9127506	82	108	113
9127507	109	47	93
9127508	105	89	84
9127509	101	93	94
9127510	107	102	104
9127511	112	80	91
9127512	114	74	87
9127513	98	102	88
9127514	104	102	93
9127515	106	64	85
9127516	108	107	94
Blank	109	113	86
LCS	113	126	96
MS	172*	137	104
MSD	148*	109	95
Limits:	42-136	26-137	22-129

Analysis Name: SIM SVOAs 8270C MINI
Batch number: 17212WAS026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
9127517	95	104	99
9127518	90	86	99
9127519	83	111	95
Blank	97	106	87
LCS	103	116	98
MS	130	100	101
MSD	80	105	114

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SIM SVOAs 8270C MINI
Batch number: 17212WAS026

Limits: 42-136 26-137 22-129

Analysis Name: SIM SVOAs 8270C MINI
Batch number: 17213WAH026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
9127520	101	118	83
Blank	98	106	80
LCS	108	121	96
MS	114	100	327*
MSD	90	104	195*
Limits:	42-136	26-137	22-129

Analysis Name: Method 8021 Water Master
Batch number: 17212A53A

	Trifluorotoluene-P	Trifluorotoluene-F
9127493	96	100
9127494	94	99
9127495	94	100
9127496	95	97
9127497	95	100
9127498	95	111
9127499	93	111
9127501	94	96
9127502	96	109
9127503	94	96
9127504	94	95
9127505	102	103
9127506	88	96
9127507	95	123
9127508	94	120
9127509	95	99
9127510	89	94
9127511	94	97
9127512	94	111
9127513	94	110
9127514	94	110
9127515	95	113
Blank	93	99
LCS	95	108
MS	95	111
MSD	93	111

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: Method 8021 Water Master
Batch number: 17212A53A

Limits: 51-120 63-135

Analysis Name: Method 8021 Water Master
Batch number: 17213A53A

	Trifluorotoluene-P	Trifluorotoluene-F
9127516	94	107
9127517	95	103
9127518	95	118
9127519	96	106
9127520	95	115
9127521	94	108
Blank	95	112
LCS	94	108
LCSD		108
MS	93	
MSD	95	

Limits: 51-120 63-135

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172140003A

	Propene
9127493	98
9127494	99
Blank	105
LCS	101
LCSD	104

Limits: 44-123

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172140004A

	Propene
9127495	97
9127496	100
9127497	97
9127498	94
9127499	95
9127501	87
9127502	100
9127503	105
9127504	101

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172140004A

	Propene
9127505	103
Blank	109
LCS	107
MS	94
MSD	95

Limits: 44-123

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172140005A

	Propene
9127506	89
9127507	90
9127508	93
9127509	96
9127510	97
9127511	93
9127512	103
9127513	85
9127514	104
9127515	92
9127516	94
9127517	92
9127518	91
Blank	112
LCS	107
MS	96
MSD	91

Limits: 44-123

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172150001A

	Propene
9127520	92
Blank	104
LCS	108
LCSD	105

Limits: 44-123

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 172150003A

	Propene
9127519	81
Blank	97
LCS	97
MS	81
MSD	80

Limits: 44-123

Analysis Name: DRO 250mL w/ 10g SiGel
Batch number: 172190008A

	Orthoterphenyl	Capric Acid
9127493	34*	0
9127494	61	0
9127495	74	0
9127496	69	0
9127497	88	0
9127498	49*	0
9127499	60	0
9127501	67	0
9127502	67	0
9127503	34*	0
Blank	64	
LCS	69	
MS	49*	0
MSD	60	0

Limits: 50-150 0-1

Analysis Name: DRO 250mL w/ 10g SiGel
Batch number: 172190009A

	Orthoterphenyl	Capric Acid
9127504	84	0
9127505	71	0
9127506	68	0
9127507	76	0
9127508	76	0
9127509	73	0
9127510	71	0
9127511	72	0
9127512	80	0
9127513	80	0
Blank	76	

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 09/18/2017 15:00

Group Number: 1831398

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. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: DRO 250mL w/ 10g SiGel
Batch number: 172190009A

	Orthoterphenyl	Capric Acid
LCS	64	
LCSD	79	
Limits:	50-150	0-1

Analysis Name: DRO 250mL w/ 10g SiGel
Batch number: 172190010A

	Orthoterphenyl	Capric Acid
9127514	74	0
9127515	72	0
9127516	87	0
9127517	84	0
9127518	65	0
9127519	69	0
9127520	83	0
Blank	78	
LCS	82	
LCSD	81	
Limits:	50-150	0-1

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Chevron Northwest Region Analysis Request/Chain of Custody

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1/3

Lancaster Laboratories Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only
Group # 1831378 Sample # 9127493-521
Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested								6 Remarks			
Facility # <u>WBS</u> <u>Edmonds Terminal</u> <u>NWENVPMA01D143080Z</u> Site Address <u>11720 unoco Rd, Edmonds, WA</u> Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u> Consultant/Office <u>Arcadis/1100 Olive way, Suite 800, Seattle, WA</u> Consultant Project Mgr. <u>Scott Zorn</u> Consultant Phone # <u>206-726-4709</u> Sampler <u>Ryan Brauchla, Eric Krueger, Eric Nicolij, Latham</u> JOE				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Oil Total Number of Containers <u>12</u>				<input type="checkbox"/> 8260 full scan <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-GX <input checked="" type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method CPATS by Method 8270 SIM Methane by USEPA LSK 175 Nitrate Nitrogen sulfate by USEPA 380.0 Dissolved manganese by USEPA 200.8								SCR #: <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits			
2 Sample Identification			3																
			Collected	Grab															
			Date	Time															
<u>LM-2</u>			<u>7/26/17</u>	<u>1445</u>	<input checked="" type="checkbox"/>														
<u>MW-E</u>				<u>1410</u>	<input checked="" type="checkbox"/>														
<u>MW-104</u>				<u>1210</u>	<input checked="" type="checkbox"/>														
<u>MW-129R</u>				<u>1400</u>	<input checked="" type="checkbox"/>														
<u>MW-502</u>				<u>0900</u>	<input checked="" type="checkbox"/>														
<u>MW-502-MS</u>				<u>0900</u>	<input checked="" type="checkbox"/>														
<u>MW-502-MSD</u>				<u>0900</u>	<input checked="" type="checkbox"/>														
<u>MW-504</u>				<u>0910</u>	<input checked="" type="checkbox"/>														
<u>MW-505</u>				<u>1030</u>	<input checked="" type="checkbox"/>														
<u>MW-510</u>				<u>1300</u>	<input checked="" type="checkbox"/>														
<u>MW-512</u>				<u>0850</u>	<input checked="" type="checkbox"/>														
<u>MW-525</u>				<u>1120</u>	<input checked="" type="checkbox"/>														
<u>MW-526</u>			<u>7</u>	<u>1135</u>	<input checked="" type="checkbox"/>													Dissolved manganese was field filtered	
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by				Date		Time		Received by		Date		Time			
<input checked="" type="radio"/> Standard 5 day 4 day <input type="radio"/> 72 hour 48 hour 24 hour				<u>Ryan Brauchla</u>				<u>7-27-17</u>		<u>1500</u>		<u>FedEx</u>							
				Relinquished by				Date		Time		Received by		Date		Time			
8 Data Package (circle if required)				Relinquished by Commercial Carrier:				Date		Time		Received by		Date		Time			
<input checked="" type="radio"/> Type I - Full <input type="radio"/> Type VI (Raw Data)				<input type="radio"/> UPS <input checked="" type="radio"/> FedEx <input type="radio"/> Other								<u>WA</u>		<u>7/26/17</u>		<u>1430</u>			
				EDD (circle if required) <input type="radio"/> CVX-RTBU-FL_05 (default) Other: _____				Temperature Upon Receipt <u>16-32</u> °C				Custody Seals Intact? Yes No							

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

Chevron Northwest Region Analysis Request/Chain of Custody

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2/3

Lancaster Laboratories
Environmental

Acct. # 11964 For Eurofins Lancaster Laboratories Environmental use only
Group # 1831398 Sample # 7127493-521
Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks	
Facility # EDMONDS TERMINAL WBS NWENVPM&PPI430802 Site Address 11720 UNOCO RD, EDMONDS, WA Chevron PM KIM JOLITZ Lead Consultant ARCADIS Consultant/Office ARCADIS/1100 OLIVE WAY, STE B00, SEATTLE, WA Consultant Project Mgr. SCOTT ZORN Consultant Phone # 206-726-4709				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air				Total Number of Containers <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Naphth <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-Gx <input type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method										SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits	
2 Sample Identification Collected Date Time Grab Composite MW-529 7/26/17 1500 MW-530 1530 MW-531 1015 MW-532 1020 MW-139R 7/27/17 0925 MW-506 0930 MW-507 0855 MW-508 1025 MW-509 1030 MW-511 1035 MW-514 1155 MW-DUP3 7/26/17 - MW-DUP4 7/27/17 -				3 Sampler RYAN BRANCHLA, ERIC KREUEGER, ERIC NICOLAI, JOE LATHAM				CPMS BY METHOD 8270 SIM METANE BY USEPA RSK175 NITRATE NITROGEN SULFATE BY USEPA 8260 DISSOLVED MANGANESE BY USEPA 200.8										7 Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard 5 day 4 day 72 hour 48 hour 24 hour Relinquished by Ryan Branchla Date 7-27-17 Time 1500 Received by FedEx Date Time Relinquished by _____ Date _____ Time _____ Received by _____ Date Time Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Received by _____ Date 7/28/17 Time 1430 Temperature Upon Receipt 0.6-3.2 °C Custody Seals Intact? Yes No	
8 Data Package (circle if required) <input checked="" type="radio"/> Type I - Full Type VI (Raw Data)				EDD (circle if required) CVX-RTBU-FL_05 (default) Other: _____				9 Relinquished by _____ Date _____ Time _____ Received by _____ Date Time Relinquished by _____ Date _____ Time _____ Received by _____ Date Time Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Received by _____ Date _____ Time _____ Temperature Upon Receipt _____ °C Custody Seals Intact? Yes No										6 DISSOLVED MANGANESE WAS FIELD FILTERED.	

Chevron Northwest Region Analysis Request/Chain of Custody

eurofins
3/3

Lancaster Laboratories Environmental

Acct. # 11964 For Eurofins Lancaster Laboratories Environmental use only
 Group # 1831398 Sample # 9127493-521
Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks								
Facility # <u>Edmonds Terminal</u> WBS <u>NWENN PM7001430802</u> Site Address <u>11720 uneco Rd, Edmonds, WA</u> Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u> Consultant/Office <u>Arcadis/1100 Olive Way, suite 800, Seattle WA</u> Consultant Project Mgr. <u>Scott Zorn</u> Consultant Phone # <u>206-726-4709</u> Sampler _____				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Oil				Total Number of Containers <u>12</u> <input checked="" type="checkbox"/> BTEX-MTBE <input checked="" type="checkbox"/> 8260 <input checked="" type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-GX <input checked="" type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> CPAHS by method <u>8270 SIM</u> <input type="checkbox"/> Methane by USEPA RSK 175 <input type="checkbox"/> Nitrate Nitrogen sulfate by USEPA 800.8 <input type="checkbox"/> Dissolved manganese by USEPA 200.8												SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits								
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX-MTBE	8260	8260 full scan	Oxygenates	NWTPH-GX	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method	CPAHS by method	Methane by USEPA RSK 175	Nitrate Nitrogen sulfate by USEPA 800.8	Dissolved manganese by USEPA 200.8	6 Remarks	
Date	Time	Date	Time																								8260	8260 full scan
<u>RB-1</u>	<u>7/27/17</u>	<u>1120</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<u>12</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Dissolved manganese was field filtered	
<u>Trip Blank</u>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			<u>2</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by <u>Ryan Brauchla</u>				Date <u>7-27-17</u>		Time <u>1500</u>		Received by <u>FedEx</u>				Date		Time										
<input checked="" type="radio"/> Standard 5 day <input type="radio"/> 72 hour <input type="radio"/> 48 hour <input type="radio"/> 4 day <input type="radio"/> 24 hour				Relinquished by _____				Date _____		Time _____		Received by _____				Date _____		Time _____										
8 Data Package (circle if required)				Relinquished by Commercial Carrier:				Received by _____				Date <u>7/28/17</u>		Time <u>1130</u>														
<input checked="" type="radio"/> Type I - Full <input type="radio"/> Type VI (Raw Data)				<input type="radio"/> UPS _____ <input checked="" type="radio"/> FedEx <input checked="" type="checkbox"/> <input type="radio"/> Other _____				Temperature Upon Receipt <u>1.6-3.2 °C</u>				Custody Seals Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>																
EDD (circle if required)				CVX-RTBU-FL_05 (default)				Other: _____																				



Client: Edmonds Terminal

Delivery and Receipt Information

Delivery Method:	<u>Fed-Ex 3</u>	Arrival Timestamp:	<u>07/28/2017 14:30</u>
Number of Packages:	<u>8</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>WA</u>		

Arrival Condition Summary

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

Unpacked by Dante Jones (12691) at 16:05 on 07/28/2017

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	DT42-02	3.2	DT	Wet	Y	Bagged	N
2	DT42-02	2.7	DT	Wet	Y	Bagged	N
3	DT42-02	0.6	DT	Wet	Y	Bagged	N
4	DT42-02	0.6	DT	Wet	Y	Bagged	N
5	DT42-02	0.6	DT	Wet	Y	Bagged	N
6	DT42-02	1.4	DT	Wet	Y	Bagged	N
7	DT42-02	0.6	DT	Wet	Y	Bagged	N
8	DT42-02	0.8	DT	Wet	Y	Bagged	N

General Comments: Received Metals Batch QC for sample MW 139-R

Explanation of Symbols and Abbreviations

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

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

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

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
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
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.

APPENDIX D

Discharge Monitoring Reports





Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 11/01/2016 - 11/30/2016

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Once per defined event Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzo(a)anthracene Micrograms/L (ug/L) Weekly Grab	Benzo(b)fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzo(k)fluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzo(a)pyrene Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-T	11/1/16											
1-W	11/2/16											
1-Th	11/3/16											
1-F	11/4/16											
1-Sa	11/5/16											
2-Su	11/6/16											
2-M	11/7/16											
2-T	11/8/16											
2-W	11/9/16											
2-Th	11/10/16											
2-F	11/11/16											
2-Sa	11/12/16											
3-Su	11/13/16											
3-M	11/14/16											
3-T	11/15/16											
3-W	11/16/16											
3-Th	11/17/16											
3-F	11/18/16											
3-Sa	11/19/16											
4-Su	11/20/16											
4-M	11/21/16											
4-T	11/22/16											
4-W	11/23/16											
4-Th	11/24/16											
4-F	11/25/16											
4-Sa	11/26/16											
5-Su	11/27/16											
5-M	11/28/16											
5-T	11/29/16											
5-W	11/30/16											
Daily Minimum			>= 6.0 (RO)									
Daily Maximum		<= 15 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-T	11/1/16											
1-W	11/2/16											
1-Th	11/3/16											
1-F	11/4/16											
1-Sa	11/5/16											
2-Su	11/6/16											
2-M	11/7/16											
2-T	11/8/16											
2-W	11/9/16											
2-Th	11/10/16											
2-F	11/11/16											
2-Sa	11/12/16											
3-Su	11/13/16											
3-M	11/14/16											
3-T	11/15/16											
3-W	11/16/16											
3-Th	11/17/16											
3-F	11/18/16											
3-Sa	11/19/16											
4-Su	11/20/16											
4-M	11/21/16											
4-T	11/22/16											
4-W	11/23/16											
4-Th	11/24/16											
4-F	11/25/16											
4-Sa	11/26/16											
5-Su	11/27/16											
5-M	11/28/16											
5-T	11/29/16											
5-W	11/30/16											
Daily Minimum						>= 6.0 (RO)						
Daily Maximum	Report Only	Report Only	<= 0 (RO)	<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	



I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

9/28/2017 4:28:39 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 12/01/2016 - 12/31/2016

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Once per defined event Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzo(a)anthracene Micrograms/L (ug/L) Weekly Grab	Benzo(b)fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzo(k)fluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzo(a)pyrene Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-Th	12/1/16											
1-F	12/2/16											
1-Sa	12/3/16											
2-Su	12/4/16											
2-M	12/5/16											
2-T	12/6/16											
2-W	12/7/16											
2-Th	12/8/16											
2-F	12/9/16											
2-Sa	12/10/16											
3-Su	12/11/16											
3-M	12/12/16											
3-T	12/13/16											
3-W	12/14/16											
3-Th	12/15/16											
3-F	12/16/16											
3-Sa	12/17/16											
4-Su	12/18/16											
4-M	12/19/16											
4-T	12/20/16											
4-W	12/21/16											
4-Th	12/22/16											
4-F	12/23/16											
4-Sa	12/24/16											
5-Su	12/25/16											
5-M	12/26/16											
5-T	12/27/16											
5-W	12/28/16											
5-Th	12/29/16											
5-F	12/30/16											
5-Sa	12/31/16											
Daily Minimum			>= 6.0 (RO)									
Daily Maximum		<= 15 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Parameters and Methods											
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
		Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	
1-Th	12/1/16												
1-F	12/2/16												
1-Sa	12/3/16												
2-Su	12/4/16												
2-M	12/5/16												
2-T	12/6/16												
2-W	12/7/16												
2-Th	12/8/16												
2-F	12/9/16												
2-Sa	12/10/16												
3-Su	12/11/16												
3-M	12/12/16												
3-T	12/13/16												
3-W	12/14/16												
3-Th	12/15/16												
3-F	12/16/16												
3-Sa	12/17/16												
4-Su	12/18/16												
4-M	12/19/16												
4-T	12/20/16												
4-W	12/21/16												
4-Th	12/22/16												
4-F	12/23/16												
4-Sa	12/24/16												
5-Su	12/25/16												
5-M	12/26/16												
5-T	12/27/16												
5-W	12/28/16												
5-Th	12/29/16												
5-F	12/30/16												
5-Sa	12/31/16												
Daily Minimum						>= 6.0 (RO)							
Daily Maximum		Report Only	Report Only	<= 0 (RO)	<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	



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Garrick Jauregui

9/28/2017 4:28:42 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 01/01/2017 - 01/31/2017

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow	pH	Benzene	NWTPHGx	NWTPHDx	Polynuclear Aromatic Hydrocarbons (PAH)	Benz(a)anthracene	Benz(b)fluoranthene	Benz(k)fluoranthene	Chrysene	Benz(a)pyrene
		Gallons/minute (gpm) Once per defined event Metered/Recorded	Standard Units Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-Su	1/1/17											
1-M	1/2/17											
1-T	1/3/17											
1-W	1/4/17											
1-Th	1/5/17											
1-F	1/6/17											
1-Sa	1/7/17											
2-Su	1/8/17											
2-M	1/9/17											
2-T	1/10/17											
2-W	1/11/17											
2-Th	1/12/17											
2-F	1/13/17											
2-Sa	1/14/17											
3-Su	1/15/17											
3-M	1/16/17											
3-T	1/17/17											
3-W	1/18/17											
3-Th	1/19/17											
3-F	1/20/17											
3-Sa	1/21/17											
4-Su	1/22/17											
4-M	1/23/17											
4-T	1/24/17											
4-W	1/25/17											
4-Th	1/26/17											
4-F	1/27/17											
4-Sa	1/28/17											
5-Su	1/29/17											
5-M	1/30/17											
5-T	1/31/17											
Daily Minimum			>= 6.0 (RO)									
Daily Maximum		<= 15 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Parameters										
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
		Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
1-Su	1/1/17											
1-M	1/2/17											
1-T	1/3/17											
1-W	1/4/17											
1-Th	1/5/17											
1-F	1/6/17											
1-Sa	1/7/17											
2-Su	1/8/17											
2-M	1/9/17											
2-T	1/10/17											
2-W	1/11/17											
2-Th	1/12/17											
2-F	1/13/17											
2-Sa	1/14/17											
3-Su	1/15/17											
3-M	1/16/17											
3-T	1/17/17											
3-W	1/18/17											
3-Th	1/19/17											
3-F	1/20/17											
3-Sa	1/21/17											
4-Su	1/22/17											
4-M	1/23/17											
4-T	1/24/17											
4-W	1/25/17											
4-Th	1/26/17											
4-F	1/27/17											
4-Sa	1/28/17											
5-Su	1/29/17											
5-M	1/30/17											
5-T	1/31/17											
Daily Minimum						>= 6.0 (RO)						
Daily Maximum		Report Only	Report Only	<= 0 (RO)	<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only



I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

9/28/2017 4:28:45 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 02/01/2017 - 02/28/2017

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Once per defined event Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzo(a)anthracene Micrograms/L (ug/L) Weekly Grab	Benzo(b)fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzo(k)fluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzo(a)pyrene Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-W	2/1/17											
1-Th	2/2/17											
1-F	2/3/17											
1-Sa	2/4/17											
2-Su	2/5/17											
2-M	2/6/17											
2-T	2/7/17											
2-W	2/8/17											
2-Th	2/9/17											
2-F	2/10/17											
2-Sa	2/11/17											
3-Su	2/12/17											
3-M	2/13/17											
3-T	2/14/17											
3-W	2/15/17											
3-Th	2/16/17											
3-F	2/17/17											
3-Sa	2/18/17											
4-Su	2/19/17											
4-M	2/20/17											
4-T	2/21/17											
4-W	2/22/17											
4-Th	2/23/17											
4-F	2/24/17											
4-Sa	2/25/17											
5-Su	2/26/17											
5-M	2/27/17											
5-T	2/28/17											
Daily Minimum			>= 6.0 (RO)									
Daily Maximum		<= 15 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Parameters										
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
		Dibenzofurananthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofurananthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
1-W	2/1/17											
1-Th	2/2/17											
1-F	2/3/17											
1-Sa	2/4/17											
2-Su	2/5/17											
2-M	2/6/17											
2-T	2/7/17											
2-W	2/8/17											
2-Th	2/9/17											
2-F	2/10/17											
2-Sa	2/11/17											
3-Su	2/12/17											
3-M	2/13/17											
3-T	2/14/17											
3-W	2/15/17											
3-Th	2/16/17											
3-F	2/17/17											
3-Sa	2/18/17											
4-Su	2/19/17											
4-M	2/20/17											
4-T	2/21/17											
4-W	2/22/17											
4-Th	2/23/17											
4-F	2/24/17											
4-Sa	2/25/17											
5-Su	2/26/17											
5-M	2/27/17											
5-T	2/28/17											
Daily Minimum						>= 6.0 (RO)						
Daily Maximum		Report Only	Report Only	<= 0 (RO)	<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only



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Garrick Jauregui

9/28/2017 4:28:48 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 03/01/2017 - 03/31/2017

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Once per defined event Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzo(a)anthracene Micrograms/L (ug/L) Weekly Grab	Benzo(b)fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzo(k)fluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzo(a)pyrene Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-W	3/1/17											
1-Th	3/2/17											
1-F	3/3/17											
1-Sa	3/4/17											
2-Su	3/5/17											
2-M	3/6/17											
2-T	3/7/17											
2-W	3/8/17											
2-Th	3/9/17											
2-F	3/10/17											
2-Sa	3/11/17											
3-Su	3/12/17											
3-M	3/13/17											
3-T	3/14/17											
3-W	3/15/17											
3-Th	3/16/17											
3-F	3/17/17											
3-Sa	3/18/17											
4-Su	3/19/17											
4-M	3/20/17											
4-T	3/21/17											
4-W	3/22/17											
4-Th	3/23/17											
4-F	3/24/17											
4-Sa	3/25/17											
5-Su	3/26/17											
5-M	3/27/17											
5-T	3/28/17											
5-W	3/29/17											
5-Th	3/30/17											
5-F	3/31/17											
Daily Minimum			>= 6.0 (RO)									
Daily Maximum		<= 15 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Parameters										
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
		Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthrene (3,4-Benzofluoranthrene) Micrograms/L (ug/L) Weekly Grab
1-W	3/1/17											
1-Th	3/2/17											
1-F	3/3/17											
1-Sa	3/4/17											
2-Su	3/5/17											
2-M	3/6/17											
2-T	3/7/17											
2-W	3/8/17											
2-Th	3/9/17											
2-F	3/10/17											
2-Sa	3/11/17											
3-Su	3/12/17											
3-M	3/13/17											
3-T	3/14/17											
3-W	3/15/17											
3-Th	3/16/17											
3-F	3/17/17											
3-Sa	3/18/17											
4-Su	3/19/17											
4-M	3/20/17											
4-T	3/21/17											
4-W	3/22/17											
4-Th	3/23/17											
4-F	3/24/17											
4-Sa	3/25/17											
5-Su	3/26/17											
5-M	3/27/17											
5-T	3/28/17											
5-W	3/29/17											
5-Th	3/30/17											
5-F	3/31/17											
Daily Minimum						>= 6.0 (RO)						
Daily Maximum		Report Only	Report Only	<= 0 (RO)	<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only



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Garrick Jauregui

9/28/2017 4:28:51 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 04/01/2017 - 04/30/2017

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Once per defined event Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzo(a)anthracene Micrograms/L (ug/L) Weekly Grab	Benzo(b)fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzo(k)fluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzo(a)pyrene Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-Sa	4/1/17											
2-Su	4/2/17											
2-M	4/3/17											
2-T	4/4/17											
2-W	4/5/17											
2-Th	4/6/17											
2-F	4/7/17											
2-Sa	4/8/17											
3-Su	4/9/17											
3-M	4/10/17											
3-T	4/11/17											
3-W	4/12/17											
3-Th	4/13/17											
3-F	4/14/17											
3-Sa	4/15/17											
4-Su	4/16/17											
4-M	4/17/17											
4-T	4/18/17											
4-W	4/19/17											
4-Th	4/20/17											
4-F	4/21/17											
4-Sa	4/22/17											
5-Su	4/23/17											
5-M	4/24/17											
5-T	4/25/17											
5-W	4/26/17											
5-Th	4/27/17											
5-F	4/28/17											
5-Sa	4/29/17											
6-Su	4/30/17											
Daily Minimum			>= 6.0 (RO)									
Daily Maximum		<= 15 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Sa	4/1/17											
2-Su	4/2/17											
2-M	4/3/17											
2-T	4/4/17											
2-W	4/5/17											
2-Th	4/6/17											
2-F	4/7/17											
2-Sa	4/8/17											
3-Su	4/9/17											
3-M	4/10/17											
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5-Su	4/23/17											
5-M	4/24/17											
5-T	4/25/17											
5-W	4/26/17											
5-Th	4/27/17											
5-F	4/28/17											
5-Sa	4/29/17											
6-Su	4/30/17											
Daily Minimum						>= 6.0 (RO)						
Daily Maximum	Report Only	Report Only	<= 0 (RO)	<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	



I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

9/28/2017 4:28:54 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 05/01/2017 - 05/31/2017

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Once per defined event Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzo(a)anthracene Micrograms/L (ug/L) Weekly Grab	Benzo(b)fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzo(k)fluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzo(a)pyrene Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-M	5/1/17											
1-T	5/2/17											
1-W	5/3/17											
1-Th	5/4/17											
1-F	5/5/17											
1-Sa	5/6/17											
2-Su	5/7/17											
2-M	5/8/17											
2-T	5/9/17											
2-W	5/10/17											
2-Th	5/11/17											
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3-Su	5/14/17											
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3-T	5/16/17											
3-W	5/17/17											
3-Th	5/18/17											
3-F	5/19/17											
3-Sa	5/20/17											
4-Su	5/21/17											
4-M	5/22/17											
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4-F	5/26/17											
4-Sa	5/27/17											
5-Su	5/28/17											
5-M	5/29/17											
5-T	5/30/17											
5-W	5/31/17											
Daily Minimum			>= 6.0 (RO)									
Daily Maximum		<= 15 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Parameters											
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
		Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	
1-M	5/1/17												
1-T	5/2/17												
1-W	5/3/17												
1-Th	5/4/17												
1-F	5/5/17												
1-Sa	5/6/17												
2-Su	5/7/17												
2-M	5/8/17												
2-T	5/9/17												
2-W	5/10/17												
2-Th	5/11/17												
2-F	5/12/17												
2-Sa	5/13/17												
3-Su	5/14/17												
3-M	5/15/17												
3-T	5/16/17												
3-W	5/17/17												
3-Th	5/18/17												
3-F	5/19/17												
3-Sa	5/20/17												
4-Su	5/21/17												
4-M	5/22/17												
4-T	5/23/17												
4-W	5/24/17												
4-Th	5/25/17												
4-F	5/26/17												
4-Sa	5/27/17												
5-Su	5/28/17												
5-M	5/29/17												
5-T	5/30/17												
5-W	5/31/17												
Daily Minimum						>= 6.0 (RO)							
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Garrick Jauregui

9/28/2017 4:28:57 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 06/01/2017 - 06/30/2017

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Once per defined event Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzo(a)anthracene Micrograms/L (ug/L) Weekly Grab	Benzo(b)fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzo(k)fluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzo(a)pyrene Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-Th	6/1/17											
1-F	6/2/17											
1-Sa	6/3/17											
2-Su	6/4/17											
2-M	6/5/17											
2-T	6/6/17											
2-W	6/7/17											
2-Th	6/8/17											
2-F	6/9/17											
2-Sa	6/10/17											
3-Su	6/11/17											
3-M	6/12/17											
3-T	6/13/17											
3-W	6/14/17											
3-Th	6/15/17											
3-F	6/16/17											
3-Sa	6/17/17											
4-Su	6/18/17											
4-M	6/19/17											
4-T	6/20/17											
4-W	6/21/17											
4-Th	6/22/17											
4-F	6/23/17											
4-Sa	6/24/17											
5-Su	6/25/17											
5-M	6/26/17											
5-T	6/27/17											
5-W	6/28/17											
5-Th	6/29/17											
5-F	6/30/17											
Daily Minimum			>= 6.0 (RO)									
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Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Th	6/1/17											
1-F	6/2/17											
1-Sa	6/3/17											
2-Su	6/4/17											
2-M	6/5/17											
2-T	6/6/17											
2-W	6/7/17											
2-Th	6/8/17											
2-F	6/9/17											
2-Sa	6/10/17											
3-Su	6/11/17											
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3-Th	6/15/17											
3-F	6/16/17											
3-Sa	6/17/17											
4-Su	6/18/17											
4-M	6/19/17											
4-T	6/20/17											
4-W	6/21/17											
4-Th	6/22/17											
4-F	6/23/17											
4-Sa	6/24/17											
5-Su	6/25/17											
5-M	6/26/17											
5-T	6/27/17											
5-W	6/28/17											
5-Th	6/29/17											
5-F	6/30/17											
Daily Minimum						>= 6.0 (RO)						
Daily Maximum	Report Only	Report Only	<= 0 (RO)	<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	



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Garrick Jauregui

9/28/2017 4:29:00 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 07/01/2017 - 07/31/2017

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Once per defined event Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benz(a)anthracene Micrograms/L (ug/L) Weekly Grab	Benz(b)fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benz(k)fluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benz(a)pyrene Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-Sa	7/1/17											
2-Su	7/2/17											
2-M	7/3/17											
2-T	7/4/17											
2-W	7/5/17											
2-Th	7/6/17											
2-F	7/7/17											
2-Sa	7/8/17											
3-Su	7/9/17											
3-M	7/10/17											
3-T	7/11/17											
3-W	7/12/17											
3-Th	7/13/17											
3-F	7/14/17											
3-Sa	7/15/17											
4-Su	7/16/17											
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4-W	7/19/17											
4-Th	7/20/17											
4-F	7/21/17											
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5-Sa	7/29/17											
6-Su	7/30/17											
6-M	7/31/17											
Daily Minimum			>= 6.0 (RO)									
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Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Parameters										
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
		Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
1-Sa	7/1/17											
2-Su	7/2/17											
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3-F	7/14/17											
3-Sa	7/15/17											
4-Su	7/16/17											
4-M	7/17/17											
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4-W	7/19/17											
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Garrick Jauregui

9/28/2017 4:29:04 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 08/01/2017 - 08/31/2017

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Once per defined event Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benz(a)anthracene Micrograms/L (ug/L) Weekly Grab	Benz(b)fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benz(k)fluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benz(a)pyrene Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-T	8/1/17											
1-W	8/2/17											
1-Th	8/3/17											
1-F	8/4/17											
1-Sa	8/5/17											
2-Su	8/6/17											
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3-Th	8/17/17											
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3-Sa	8/19/17											
4-Su	8/20/17											
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Reporting Codes Used: C - No Discharge

Overall DMR Notes/Comment

Reporting Code: C - No Discharge



Week	Monitoring Point	Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-T	8/1/17											
1-W	8/2/17											
1-Th	8/3/17											
1-F	8/4/17											
1-Sa	8/5/17											
2-Su	8/6/17											
2-M	8/7/17											
2-T	8/8/17											
2-W	8/9/17											
2-Th	8/10/17											
2-F	8/11/17											
2-Sa	8/12/17											
3-Su	8/13/17											
3-M	8/14/17											
3-T	8/15/17											
3-W	8/16/17											
3-Th	8/17/17											
3-F	8/18/17											
3-Sa	8/19/17											
4-Su	8/20/17											
4-M	8/21/17											
4-T	8/22/17											
4-W	8/23/17											
4-Th	8/24/17											
4-F	8/25/17											
4-Sa	8/26/17											
5-Su	8/27/17											
5-M	8/28/17											
5-T	8/29/17											
5-W	8/30/17											
5-Th	8/31/17											
Daily Minimum						>= 6.0 (RO)						
Daily Maximum		Report Only	Report Only	<= 0 (RO)	<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only



I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

9/28/2017 4:29:07 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 09/01/2017 - 09/30/2017

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow	pH	Benzene	NWTPHGx	NWTPHDx	Polynuclear Aromatic Hydrocarbons (PAH)	Benz(a)anthracene	Benz(b)fluoranthene	Benz(k)fluoranthene	Chrysene	Benz(a)pyrene
		Gallons/minute (gpm) Once per defined event Metered/Recorded	Standard Units Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) (volatile) Weekly Grab	Micrograms/L (ug/L) (semi-volatile) Weekly Grab	Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab
		DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1	DE1
1-F	9/1/17	C	C	C	C	C	C	C	C	C	C	C
1-Sa	9/2/17											
2-Su	9/3/17	C	C	C	C	C	C	C	C	C	C	C
2-M	9/4/17											
2-T	9/5/17											
2-W	9/6/17											
2-Th	9/7/17											
2-F	9/8/17											
2-Sa	9/9/17											
3-Su	9/10/17					C						
3-M	9/11/17		8.17	< 0.42	< 0.050	< 0.019	0.0185	< 0.020	< 0.051	< 0.020	< 0.010	< 0.020
3-T	9/12/17	3.94										
3-W	9/13/17	10.93										
3-Th	9/14/17	13.64	7.40	< 0.42	< 0.050	J 0.050	0.0199	< 0.022	< 0.055	< 0.022	< 0.011	< 0.022
3-F	9/15/17	10.44										
3-Sa	9/16/17											
4-Su	9/17/17											
4-M	9/18/17	12.94										
4-T	9/19/17	7.72	6.99	< 0.042	< 0.050	J 0.040	0.0189	< 0.021	< 0.052	< 0.021	< 0.010	< 0.021
4-W	9/20/17	7.78										
4-Th	9/21/17	6.68										
4-F	9/22/17	4.25										
4-Sa	9/23/17											
5-Su	9/24/17											
5-M	9/25/17	13.89										
5-T	9/26/17	7.34	8.02	< 0.042	< 0.050	< 0.019	0.0179	< 0.019	< 0.048	< 0.019	< 0.097	< 0.019
5-W	9/27/17	8.78										
5-Th	9/28/17	3.65										
5-F	9/29/17	8.60										
5-Sa	9/30/17											
Daily Minimum			>= 6.0 (RO)									
Daily Maximum		13.89	8.17	0.42	0.05	0.05	0.0189	0.022	0.055	0.022	0.097	0.022
		<= 15 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, C - No Discharge, J - Estimated Value/Below Quantitation Limit

Overall DMR Notes/Comment

Discharge of the dewatering system began on 9/12/17. The minimum detection limit is reported for all non-detects.



Week	Monitoring Point	Parameters and Methods										
		DE1	DE1	DE1	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
		Dibenzofluanthracene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab	Chitosan Acetate Yes/No Weekly Grab	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluanthracene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
1-F	9/1/17	C	C	C								
1-Sa	9/2/17											
2-Su	9/3/17	C	C	C								
2-M	9/4/17											
2-T	9/5/17											
2-W	9/6/17											
2-Th	9/7/17											
2-F	9/8/17											
2-Sa	9/9/17											
3-Su	9/10/17											
3-M	9/11/17	< 0.020	< 0.051	No								
3-T	9/12/17											
3-W	9/13/17											
3-Th	9/14/17	< 0.022	< 0.055	No								
3-F	9/15/17											
3-Sa	9/16/17											
4-Su	9/17/17											
4-M	9/18/17											
4-T	9/19/17	< 0.021	< 0.052	NO								
4-W	9/20/17											
4-Th	9/21/17											
4-F	9/22/17											
4-Sa	9/23/17											
5-Su	9/24/17											
5-M	9/25/17											
5-T	9/26/17	< 0.019	< 0.048	No								
5-W	9/27/17											
5-Th	9/28/17											
5-F	9/29/17											
5-Sa	9/30/17											
Daily Minimum						>= 6.0 (RO)						
Daily Maximum		0.022 Report Only	0.055 Report Only	No <= 0 (RO)	<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	C Report Only	C Report Only



I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

10/26/2017 9:10:03 AM

Signature

Date

APPENDIX E

Discharge Water Field Notes



WATER MONITORING FORM
Former Unocal Edmonds Terminal
11720 Unoco Road, Edmonds, WA

Date: 9-13-2017
Sampler: Joe Latham

NPDES Compliance Sample Collected Today? (sample name, time):
If sample collected, chitosan screening results (positive, negative):

NA
NA

Beginning of Day Totalizer Reading: 5667
Yesterday's Daily Totalizer Reading: -
Water Discharged in Last 24 Hours: 5667
NPDES Compliant <21,600 gal (Y/N): Y

YSI pH Meter Calibrated Today: (time, initials) 1100, JL
Turbidimeter Calibrated Today: (time, initials) 1100, JL

AM Time:	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
<u>1120</u>			
Parameters			
pH	<u>7.38</u>	<u>No Discharge</u>	<u>7.04</u>
Temperature (°C)	<u>15.8°C</u>		<u>15.8°C</u>
Dissolved O ₂ (mg/L)	<u>4.56 $\frac{mg}{L}$</u>		<u>6.15 $\frac{mg}{L}$</u>
Turbidity (NTU)	<u>6.99 NTU</u>		<u>17.92 NTU</u>

PM Time:	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
<u>1440</u>			
Parameters			
pH	<u>7.39</u>		<u>7.12</u>
Temperature (°C)	<u>5.85 $\frac{mg}{L}$</u>		<u>17.8°C</u>
Dissolved O ₂ (mg/L)	<u>5.85 $\frac{mg}{L}$</u>		<u>6.09 $\frac{mg}{L}$</u>
Turbidity (NTU)	<u>4.58 NTU</u>		<u>4.30 NTU</u>

AM Notes:
Discharge point parameters collected from tank rather than outfall point - will collect from Willow Creek outflow point today

PM Notes:
Upstream sample point inaccessible due to excavation.

WATER MONITORING FORM
Former Unocal Edmonds Terminal
11720 Unoco Road, Edmonds, WA

Date: 9/19/17
Sampler: AP

NPDES Compliance Sample Collected Today? (sample name, time): N/A
If sample collected, chitosan screening results (positive, negative): N/A

Beginning of Day Totalizer Reading: 82912 Water Discharged in Last 24 Hours: 18635
Yesterday's Daily Totalizer Reading: 67277 NPDES Compliant <21,600 gal (Y/N): Y

YSI pH Meter Calibrated Today: (time, initials) 1110, AP
Turbidimeter Calibrated Today: (time, initials) 1110, AP

Parameters	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
pH	7.24	7.52	6.95
Temperature (°C)	13.8	15.3	14.0
Dissolved O ₂ (mg/L)	5.43	6.90	5.43
Turbidity (NTU)	2.06	1.20	3.23

Parameters	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
pH	7.05		7.22
Temperature (°C)	16.4		16.7
Dissolved O ₂ (mg/L)	6.90		8.44
Turbidity (NTU)	4.62		3.31

No Discharge

AM Notes:

PM Notes:
River flow reversed due to tidal influences,

WATER MONITORING FORM
 Former Unocal Edmonds Terminal
 11720 Unoco Road, Edmonds, WA

Date: 9/20/17
 Sampler: AP

NPDES Compliance Sample Collected Today? (sample name, time): N/A
 If sample collected, chitosan screening results (positive, negative): N/A

Beginning of Day Totalizer Reading: 91030 Water Discharged in Last 24 Hours: 11,118
 Yesterday's Daily Totalizer Reading: 82912 NPDES Compliant <21,600 gal (Y/N): Y

YSI pH Meter Calibrated Today: (time, initials) 1000, AP
 Turbidity Meter Calibrated Today: (time, initials) 1000, AP

Parameters	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
AM Time: <u>1010</u>			
pH	<u>7.14</u>	<u>7.27</u>	<u>6.92</u>
Temperature (°C)	<u>13.6</u>	<u>14.5</u>	<u>12.9</u>
Dissolved O ₂ (mg/L)	<u>5.00</u>	<u>7.15</u>	<u>5.40</u>
Turbidity (NTU)	<u>1.65</u>	<u>1.22</u>	<u>2.55</u>

Parameters	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
PM Time: <u>1435</u>			
pH	<u>7.06</u>	<u>No Discharge</u>	<u>0.99</u>
Temperature (°C)	<u>15.4</u>		<u>16.1</u>
Dissolved O ₂ (mg/L)	<u>5.47</u>		<u>6.86</u>
Turbidity (NTU)	<u>2.13</u>		<u>2.82</u>

AM Notes:

PM Notes:

Date: 9-25-17

Sampler: Joe Latham

NPDES Compliance Sample Collected Today? (sample name, time):

If sample collected, chitosan screening results (positive, negative):

NA
NA

Beginning of Day Totalizer Reading: 120972
 Yesterday's Daily Totalizer Reading: 114846
 Water Discharged in Last 24 Hours: 6126
 NPDES Compliant <21,600 gal (Y/N) Y

YSI pH Meter Calibrated Today: (time, initials)
 Turbidimeter Calibrated Today: (time, initials)

0940, JZ
0940, JZ

Parameters	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
pH		7.68	7.14
Temperature (°C)		16.3°C	13.6°C
Dissolved O ₂ (mg/L)		6.60 mg/L	5.63 mg/L
Turbidity (NTU)		2.19 NTU	2.79 NTU

Parameters	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
pH		No Discharge	
Temperature (°C)			
Dissolved O ₂ (mg/L)			
Turbidity (NTU)			

AM Notes:

Willow Creek Coffer Down removed in morning
Natural Flow restored

PM Notes:

No Discharges

WATER MONITORING FORM
Former Unocal Edmonds Terminal
11720 Unoco Road, Edmonds, WA

Date: 9/28/17
 Sampler: AP

NPDES Compliance Sample Collected Today? (sample name, time): N/A
 If sample collected, chitosan screening results (positive, negative): N/A

Beginning of Day Totalizer Reading: 164193 Water Discharged in Last 24 Hours: 10,650
 Yesterday's Daily Totalizer Reading: 151543 NPDES Compliant <21,600 gal (Y/N) Y

YSI pH Meter Calibrated Today: _____ (time, initials)
 Turbidity Meter Calibrated Today: _____ (time, initials)

AM Time:	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
<u>1030</u>		<u>No Discharge</u>	
Parameters			
pH			
Temperature (°C)			
Dissolved O ₂ (mg/L)			
Turbidity (NTU)			

PM Time:	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
<u>1530</u>		<u>No Discharge</u>	
Parameters			
pH			
Temperature (°C)			
Dissolved O ₂ (mg/L)			
Turbidity (NTU)			

AM Notes:

PM Notes:

Date: 9/29/17

Sampler: AP

NPDES Compliance Sample Collected Today? (sample name, time): N/A

If sample collected, chitosan screening results (positive, negative): N/A

Beginning of Day Totalizer Reading: 169442
 Yesterday's Daily Totalizer Reading: 164193
 Water Discharged in Last 24 Hours: 5,249
 NPDES Compliant: Y
 <21,600 gal (Y/N)

YSI pH Meter Calibrated Today: 1340, AP
 (time, initials)
 Turbidity Meter Calibrated Today: 1340, AP
 (time, initials)

Parameters	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
pH		<u>No Discharge</u>	
Temperature (°C)			
Dissolved O ₂ (mg/L)			
Turbidity (NTU)			

Parameters	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
pH		<u>7.66</u>	
Temperature (°C)		<u>18.4</u>	
Dissolved O ₂ (mg/L)		<u>6.65</u>	
Turbidity (NTU)		<u>2.73</u>	

AM Notes:

PM Notes:

Weekly Discharge Monitoring

WA0991007 (outfall 002)

Week 4 / 10-2 to 10-6

Week 1 / 9/11 - 9/15

pH - 8.17

Turbidity - 1.77 NTU

9/11

chitosan acetate



pH - 7.29

Turbidity - 1.32 NTU

Week 2 / 9-18 to 9-22

pH - 7.40

Turbidity - 0.95 NTU

9/14

chitosan acetate

Week 2 B

9-18 to 9-22

pH - 6.99

Turbidity - 1.25 NTU

chitosan acetate

Week 3 / 9-25 to 9-29

pH - 8.02

Turbidity - 3.18 NTU

chitosan acetate

OUTFALL #002

NPDES

WATER MONITORING FORM
Former Unocal Edmonds Terminal
11720 Unoco Road, Edmonds, WA

Date: 10/5/17
Sampler: AP

NPDES Compliance Sample Collected Today? (sample name, time):
If sample collected, chitosan screening results (positive, negative):

N/A
N/A

Beginning of Day Totalizer Reading: 215212 Water Discharged in Last 24 Hours: 9097
Yesterday's Daily Totalizer Reading: 206115 NPDES Compliant <21,600 gal (Y/N) Y

YSI pH Meter Calibrated Today: (time, initials) 1445, AP
Turbidimeter Calibrated Today: (time, initials) 1445, AP

AM Time:	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
<u>1045</u>			
Parameters			
pH		<u>7.34</u>	
Temperature (°C)		<u>16.6</u>	
Dissolved O ₂ (mg/L)		<u>—</u>	
Turbidity (NTU)		<u>1.63</u>	

PM Time:	Location		
	Upstream (MW-530)	Discharge Point (OUTFALL#002)	Downstream (50' from outflow)
<u>1500</u>			
Parameters			
pH		<u>7.73</u>	
Temperature (°C)		<u>16.7</u>	
Dissolved O ₂ (mg/L)		<u>6.46</u>	
Turbidity (NTU)		<u>1.50</u>	

AM Notes: YSI batteries dead. Readings taken from IWTs system track probes. No DO probe available.

PM Notes: YSI batteries replaced readings taken from Willow Creek outfall by discharge points.

APPENDIX F

TWT System Treated Water Laboratory Analytical Reports and Chain of Custody Documents



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

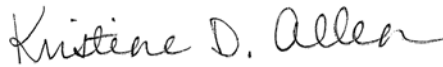
TestAmerica Job ID: 580-71163-1

Client Project/Site: Edmonds Terminal Edmonds, WA
Revision: 1

For:

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

Attn: Samuel Miles



Authorized for release by:
9/18/2017 4:04:32 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Designee for

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

- 1
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- 7
- 8
- 9
- 10
- 11



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Case Narrative

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

TestAmerica Job ID: 580-71163-1

Job ID: 580-71163-1

Laboratory: TestAmerica Seattle

Narrative

Report was revised 9-18-17 to change the analyte list for method 625.

CASE NARRATIVE
Client: ARCADIS U.S. Inc
Project: Edmonds Terminal Edmonds, WA
Report Number: 580-71163-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

Two samples were received on 9/11/2017 2:27 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.1° C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples OUTFALL#002-091117 (580-71163-1) and TB-09112017 (580-71163-2) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA Method 624. The samples were analyzed on 09/12/2017.

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

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample OUTFALL#002-091117 (580-71163-1) was analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA Method 625. The samples were prepared and analyzed on 09/11/2017.

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

GASOLINE RANGE ORGANICS (GRO)

Samples OUTFALL#002-091117 (580-71163-1) and TB-09112017 (580-71163-2) were analyzed for gasoline range organics (GRO) in accordance with Method NWTPH-Gx. The samples were analyzed on 09/12/2017.

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

DIESEL AND MOTOR OIL RANGE ORGANICS

Sample OUTFALL#002-091117 (580-71163-1) was analyzed for diesel and motor oil range organics in accordance with Method NWTPH-Dx. The samples were prepared and analyzed on 09/12/2017.

Case Narrative

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

TestAmerica Job ID: 580-71163-1

Job ID: 580-71163-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Please note - the laboratory is unable to process the reverse surrogate used in the Silica Gel Cleanup for NWTPH-Dx as it contains a 1-point calibration and the associated samples are run with a 5-point calibration. This surrogate will not be present in the forms for the Level IV report; however this surrogate is reported in the raw data section for this analysis.

#2 Diesel (C10-C24) was detected in method blank MB 580-255886/1-B at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples were not performed.

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

Definitions/Glossary

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

TestAmerica Job ID: 580-71163-1

Qualifiers

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 Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

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

TestAmerica Job ID: 580-71163-1

Client Sample ID: OUTFALL#002-091117

Lab Sample ID: 580-71163-1

Date Collected: 09/11/17 11:30

Matrix: Water

Date Received: 09/11/17 14:27

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/12/17 04:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	95		74 - 123					09/12/17 04:30	1
Toluene-d8 (Surr)	100		79 - 122					09/12/17 04:30	1
4-Bromofluorobenzene (Surr)	109		78 - 119					09/12/17 04:30	1
Dibromofluoromethane (Surr)	100		70 - 120					09/12/17 04:30	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 120					09/12/17 04:30	1

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		3.1	0.020	ug/L		09/11/17 16:21	09/11/17 21:01	1
Chrysene	ND		0.61	0.010	ug/L		09/11/17 16:21	09/11/17 21:01	1
Benzo[a]pyrene	ND		1.0	0.020	ug/L		09/11/17 16:21	09/11/17 21:01	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.051	ug/L		09/11/17 16:21	09/11/17 21:01	1
Dibenz(a,h)anthracene	ND		0.61	0.020	ug/L		09/11/17 16:21	09/11/17 21:01	1
Benzo[k]fluoranthene	ND		1.0	0.020	ug/L		09/11/17 16:21	09/11/17 21:01	1
Benzo[b]fluoranthene	ND		1.0	0.051	ug/L		09/11/17 16:21	09/11/17 21:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	79		60 - 135				09/11/17 16:21	09/11/17 21:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/12/17 11:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		58 - 133					09/12/17 11:55	1
Trifluorotoluene (Surr)	107		77 - 128					09/12/17 11:55	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.028	J B	0.10	0.019	mg/L		09/12/17 08:05	09/12/17 16:24	1
Motor Oil (>C24-C36)	ND		0.25	0.078	mg/L		09/12/17 08:05	09/12/17 16:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	78		43 - 119				09/12/17 08:05	09/12/17 16:24	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-71163-1

Client Sample ID: TB-09112017

Lab Sample ID: 580-71163-2

Date Collected: 09/11/17 00:00

Matrix: Water

Date Received: 09/11/17 14:27

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/12/17 04:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Trifluorotoluene (Surr)</i>	94		74 - 123					09/12/17 04:05	1
<i>Toluene-d8 (Surr)</i>	100		79 - 122					09/12/17 04:05	1
<i>4-Bromofluorobenzene (Surr)</i>	110		78 - 119					09/12/17 04:05	1
<i>Dibromofluoromethane (Surr)</i>	98		70 - 120					09/12/17 04:05	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	107		70 - 120					09/12/17 04:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/12/17 12:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>4-Bromofluorobenzene (Surr)</i>	90		58 - 133					09/12/17 12:27	1
<i>Trifluorotoluene (Surr)</i>	107		77 - 128					09/12/17 12:27	1

QC Sample Results

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

TestAmerica Job ID: 580-71163-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-255871/5
Matrix: Water
Analysis Batch: 255871

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/12/17 02:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		74 - 123		09/12/17 02:50	1
Toluene-d8 (Surr)	100		79 - 122		09/12/17 02:50	1
4-Bromofluorobenzene (Surr)	112		78 - 119		09/12/17 02:50	1
Dibromofluoromethane (Surr)	97		70 - 120		09/12/17 02:50	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 120		09/12/17 02:50	1

Lab Sample ID: LCS 580-255871/6
Matrix: Water
Analysis Batch: 255871

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.35		ug/L		93	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	95		74 - 123
Toluene-d8 (Surr)	99		79 - 122
4-Bromofluorobenzene (Surr)	110		78 - 119
Dibromofluoromethane (Surr)	97		70 - 120
1,2-Dichloroethane-d4 (Surr)	105		70 - 120

Lab Sample ID: LCSD 580-255871/7
Matrix: Water
Analysis Batch: 255871

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	10.0	8.40		ug/L		84	37 - 151	11	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	95		74 - 123
Toluene-d8 (Surr)	101		79 - 122
4-Bromofluorobenzene (Surr)	108		78 - 119
Dibromofluoromethane (Surr)	97		70 - 120
1,2-Dichloroethane-d4 (Surr)	104		70 - 120

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-255859/1-A
Matrix: Water
Analysis Batch: 255876

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 255859

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		3.0	0.020	ug/L		09/11/17 16:21	09/11/17 18:55	1
Chrysene	ND		0.60	0.010	ug/L		09/11/17 16:21	09/11/17 18:55	1
Benzo[a]pyrene	ND		1.0	0.020	ug/L		09/11/17 16:21	09/11/17 18:55	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-71163-1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-255859/1-A
Matrix: Water
Analysis Batch: 255876

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 255859

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Indeno[1,2,3-cd]pyrene	ND		1.0	0.050	ug/L		09/11/17 16:21	09/11/17 18:55	1
Dibenz(a,h)anthracene	ND		0.60	0.020	ug/L		09/11/17 16:21	09/11/17 18:55	1
Benzo[k]fluoranthene	ND		1.0	0.020	ug/L		09/11/17 16:21	09/11/17 18:55	1
Benzo[b]fluoranthene	ND		1.0	0.050	ug/L		09/11/17 16:21	09/11/17 18:55	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14	91		60 - 135	09/11/17 16:21	09/11/17 18:55	1

Lab Sample ID: LCS 580-255859/2-A
Matrix: Water
Analysis Batch: 255876

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 255859

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chrysene	2.00	1.68		ug/L		84	17 - 168
Benzo[a]pyrene	2.00	1.99		ug/L		100	17 - 163
Indeno[1,2,3-cd]pyrene	2.00	1.97		ug/L		98	1 - 171
Dibenz(a,h)anthracene	2.00	2.11		ug/L		106	1 - 227
Benzo[k]fluoranthene	2.00	2.29		ug/L		114	11 - 162
Benzo[b]fluoranthene	2.00	2.05		ug/L		102	24 - 159

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14	86		60 - 135

Lab Sample ID: LCSD 580-255859/3-A
Matrix: Water
Analysis Batch: 255876

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 255859

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	
								RPD	Limit
Benzo[a]anthracene	2.00	2.00	J	ug/L		100	33 - 143	8	50
Chrysene	2.00	1.79		ug/L		90	17 - 168	6	50
Benzo[a]pyrene	2.00	2.12		ug/L		106	17 - 163	6	50
Indeno[1,2,3-cd]pyrene	2.00	2.06		ug/L		103	1 - 171	5	50
Dibenz(a,h)anthracene	2.00	2.05		ug/L		103	1 - 227	3	50
Benzo[k]fluoranthene	2.00	2.23		ug/L		112	11 - 162	2	50
Benzo[b]fluoranthene	2.00	2.36		ug/L		118	24 - 159	14	50

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14	85		60 - 135

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-71163-1

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

Lab Sample ID: MB 580-255887/6
Matrix: Water
Analysis Batch: 255887

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/12/17 10:20	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		58 - 133					09/12/17 10:20	1
Trifluorotoluene (Surr)	107		77 - 128					09/12/17 10:20	1

Lab Sample ID: LCS 580-255887/7
Matrix: Water
Analysis Batch: 255887

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.860		mg/L		86	79 - 110
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	97		58 - 133				
Trifluorotoluene (Surr)	98		77 - 128				

Lab Sample ID: LCSD 580-255887/8
Matrix: Water
Analysis Batch: 255887

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
Gasoline	1.00	0.857		mg/L		86	79 - 110	0	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	96		58 - 133						
Trifluorotoluene (Surr)	97		77 - 128						

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-255886/1-B
Matrix: Water
Analysis Batch: 255937

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 255886

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.0241	J	0.10	0.019	mg/L		09/12/17 08:05	09/12/17 15:16	1
Motor Oil (>C24-C36)	ND		0.25	0.077	mg/L		09/12/17 08:05	09/12/17 15:16	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	83		43 - 119				09/12/17 08:05	09/12/17 15:16	1

Lab Sample ID: LCS 580-255886/2-B
Matrix: Water
Analysis Batch: 255937

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 255886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.48		mg/L		74	59 - 112

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-71163-1

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

Lab Sample ID: LCS 580-255886/2-B
Matrix: Water
Analysis Batch: 255937

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 255886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	1.84		mg/L		92	64 - 120
		LCS LCS					
Surrogate		%Recovery	Qualifier	Limits			
<i>o-Terphenyl</i>		80		43 - 119			

Lab Sample ID: LCSD 580-255886/3-B
Matrix: Water
Analysis Batch: 255937

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 255886

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.66		mg/L		83	59 - 112	12	16
Motor Oil (>C24-C36)	2.00	2.04		mg/L		102	64 - 120	10	17
		LCSD LCSD							
Surrogate		%Recovery	Qualifier	Limits					
<i>o-Terphenyl</i>		83		43 - 119					

Lab Chronicle

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

TestAmerica Job ID: 580-71163-1

Client Sample ID: OUTFALL#002-091117

Lab Sample ID: 580-71163-1

Date Collected: 09/11/17 11:30

Matrix: Water

Date Received: 09/11/17 14:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	255871	09/12/17 04:30	JSM	TAL SEA
Total/NA	Prep	CWA_Prep			255859	09/11/17 16:21	DSO	TAL SEA
Total/NA	Analysis	625		1	255876	09/11/17 21:01	ERB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	255887	09/12/17 11:55	RSB	TAL SEA
Total/NA	Prep	3510C			255886	09/12/17 08:05	NDB	TAL SEA
Total/NA	Cleanup	3630C			255909	09/12/17 10:43	REY	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	255937	09/12/17 16:24	ADB	TAL SEA

Client Sample ID: TB-09112017

Lab Sample ID: 580-71163-2

Date Collected: 09/11/17 00:00

Matrix: Water

Date Received: 09/11/17 14:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	255871	09/12/17 04:05	JSM	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	255887	09/12/17 12:27	RSB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

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

TestAmerica Job ID: 580-71163-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-02-18
California	State Program	9	2901	01-31-18
L-A-B	DoD ELAP		L2236	01-19-19
L-A-B	ISO/IEC 17025		L2236	01-19-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-17
US Fish & Wildlife	Federal		LE058448-0	10-31-18
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-18

Sample Summary

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

TestAmerica Job ID: 580-71163-1

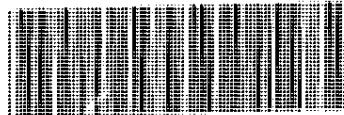
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-71163-1	OUTFALL#002-091117	Water	09/11/17 11:30	09/11/17 14:27
580-71163-2	TB-09112017	Water	09/11/17 00:00	09/11/17 14:27

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client Arcadis	Client Contact Ryan Brauchle	Date 9-11-2017	Chain of Custody Number 31442
Address 1100 Olive Way, Suite 800	Telephone Number (Area Code)/Fax Number 509-438-9828	Lab Number 253-922-2310	Page 1 of 1

City Seattle	State WA	Zip Code 98125	Sampler Ryan Brauchle	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed) <div style="border: 1px solid black; padding: 5px;"> NWTPH-6x NWTPH-Dx (SGC) EPA 624 (Benzene) EPA 625 (PAHs) </div>
Project Name and Location (State) Edmonds Terminal Edmonds, WA			Billing Contact		
Contract/Purchase Order/Quote No. BOO 45362.0010					

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives								Special Instructions/ Conditions of Receipt				
			Air	Aqueous	Sed.	Soil	Impres.	H2SO4	HNO3	HCl	NaOH	ZnAc2/NaOH	NWTPH-6x	NWTPH-Dx (SGC)		EPA 624 (Benzene)	EPA 625 (PAHs)		
OUTFALL#002-091117	9-11-17	1130		<input checked="" type="checkbox"/>															Email results to: ryan.brauchle@arcadis.com samuel.miles@arcadis.com eric.krueger@arcadis.com ophelia@arcadis.com scott.zorn@arcadis.com WBS Code: NWENVPM6001430803
TB-09112017	9-11-17	-		<input checked="" type="checkbox"/>															



580-71163 Chain of Custody

TBA2 Cooler Cor 0.1 Unc 0.9
Cooler Dsel@hveunit@Lab
WetPacks Packing bubble
Cr drop Custody Seal: Yes

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
---	--	---	---

Turn Around Time Required (business days) <input checked="" type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input type="checkbox"/> Other _____	QC Requirements (Specify)
--	---------------------------

1. Relinquished By Sign/Print Ryan W Brauchle Date 9-11-17 Time 1230	1. Received By Sign/Print Joe Latham Date 9-11-17 Time 1230
2. Relinquished By Sign/Print Joe Latham Date 9-11-17 Time 1425	2. Received By Sign/Print Francisco Luna Jr Date 9/11/17 Time 1427
3. Relinquished By Sign/Print	3. Received By Sign/Print

Comments

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-71163-1

Login Number: 71163

List Source: TestAmerica Seattle

List Number: 1

Creator: Ponce-McDermott, Monica

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
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	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-71291-2

Client Project/Site: Chevron Edmonds Terminal

For:

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

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
9/20/2017 4:40:40 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Job ID: 580-71291-2

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE Client: ARCADIS U.S. Inc Project: Chevron Edmonds Terminal Report Number: 580-71291-2

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 9/15/2017 10:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.1° C.

This report contains results for the water samples received with this delivery group. The soil sample results are reported under separate cover in job 580-71291-1.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample Outfall#002-091417 (580-71291-3) was analyzed for volatile organic compounds (GC-MS) in accordance with EPA Method 624. The samples were analyzed on 09/18/2017.

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

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample Outfall#002-091417 (580-71291-3) was analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA Method 625. The samples were prepared on 09/15/2017 and analyzed on 09/17/2017.

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

GASOLINE RANGE ORGANICS (GRO)

Samples Outfall#002-091417 (580-71291-3) and TB-091417 (water) (580-71291-5) were analyzed for gasoline range organics (GRO) in accordance with Method NWTPH-Gx. The samples were analyzed on 09/16/2017 and 09/17/2017.

4-Bromofluorobenzene (Surr) recovered outside acceptable drift limits for the batch opening CCV. All other surrogates and analytes passed in the CCV, and all surrogates and analytes met limits for the MB, LCS, LCSD, and samples. The data has been reported.

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

DIESEL AND MOTOR OIL RANGE ORGANICS

Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Job ID: 580-71291-2 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Sample Outfall#002-091417 (580-71291-3) was analyzed for diesel and motor oil range organics in accordance with Method NWTPH-Dx. The samples were prepared on 09/15/2017 and analyzed on 09/18/2017.

#2 Diesel (C10-C24) was detected in method blank MB 580-256280/1-B at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples were not performed.

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



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Qualifiers

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 Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Client Sample ID: Outfall#002-091417

Lab Sample ID: 580-71291-3

Date Collected: 09/14/17 16:30

Matrix: Water

Date Received: 09/15/17 10:25

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/18/17 23:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123					09/18/17 23:05	1
Toluene-d8 (Surr)	103		79 - 122					09/18/17 23:05	1
4-Bromofluorobenzene (Surr)	101		78 - 119					09/18/17 23:05	1
Dibromofluoromethane (Surr)	100		70 - 120					09/18/17 23:05	1
1,2-Dichloroethane-d4 (Surr)	104		70 - 120					09/18/17 23:05	1

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		3.3	0.022	ug/L		09/15/17 11:13	09/17/17 20:55	1
Chrysene	ND		0.66	0.011	ug/L		09/15/17 11:13	09/17/17 20:55	1
Benzo[a]pyrene	ND		1.1	0.022	ug/L		09/15/17 11:13	09/17/17 20:55	1
Indeno[1,2,3-cd]pyrene	ND		1.1	0.055	ug/L		09/15/17 11:13	09/17/17 20:55	1
Dibenz(a,h)anthracene	ND		0.66	0.022	ug/L		09/15/17 11:13	09/17/17 20:55	1
Benzo[k]fluoranthene	ND		1.1	0.022	ug/L		09/15/17 11:13	09/17/17 20:55	1
Benzo[b]fluoranthene	ND		1.1	0.055	ug/L		09/15/17 11:13	09/17/17 20:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	111		60 - 135				09/15/17 11:13	09/17/17 20:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/17/17 16:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		58 - 133					09/17/17 16:05	1
Trifluorotoluene (Surr)	105		77 - 128					09/17/17 16:05	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.050	J B	0.11	0.020	mg/L		09/15/17 11:15	09/18/17 10:59	1
Motor Oil (>C24-C36)	ND		0.26	0.081	mg/L		09/15/17 11:15	09/18/17 10:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	71		43 - 119				09/15/17 11:15	09/18/17 10:59	1

TestAmerica Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Client Sample ID: TB-091417 (water)

Lab Sample ID: 580-71291-5

Date Collected: 09/14/17 00:01

Matrix: Water

Date Received: 09/15/17 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/16/17 17:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		58 - 133					09/16/17 17:38	1
Trifluorotoluene (Surr)	115		77 - 128					09/16/17 17:38	1



QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-256621/5

Matrix: Water

Analysis Batch: 256621

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/18/17 20:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123		09/18/17 20:59	1
Toluene-d8 (Surr)	102		79 - 122		09/18/17 20:59	1
4-Bromofluorobenzene (Surr)	98		78 - 119		09/18/17 20:59	1
Dibromofluoromethane (Surr)	99		70 - 120		09/18/17 20:59	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120		09/18/17 20:59	1

Lab Sample ID: LCS 580-256621/6

Matrix: Water

Analysis Batch: 256621

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.2		ug/L		102	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	101		74 - 123
Toluene-d8 (Surr)	102		79 - 122
4-Bromofluorobenzene (Surr)	99		78 - 119
Dibromofluoromethane (Surr)	99		70 - 120
1,2-Dichloroethane-d4 (Surr)	99		70 - 120

Lab Sample ID: LCSD 580-256621/7

Matrix: Water

Analysis Batch: 256621

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	10.0	10.2		ug/L		102	37 - 151	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	100		74 - 123
Toluene-d8 (Surr)	102		79 - 122
4-Bromofluorobenzene (Surr)	100		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-256279/1-A

Matrix: Water

Analysis Batch: 256416

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 256279

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		3.0	0.020	ug/L		09/15/17 11:13	09/17/17 19:40	1
Chrysene	ND		0.60	0.010	ug/L		09/15/17 11:13	09/17/17 19:40	1
Benzo[a]pyrene	ND		1.0	0.020	ug/L		09/15/17 11:13	09/17/17 19:40	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-256279/1-A
Matrix: Water
Analysis Batch: 256416

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 256279

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		1.0	0.050	ug/L		09/15/17 11:13	09/17/17 19:40	1
Dibenz(a,h)anthracene	ND		0.60	0.020	ug/L		09/15/17 11:13	09/17/17 19:40	1
Benzo[k]fluoranthene	ND		1.0	0.020	ug/L		09/15/17 11:13	09/17/17 19:40	1
Benzo[b]fluoranthene	ND		1.0	0.050	ug/L		09/15/17 11:13	09/17/17 19:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		60 - 135	09/15/17 11:13	09/17/17 19:40	1

Lab Sample ID: LCS 580-256279/2-A
Matrix: Water
Analysis Batch: 256416

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 256279

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	2.00	1.53	J	ug/L		76	33 - 143
Chrysene	2.00	1.53		ug/L		76	17 - 168
Benzo[a]pyrene	2.00	1.66		ug/L		83	17 - 163
Indeno[1,2,3-cd]pyrene	2.00	1.53		ug/L		77	1 - 171
Dibenz(a,h)anthracene	2.00	1.64		ug/L		82	1 - 227
Benzo[k]fluoranthene	2.00	1.69		ug/L		85	11 - 162
Benzo[b]fluoranthene	2.00	1.88		ug/L		94	24 - 159

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	91		60 - 135

Lab Sample ID: LCSD 580-256279/3-A
Matrix: Water
Analysis Batch: 256416

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 256279

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	2.00	1.63	J	ug/L		82	33 - 143	7	50
Chrysene	2.00	1.54		ug/L		77	17 - 168	0	50
Benzo[a]pyrene	2.00	1.65		ug/L		82	17 - 163	1	50
Indeno[1,2,3-cd]pyrene	2.00	1.66		ug/L		83	1 - 171	8	50
Dibenz(a,h)anthracene	2.00	1.74		ug/L		87	1 - 227	6	50
Benzo[k]fluoranthene	2.00	1.70		ug/L		85	11 - 162	0	50
Benzo[b]fluoranthene	2.00	1.91		ug/L		96	24 - 159	2	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	90		60 - 135

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

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

Lab Sample ID: MB 580-256386/5
Matrix: Water
Analysis Batch: 256386

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/16/17 16:37	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		58 - 133					09/16/17 16:37	1
Trifluorotoluene (Surr)	99		77 - 128					09/16/17 16:37	1

Lab Sample ID: LCS 580-256386/6
Matrix: Water
Analysis Batch: 256386

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.906		mg/L		91	79 - 110
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	80		58 - 133				
Trifluorotoluene (Surr)	112		77 - 128				

Lab Sample ID: MB 580-256407/6
Matrix: Water
Analysis Batch: 256407

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/17/17 14:29	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		58 - 133					09/17/17 14:29	1
Trifluorotoluene (Surr)	93		77 - 128					09/17/17 14:29	1

Lab Sample ID: LCS 580-256407/7
Matrix: Water
Analysis Batch: 256407

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.864		mg/L		86	79 - 110
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	95		58 - 133				
Trifluorotoluene (Surr)	92		77 - 128				

Lab Sample ID: LCSD 580-256407/8
Matrix: Water
Analysis Batch: 256407

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
Gasoline	1.00	0.882		mg/L		88	79 - 110	2	10

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

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

Lab Sample ID: LCSD 580-256407/8
Matrix: Water
Analysis Batch: 256407

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

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	96		58 - 133
Trifluorotoluene (Surr)	96		77 - 128

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-256280/1-B
Matrix: Water
Analysis Batch: 256424

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 256280

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	0.0479	J	0.10	0.019	mg/L		09/15/17 11:15	09/18/17 09:52	1
Motor Oil (>C24-C36)	ND		0.25	0.077	mg/L		09/15/17 11:15	09/18/17 09:52	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	76		43 - 119	09/15/17 11:15	09/18/17 09:52	1

Lab Sample ID: LCS 580-256280/2-B
Matrix: Water
Analysis Batch: 256424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 256280

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
#2 Diesel (C10-C24)	2.00	1.50		mg/L		75	59 - 112
Motor Oil (>C24-C36)	2.00	1.73		mg/L		86	64 - 120

Surrogate	LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	76		43 - 119

Lab Sample ID: LCSD 580-256280/3-B
Matrix: Water
Analysis Batch: 256424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 256280

Analyte	Spike Added	LCSD		Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
#2 Diesel (C10-C24)	2.00	1.42		mg/L		71	59 - 112	6	16
Motor Oil (>C24-C36)	2.00	1.67		mg/L		83	64 - 120	4	17

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
o-Terphenyl	75		43 - 119

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Client Sample ID: Outfall#002-091417

Lab Sample ID: 580-71291-3

Date Collected: 09/14/17 16:30

Matrix: Water

Date Received: 09/15/17 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	256621	09/18/17 23:05	IWH	TAL SEA
Total/NA	Prep	CWA_Prep			256279	09/15/17 11:13	MRG	TAL SEA
Total/NA	Analysis	625		1	256416	09/17/17 20:55	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	256407	09/17/17 16:05	RSB	TAL SEA
Total/NA	Prep	3510C			256280	09/15/17 11:15	MRG	TAL SEA
Total/NA	Cleanup	3630C			256373	09/16/17 08:24	JWL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	256424	09/18/17 10:59	ADB	TAL SEA

Client Sample ID: TB-091417 (water)

Lab Sample ID: 580-71291-5

Date Collected: 09/14/17 00:01

Matrix: Water

Date Received: 09/15/17 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	256386	09/16/17 17:38	JCV	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-02-18
California	State Program	9	2901	01-31-18
L-A-B	DoD ELAP		L2236	01-19-19
L-A-B	ISO/IEC 17025		L2236	01-19-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-17
US Fish & Wildlife	Federal		LE058448-0	10-31-18
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-18

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71291-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-71291-3	Outfall#002-091417	Water	09/14/17 16:30	09/15/17 10:25
580-71291-5	TB-091417 (water)	Water	09/14/17 00:01	09/15/17 10:25

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- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-71291-2

Login Number: 71291

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	additional labels on pretared vial.
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	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-71420-1

Client Project/Site: Chevron Edmonds Terminal

For:

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

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
9/21/2017 4:23:14 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Job ID: 580-71420-1

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE **Client: ARCADIS U.S. Inc** **Project: Chevron Edmonds Terminal** **Report Number: 580-71420-1**

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

Two samples were received on 9/20/2017 11:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6° C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample OUTFALL#002-091917 (580-71420-1) was analyzed for volatile organic compounds (GC-MS) in accordance with EPA Method 624. The samples were analyzed on 09/20/2017.

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

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample OUTFALL#002-091917 (580-71420-1) was analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA Method 625. The samples were prepared on 09/20/2017 and analyzed on 09/21/2017.

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

GASOLINE RANGE ORGANICS (GRO)

Samples OUTFALL#002-091917 (580-71420-1) and TB-091917 (580-71420-2) were analyzed for gasoline range organics (GRO) in accordance with Method NWTPH-Gx. The samples were analyzed on 09/20/2017.

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

DIESEL AND MOTOR OIL RANGE ORGANICS

Sample OUTFALL#002-091917 (580-71420-1) was analyzed for diesel and motor oil range organics in accordance with Method NWTPH-Dx. The samples were prepared on 09/20/2017 and analyzed on 09/21/2017.

Please note - the laboratory is unable to process the reverse surrogate used in the Silica Gel Cleanup for NWTPH-Dx as it contains a 1-point calibration and the associated samples are run with a 5-point calibration. This surrogate will not be present in the forms for the Level IV report; however this surrogate is reported in the raw data section for this analysis.

Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Job ID: 580-71420-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

#2 Diesel (C10-C24) was detected in method blank MB 580-256726/1-B at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

CCV recoveries were below %D control limits for o-Terphenyl surrogate, but within %R limits. Therefore, the data were reported. (CCV 580-256786/15), (CCV 580-256786/17), (CCVRT 580-256786/4) and (MB 580-256726/1-B).

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



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Qualifiers

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 Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Client Sample ID: OUTFALL#002-091917

Lab Sample ID: 580-71420-1

Date Collected: 09/19/17 14:50

Matrix: Water

Date Received: 09/20/17 11:05

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/20/17 16:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	112		74 - 123					09/20/17 16:21	1
Toluene-d8 (Surr)	91		79 - 122					09/20/17 16:21	1
4-Bromofluorobenzene (Surr)	102		78 - 119					09/20/17 16:21	1
Dibromofluoromethane (Surr)	105		70 - 120					09/20/17 16:21	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 120					09/20/17 16:21	1

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		3.1	0.021	ug/L		09/20/17 12:35	09/21/17 12:16	1
Chrysene	ND		0.63	0.010	ug/L		09/20/17 12:35	09/21/17 12:16	1
Benzo[a]pyrene	ND		1.0	0.021	ug/L		09/20/17 12:35	09/21/17 12:16	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.052	ug/L		09/20/17 12:35	09/21/17 12:16	1
Dibenz(a,h)anthracene	ND		0.63	0.021	ug/L		09/20/17 12:35	09/21/17 12:16	1
Benzo[k]fluoranthene	ND		1.0	0.021	ug/L		09/20/17 12:35	09/21/17 12:16	1
Benzo[b]fluoranthene	ND		1.0	0.052	ug/L		09/20/17 12:35	09/21/17 12:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	88		60 - 135				09/20/17 12:35	09/21/17 12:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/20/17 18:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		58 - 133					09/20/17 18:16	1
Trifluorotoluene (Surr)	105		77 - 128					09/20/17 18:16	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.040	J B	0.11	0.020	mg/L		09/20/17 12:41	09/21/17 00:55	1
Motor Oil (>C24-C36)	ND		0.27	0.083	mg/L		09/20/17 12:41	09/21/17 00:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	71		43 - 119				09/20/17 12:41	09/21/17 00:55	1
n-Decanoic Acid (Surr)	0.0005		0 - 1				09/20/17 12:41	09/21/17 00:55	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Client Sample ID: TB-091917

Lab Sample ID: 580-71420-2

Date Collected: 09/19/17 00:01

Matrix: Water

Date Received: 09/20/17 11:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/20/17 17:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		58 - 133					09/20/17 17:44	1
Trifluorotoluene (Surr)	106		77 - 128					09/20/17 17:44	1



QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-256753/5

Matrix: Water

Analysis Batch: 256753

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/20/17 12:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	111		74 - 123		09/20/17 12:57	1
Toluene-d8 (Surr)	93		79 - 122		09/20/17 12:57	1
4-Bromofluorobenzene (Surr)	101		78 - 119		09/20/17 12:57	1
Dibromofluoromethane (Surr)	104		70 - 120		09/20/17 12:57	1
1,2-Dichloroethane-d4 (Surr)	92		70 - 120		09/20/17 12:57	1

Lab Sample ID: LCS 580-256753/6

Matrix: Water

Analysis Batch: 256753

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.53		ug/L		95	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	112		74 - 123
Toluene-d8 (Surr)	93		79 - 122
4-Bromofluorobenzene (Surr)	99		78 - 119
Dibromofluoromethane (Surr)	104		70 - 120
1,2-Dichloroethane-d4 (Surr)	90		70 - 120

Lab Sample ID: LCSD 580-256753/7

Matrix: Water

Analysis Batch: 256753

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	10.0	9.84		ug/L		98	37 - 151	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	111		74 - 123
Toluene-d8 (Surr)	92		79 - 122
4-Bromofluorobenzene (Surr)	101		78 - 119
Dibromofluoromethane (Surr)	106		70 - 120
1,2-Dichloroethane-d4 (Surr)	91		70 - 120

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-256724/1-A

Matrix: Water

Analysis Batch: 256810

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 256724

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		3.0	0.020	ug/L		09/20/17 12:35	09/21/17 11:01	1
Chrysene	ND		0.60	0.010	ug/L		09/20/17 12:35	09/21/17 11:01	1
Benzo[a]pyrene	ND		1.0	0.020	ug/L		09/20/17 12:35	09/21/17 11:01	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-256724/1-A
Matrix: Water
Analysis Batch: 256810

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 256724

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		1.0	0.050	ug/L		09/20/17 12:35	09/21/17 11:01	1
Dibenz(a,h)anthracene	ND		0.60	0.020	ug/L		09/20/17 12:35	09/21/17 11:01	1
Benzo[k]fluoranthene	ND		1.0	0.020	ug/L		09/20/17 12:35	09/21/17 11:01	1
Benzo[b]fluoranthene	ND		1.0	0.050	ug/L		09/20/17 12:35	09/21/17 11:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		60 - 135	09/20/17 12:35	09/21/17 11:01	1

Lab Sample ID: LCS 580-256724/2-A
Matrix: Water
Analysis Batch: 256810

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 256724

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	2.00	2.14	J	ug/L		107	33 - 143
Chrysene	2.00	2.02		ug/L		101	17 - 168
Benzo[a]pyrene	2.00	2.15		ug/L		108	17 - 163
Indeno[1,2,3-cd]pyrene	2.00	2.07		ug/L		104	1 - 171
Dibenz(a,h)anthracene	2.00	2.38		ug/L		119	1 - 227
Benzo[k]fluoranthene	2.00	2.22		ug/L		111	11 - 162
Benzo[b]fluoranthene	2.00	2.18		ug/L		109	24 - 159

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	100		60 - 135

Lab Sample ID: LCSD 580-256724/3-A
Matrix: Water
Analysis Batch: 256810

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 256724

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	2.00	2.28	J	ug/L		114	33 - 143	6	50
Chrysene	2.00	2.11		ug/L		105	17 - 168	4	50
Benzo[a]pyrene	2.00	2.25		ug/L		113	17 - 163	4	50
Indeno[1,2,3-cd]pyrene	2.00	2.14		ug/L		107	1 - 171	3	50
Dibenz(a,h)anthracene	2.00	2.41		ug/L		121	1 - 227	1	50
Benzo[k]fluoranthene	2.00	2.29		ug/L		114	11 - 162	3	50
Benzo[b]fluoranthene	2.00	2.14		ug/L		107	24 - 159	2	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	112		60 - 135

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

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

Lab Sample ID: MB 580-256728/6

Matrix: Water

Analysis Batch: 256728

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/20/17 15:36	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		58 - 133					09/20/17 15:36	1
Trifluorotoluene (Surr)	105		77 - 128					09/20/17 15:36	1

Lab Sample ID: LCS 580-256728/7

Matrix: Water

Analysis Batch: 256728

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.871		mg/L		87	79 - 110
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	95		58 - 133				
Trifluorotoluene (Surr)	96		77 - 128				

Lab Sample ID: LCSD 580-256728/8

Matrix: Water

Analysis Batch: 256728

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
Gasoline	1.00	0.865		mg/L		86	79 - 110	1	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	96		58 - 133						
Trifluorotoluene (Surr)	93		77 - 128						

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-256726/1-B

Matrix: Water

Analysis Batch: 256786

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 256726

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.0242	J	0.10	0.019	mg/L		09/20/17 12:41	09/20/17 23:27	1
Motor Oil (>C24-C36)	ND		0.25	0.077	mg/L		09/20/17 12:41	09/20/17 23:27	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	69		43 - 119				09/20/17 12:41	09/20/17 23:27	1
n-Decanoic Acid (Surr)	0.000009		0 - 1				09/20/17 12:41	09/20/17 23:27	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

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

Lab Sample ID: LCS 580-256726/2-B
Matrix: Water
Analysis Batch: 256786

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 256726

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.24		mg/L		62	59 - 112
Motor Oil (>C24-C36)	2.00	1.38		mg/L		69	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	63		43 - 119
<i>n</i> -Decanoic Acid (Surr)	0.03		0 - 1

Lab Sample ID: LCSD 580-256726/3-B
Matrix: Water
Analysis Batch: 256786

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 256726

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.39		mg/L		69	59 - 112	11	16
Motor Oil (>C24-C36)	2.00	1.46		mg/L		73	64 - 120	6	17

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	66		43 - 119
<i>n</i> -Decanoic Acid (Surr)	0.03		0 - 1

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Client Sample ID: OUTFALL#002-091917

Lab Sample ID: 580-71420-1

Date Collected: 09/19/17 14:50

Matrix: Water

Date Received: 09/20/17 11:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	256753	09/20/17 16:21	T1W	TAL SEA
Total/NA	Prep	CWA_Prep			256724	09/20/17 12:35	MRG	TAL SEA
Total/NA	Analysis	625		1	256810	09/21/17 12:16	ERB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	256728	09/20/17 18:16	RSB	TAL SEA
Total/NA	Prep	3510C			256726	09/20/17 12:41	MRG	TAL SEA
Total/NA	Cleanup	3630C			256771	09/20/17 15:21	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	256786	09/21/17 00:55	ERZ	TAL SEA

Client Sample ID: TB-091917

Lab Sample ID: 580-71420-2

Date Collected: 09/19/17 00:01

Matrix: Water

Date Received: 09/20/17 11:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	256728	09/20/17 17:44	RSB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-02-18
California	State Program	9	2901	01-31-18
L-A-B	DoD ELAP		L2236	01-19-19
L-A-B	ISO/IEC 17025		L2236	01-19-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-17
US Fish & Wildlife	Federal		LE058448-0	10-31-18
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-18

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71420-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-71420-1	OUTFALL#002-091917	Water	09/19/17 14:50	09/20/17 11:05
580-71420-2	TB-091917	Water	09/19/17 00:01	09/20/17 11:05

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Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-71420-1

Login Number: 71420

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
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	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-71583-1

Client Project/Site: Edmonds Terminal

For:

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

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
9/27/2017 3:59:34 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

Job ID: 580-71583-1

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE **Client: ARCADIS U.S. Inc** **Project: Edmonds Terminal** **Report Number: 580-71583-1**

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

Two samples were received on 9/26/2017 12:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.5° C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples OUTFALL#002-092617 (580-71583-1) and TB-092617 (water) (580-71583-2) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA Method 624. The samples were analyzed on 09/26/2017.

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

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample OUTFALL#002-092617 (580-71583-1) was analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA Method 625. The samples were prepared and analyzed on 09/26/2017.

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

GASOLINE RANGE ORGANICS (GRO)

Samples OUTFALL#002-092617 (580-71583-1) and TB-092617 (water) (580-71583-2) were analyzed for gasoline range organics (GRO) in accordance with Method NWTPH-Gx. The samples were analyzed on 09/26/2017.

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

DIESEL AND MOTOR OIL RANGE ORGANICS

Sample OUTFALL#002-092617 (580-71583-1) was analyzed for diesel and motor oil range organics in accordance with Method NWTPH-Dx. The samples were prepared and analyzed on 09/26/2017.

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

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

Qualifiers

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.

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
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

Client Sample ID: OUTFALL#002-092617

Lab Sample ID: 580-71583-1

Date Collected: 09/26/17 08:45

Matrix: Water

Date Received: 09/26/17 12:00

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/26/17 19:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	114		74 - 123					09/26/17 19:49	1
Toluene-d8 (Surr)	91		79 - 122					09/26/17 19:49	1
4-Bromofluorobenzene (Surr)	104		78 - 119					09/26/17 19:49	1
Dibromofluoromethane (Surr)	106		70 - 120					09/26/17 19:49	1
1,2-Dichloroethane-d4 (Surr)	95		70 - 120					09/26/17 19:49	1

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		2.9	0.019	ug/L		09/26/17 13:09	09/26/17 19:03	1
Chrysene	ND		0.58	0.0097	ug/L		09/26/17 13:09	09/26/17 19:03	1
Benzo[a]pyrene	ND		0.97	0.019	ug/L		09/26/17 13:09	09/26/17 19:03	1
Indeno[1,2,3-cd]pyrene	ND		0.97	0.048	ug/L		09/26/17 13:09	09/26/17 19:03	1
Dibenz(a,h)anthracene	ND		0.58	0.019	ug/L		09/26/17 13:09	09/26/17 19:03	1
Benzo[k]fluoranthene	ND		0.97	0.019	ug/L		09/26/17 13:09	09/26/17 19:03	1
Benzo[b]fluoranthene	ND		0.97	0.048	ug/L		09/26/17 13:09	09/26/17 19:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	88		60 - 135				09/26/17 13:09	09/26/17 19:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/26/17 14:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		58 - 133					09/26/17 14:51	1
Trifluorotoluene (Surr)	95		77 - 128					09/26/17 14:51	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.10	0.019	mg/L		09/26/17 13:13	09/26/17 20:10	1
Motor Oil (>C24-C36)	ND		0.26	0.079	mg/L		09/26/17 13:13	09/26/17 20:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	79		43 - 119				09/26/17 13:13	09/26/17 20:10	1
n-Decanoic Acid (Surr)	0.0002		0 - 1				09/26/17 13:13	09/26/17 20:10	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

Client Sample ID: TB-092617 (water)

Lab Sample ID: 580-71583-2

Date Collected: 09/26/17 00:01

Matrix: Water

Date Received: 09/26/17 12:00

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/26/17 19:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	114		74 - 123					09/26/17 19:25	1
Toluene-d8 (Surr)	91		79 - 122					09/26/17 19:25	1
4-Bromofluorobenzene (Surr)	102		78 - 119					09/26/17 19:25	1
Dibromofluoromethane (Surr)	107		70 - 120					09/26/17 19:25	1
1,2-Dichloroethane-d4 (Surr)	94		70 - 120					09/26/17 19:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/26/17 15:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		58 - 133					09/26/17 15:23	1
Trifluorotoluene (Surr)	98		77 - 128					09/26/17 15:23	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-257337/5
Matrix: Water
Analysis Batch: 257337

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			09/26/17 12:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	113		74 - 123		09/26/17 12:12	1
Toluene-d8 (Surr)	91		79 - 122		09/26/17 12:12	1
4-Bromofluorobenzene (Surr)	104		78 - 119		09/26/17 12:12	1
Dibromofluoromethane (Surr)	105		70 - 120		09/26/17 12:12	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 120		09/26/17 12:12	1

Lab Sample ID: LCS 580-257337/6
Matrix: Water
Analysis Batch: 257337

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.98		ug/L		100	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	114		74 - 123
Toluene-d8 (Surr)	91		79 - 122
4-Bromofluorobenzene (Surr)	104		78 - 119
Dibromofluoromethane (Surr)	104		70 - 120
1,2-Dichloroethane-d4 (Surr)	92		70 - 120

Lab Sample ID: LCSD 580-257337/7
Matrix: Water
Analysis Batch: 257337

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	10.0	10.3		ug/L		103	37 - 151	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	113		74 - 123
Toluene-d8 (Surr)	90		79 - 122
4-Bromofluorobenzene (Surr)	102		78 - 119
Dibromofluoromethane (Surr)	105		70 - 120
1,2-Dichloroethane-d4 (Surr)	91		70 - 120

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-257305/1-A
Matrix: Water
Analysis Batch: 257377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257305

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		3.0	0.020	ug/L		09/26/17 13:09	09/26/17 17:49	1
Chrysene	ND		0.60	0.010	ug/L		09/26/17 13:09	09/26/17 17:49	1
Benzo[a]pyrene	ND		1.0	0.020	ug/L		09/26/17 13:09	09/26/17 17:49	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-257305/1-A
Matrix: Water
Analysis Batch: 257377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257305

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		1.0	0.050	ug/L		09/26/17 13:09	09/26/17 17:49	1
Dibenz(a,h)anthracene	ND		0.60	0.020	ug/L		09/26/17 13:09	09/26/17 17:49	1
Benzo[k]fluoranthene	ND		1.0	0.020	ug/L		09/26/17 13:09	09/26/17 17:49	1
Benzo[b]fluoranthene	ND		1.0	0.050	ug/L		09/26/17 13:09	09/26/17 17:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	91		60 - 135	09/26/17 13:09	09/26/17 17:49	1

Lab Sample ID: LCS 580-257305/2-A
Matrix: Water
Analysis Batch: 257377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257305

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	2.00	2.08	J	ug/L		104	33 - 143
Chrysene	2.00	1.96		ug/L		98	17 - 168
Benzo[a]pyrene	2.00	2.15		ug/L		107	17 - 163
Indeno[1,2,3-cd]pyrene	2.00	2.01		ug/L		101	1 - 171
Dibenz(a,h)anthracene	2.00	2.30		ug/L		115	1 - 227
Benzo[k]fluoranthene	2.00	2.12		ug/L		106	11 - 162
Benzo[b]fluoranthene	2.00	2.10		ug/L		105	24 - 159

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	86		60 - 135

Lab Sample ID: LCSD 580-257305/3-A
Matrix: Water
Analysis Batch: 257377

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 257305

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	2.00	2.11	J	ug/L		105	33 - 143	1	50
Chrysene	2.00	1.93		ug/L		97	17 - 168	1	50
Benzo[a]pyrene	2.00	1.87		ug/L		93	17 - 163	14	50
Indeno[1,2,3-cd]pyrene	2.00	1.81		ug/L		91	1 - 171	10	50
Dibenz(a,h)anthracene	2.00	2.00		ug/L		100	1 - 227	14	50
Benzo[k]fluoranthene	2.00	1.89		ug/L		95	11 - 162	11	50
Benzo[b]fluoranthene	2.00	1.96		ug/L		98	24 - 159	7	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	82		60 - 135

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

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

Lab Sample ID: MB 580-257293/6
Matrix: Water
Analysis Batch: 257293

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			09/26/17 11:02	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		58 - 133					09/26/17 11:02	1
Trifluorotoluene (Surr)	104		77 - 128					09/26/17 11:02	1

Lab Sample ID: LCS 580-257293/7
Matrix: Water
Analysis Batch: 257293

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.901		mg/L		90	79 - 110
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	99		58 - 133				
Trifluorotoluene (Surr)	99		77 - 128				

Lab Sample ID: LCSD 580-257293/8
Matrix: Water
Analysis Batch: 257293

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
Gasoline	1.00	0.895		mg/L		90	79 - 110	1	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		58 - 133						
Trifluorotoluene (Surr)	98		77 - 128						

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-257307/1-B
Matrix: Water
Analysis Batch: 257364

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257307

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.10	0.019	mg/L		09/26/17 13:13	09/26/17 19:10	1
Motor Oil (>C24-C36)	ND		0.25	0.077	mg/L		09/26/17 13:13	09/26/17 19:10	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	81		43 - 119				09/26/17 13:13	09/26/17 19:10	1
n-Decanoic Acid (Surr)	0.00006		0 - 1				09/26/17 13:13	09/26/17 19:10	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

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

Lab Sample ID: LCS 580-257307/2-B
Matrix: Water
Analysis Batch: 257364

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257307

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.43		mg/L		72	59 - 112
Motor Oil (>C24-C36)	2.00	1.74		mg/L		87	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	77		43 - 119
<i>n</i> -Decanoic Acid (Surr)	0.07		0 - 1

Lab Sample ID: LCSD 580-257307/3-B
Matrix: Water
Analysis Batch: 257364

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 257307

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.27		mg/L		64	59 - 112	12	16
Motor Oil (>C24-C36)	2.00	1.54		mg/L		77	64 - 120	12	17

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	67		43 - 119
<i>n</i> -Decanoic Acid (Surr)	0.06		0 - 1

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

Client Sample ID: OUTFALL#002-092617

Lab Sample ID: 580-71583-1

Date Collected: 09/26/17 08:45

Matrix: Water

Date Received: 09/26/17 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	257337	09/26/17 19:49	TL1	TAL SEA
Total/NA	Prep	CWA_Prep			257305	09/26/17 13:09	NDB	TAL SEA
Total/NA	Analysis	625		1	257377	09/26/17 19:03	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	257293	09/26/17 14:51	TL1	TAL SEA
Total/NA	Prep	3510C			257307	09/26/17 13:13	NDB	TAL SEA
Total/NA	Cleanup	3630C			257357	09/26/17 16:17	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	257364	09/26/17 20:10	ADB	TAL SEA

Client Sample ID: TB-092617 (water)

Lab Sample ID: 580-71583-2

Date Collected: 09/26/17 00:01

Matrix: Water

Date Received: 09/26/17 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	257337	09/26/17 19:25	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	257293	09/26/17 15:23	TL1	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-02-18
California	State Program	9	2901	01-31-18
L-A-B	DoD ELAP		L2236	01-19-19
L-A-B	ISO/IEC 17025		L2236	01-19-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-17
US Fish & Wildlife	Federal		LE058448-0	10-31-18
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-18

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-71583-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-71583-1	OUTFALL#002-092617	Water	09/26/17 08:45	09/26/17 12:00
580-71583-2	TB-092617 (water)	Water	09/26/17 00:01	09/26/17 12:00

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- 3
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- 7
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- 9
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Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-71583-1

Login Number: 71583

List Number: 1

Creator: Blankinship, Tom X

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
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	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-71756-1

Client Project/Site: Chevron Edmonds Terminal

For:

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

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
10/4/2017 4:12:12 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

Job ID: 580-71756-1

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE Client: ARCADIS U.S. Inc Project: Chevron Edmonds Terminal Report Number: 580-71756-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

One sample was received on 10/3/2017 8:45 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was -0.5° C.

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. The Trip Blank was listed on the COC but no containers were received. The sample was not logged in.

Containers A-D for sample 1 did not have labels: Outfall #002-100217 (580-71756-1) Samples logged in per the COC.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample Outfall #002-100217 (580-71756-1) was analyzed for volatile organic compounds (GC-MS) in accordance with EPA Method 624. The samples were analyzed on 10/04/2017.

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

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample Outfall #002-100217 (580-71756-1) was analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA Method 625. The samples were prepared and analyzed on 10/03/2017.

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

GASOLINE RANGE ORGANICS (GRO)

Sample Outfall #002-100217 (580-71756-1) was analyzed for gasoline range organics (GRO) in accordance with Method NWTPH-Gx. The samples were analyzed on 10/03/2017.

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

DIESEL AND MOTOR OIL RANGE ORGANICS

Sample Outfall #002-100217 (580-71756-1) was analyzed for diesel and motor oil range organics in accordance with Method

Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

Job ID: 580-71756-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

NWTPH-Dx. The samples were prepared and analyzed on 10/03/2017.

Continuing calibration verification (CCV) recovered below %D control limits for o-Terphenyl surrogate. However, the CCV and all associated samples recovered within %R control limits; therefore, the data are qualified and reported.

A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: The time between CCVs exceeded the 12 hour limit required by the SOP. However, this CCV window and the number of injections between CCVs (10) meet the NWTPH-DX method requirements.

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



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

Qualifiers

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.

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
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

Client Sample ID: Outfall #002-100217

Lab Sample ID: 580-71756-1

Date Collected: 10/02/17 12:15

Matrix: Water

Date Received: 10/03/17 08:45

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			10/04/17 13:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	107		74 - 123					10/04/17 13:59	1
Toluene-d8 (Surr)	99		79 - 122					10/04/17 13:59	1
4-Bromofluorobenzene (Surr)	101		78 - 119					10/04/17 13:59	1
Dibromofluoromethane (Surr)	106		70 - 120					10/04/17 13:59	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 120					10/04/17 13:59	1

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		3.0	0.020	ug/L		10/03/17 10:10	10/03/17 18:27	1
Chrysene	ND		0.59	0.0099	ug/L		10/03/17 10:10	10/03/17 18:27	1
Benzo[a]pyrene	ND		0.99	0.020	ug/L		10/03/17 10:10	10/03/17 18:27	1
Indeno[1,2,3-cd]pyrene	ND		0.99	0.049	ug/L		10/03/17 10:10	10/03/17 18:27	1
Dibenz(a,h)anthracene	ND		0.59	0.020	ug/L		10/03/17 10:10	10/03/17 18:27	1
Benzo[k]fluoranthene	ND		0.99	0.020	ug/L		10/03/17 10:10	10/03/17 18:27	1
Benzo[b]fluoranthene	ND		0.99	0.049	ug/L		10/03/17 10:10	10/03/17 18:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	84		60 - 135				10/03/17 10:10	10/03/17 18:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			10/03/17 12:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		58 - 133					10/03/17 12:19	1
Trifluorotoluene (Surr)	113		77 - 128					10/03/17 12:19	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.10	0.019	mg/L		10/03/17 10:15	10/03/17 20:26	1
Motor Oil (>C24-C36)	ND		0.25	0.078	mg/L		10/03/17 10:15	10/03/17 20:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	67		43 - 119				10/03/17 10:15	10/03/17 20:26	1
n-Decanoic Acid (Surr)	0.0001		0 - 1				10/03/17 10:15	10/03/17 20:26	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-258049/5
Matrix: Water
Analysis Batch: 258049

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0	0.42	ug/L			10/04/17 12:37	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	106		74 - 123		10/04/17 12:37	1
Toluene-d8 (Surr)	101		79 - 122		10/04/17 12:37	1
4-Bromofluorobenzene (Surr)	103		78 - 119		10/04/17 12:37	1
Dibromofluoromethane (Surr)	106		70 - 120		10/04/17 12:37	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120		10/04/17 12:37	1

Lab Sample ID: LCS 580-258049/6
Matrix: Water
Analysis Batch: 258049

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.4		ug/L		104	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	107		74 - 123
Toluene-d8 (Surr)	98		79 - 122
4-Bromofluorobenzene (Surr)	105		78 - 119
Dibromofluoromethane (Surr)	112		70 - 120
1,2-Dichloroethane-d4 (Surr)	102		70 - 120

Lab Sample ID: LCSD 580-258049/7
Matrix: Water
Analysis Batch: 258049

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	10.0	10.1		ug/L		101	37 - 151	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	108		74 - 123
Toluene-d8 (Surr)	99		79 - 122
4-Bromofluorobenzene (Surr)	99		78 - 119
Dibromofluoromethane (Surr)	106		70 - 120
1,2-Dichloroethane-d4 (Surr)	102		70 - 120

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-257888/1-A
Matrix: Water
Analysis Batch: 257956

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		3.0	0.020	ug/L		10/03/17 10:10	10/03/17 16:23	1
Chrysene	ND		0.60	0.010	ug/L		10/03/17 10:10	10/03/17 16:23	1
Benzo[a]pyrene	ND		1.0	0.020	ug/L		10/03/17 10:10	10/03/17 16:23	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-257888/1-A
Matrix: Water
Analysis Batch: 257956

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		1.0	0.050	ug/L		10/03/17 10:10	10/03/17 16:23	1
Dibenz(a,h)anthracene	ND		0.60	0.020	ug/L		10/03/17 10:10	10/03/17 16:23	1
Benzo[k]fluoranthene	ND		1.0	0.020	ug/L		10/03/17 10:10	10/03/17 16:23	1
Benzo[b]fluoranthene	ND		1.0	0.050	ug/L		10/03/17 10:10	10/03/17 16:23	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	92		60 - 135				10/03/17 10:10	10/03/17 16:23	1

Lab Sample ID: LCS 580-257888/2-A
Matrix: Water
Analysis Batch: 257956

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	2.00	1.77	J	ug/L		88	33 - 143
Chrysene	2.00	1.72		ug/L		86	17 - 168
Benzo[a]pyrene	2.00	1.90		ug/L		95	17 - 163
Indeno[1,2,3-cd]pyrene	2.00	1.75		ug/L		87	1 - 171
Dibenz(a,h)anthracene	2.00	1.96		ug/L		98	1 - 227
Benzo[k]fluoranthene	2.00	1.81		ug/L		90	11 - 162
Benzo[b]fluoranthene	2.00	1.87		ug/L		93	24 - 159
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	83		60 - 135				

Lab Sample ID: LCSD 580-257888/3-A
Matrix: Water
Analysis Batch: 257956

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 257888

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	2.00	1.82	J	ug/L		91	33 - 143	3	50
Chrysene	2.00	1.78		ug/L		89	17 - 168	4	50
Benzo[a]pyrene	2.00	1.94		ug/L		97	17 - 163	2	50
Indeno[1,2,3-cd]pyrene	2.00	1.86		ug/L		93	1 - 171	6	50
Dibenz(a,h)anthracene	2.00	2.03		ug/L		102	1 - 227	4	50
Benzo[k]fluoranthene	2.00	1.77		ug/L		89	11 - 162	2	50
Benzo[b]fluoranthene	2.00	2.02		ug/L		101	24 - 159	8	50
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	86		60 - 135						

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

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

Lab Sample ID: MB 580-257895/6
Matrix: Water
Analysis Batch: 257895

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.050	mg/L			10/03/17 10:12	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		58 - 133					10/03/17 10:12	1
Trifluorotoluene (Surr)	104		77 - 128					10/03/17 10:12	1

Lab Sample ID: LCS 580-257895/7
Matrix: Water
Analysis Batch: 257895

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.892		mg/L		89	79 - 110
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	99		58 - 133				
Trifluorotoluene (Surr)	101		77 - 128				

Lab Sample ID: LCSD 580-257895/8
Matrix: Water
Analysis Batch: 257895

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
Gasoline	1.00	0.879		mg/L		88	79 - 110	2	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		58 - 133						
Trifluorotoluene (Surr)	98		77 - 128						

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-257890/1-B
Matrix: Water
Analysis Batch: 257985

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257890

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.10	0.019	mg/L		10/03/17 10:15	10/03/17 19:24	1
Motor Oil (>C24-C36)	ND		0.25	0.077	mg/L		10/03/17 10:15	10/03/17 19:24	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	76		43 - 119				10/03/17 10:15	10/03/17 19:24	1
n-Decanoic Acid (Surr)	0.00004		0 - 1				10/03/17 10:15	10/03/17 19:24	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

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

Lab Sample ID: LCS 580-257890/2-B
Matrix: Water
Analysis Batch: 257985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257890

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.36		mg/L		68	59 - 112
Motor Oil (>C24-C36)	2.00	1.63		mg/L		81	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	70		43 - 119
<i>n</i> -Decanoic Acid (Surr)	0		0 - 1

Lab Sample ID: LCSD 580-257890/3-B
Matrix: Water
Analysis Batch: 257985

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 257890

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.34		mg/L		67	59 - 112	2	16
Motor Oil (>C24-C36)	2.00	1.61		mg/L		81	64 - 120	1	17

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	72		43 - 119
<i>n</i> -Decanoic Acid (Surr)	0		0 - 1

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

Client Sample ID: Outfall #002-100217

Lab Sample ID: 580-71756-1

Date Collected: 10/02/17 12:15

Matrix: Water

Date Received: 10/03/17 08:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	258049	10/04/17 13:59	IWH	TAL SEA
Total/NA	Prep	CWA_Prep			257888	10/03/17 10:10	MRG	TAL SEA
Total/NA	Analysis	625		1	257956	10/03/17 18:27	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	257895	10/03/17 12:19	RSB	TAL SEA
Total/NA	Prep	3510C			257890	10/03/17 10:15	MRG	TAL SEA
Total/NA	Cleanup	3630C			257963	10/03/17 15:41	JWL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	257985	10/03/17 20:26	ADB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-02-18
California	State Program	9	2901	01-31-18
L-A-B	DoD ELAP		L2236	01-19-19
L-A-B	ISO/IEC 17025		L2236	01-19-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-17
US Fish & Wildlife	Federal		LE058448-0	10-31-18
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-18

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-71756-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-71756-1	Outfall #002-100217	Water	10/02/17 12:15	10/03/17 08:45

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-71756-1

Login Number: 71756

List Source: TestAmerica Seattle

List Number: 1

Creator: Ponce-McDermott, Monica

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	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.	False	Refer to Job Narrative for details.
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	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



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