SITE SUMMARY REPORT

Former Unocal Bulk Plant No. 306563
101 Northwest Coveland Street
Coupeville, Washington

February 27, 2013

Prepared for:
Washington State Department of Ecology
Toxics Cleanup Program
3190 160th Ave Southeast
Bellevue, WA 98008

On Behalf of:
Chevron Environmental Management Company
6101 Bollinger Canyon Road
San Ramon, California 94583

Prepared by:
Science Applications International Corporation
18912 North Creek Parkway, Suite 101
Bothell, WA 98011

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SITE SUMMARY REPORT

1.0 INTRODUCTION

This site summary report is being submitted by SAIC Energy, Environment & Infrastructure, LLC (SAIC) on behalf of Chevron Environmental Management Company (CEMC) to the Washington State Department of Ecology (Ecology). This report summarizes the findings of previous investigations and remedial activities that were performed at the former Unocal Bulk Plant No. 306563 located in Coupeville, Washington, hereafter referred to as the Site. This report is being submitted to Ecology concurrent with an application for enrollment of the Site in the Ecology Voluntary Cleanup Program (VCP).

2.0 SITE DESCRIPTION AND BACKGROUND

The property is located just west of the main residential and retail business district of the Town of Coupeville, Washington. The former Unocal Bulk Plant was constructed in 1927. During operations, the bulk plant contained five aboveground storage tanks (ASTs), three underground storage tanks (USTs), aboveground fuel lines, a loading rack, warehouse, office, garage, and drum storage area (Figure 2). In December 2004, the property was sold to DRM Properties, LLC, who began redevelopment activities. In 2005, the property was divided into two tax parcels, Parcel A and Parcel B (Figure 1). Parcel A, the northern parcel, is a fully developed retail property with a single story retail shop and a restaurant. Parcel B, the southern parcel, is a residential property that consists of a primary residence, garage, and "mother-in-law" apartment. There are no future plans to change the current land use.

The Site is fully landscaped with a paved parking area, sidewalks, garden landscaping, and a gazebo. The property is surrounded by a public library to the south, residential properties to the east and northeast, a park to the north, and a commercial auto repair shop and fuel island to the west. Penn Cove is located approximately 450 feet to the north of the site.

2.1 SITE GEOLOGY

The Site is underlain by glacial till that consists of gravelly, silty sand to gravelly, sandy, clayey silt from the ground surface to approximately 100 feet below ground surface (bgs). Permeable sand and gravel lenses are present within the upper portion of the glacial till between 20 and 40 feet bgs. Underlying the till is advanced outwash that consists of stratified sand and gravel interbedded with layers of silt and clay.

2.2 SITE HYDROGEOLOGY

Two distinct aquifers have been identified beneath the Site, a shallow perched aquifer and a deep confined aquifer. The shallow perched aquifer exists within the permeable sand and gravel lenses in the upper portions of the glacial till. All historical and existing monitoring wells, except one (PW-1), at the Site were screened within this perched aquifer. The Town of Coupeville's Water Supply Well No. 1 is screened within the deeper, confined aquifer. Well No. 1 is approximately 250 feet north-northeast of the Site. Groundwater in the upper aquifer flows toward the north and is present between 19 and 30 feet bgs. Groundwater in the deeper, confined aquifer is present at approximately 120 to 140 feet bgs within the advanced outwash.

In 1995, aquifer testing was conducted within monitoring well PW-1 (Figure 2). Well PW-1 was completed as a 7-inch diameter casing to a depth of 131 feet within the deeper, confined aquifer.

Aquifer testing was conducted in order determine if petroleum impacts from the former bulk plant could migrate into the lower confined aquifer and to investigate the relationship between the upper and lower aquifers. A constant rate pumping test was performed in well PW-1 at 75 gallons per minute (gpm) for 8 hours. Groundwater measurements were recorded in monitoring wells MW-5, MW-6, MW-8, MW-10, MW-11, and within the Town of Coupeville Well No. 1. In addition, the influence of tidal fluctuations was investigated in both aquifers.

Near steady-state conditions were met in wells PW-1 and Well No. 1 after 100 minutes of constant pumping. Total water level drawdowns of approximately 6.5 feet and 2.8 feet were observed in wells PW-1 and Well No. 1, respectively. Tidally induced fluctuations were observed in wells PW-1 and Well No. 1, and tidal fluctuations indicate that the lower, confined aquifer is likely in hydraulic continuity with Penn Cove. Water level drawdowns and tidal influence were not observed in the monitoring wells screened within the upper aquifer, which indicate that the lower, confined aquifer is not in hydraulic continuity with the upper, perched aquifer (GeoEngineers 1995).

2.3 SITE HISTORY

Site investigations have been conducted since 1989 and have identified petroleum hydrocarbon impacts in soil and groundwater (Table 1 through Table 5). Between 1982 and 1995, all underground and aboveground facilities including USTs, ASTs, pumps, loading racks, slabs, fuel lines, and buildings were removed. Thirteen monitoring wells were installed on the property for monitoring and sampling activities. Remedial activities removed and remediated approximately 1,400 cubic yards via aeration and land farming. By 1998, only two monitoring wells continued to be sampled, MW-5 and MW-9. Monitoring wells that contained petroleum hydrocarbon concentrations below Model Toxics Control Act (MTCA) Method A cleanup levels were discontinued from the sampling program and abandoned (Table 5). In addition, any monitoring wells located within excavation footprints were abandoned (GeoEngineers 1989, 1990, 1992, 1993, and 1995).

In 1998, soil samples were collected from two test pits (Tables 2 through 4). TP-1 was located in the vicinity of the former loading rack, and TP-2 was located in the vicinity of monitoring well MW-5 (Figure 2). Soil samples were collected from these test pits, and a site-specific MTCA Method B cleanup level of 3,666 milligrams per kilogram (mg/kg) was calculated for residual total petroleum hydrocarbons (TPH) in soil. All residual TPH concentrations were below the site-specific Method B cleanup level, and the conclusion was that the residual soil impacts do not pose a risk to human health by direct contact (GeoEngineers 1998). However, dissolved-phase hydrocarbons were still detected at concentrations exceeding cleanup levels in monitoring well MW-5.

In January 2005, prior to redevelopment, a site investigation was completed to further characterize the extent of residual petroleum impacted soil and investigate the source for groundwater impacts observed in monitoring well MW-5. Soil samples were collected from 13 soil borings in the vicinity of the former loading rack and monitoring well MW-5 (ENSR 2005). Subsequent to the soil borings, approximately 589 tons of impacted soil was excavated and removed from depths up to 26 feet bgs in the vicinity of the former loading rack. Following the completion of the soil excavation, air-sparge piping was installed in order to remediate the impacted groundwater at the base of the excavation (ENSR 2007). The air-sparge system

operated until 2007. The locations of the soil borings, excavations, and air-sparge points are on Figure 2.

In late September 2010, four vapor points (VP-1 through VP-4) were installed and sampled in order to investigate soil vapors beneath the current residential housing, which is located in the vicinity of the former ASTs (Figure 1). The soil vapor samples collected detected concentrations of gasoline-range hydrocarbons, benzene, toluene, ethylbenzene, and xylene (BTEX) (Table 6). The soil vapor analytical data were entered into the Johnson and Ettinger (J&E) model using conservative inputs. The J&E model results indicate that incremental carcinogenic risk from vapor intrusion to indoor air is insignificant for occupants living in the current residential housing (Appendix A).

In May and June 2011, ten soil borings (SB-9 through SB-18) were advanced using a hand auger and a geoprobe drill rig (Figure 1). These borings were completed in order to investigate the source for the gasoline-range hydrocarbons and BTEX detected in the soil vapor points and to fill data gaps in the vicinity of the former ASTs. Analytical results indicate that gasoline-range hydrocarbon concentrations greater than the MTCA Method A cleanup level were detected in two (SB-10 and SB-11) of the ten soil borings (Table 2). The maximum detected gasoline-range hydrocarbon concentration was 890 mg/kg in boring SB-11 at 5 feet bgs (SAIC 2011). In June 2011, a soil sample was collected (SB-11-5-062911) within a foot of the original location of soil boring SB-11 in order to calculate a site specific MTCA Method B cleanup level for total petroleum hydrocarbons. In addition, an extra soil boring SB-18 was completed approximately 5 feet to the north of soil boring SB-11.

3.0 CLEANUP LEVELS

The remedial investigations conducted at the former Unocal bulk plant included sampling and laboratory analysis for a number of chemicals in the following media: soil, groundwater, and soil vapor. As a screening tool to define the nature and extent of site impacts, chemical analytical results are compared to Method B cleanup levels for soil, MTCA Method A cleanup levels for groundwater (WAC 173-340-900), and MTCA Method B ambient air standards for soil vapor (WAC 173-340-750). The following sections discuss how the cleanup levels were determined for the Site.

3.1 SOIL CLEANUP LEVELS

Under WAC 173-340-740(1), MTCA states that cleanup levels shall be based on the reasonable maximum exposure to occur during both current and future land uses. The potential contaminants of concern at the Site are limited to petroleum products and the property owner is unwilling to accept any form of deed restriction; therefore, a No Further Action (NFA) determination for an unrestricted land use is the end goal. For these reasons, the selection of a Method B unrestricted soil cleanup level is appropriate.

Cleanup levels based on an unrestricted land use soil direct contact exposure pathway were developed for this site using the Ecology Workbook for Calculating Cleanup Levels for Petroleum Contaminated sites (MTCATPH Version No. 11.1) along with analytical data from soil samples collected at the Site and the Ecology CLARC database (https://fortress.wa.gov/ecy/clarc/). These cleanup levels are listed below.

Soil - Unrestricted Land Uses (mg/kg)			
Hazardous Substance	MTCA Method A	Direct Contact MTCA Method B	MTCA Method B Protection of Groundwater
TPH-Gas	30	2,829 Calculated for Total TPH	N/A
TPH-Diesel	2,000		
TPH-Oil	2,000		
Benzene	0.03	18	N/A
Toluene	7	6,400	N/A
Ethylbenzene	6	8,000	N/A
Total Xylenes	9	16,000	N/A

A direct contact, site-specific Method B cleanup level for TPH of 2,829 mg/kg was calculated for soil. See Appendix B for MTCA Method B calculations for TPH. MTCA Method B cleanup levels for BTEX were derived from the Ecology CLARC database. In addition, the Ecology MTCATPH Version No. 11.1 spreadsheet ran the soil samples for protection of groundwater. The model results indicate that a soil leaching to groundwater is not a critical pathway (Appendix B).

3.2 GROUNDWATER CLEANUP LEVELS

Groundwater cleanup levels are to be based on estimates of the highest beneficial use. Under MTCA 173-340-720, drinking water is the beneficial use requiring the highest groundwater quality. Even though the groundwater present in the perched aquifer is not likely to be used as a source of potable water, groundwater results are compared to Method A cleanup levels in Table 5.

4.0 NATURE AND EXTENT OF PETROLEUM IMPACTS

4.1 SOIL

Remedial investigations occurred throughout the property with the completion of thirty-seven soil borings and thirteen monitoring wells between 1989 and 2011. Remediation activities conducted between 1989 and 2007 included the removal of impacted soil through excavations in the vicinity of the former drum storage area, warehouse and office building, heating oil UST, loading rack, above ground fuel lines, former 6,000-gallon diesel UST, and air-sparge system (Figure 2). These excavations removed soil at depths ranging from ground surface to approximately 26 feet bgs.

Some residual petroleum hydrocarbons in soil remain beneath the Site in the vicinity of the former ASTs at depths from 5 to 10 feet bgs and the loading racks at depths greater than 26 feet bgs. However, only one soil sample (252SL(26)030705) contained a TPH concentration greater than the Method B direct-contact cleanup level of 2,829 mg/kg (Table 2). This sample location was subsequently treated via air-sparging.

4.2 GROUNDWATER

As of June 2011, groundwater monitoring and sampling is only conducted on well MW-5, which is located in Parcel A. Monitoring well MW-9, located on Parcel B, has been removed from the sampling program due to four or more consecutive quarters of groundwater analytical results below MTCA Method A cleanup levels. In addition, analytical data from down gradient monitoring wells MW-12 and MW-13, which were located across Coveland Street to the north of well MW-5, indicate that groundwater impacts never extended off property or to Penn Cove (Figure 3).

Hydrographs, included in Appendix C, depict declining benzene, gasoline-, and diesel-range hydrocarbon concentrations since the completion of the remedial activities. In addition, analytical results from monitoring well MW-5 indicate that dissolved-phase hydrocarbons have been detected at concentrations below their respective MTCA Method A cleanup levels for four consecutive quarters (Table 5).

4.3 SOIL VAPOR

Analytical data from the October 2010 vapor sampling event was used as inputs for vapor intrusion modeling to determine the predicted incremental risk to occupants inside the current residential building. A conservative approach was taken by using residential slab-on-grade values for floor thickness, indoor air exchange rate, and average vapor flow rate in to the building. The default floor-wall seam crack width for residential-slab-on-grade of 0.0038 centimeters (cm) was not used; instead, a conservative value of 375 cm was used as an input. These inputs yielded conservative results for risk modeling. The modeling also assumes that the soils beneath the proposed building are continuously impacted at the highest level of soil vapor concentrations detected onsite, across the entire footprint of the residential dwelling. In actuality, the vapor points were installed outside of the building footprint adjacent to the north and within the footprint of the former ASTs. The majority of the building was constructed outside of the former AST footprints and upgradient. In addition, the residential building is actually over 20 feet in height and is not slab-on-grade but constructed with a crawl space. An exposure frequency of 350 days a year over 70 years were used as model inputs for exposure duration and averaging times for carcinogens and non-carcinogens.

Incremental risks to human health for carcinogens and non-carcinogens from vapor intrusion to indoor air were calculated using the J&E model. The highest detection of benzene detected in soil vapor from the four vapor points was used. Even with the above conservative inputs, the J&E model results show that incremental carcinogenic risk from vapor intrusion to indoor air is insignificant for occupants living in the current residential housing. Soil vapor sampling results are included in Table 6 and copies of the J&E model inputs are included in Appendix A.

4.4 TERRESTRIAL ECOLOGICAL EVALUATION

Under MTCA, exposure of terrestrial organisms to impacted soils must be evaluated by performing a Terrestrial Ecological Evaluation (TEE) as described in WAC 173-340-7491. This evaluation involves examination of the nature of potential ecological receptors, the toxicity of soil contaminants to terrestrial organisms, and the presence and nature of exposure pathways. A simplified TEE was completed for the Site using WAC 173-340-7492, Table 749-1.

Table 749-1

Estimate the area of contiguous (connected) undeveloped land on the site or within 500 feet of any area of the site to the nearest ½ acre (1/4 acre if the area is less than 0.5 acre).	
1) From the table below, find the number of points corresponding to the area and enter this number in the field to the right.	
Area (acres) / Points 0.25 or less / 4 0.5 / 5 1.0 / 6 1.5 / 7 2.0 / 8 2.5 / 9 3.0 / 10 3.5 / 11 4.0 or more / 12	4
2) Is this an industrial or commercial property? If yes, enter a score of 3. If no, enter a score of 1	3
3) Enter a score in the box to the right for the habitat quality of the site, using the following rating system. High=1, Intermediate=2, Low=3	2
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2.	1
5) Are there any of the following soil contaminants present: Chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.	4
6) Add the numbers in the boxes on lines 2-5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified evaluation may be ended.	10

Based on the results of Table 749-1 the TEE can be ended at this point; the Site does not pose a threat of adverse effects to terrestrial ecological receptors.

In addition, under MTCA WAC 173-340-7490, the point of compliance for the biologically active zone is between the ground surface and six feet bgs for contaminants and their respective cleanup levels listed in Table 749-2. The Site may be excluded from a TEE if the total area of soil impacts at the Site are not more than 350 square feet (WAC 173-340-7492(2)(a)(i)).

Only one isolated soil sample, SB-11-5, exceeds the cleanup levels for contaminants of ecological concern in Table 749-2 (WAC 173-340-900). Soil sample SB-11-5 contained gasoline- and diesel-range concentrations at 890 and 810 mg/kg, respectively. SB-11-5 is bounded to the north, east, and southeast by samples that contain petroleum hydrocarbon concentrations below the cleanup levels for contaminants of ecological concern (Figure 1 and Table 2).

The site has met the requirements and can be excluded from a TEE due results in Table 749-1 and because the area that exceeds the contaminants of ecological concern cleanup levels is less than 350 square feet.

5.0 EXPOSURE PATHWAYS AND POTENTIAL RECEPTORS

Impacted media at the Site includes soil and groundwater. MTCA WAC 173-340-200 defines an exposure pathway as "the path a hazardous substance takes or could take from a source to an exposed organism." The Site history indicates that primary sources of soil and groundwater impacts were from discharges of petroleum products to surface or subsurface soils via leaks and/or spills during the bulk plant activities. Current groundwater impacts are limited to the area in the vicinity of monitoring well MW-5 (Figure 3).

5.1 EXPOSURE PATHWAYS AND POTENTIAL RECEPTORS – SOIL

Soil impacts are present between 5 and 28 feet bgs. This creates a potential for dermal contact and inhalation and/or ingestion of soil particulates, and for inhalation of soil vapor by building occupants. Populations likely to be exposed via dermal contact and inhalation and/or ingestion to petroleum impacts in soil at depths between ground surface and 15 feet bgs include site workers engaged in site redevelopment, utility installation or repairs, and environmental-related investigations or remediation activities. All soil impacts within the 15-foot point of compliance are at TPH concentrations below the MTCA Method B direct-contact cleanup level, and J&E model results indicate that there is no risk to indoor air to occupants. Therefore, the pathway is eliminated for soil impacts via dermal contact and inhalation and/or ingestion of soil particulates and inhalation of soil vapor.

Soil leaching to groundwater is a potential exposure pathway due to the presence of soil impacts between 5 and 28 feet bgs. Historical reports indicate that a shallow, perched aquifer is present between 9 and 30 feet within permeable sand and gravel lenses, and a deep, confined aquifer is present between 120 and 140 feet bgs. The Town of Coupeville Well No. 1 is screened within the deep, confined aquifer. Soil leaching to groundwater has occurred in the shallow perched aquifer and impacts are observed at concentrations below MTCA Method A cleanup levels in monitoring well MW-5. However, aquifer tests confirm that the lower confined aquifer is not in hydraulic continuity with the upper, perched aquifer. Therefore, soil leaching to the deeper aquifer is not likely and the soil leaching pathway to the confined aquifer is eliminated.

5.2 EXPOSURE PATHWAYS AND POTETENTIAL RECEPTORS – GROUNDWATER

The potential exists for populations to be exposed via dermal contact and inhalation and/or ingestion to impacted groundwater. This pathway is unlikely due to the current land use, impacts present at concentrations below their respective MTCA Method A cleanup levels, groundwater present at a depth below 15 feet bgs, and the fact that the Town of Coupeville's supplemental

water supply comes from a deeper aquifer that is not in hydraulic continuity with the upper, perched aquifer (Section 2.2). In addition, the December 2012 monitoring and sampling event resulted in four consecutive quarters of concentrations below their respective MTCA Method A cleanup levels (Table 5). Therefore, groundwater impacts are not likely to affect casual site visitors or biological receptors, and the potential exposure of humans to impacted groundwater from the Site can be eliminated.

6.0 SUMMARY

Soil analytical data from site assessment activities in the vicinity of the former ASTs were used to derive a site specific MTCA Method B cleanup level of 2,829 mg/kg for direct contact of residual TPH in soil.

Soil containing total TPH concentrations in exceedance of the MTCA Method B direct-contact cleanup levels was removed during numerous excavations between 1989 and 2005. Only one remaining soil sample, 252SL(26)030705, contains TPH in exceedance of the Method B cleanup level (Table 2). However, this sample was collected at a depth of 26 feet bgs, which is below the standard 15-foot point of compliance.

Recent site activities were conducted to investigate soil impacts and soil vapor on Parcel B within the vicinity of the former ASTs. Analytical results indicate that no analytes were detected at concentrations exceeding MTCA Method B cleanup levels. In addition, soil vapors are not likely to enter the current residential building at concentrations that would pose a risk to building occupants.

Dissolved-phase hydrocarbons across the entire property have declined since the completion of remedial activities. Hydrographs depict declining gasoline-range hydrocarbon concentrations that have decreased to concentrations below MTCA Method A cleanup levels. Groundwater analytical data from the last four consecutive sampling events indicate that all analytes are at concentrations below their respective MTCA Method A cleanup levels in monitoring well MW-5.

Residual petroleum hydrocarbons in soil and dissolved phase hydrocarbons in groundwater beneath the Site (Parcel A and Parcel B) no longer pose a risk to human health by dermal contact and inhalation and/or ingestion. Therefore, Chevron requests a No Further Action determination letter.

7.0 REFERENCES

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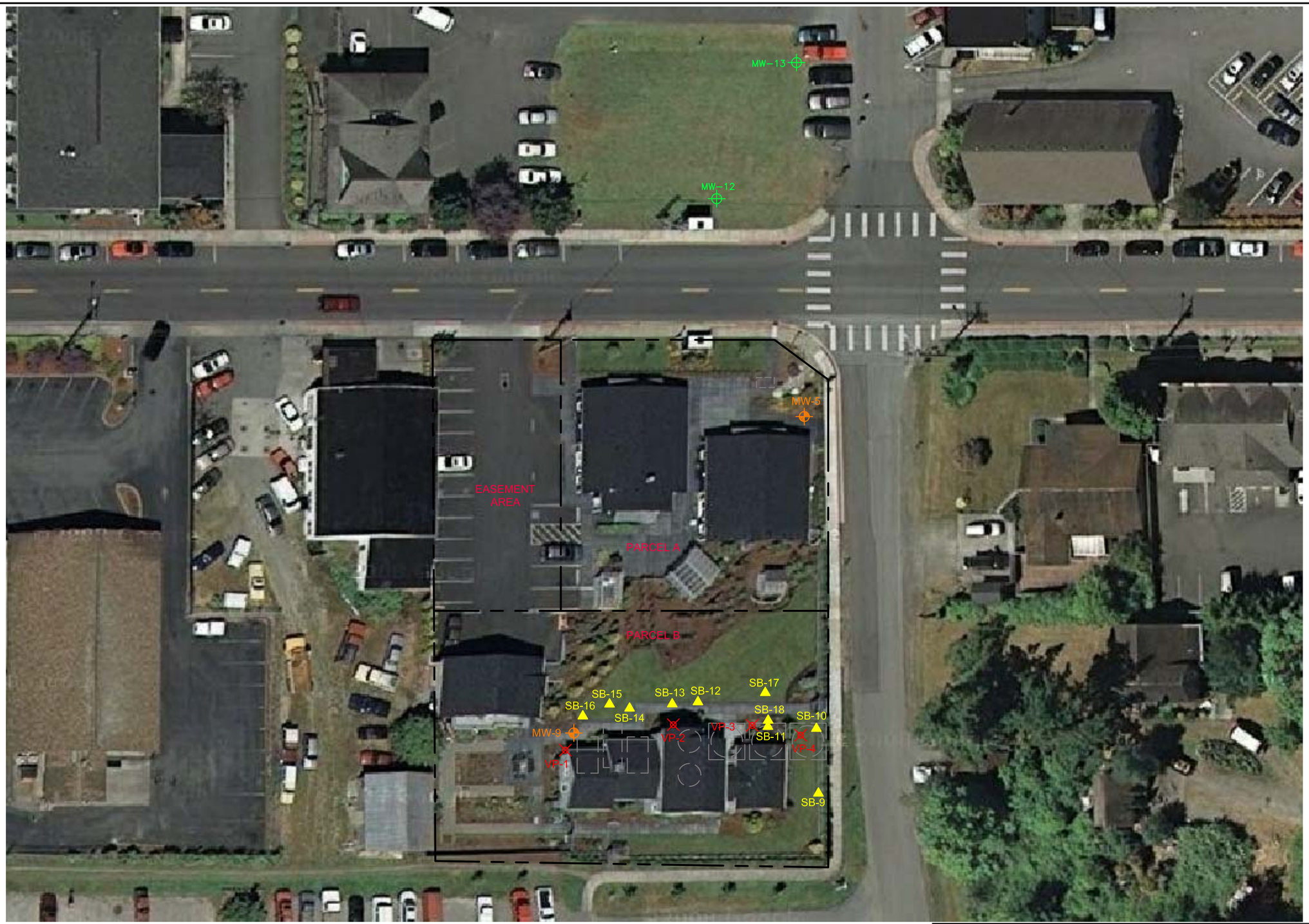
Figures



N

0 20 40

Feet

LEGEND:

- SB-9 — 2011 Soil Boring Location
- MW-5 — Monitoring Well Location
- MW-1 — Abandoned Monitoring Well Location
- VP-1 — 2010 Vapor Point Location
- Former ASTs and USTs
- Site Boundary

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Former Unocal Bulk Plant/
Chevron Facility No. 306563
101 NW Coveland Street
Coupeville, Washington

FIGURE 1
Site Map

DATE: 09/09/2011 | DRAWING: 306563 2011 Site Map.dwg

Coveland Street

1990 Remedial Excavation (4' Depth)

910702-1

910422-1

1991 Remedial Excavation (10' Depth)

910702-2

910702-4

Former Warehouse (Removed 03/91)

Former Office (Removed 03/91)

900927-4

B1

Former 550 Gallon Heating Oil UST (Removed 08/90)

Parking Lot

Retail/Apartment Building

TP-2 (1998)

910419-1

HA-7

910702-3

910702-13

910307-3

MW-5

1990 Remedial Excavation (4' Depth)

910702-7

910702-5

HA-5

HA-4

HA-3

HA-2

HA-1

910702-9

910702-10

Former Platform (Removed 03/91)

1991 Remedial Excavation (8' Depth)

910419-3

910419-4

910702-15

910702-6

910306-5

910702-8

MW-2

HA-6

910702-14

A-2

910702-12

910702-11

1990 Remedial Excavation (4' Depth)

910419-2

Retail Building

MW-1

B-1

Former Loading Rack Slab (Removed 03/91)

252 PL(3)

1990 Excavation (4' Depth)

Former Drum Storage Area

A-1

MW-11

MW-6

1991 Remedial Excavation (10' Depth)

B11

MW-3

TP-1 (1998)

910306-4

910306-3

910306-1

B4

B10

B3

HA-1 (1999)

To Sewer

MW-10

MW-4

910306-5

Former Air Sparge Shed

Former Aboveground Fuel Lines (Removed 11/92)

B8

B9

910306-2

B5

B7

B2

B6

Former Sump

A-4

Drainage Ditch

PW-1

TP-3 (1989)

252 SL(26)

A-3

B12

H1

Former Product Lines (Removed 11/92)

Garage

MW-8

SB-17

B13

SB-15

SB-13

SB-16

SB-14

SB-12

VP-2

VP-3

SB-18

SB-10

SB-11

MW-9

VP-4

VP-1

1989 Excavation

TP-2 (1989)

Earthen Firewall

Former Storage Tank (Removed 1982)

Residential Building

MW-7

SB-9

TP-1 (1989)

Former 6,000 Gallon Diesel UST (Removed 09/89)

Former Storage Tank (Removed 1982)

Former Fuel ASTs (Removed 11/92)

Alexander Street

LEGEND:

SB-9	▲ 2011 Soil Boring Location		1989-1990 Excavations
VP-1	⊗ 2010 Vapor Point Locations		1991 Excavations
	● Historical Soil Sample Location		2005 Shallow Excavation
MW-5	⊕ Monitoring Well Location		2005 Deep Excavation
MW-1	⊕ Abandoned/Destroyed Monitoring Well Location		Air Sparging System
	Former Site Features		
	Site Boundary		

N

0 20'

Feet

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Former Unocal Bulk Plant/
Chevron Facility No. 306563
101 NW Coveland Street
Coupeville, Washington

FIGURE 2
Historical Soil Sample Locations

DATE: 11/01/2011

DRAWING: 306563 2011 Site Map.dwg

N

0 20 40

Feet

LEGEND:

- MW-5 — Monitoring Well Location
- MW-1 — Abandoned Monitoring Well Location
- Former ASTs and USTs
- Site Boundary
- Approximate Groundwater Flow Direction

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Former Unocal Bulk Plant/
Chevron Facility No. 306563
101 NW Coveland Street
Coupeville, Washington

FIGURE 3
Extent of Dissolved-Phase Groundwater Plume

DATE: 2/20/2013 | DRAWING: 306563 2011 Site Map.dwg

Coveland Street

1990 Remedial Excavation (4' Depth)

910702-1

910422-1

1991 Remedial Excavation (10' Depth)

910702-2

910702-4

Former Warehouse (Removed 03/91)

Former Office (Removed 03/91)

900927-4

B1

Former 550 Gallon Heating Oil UST (Removed 08/90)

Parking Lot

Retail/Apartment Building

TP-2 (1998)

910419-1

910702-3

HA-7

910702-13

910307-3

MW-5

1990 Remedial Excavation (4' Depth)

910702-7

910702-5

HA-5

HA-4

HA-3

HA-2

HA-1

910702-9

910702-10

Former Platform (Removed 03/91)

1991 Remedial Excavation (8' Depth)

910419-3

910419-4

910702-15

910702-6

910306-5

910702-8

MW-2

HA-6

910702-14

A-2

1990 Remedial Excavation (4' Depth)

910702-12

910702-11

910419-2

Retail Building

MW-1

Former Loading Rack Slab (Removed 03/91)

B-1

1990 Excavation (4' Depth)

252 PL(3)

MW-11

Former Drum Storage Area

A-1

1991 Remedial Excavation (10' Depth)

B11

MW-6

MW-3

TP-1 (1998)

910306-4

910306-3

910306-1

B4

B10

B3

HA-1 (1999)

To Sewer

MW-10

MW-4

910306-5

B8

B9

Former Air Sparge Shed

Former Aboveground Fuel Lines (Removed 11/92)

910306-2

B5

B7

B2

B6

Former Sump

A-4

Drainage Ditch

252 SL(26)

PW-1

TP-3 (1989)

A-3

B12

H1

Former Product Lines (Removed 11/92)

Garage

SB-15

SB-13

MW-8

SB-17

B13

SB-16

SB-14

SB-12

VP-2

VP-3

SB-18

SB-10

SB-11

MW-9

VP-4

VP-1

1989 Excavation

TP-2 (1989)

Earthen Firewall

Former Storage Tank (Removed 1982)

Residential Building

MW-7

SB-9

TP-1 (1989)

Former 6,000 Gallon Diesel UST (Removed 09/89)

Former Storage Tank (Removed 1982)

Former Fuel ASTs (Removed 11/92)

Alexander Street

LEGEND:

SB-9	▲	2011 Soil Boring Location	
VP-1	⊗	2010 Vapor Point Locations	
	●	Historical Soil Sample Location	
MW-5	⊕	Monitoring Well Location	
MW-1	⊕	Abandoned/Destroyed Monitoring Well Location	
		Former Site Features	
		Site Boundary	
		1989-1990 Excavations	
		1991 Excavations	
		2005 Shallow Excavation	
		2005 Deep Excavation	
		Former Air Sparging System	
		Approximate Extent of Soil Impacts Exceeding MTCA Method B Cleanup Levels	

N

0 20'

Feet

SAIC

Former Unocal Bulk Plant/
Chevron Facility No. 306563
101 NW Coveland Street
Coupeville, Washington

FIGURE 4
Extent of Soil Impacts Exceeding MTCA Method B Cleanup Levels

DATE: 2/8/2013

DRAWING: 306563 2011 Site Map.dwg

Tables

TABLE 1
HISTORICAL SOIL ANALYTICAL RESULTS – GRO, DRO, HRO, BTEX, TPH, MTBE, AND LEAD
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
MTCA Method B Cleanup Levels			**18**	**6,400**	**8,000**	**16,000**	**--**	**--**	**--**	**2,829**	**--**	**560**
1991 Excavations												
900927-4	28	09/27/90	--	--	--	--	125	<10	--	1,642	--	--
T-1	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-2	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-3	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-4	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-5	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-6	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-7	--	11/30/90	--	--	--	--	<5	74	--	--	--	--
T-8	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
910306-1 Loading rack, west wall	6	03/06/91	--	--	--	--	--	--	--	100	--	--
910306-2 Loading rack, south wall	10	03/06/91	--	--	--	--	<5	7	--	130	--	--
910306-3 Loading rack, east wall	10	03/06/91	--	--	--	--	--	--	--	140	--	--
910306-4 Loading rack, north wall	10	03/06/91	--	--	--	--	--	--	--	330	--	--
910306-5 Loading rack, base	10	03/06/91	--	--	--	--	<5	<5	--	24	--	--
910306-6 Warehouse, north wall	6	03/06/91	--	--	--	--	<5	<5	--	39	--	--
910419-1 Warehouse, base	3	04/19/91	<0.025	0.23	1.7	2.3	--	--	--	2,000	--	--
910419-2 Warehouse, south wall	3	04/19/91	<0.025	0.54	0.53	1.7	--	--	--	250	--	--
910419-3 Warehouse, base	10	04/19/91	<0.025	<0.025	<0.025	<0.025	--	--	--	33	--	--
910422-1 Warehouse, north wall	3	04/22/91	<0.13	0.45	6.0	2.8	63	420	--	2,400	--	--
910307-3 Warehouse, east wall	9	03/07/91	--	--	--	--	<5	<5	--	74	--	--
910702-1 Warehouse, north wall	4	07/02/91	--	--	--	--	<5	<5	--	14	--	--
910702-2 Warehouse, north wall	4	07/02/91	--	--	--	--	--	--	--	33	--	--
910702-3 Warehouse, base	7	07/02/91	--	--	--	--	<5	35	--	190	--	--
910702-4 Warehouse, northeast	4	07/02/91	--	--	--	--	--	--	--	68	--	--

SAIC

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101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
MTCA Method B Cleanup Levels			**18**	**6,400**	**8,000**	**16,000**	**--**	**--**	**--**	**2,829**	**--**	**560**
910702-5 Warehouse, central	6	07/02/91	--	--	--	--	<5	12	--	190	--	--
910702-6 Warehouse, south wall	7	07/02/91	--	--	--	--	--	--	--	98	--	--
910702-7 Warehouse, north wall	5	07/02/91	--	--	--	--	<5	<5	--	40	--	--
910702-8 Warehouse, south wall	4.5	07/02/91	--	--	--	--	--	--	--	33	--	--
910702-9 Warehouse, west leg west wall	3	07/02/91	--	--	--	--	<5	6	--	75	--	--
910702-10 Warehouse, west leg base	4.5	07/02/91	--	--	--	--	--	--	--	40	--	--
910419-4 E. of office bldg, west wall	2	04/19/91	<0.025	0.25	0.50	1.7	--	--	--	1,700	--	--
910702-11 E. of office bldg, south wall	8	07/02/91	--	--	--	--	<5	<5	--	14	--	--
910702-12 E. of office bldg, west wall	7	07/02/91	--	--	--	--	--	--	--	27	--	--
910702-13 E. of office bldg, north wall	7	07/02/91	--	--	--	--	<5	<5	--	14	--	--
910702-14 E. of office bldg, east wall	5.5	07/02/91	--	--	--	--	--	--	--	80	--	--
910702-16 E. of office bldg, base	8	07/02/91	--	--	--	--	--	--	--	23	--	--
Monitoring Wells												
MW-1	3	11/06/89	<0.025	<0.025	<0.025	0.16	--	--	--	340	--	--
MW-2	3	11/08/89	<0.025	<0.025	<0.025	<0.025	--	--	--	7.1	--	--
MW-3	3	11/06/89	<0.025	<0.025	<0.025	<0.025	--	--	--	12	--	--
MW-4	20.5	11/07/89	<0.025	<0.025	<0.025	<0.025	--	--	--	580	--	--
MW-5	23	11/08/89	<0.13	<0.13	1.3	4.4	--	--	--	1,500	--	--

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Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
MTCA Method B Cleanup Levels			**18**	**6,400**	**8,000**	**16,000**	**--**	**--**	**--**	**2,829**	**--**	**560**
MW-6	28	11/8/1989	0.032	<0.025	<0.025	<0.025	--	--	--	4.6	--	--
MW-7	27	04/23/91	--	--	--	--	<5	<5	--	55	--	--
MW-8	22.5	04/23/91	--	--	--	--	<5	<5	--	68	--	--
	27.5	04/23/91	--	--	--	--	<5	<5	--	56	--	--
MW-9	27.5	04/23/91	--	--	--	--	<5	<5	--	66	--	--
MW-10	29.5	04/24/91	--	--	--	--	<5	<5	--	46	--	--
MW-11	18	04/25/91	--	--	--	--	23	<5	--	110	--	--
	28	04/25/91	--	--	--	--	27	<5	--	130	--	--
MW-12	19	05/16/91	<0.03	<7	<6	<9	<5	<5	--	63	--	--
	29	05/16/91	<0.03	<7	<6	<9	<5	<5	--	<5	--	--
MW-13	18	05/17/91	<0.03	<7	<6	<9	<5	<5	--	<5	--	--
	33	05/17/91	<0.03	<7	<6	<9	<5	<5	--	<5	--	--
Borings and Test Pits												
TP-1 (1989)	11	11/07/89	--	--	--	--	<5	<5	--	12	--	--
TP-2 (1989)	3.5	11/07/89	--	--	--	--	<5	6	--	6	--	--
TP-1-13	13	04/27/98	<0.500	<0.500	<0.500	<1.00	171	405	<25.0	576	--	--
TP-1-15	15	04/27/98	<0.100	<0.100	<0.100	<0.500	--	--	--	--	--	<1.00
TP-2-7	7	04/27/98	<0.0500	<0.0500	<0.0500	<1.000	61.6	381	26.2	469	--	--
TP-2-8	8	04/27/98	<0.100	<0.100	<0.100	<0.500	--	--	--	--	--	<1.00
A-1	0.5	02/08/99	ND	ND	ND	ND	ND	ND	--	--	16.8	--
A-2	0.8	02/08/99	ND	ND	ND	ND	ND	18.3	--	18.3	12.1	--
A-3	0.6	02/08/99	ND	ND	ND	ND	ND	16.7	--	16.7	14.8	--
A-4	0.8	02/08/99	ND	ND	ND	ND	ND	15.1	--	15.1	9.33	--
HA-1 (1999)	3.7	02/08/99	--	--	--	--	--	--	--	--	--	--
B-1	18	04/24/91	--	--	--	--	<5	<5	--	63	--	--
B2	0-4	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	4-8	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	43	--	43	--	--
	8-12	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	22	--	22	--	--
	14	12/14/04	0.79	0.46	5.3	<0.05	1,100	3,800	--	4,900	--	--
	15.5	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	55	--	55	--	--
	17	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17 (D)	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B3	2	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	3	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	5	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	9	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	15	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17 (D)	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B4	3	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	7	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	9	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	15	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	18	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--

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MTCA Method B Cleanup Levels			**18**	**6,400**	**8,000**	**16,000**	**--**	**--**	**--**	**2,829**	**--**	**560**
B5	3	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	470	--	470	--	--
	5	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	47	--	47	--	--
	9	12/14/04	<0.02	<0.05	0.60	1.6	<20	410	--	410	--	--
	15	12/14/04	<0.02	<0.05	0.33	0.64	<20	250	--	250	--	--
B6	2	12/15/04	<0.02	<0.05	<0.05	0.06	<20	150	--	150	--	--
	6.5	12/15/04	<0.02	<0.05	0.16	0.52	<20	81	--	81	--	--
	8-9.5	12/15/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	9.5-11	12/15/04	<0.02	<0.05	0.22	0.41	<20	<20	--	--	--	--
	11-12.5	12/15/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	12.5-14	12/15/04	<0.02	<0.05	0.53	0.13	<20	270	--	270	--	--
	14-15.5	12/15/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	15.5-17	12/15/04	<0.02	<0.05	2.6	23	1,500	1,600	--	**3,100**	--	--
	17-18.5	12/15/04	<0.02	<0.05	3.2	41	2,700	2,900	--	**5,600**	--	--
	18.5-20	12/15/04	<0.02	<0.05	6.7	68	680	410	--	1,090	--	--
	20-21.5	12/15/04	<0.02	<0.05	9.6	98	6,700	8,200	--	**14,900**	--	--
	21.5-23	12/15/04	<0.02	<0.05	1.1	7.4	800	600	--	1,400	--	--
	23-24.5	12/15/04	0.93	2.5	35	224	16,000	16,000	--	**32,000**	--	--
	24.5-26	12/15/04	<0.02	<0.05	3.6	26	3,100	3,400	--	**6,500**	--	--
	26-27.5	12/15/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B7	8-9.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	9.5-11	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	12.5-14	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	14-15.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	15.5-17	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17-18.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	18.5-20	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	20-21.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	21.5-23	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	23-24.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	24.5-26	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	26-27.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	27.5-29	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	29-30.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B8	2.5-4	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	7.5-9	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	12.5-14	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17.5-19	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B9	2.5-4	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	7.5-9	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	12.5-14	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17.5-19	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--

SAIC

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Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
MTCA Method B Cleanup Levels			**18**	**6,400**	**8,000**	**16,000**	**--**	**--**	**--**	**2,829**	**--**	**560**
B10	2.5-4	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	7.5-9	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	12.5-14	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17.5-19	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B11	19.5-21	01/24/05	0.0348	<0.0412	<0.0412	<0.0824	<4.12	<10	<25	--	--	<0.0824
	22.5-24	01/25/05	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10	<25	--	--	<0.100
	28.5-30	01/25/05	<0.0224	<0.0373	<0.0373	<0.0746	<3.73	<10	<25	--	--	<0.0746
B12	6-7.5	01/25/05	<0.212	<0.0354	<0.0354	<0.0708	53.4	514	<25	567.4	--	<0.0708
	28.5-30	01/25/05	<0.0233	<0.0388	<0.0388	<0.0775	<3.88	<10	<25	--	--	<0.0775
B13	13.5-15	01/26/05	<0.0231	<0.0385	<0.0385	<0.0775	<3.85	<10	<25	--	--	<0.0770
	27-28.5	01/26/05	<0.0225	<0.0376	<0.0376	<0.0751	<3.76	<10	<25	--	--	<0.0751
HA-3	1	06/02/05	<0.0300	<0.0500	<0.0500	<0.100	<5.00	11.5	<25.0	11.5	--	--
HA-4	3	06/02/05	<0.0300	<0.0500	<0.0500	<0.100	88.6	328	27.7	444	--	--
252 PL(3)030505	3	03/05/06	<0.0251	<0.0418	<0.0418	<0.0837	4.18	<10.0	<25.0	4.2	--	--
252 SL(26)030705	26	03/07/06	0.0535	<0.0391	3.02	22.8	372	2,570	<250	**2,942**	--	--
SB-9-5	5	05/06/11	<0.0024	0.0040	<0.0024	0.0091	<1.2	33	<12	33	11.1	--
SB-9-8	8	05/10/11	<0.0022	<0.0022	<0.0022	<0.0056	<1.1	<3.4	<11	--	11.5	--
SB-9-11	11	05/10/11	<0.0020	<0.0020	<0.0020	0.0063	<1.0	<3.3	<11	--	8.1	--
SB-10-4	4	05/06/11	<0.0028	<0.0028	<0.0028	0.011	<1.4	<3.4	<11	--	6.93	--
SB-10-6	6	05/06/11	<0.0030	<0.0030	0.0054	0.022	9.4	<3.4	<11	9.4	5.48	--
SB-10-9	9	05/09/11	<0.0022	<0.0022	0.0040	0.012	4.7	<3.5	<12	4.7	4.68	--
SB-10-11	11	05/09/11	<0.049	<0.049	0.19	1.1	430	<41	<140	430	7.62	--
SB-11-5	5	05/06/11	<0.026	<0.026	0.18	0.93	890	810	<140	1,700	5.35	--
SB-11-5-062911[1]	5	06/29/11	<0.029	<0.058	0.083	0.127	550	390	<58	940	--	--
SB-11-9	9	05/09/11	<0.010	0.012	<0.070	0.80	250	66	<12	316	13.9	--
SB-11-11	11	05/09/11	<0.0025	<0.0025	<0.0025	0.021	11	13	<12	24	13.9	--
SB-12-4	4	05/06/11	<0.0022	<0.0022	<0.0022	<0.0055	<1.1	<3.1	<10	--	3.60	--
SB-12-7	7	05/06/11	<0.0021	0.0025	<0.0021	<0.0053	<1.1	<3.1	<10	--	3.27	--
SB-12-10	10	05/09/11	<0.0021	<0.0021	<0.0021	0.0086	26	44	<11	70	11.2	--
SB-13-5	5	05/09/11	<0.0022	<0.0022	<0.0022	<0.0055	<1.1	<3.2	<11	--	5.2	--
SB-13-10	10	05/09/11	<0.0023	0.0049	<0.0023	0.023	6.1	<3.4	<11	6.1	12.2	--
SB-14-5	5	05/09/11	<0.0021	<0.0021	<0.0021	<0.0052	<1.0	5.5	<11	5.5	5.4	--
SB-14-10	10	05/09/11	<0.0022	<0.0022	<0.0022	0.0061	<1.1	3.9	<12	3.9	15.8	--
SB-15-5	5	05/09/11	<0.0022	<0.0022	<0.0022	<0.0056	<1.1	<3.6	<12	--	16.0	--
SB-15-9	9	05/10/11	<0.0025	<0.0025	<0.0025	<0.0062	<1.2	<3.5	<12	--	14.6	--
SB-16-5	5	05/10/11	<0.0024	0.0037	<0.0024	<0.0060	<1.2	42	13	42	12.7	--

TABLE 1
HISTORICAL SOIL ANALYTICAL RESULTS – GRO, DRO, HRO, BTEX, TPH, MTBE, AND LEAD
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
MTCA Method B Cleanup Levels			**18**	**6,400**	**8,000**	**16,000**	**--**	**--**	**--**	**2,829**	**--**	**560**
SB-17-5	5	05/10/11	<0.023	0.036	<0.023	0.15	<12	61	<12	61	16.8	--
SB-17-6	6	05/10/11	<0.0026	0.0075	<0.0026	<0.0064	<1.3	4.4	<11	4.4	10.7	--
SB-17-9	9	05/10/11	<0.0021	<0.0021	0.0030	0.014	45	18	<11	63	12.0	--
SB-18-5	5	06/29/11	<0.062	<0.062	<0.062	<0.19	<12	100	<13	100	--	--
			B	**T**	**E**	**X**	**TPH-GRO**	**TPH-DRO**	**TPH-HRO**	**TPH**	**LEAD**	**MTBE**
MTCA Method B Cleanup Levels			**18**	**6,400**	**8,000**	**16,000**	**--**	**--**	**--**	**2,829**	**--**	**560**
MTCA Method A Cleanup Levels			0.03	7	3	6	30/100	2,000	2,000	--	250	0.1

EXPLANATIONS

< = Analyte is not detected at or above the laboratory reporting limit. The laboratory reporting limit is listed.
Bolding indicates a contaminant cancentration detected above the MTCA Method B cleanup level.
Italics indicates soil with petroleum hydrocarbon impacts above the Method B cleanup level but have been removed via excavation activities.

BTEX = Benzene, toluene, ethylbenzene, and total xylenes
CULs = Cleanup levels
D = Duplicate Sample
(ft.) = Feet
MTBE = Methyl Tertiary Butyl Ether
MTCA = Model Toxics Control Act
ND = Not detected at or above unknown laboratory detection limit
TPH = Total Petroleum Hydrocarbons
TPH-GRO = TPH as Gasoline-Range Organics
TPH-DRO = TPH as diesel-range organics
TPH-HRO = TPH as heavy oil-range organics
USEPA = United States Environmental Protection Agency
mg/kg = Milligrams per kilograms
-- = Not Analyzed

Pre-1998 Laboratory analysis completed by Analytical Technologies, Inc.
1998 through 1999 Laboratory analysis completed by North Creek Analytical
2004 Laboratory analysis completed by Environmental Services Northwest
2005 Laboratory analysis completed by North Creek Analytical
Post 2006, Laboratory analysis completed by Lancaster Laboratories

Pre-1998 Analytical Methods:
BTEX analyzed by USEPA Method 8020.
TPH-GRO analyzed by USEPA Method 8015.
TPH-DRO and TPH-HRO analyzed by USEPA Method 8015.

Post 1998 Analytical Methods:
BTEX analyzed by USEPA Method 8021.
TPH-GRO analyzed by Northwest Method NWTPH-Gx.
TPH-DRO and TPH-HRO analyzed by Northwest Method NWTPH-Dx, with acid/silica-gel cleanup.
Lead analyzed by USEPA Method 6020.
MTBE analyzed by USEPA Method 8260.

Notes:

[1] SB-11-5 was resampled on 6/29/2011 in order to collect soil to calculate a Method B clean up level for TPH in soil.

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TABLE 2
REMAINING SOIL ANALYTICAL RESULTS – GRO, DRO, HRO, BTEX, TPH, MTBE, AND LEAD
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
MTCA Method B Cleanup Levels			**18**	**6,400**	**8000**	**16,000**	**--**	**--**	**--**	**2,829**	**--**	**560**
1991 Excavations												
900927-4	28	09/27/90	--	--	--	--	125	<10	--	1,642	--	--
T-1	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-2	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-3	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-4	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-5	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-6	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
T-7	--	11/30/90	--	--	--	--	<5	74	--	--	--	--
T-8	--	11/30/90	--	--	--	--	<5	<5	--	--	--	--
910306-1 Loading rack, west wall	6	03/06/91	--	--	--	--	--	--	--	100	--	--
910306-3 Loading rack, east wall	10	03/06/91	--	--	--	--	--	--	--	140	--	--
910306-4 Loading rack, north wall	10	03/06/91	--	--	--	--	--	--	--	330	--	--
910306-5 Loading rack, base	10	03/06/91	--	--	--	--	<5	<5	--	24	--	--
910702-1 Warehouse, north wall	4	07/02/91	--	--	--	--	<5	<5	--	14	--	--
910702-2 Warehouse, north wall	4	07/02/91	--	--	--	--	--	--	--	33	--	--
910702-3 Warehouse, base	7	07/02/91	--	--	--	--	<5	35	--	190	--	--
910702-4 Warehouse, northeast	4	07/02/91	--	--	--	--	--	--	--	68	--	--
910702-5 Warehouse, central	6	07/02/91	--	--	--	--	<5	12	--	190	--	--
910702-6 Warehouse, south wall	7	07/02/91	--	--	--	--	--	--	--	98	--	--
910702-7 Warehouse, north wall	5	07/02/91	--	--	--	--	<5	<5	--	40	--	--
910702-8 Warehouse, south wall	4.5	07/02/91	--	--	--	--	--	--	--	33	--	--

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TABLE 2
REMAINING SOIL ANALYTICAL RESULTS – GRO, DRO, HRO, BTEX, TPH, MTBE, AND LEAD
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
910702-9 Warehouse, westleg west wall	3	07/02/91	--	--	--	--	<5	6	--	75	--	--
910702-10 Warehouse, west leg base	4.5	07/02/91	--	--	--	--	--	--	--	40	--	--
910702-11 E. of office bldg, south wall	8	07/02/91	--	--	--	--	<5	<5	--	14	--	--
910702-12 E. of office bldg, west wall	7	07/02/91	--	--	--	--	--	--	--	27	--	--
910702-13 E. of office bldg, norh wall	7	07/02/91	--	--	--	--	<5	<5	--	14	--	--
910702-14 E. of office bldg, east wall	5.5	07/02/91	--	--	--	--	--	--	--	80	--	--
910702-16 E. of office bldg, base	8	07/02/91	--	--	--	--	--	--	--	23	--	--
Monitoring Wells												
MW-2	3	11/08/89	<0.025	<0.025	<0.025	<0.025	--	--	--	7.1		
MW-3	3	11/06/89	<0.025	<0.025	<0.025	<0.025	--	--	--	12		
MW-4	20.5	11/07/89	<0.025	<0.025	<0.025	<0.025	--	--	--	580	--	--
MW-5	23	11/08/89	<0.13	<0.13	1.3	4.4	--	--	--	1,500	--	--
MW-6	28	11/08/89	0.032	<0.025	<0.025	<0.025	--	--	--	4.6		
MW-7	27	04/23/91	--	--	--	--	<5	<5	--	55	--	--
MW-8	22.5	04/23/91	--	--	--	--	<5	<5	--	68	--	--
	27.5	04/23/91	--	--	--	--	<5	<5	--	56	--	--
MW-9	27.5	04/23/91	--	--	--	--	<5	<5	--	66	--	--
MW-10	29.5	04/24/91	--	--	--	--	<5	<5	--	46	--	--
MW-11	18	04/25/91	--	--	--	--	23	<5	--	110	--	--
	28	04/25/91	--	--	--	--	27	<5	--	130	--	--
MW-12	19	05/16/91	<0.03	<7	<6	<9	<5	<5	--	63	--	--
	29	05/16/91	<0.03	<7	<6	<9	<5	<5	--	<5	--	--
MW-13	18	05/17/91	<0.03	<7	<6	<9	<5	<5	--	<5	--	--
	33	05/17/91	<0.03	<7	<6	<9	<5	<5	--	<5	--	--
Borings and Test Pits												
TP-1 (1989)	11	11/07/89	--	--	--	--	<5	<5	--	12	--	--
TP-2 (1989)	3.5	11/07/89	--	--	--	--	<5	6	--	6	--	--
TP-1-13	13	04/27/98	<0.500	<0.500	<0.500	<1.00	171	405	<25.0	576	--	--
TP-1-15	15	04/27/98	<0.100	<0.100	<0.100	<0.500	--	--	--	--	--	<1.00

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TABLE 2
REMAINING SOIL ANALYTICAL RESULTS – GRO, DRO, HRO, BTEX, TPH, MTBE, AND LEAD
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
TP-2-7	7	04/27/98	<0.500	<0.500	<0.500	<1.00	61.6	381	26	469	--	--
TP-2-8	8	04/27/98	<0.100	<0.100	<0.100	<0.500	--	--	--	--	--	<1.00
A-1	0.5	02/08/99	ND	ND	ND	ND	ND	ND	--	--	16.8	--
A-2	0.8	02/08/99	ND	ND	ND	ND	ND	18.3	--	18.3	12.1	--
A-3	0.6	02/08/99	ND	ND	ND	ND	ND	16.7	--	16.7	14.8	--
A-4	0.8	02/08/99	ND	ND	ND	ND	ND	15.1	--	15.1	9.33	--
HA-1 (1999)	3.7	02/08/99	--	--	--	--	--	--	--	--	--	--
B-1	18	04/24/91	--	--	--	--	<5	<5	--	63	--	--
B3	9	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	15	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17 (D)	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B4	9	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	15	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	18	12/14/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B5	9	12/14/04	<0.02	<0.05	0.6	1.6	<20	410	--	410	--	--
	15	12/14/04	<0.02	<0.05	0.33	0.64	<20	250	--	250	--	--
B7	8-9.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	9.5-11	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	12.5-14	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	14-15.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	15.5-17	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17-18.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	18.5-20	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	20-21.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	21.5-23	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	23-24.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	24.5-26	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	26-27.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	27.5-29	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	29-30.5	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B8	12.5-14	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17.5-19	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B9	12.5-14	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17.5-19	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--

TABLE 2
REMAINING SOIL ANALYTICAL RESULTS – GRO, DRO, HRO, BTEX, TPH, MTBE, AND LEAD
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
B10	12.5-14	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
	17.5-19	12/16/04	<0.02	<0.05	<0.05	<0.05	<20	<20	--	--	--	--
B11	19.5-21	01/24/05	0.0348	<0.0412	<0.0412	<0.0824	<4.12	<10.0	<25.0	--	--	<0.0824
	22.5-24	01/25/05	<0.03	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	--	--	<0.100
	28.5-30	01/25/05	<0.0224	<0.0373	<0.0373	<0.0746	<3.73	<10.0	<25.0	--	--	<0.0746
B12	6-7.5	01/25/05	<0.0212	<0.0354	<0.0354	<0.0708	53.4	514	<25.0	567.4	--	<0.0708
	28.5-30	01/25/05	<0.0233	<0.0388	<0.0388	<0.0775	<3.88	<10.0	<25.0	--	--	<0.0775
B13	13.5-15	01/26/05	<0.0231	<0.0385	<0.0385	<0.0775	<3.85	<10.0	<25.0	--	--	<0.0770
	27-28.5	01/26/05	<0.0225	<0.0376	<0.0376	<0.0751	<3.76	<10.0	<25.0	--	--	<0.0751
HA-3	1	06/02/05	<0.03	<0.05	<0.05	<0.100	<5.0	11.5	<25	11.5	--	--
HA-4	3	06/02/05	<0.03	<0.05	<0.05	<0.100	88.6	328	27.7	444	--	--
252 PL(3)030505	3	03/05/06	<0.0251	<0.0418	<0.0418	<0.0837	4.18	<10.0	<25.0	4.2	--	--
252 SL(26)030705	26	03/07/06	0.0535	<0.0391	3.02	22.8	372	2,570	<250	**2,942**	--	--
SB-9-5	5	05/06/11	<0.0024	0.0040	<0.0024	0.0091	<1.2	33	<12	33	11.1	
SB-9-8	8	05/10/11	<0.0022	<0.0022	<0.0022	<0.0056	<1.1	<3.4	<11	--	11.5	
SB-9-11	11	05/10/11	<0.0020	<0.0020	<0.0020	0.0063	<1.0	<3.3	<11	--	8.1	
SB-10-4	4	05/06/11	<0.0028	<0.0028	<0.0028	0.011	<1.4	<3.4	<11	--	6.93	
SB-10-6	6	05/06/11	<0.0030	<0.0030	0.0054	0.022	9.4	<3.4	<11	9.4	5.48	
SB-10-9	9	05/09/11	<0.0022	<0.0022	0.0040	0.012	4.7	<3.5	<12	4.7	4.68	
SB-10-11	11	05/09/11	<0.049[5]	<0.049[5]	0.19[5]	1.1[5]	430	<41	<140	430	7.62	
SB-11-5	5	05/06/11	<0.026[5]	<0.026[5]	0.18[5]	0.93[5]	890	810	<140	1,700	5.35	
SB-11-5-062911[1]	5	06/29/11	<0.029	<0.058	0.083	0.127	550	390	<58	940	--	--
SB-11-9	9	05/09/11	<0.010[5]	0.012[5]	<0.070[5]	0.80[5]	250	66	<12	316	13.9	
SB-11-11	11	05/09/11	<0.0025	<0.0025	<0.0025	0.021	11	13	<12	24	13.9	
SB-12-4	4	05/06/11	<0.0022	<0.0022	<0.0022	<0.0055	<1.1	<3.1	<10	--	3.60	
SB-12-7	7	05/06/11	<0.0021	0.0025	<0.0021	<0.0053	<1.1	<3.1	<10	--	3.27	
SB-12-10	10	05/09/11	<0.0021	<0.0021	<0.0021	0.0086	26	44	<11	70	11.2	
SB-13-5	5	05/09/11	<0.0022	<0.0022	<0.0022	<0.0055	<1.1	<3.2	<11	--	5.2	
SB-13-10	10	05/09/11	<0.0023	0.0049	<0.0023	0.023	6.1	<3.4	<11	6.1	12.2	
SB-14-5	5	05/09/11	<0.0021	<0.0021	<0.0021	<0.0052	<1.0	5.5	<11	5.5	5.4	
SB-14-10	10	05/09/11	<0.0022	<0.0022	<0.0022	0.0061	<1.1	3.9	<12	3.9	15.8	
SB-15-5	5	05/09/11	<0.0022	<0.0022	<0.0022	<0.0056	<1.1	<3.6	<12	--	16.0	
SB-15-9	9	05/10/11	<0.0025	<0.0025	<0.0025	<0.0062	<1.2	<3.5	<12	--	14.6	
SB-16-5	5	05/10/11	<0.0024	0.0037	<0.0024	<0.0060	<1.2	42	13	55	12.7	
SB-17-5	5	05/10/11	<0.023[6]	0.036[6]	<0.023[6]	0.15[6]	<12[6]	61	<12	61	16.8	
SB-17-6	6	05/10/11	<0.0026	0.0075	<0.0026	<0.0064	<1.3	4.4	<11	4.4	10.7	

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TABLE 2
REMAINING SOIL ANALYTICAL RESULTS – GRO, DRO, HRO, BTEX, TPH, MTBE, AND LEAD
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	TPH	LEAD	MTBE
SB-17-9	9	05/10/11	<0.0021	<0.0021	0.0030	0.014	45	18	<11	63	12.0	
SB-18-5	5	05/10/11	<0.062	<0.062	<0.062	<0.19	<12	100	<13	100	--	
			B	**T**	**E**	**X**	**TPH-GRO**	**TPH-DRO**	**TPH-HRO**	**TPH**	**LEAD**	**MTBE**
MTCA Method B Cleanup Levels			**18**	**6,400**	**8,000**	**16,000**	**--**	**--**	**--**	**2,829**	**--**	**560**
MTCA Method A Cleanup Levels			0.03	7	3	6	30/100	2,000	2,000	--	250	0.1

EXPLANATIONS

< = Analyte is not detected at or above the laboratory reporting limit. The laboratory reporting limit is listed.

Bolding indicates a contaminant cancentration detected above the MTCA Method B cleanup level.

BTEX = Benzene, toluene, ethylbenzene, and total xylenes
CULs = Cleanup levels
D = Duplicate Sample
(ft.) = Feet
MTBE = Methyl Tertiary Butyl Ether
MTCA = Model Toxics Control Act
ND = Not detected at or above unknown laboratory detection limit

TPH = Total Petroleum Hydrocarbons
TPH-GRO = TPH as Gasoline-Range Organics
TPH-DRO = TPH as diesel-range organics
TPH-HRO = TPH as heavy oil-range organics
USEPA = United States Environmental Protection Agency
mg/kg = Milligrams per kilograms
-- = Not Analyzed

Pre-1998 Laboratory analysis completed by Analytical Technologies, Inc.
1998 through 1999 Laboratory analysis completed by North Creek Analytical
2004 Laboratory analysis completed by Environmental Services Northwest
2005 Laboratory analysis completed by North Creek Analytical
Post 2006, Laboratory analysis completed by Lancaster Laboratories

Pre-1998 Analytical Methods:
BTEX analyzed by USEPA Method 8020.
TPH-GRO analyzed by USEPA Method 8015.
TPH-DRO and TPH-HRO analyzed by USEPA Method 8015.

Post 1998 Analytical Methods:
BTEX analyzed by USEPA Method 8021.
TPH-GRO analyzed by Northwest Method NWTPH-Gx.
TPH-DRO and TPH-HRO analyzed by Northwest Method NWTPH-Dx, with acid/silica-gel cleanup.
Lead analyzed by USEPA Method 6020.
MTBE analyzed by USEPA Method 8260.

Notes:

[1] SB-11-5 was resampled on 6/29/2011 in order to collect soil to calculate a Method B clean up level for TPH in soil.

SAIC

TABLE 3
SOIL ANALYTICAL RESULTS – PAHs
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Benzo (a) anthracene (mg/kg)	Benzo (a) pyrene (mg/kg)	Benzo (b) fluoranthene (mg/kg)	Benzo (k) fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenz (a,h) anthracene (mg/kg)	Indeno (1,2,3-cd) pyrene (mg/kg)	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Naphthalene (mg/kg)
TP-1-15	15	4/27/98	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	0.181	0.0147
TP-2-8	8	4/27/98	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	<0.0100	0.0288
A-1	0.5	02/08/99	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	<0.011
A-2	0.8	02/08/99	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	<0.011
A-3	0.6	02/08/99	<0.0100	<0.0100	0.0104	<0.0100	<0.0100	<0.0100	<0.0100	--	--	<0.011
A-4	0.8	02/08/99	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--	--	<0.011
SB-11-5-062911	5	6/29/11	<0.078	<0.078	<0.078	<0.078	<0.039	<0.078	<0.078	<0.078	<0.078	<0.078

EXPLANATIONS

< = Analyte is not detected at or above the laboratory reporting limit. The laboratory reporting limit is listed.

PAHs = Polynuclear Aromatic Hydrocarbons
USEPA = United States Environmental Protection Agency
mg/kg = Milligrams per kilograms
-- = Not Analyzed

1998 through 1999 Laboratory analysis completed by North Creek Analytical
2011, Laboratory analysis completed by Lancaster Laboratories
1998 and 1999 PAHs analyzed by GC/MS-SIM
2011 PAHs analyzed by USPEPA 8270C SIM

SAIC

TABLE 4
SOIL ANALYTICAL RESULTS – EPH/VPH
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in mg/kg

Sample ID	Depth (ft)	Date Sampled	Aliphatics							Aromatics				
			C5-C6	C6-C8	C8-C10	C10-C12	C12-C16	C16-C21	C21-C34	C8-C10	C10-C12	C12-C16	C16-C21	C21-C34
TP-1-15	15	4/27/98	<20.0	<20.0	<5.00	<5.00	57.4	52.7	6.3	<20.0	<5.00	23.2	21.6	<5.00
TP-2-8	8	4/27/98	<20.0	<20.0	<5.00	12.3	115	129.0	24.5	<20.0	<5.00	34.7	49.5	13.7
SB-11-5-062911[1]	5	6/29/11	<5.53	<5.53	110	3.1638	30.0956	72.1487	13.0547	66.5	30.4087	165.6704	161.4801	27.342

EXPLANATIONS

< = Analyte is not detected at or above the laboratory reporting limit. The laboratory reporting limit is listed.

EPH = Extractable Petroleum Hydrocarbons
VPH = Volatile Petroleum Hydrocarbons
mg/kg = Milligrams per kilograms
-- = Not Analyzed
WADOE = Washington State Department of Ecology

1998 through 1999 Laboratory analysis completed by North Creek Analytical
2011, Laboratory analysis completed by Lancaster Laboratories

1998 and 1999 EPH/VPH analyzed by WADOE Interim TPH Policy Method EPH/VPH
2011 EPH/VPH analyzed by Washington Method EPH/VPH

Notes:
[1] SB-11-5 was resampled on 6/29/2011 in order to collect soil to calculate a Method B clean up level for TPH in soil.

TABLE 5
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-1										
11/22/89	--	--	69.16	--	--	--	5.3	2.2	1.5	8.4
09/24/90	--	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5
MW-2										
11/22/89	--	--	--	--	--	--	--	--	--	--
09/26/90	--	--	--	--	--	--	--	--	--	--
04/23/91	--	--	76.01	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
08/02/91	--	--	76.42	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
11/06/91	--	--	75.71	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
02/27/92	--	--	76.94	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
05/28/92	--	--	76.79	--	--	--	--	--	--	--
08/27/92	--	--	76.53	--	--	--	--	--	--	--
12/01/92	--	--	--	--	--	--	--	--	--	--
02/25/93	--	--	--	--	--	--	--	--	--	--
05/19/93	--	--	--	--	--	--	--	--	--	--
MW-3										
11/22/89	--	--	89.78	--	--	--	< 0.5	2.9	1.6	1.4
09/26/90	--	--	--	--	--	--	--	--	--	--
MW-4										
11/22/89	--	--	68.24	--	--	--	**5.4**	1.5	2.7	12
09/26/90	--	--	--	--	--	--	--	--	--	--
MW-5										
11/22/89	--	--	67.85	--	--	--	< 0.5	< 0.5	130	160
09/26/90	--	--	86.49	--	--	--	< 1	<1	0.003	< 1
04/23/91	--	--	78.38	**59,000**	--	**63,000**	**11**	370	29	690
08/01/91	--	--	77.48	< 1,000	--	**7,000**	< 0.5	20	160	280
11/05/91	--	--	76.83	**7,000**	--	**37,000**	< 0.5	21	150	440
02/27/92	--	--	78.28	**5,000**	--	**22,000**	**8.6**	38	400	780
05/28/92	--	--	78.06	**5,000**	--	**14,000**	**7.5**	32	400	760
08/27/92	--	--	76.75	**3,000**	--	**11,000**	0.9	9.1	84	190
12/01/92	--	--	76.39	**8,000**	--	**32,000**	1.8	9.4	160	360
02/25/93	--	--	76.93	**1,200**	--	**7,000**	**9.9**	16	200	390
05/19/93	--	--	76.48	**3,100**	--	**1,000**	<0.5	1	20	29
08/30/93	--	--	75.91	**3,200**	<750	**5,600**	<2.5	7.1	52	77

TABLE 5
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-5 (cont.)										
11/09/93	--	--	75.06	**27,000**	**1,400**	**12,000**	<0.5	7.5	120	320
11/09/93 (DUP)	--	--	--	--	--	--	<0.5	8.3	100	280
08/31/94	--	--	74.26	**8,300**	**1,000**	**8,100**	**5.0**	<0.5	12	18
11/17/94	--	--	73.99	**2,800**	<750	**4,500**	3.0	3.2	10	16
02/28/95	--	--	75.46	**11,000**	<750	**3,600**	**8.9**	4	80	150
05/16/95	--	--	75.26	**4,600**	**840**	**3,300**	3.9	<0.5	21	13
09/27/95	--	--	74.50	--	--	**2,900**	4.2	<0.5	6.0	8.4
02/01/96	--	--	77.10	**2,600**	<750	**8,700**	**13**	12	190	300
04/23/96	--	--	77.10	**1,300**	<750	**3,200**	**5.6**	2.5	36	5.6
07/26/96	--	--	76.88	**1,200**	<750	**2,110**	2.46	1.5	23.2	34.6
10/17/96	--	--	76.30	**920**	<750	**2,280**	4.77	3.42	34.5	51.1
03/03/97	--	--	75.19	**555**	<750	**3,240**	**8.16**	6.05	177	211
05/13/97	--	--	78.58	<250	<750	**1,200**	4.6	11.6	63.9	148
08/21/97	--	--	77.91	**407**	<750	**1,180**	3.62	5.19	45.5	98.2
11/05/97	--	--	76.45	<50	<750	<50	<0.5	<0.5	<0.5	<1.0
02/25/98	--	--	79.12	<250	<750	499	<0.5	<0.5	<0.5	<1.0
04/27/98	--	--	79.46	<250	<500	**4,900**	<0.5	<0.5	<0.5	<0.5
08/13/98	--	--	78.67	<250	<750	**4,200**	<2.5	13	208	348
11/17/98	--	--	81.80	<250	<750	**4,490**	<10.0	14.5	228	430
02/08/99	--	--	79.78	269	<750	**1,100**	<0.5	73.1	3.47	118
04/19/99	--	--	79.28	<250	<750	153	<0.5	<0.5	12.8	0.153
08/09/99	--	--	78.56	**2,000**	<50	594	<0.5	0.559	30.6	20.8
11/15/99	100.46	22.89	77.57	459	<750	**1,810**	<1.25	2.57	112	99.0
02/28/00	100.46	21.15	79.31	286	<500	107	<0.5	<0.500	2.31	10.7
05/17/00	100.46	--	--	<250	<500	**1,190**	<0.5	1.61	74	53.8
01/12/01	100.46	23.25	77.21	<250	<500	**3,200**	<5.0	9.39	346	404
04/06/01	100.46	23.33	77.13	406	<500	**2,770**	<1.00	<1.00	43.9	43.5
07/12/01	100.46	23.86	76.60	463	<500	**1,300**	<0.500	0.861	32.3	29.8
10/23/01	100.46	24.59	75.87	387	<500	**1,300**	<0.500	0.722	17.7	14.1
01/25/02	100.46	22.56	77.90	**4,240**	<500	**2,560**	1.28	3.44	139	169
04/19/02	100.46	21.84	78.62	**996**	<500	**2,300**	<1.25	2.09	102	102
07/12/02	100.46	23.13	77.33	**1,240**	< 500	**1,610**	1.61	1.88	22.4	33.6
10/29/02	100.46	24.37	76.09	< 250	< 500	**2,030**	0.999	1.20	15.6	20.4
01/09/03	100.46	24.24	76.22	**684**	< 500	**2,340**	0.814	1.25	32.5	36.1
04/15/03	100.46	23.86	76.60	490	< 500	**2,590**	< 1.25	1.90	90.8	96
07/16/03	100.46	24.62	75.84	**564**	< 500	**2,070**	1.14	1.23	18.5	20.6
10/02/03	100.46	25.24	75.22	**465**	<500	**1,710**	1.21	1.06	2.17	18.2

TABLE 5
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-5 (cont.)										
11/12/03	100.46	25.32	75.14	--	--	--	--	--	--	--
01/20/04	100.46	24.72	75.74	295	< 500	**1,890**	1.17	1.34	55.5	48.7
03/10/04	100.46	--	--	<250	<500	**2,470**	1.59	1.98	52.0	61.1
04/02/04	100.46	24.25	76.21	< 250	< 500	**2,660**	< 1.25	2.76	149	158
07/09/04	100.46	24.64	75.82	< 250	< 500	**1,780**	0.776	0.896	21.7	17.9
10/08/04	100.46	25.05	75.41	< 250	< 500	**1,670**	0.899	0.948	6.39	7.29
02/02/05	100.46	25.05	75.41	264	< 500	**2,370**	3.32	10.6	84.1	102
05/03/05	100.46	23.65	76.81	266	< 500	**2,780**	< 1.00	1.27	86.6	71.3
08/23/05	100.46	24.37	76.09	< 250	< 500	**2,240**	1.03	1.27	38.7	27.8
11/02/05	100.46	24.68	75.78	< 245	<490	**1,470**	0.683	1.09	43.5	29.0
02/15/06	100.46	23.10	77.36	< 236	< 472	**2,550**	< 2.50	2.67	173	175
06/01/06	100.46	22.95	77.51	< 236	< 472	**2,620**	< 0.500	1.43	179	114
08/09/06	100.46	23.50	76.96	< 250	< 500	**1,240**	0.531	1.01	55.7	41.8
11/01/06	100.46	23.90	76.56	**630**	180	**1,300**	<5.0	0.8	<100	33
01/26/07	100.46	21.97	78.49	--	--	**2,500**	< 2.0	< 2.0	94	160
04/21/07	100.46	22.24	78.22	--	--	**3,700**	<10	1.8	190	260
07/09/07	100.46	22.78	77.68	**810**	< 98	**5,200**	**9.8**	2.3	210	300
10/22/07	100.46	23.48	76.98	**950**	<200	**3,500**	**7.2**	**2.0**	170	210
01/02/08	100.46	23.35	77.11	**1,300**	<200	**6,600**	<10	3.4	360	490
04/03/08	100.46	23.23	77.23	**1,300**	180	**9,500**	<20	**5.0**	450	640
07/21/08	100.46	23.21	77.25	**1,100**	130	**8,000**	<20	**4.5**	320	460
10/07/08	100.46	24.03	76.43	490	<97	**4,500**	<20	**3.4**	240	310
01/09/09	100.46	22.23	78.23	**1,100**	<69	**3,300**	<0.5	1.5	130	240
11/16/10	100.46	23.20	77.26	<33	<78	**2,300**	<0.5	0.60	150	160
06/29/11	100.46	--	--	60	210	900	<0.5	<0.5	53	50
09/12/11	100.46	21.82	78.64	47	110	640	<0.5	<0.5	14	18
01/13/12	100.46	22.55	77.91	100	<69	**1,400**	<0.5	<0.5	48	43
03/16/12	100.46	21.75	78.71	<29	<68	<50	<0.5	<0.5	0.8	0.7
06/28/12	100.46	20.51	79.95	<29	<69	210	<0.5	<0.5	18	20
09/27/12	100.46	19.98	80.48	31	<67	160	<0.5	<0.5	<0.5	<0.5
12/19/12	100.46	22.32	78.14	120	<68	<50	<0.5	<0.5	<0.5	<0.5
MW-6										
11/22/89	--	--	68.44	--	--	--	< 0.5	< 0.5	< 0.5	< 0.5
09/26/90	--	--	86.51	--	--	--	<1	<1	<1	<1
04/23/91	--	--	78.94	--	--	--	< 0.5	< 0.5	< 0.5	< 0.5
08/01/91	--	--	78.08	<1,000	--	<1,000	< 0.5	< 0.5	< 0.5	< 0.5

TABLE 5
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-6 (cont.)										
11/05/91	--	--	77.45	<1,000	--	<1,000	< 0.5	< 0.5	< 0.5	< 0.5
02/27/92	--	--	78.73	<1,000	--	<1,000	< 0.5	< 0.5	< 0.5	< 0.5
05/28/92	--	--	78.62	--	--	--	--	--	--	--
08/27/92	--	--	77.00	--	--	--	--	--	--	--
12/01/92	--	--	76.48	--	--	--	--	--	--	--
02/25/93	--	--	77.13	--	--	--	--	--	--	--
05/19/93	--	--	76.68	--	--	--	--	--	--	--
08/30/93	--	--	76.16	--	--	--	--	--	--	--
11/09/93	--	--	75.64	--	--	--	--	--	--	--
08/31/94	--	--	74.63	--	--	--	--	--	--	--
11/17/94	--	--	74.21	--	--	--	--	--	--	--
02/28/95	--	--	75.64	--	--	--	--	--	--	--
05/16/95	--	--	75.46	--	--	--	--	--	--	--
09/27/95	--	--	74.78	--	--	--	--	--	--	--
02/01/96	--	--	77.33	--	--	--	--	--	--	--
MW-7										
04/23/91	--	--	80.82	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
08/02/91	--	--	79.21	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
11/05/91	--	--	78.71	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
02/27/92	--	--	79.54	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
05/28/92	--	--	79.79	--	--	--	--	--	--	--
08/27/92	--	--	78.87	--	--	--	--	--	--	--
12/01/92	--	--	78.18	--	--	--	--	--	--	--
02/25/93	--	--	78.72	--	--	--	--	--	--	--
05/19/93	--	--	78.49	--	--	--	--	--	--	--
08/30/93	--	--	78.11	--	--	--	--	--	--	--
11/09/93	--	--	77.60	--	--	--	--	--	--	--
08/31/94	--	--	76.37	--	--	--	--	--	--	--
11/17/94	--	--	76.03	--	--	--	--	--	--	--
02/28/95	--	--	77.05	--	--	--	--	--	--	--
05/16/95	--	--	76.94	--	--	--	--	--	--	--
09/27/95	--	--	76.49	--	--	--	--	--	--	--
02/01/96	--	--	78.87	--	--	--	--	--	--	--
MW-8										
04/23/91	--	--	79.59	<1,000	--	<1,000	**52**	10	38	130
08/02/91	--	--	78.96	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5

TABLE 5
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-8 (cont.)										
11/05/91	--	--	78.21	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
02/27/92	--	--	79.61	<1,000	--	<1,000	<0.5	<0.5	<0.5	<0.5
05/28/92	--	--	79.39	--	--	--	--	--	--	--
08/27/92	--	--	78.76	--	--	--	--	--	--	--
12/01/92	--	--	78.02	--	--	--	--	--	--	--
02/25/93	--	--	78.74	--	--	--	--	--	--	--
05/19/93	--	--	78.32	--	--	--	--	--	--	--
08/30/93	--	--	77.90	--	--	--	--	--	--	--
11/09/93	--	--	77.39	--	--	--	--	--	--	--
08/31/94	--	--	76.21	--	--	--	--	--	--	--
11/17/94	--	--	75.60	--	--	--	--	--	--	--
02/28/95	--	--	77.27	--	--	--	--	--	--	--
05/16/95	--	--	76.84	--	--	--	--	--	--	--
09/27/95	--	--	76.33	--	--	--	--	--	--	--
02/01/96	--	--	79.11	--	--	--	--	--	--	--
MW-9										
04/23/91	--	--	87.51	< 1,000	--	< 1,000	**57**	11	43	140
11/05/91	--	--	81.98	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
02/27/92	--	--	87.15	**1,000**	--	**8,000**	**360**	12	180	900
05/28/92	--	--	85.44	< 1,000	--	<1,000	**72**	< 0.5	32	3.1
08/27/92	--	--	83.25	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
12/01/92	--	--	90.62	< 1,000	--	< 1,000	< 1	< 1	<1	< 1
02/25/93	--	--	--	--	--	<2,000	<10	890	<10	25
05/19/93	--	--	84.37	--	--	390	5.6	120	2.1	3.6
08/30/93	--	--	83.72	--	--	**1,000**	4.6	400	1.8	3.8
11/09/93	--	--	82.06	--	--	**660**	3.7	300	0.9	1.2
08/31/94	--	--	79.90	--	--	<50	1.6	<0.5	<0.5	< 1.0
11/17/94	--	--	80.90	--	--	<50	1.1	1.8	0.85	3.8
02/28/95	--	--	85.17	--	--	<50	**5.6**	<0.5	0.74	2.0
05/16/95	--	--	83.45	--	--	<50	1.0	<0.5	<0.5	< 1.0
09/27/95	--	--	80.65	--	--	<50	0.62	<0.5	<0.5	< 1.0
02/01/96	--	--	--	--	--	--	--	--	--	--
04/23/96	--	--	85.14	<250	<750	**3,400**	**68**	0.51	77	24
07/26/96	--	--	84.18	383	<750	131	**9.46**	<0.5	5.34	< 1.0
10/17/96	--	--	82.72	453	<750	280	**21**	2.33	9.61	7.17
03/03/97	--	--	95.19	<250	<750	256	**48.2**	< 0.500	14.20	19.9
05/13/97	--	--	86.43	<250	<750	<50	**179**	< 0.500	< 0.500	< 1.00

TABLE 5
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-9 (cont.)										
08/13/97	--	--	84.62	<250	<750	<50	< 0.500	< 0.500	< 0.500	< 1.00
11/05/97	--	--	90.71	<250	<750	<50	< 0.5	< 0.5	< 0.5	< 1.0
02/25/98	--	--	92.67	<250	<250	160	**11.4**	12.7	< 0.5	1.68
04/27/98	--	--	89.83	<250	<500	**1,600**	**11.4**	< 0.5	12.7	1.68
08/13/98	--	--	83.05	<250	<750	**1,200**	4.07	< 0.5	2.11	< 1.0
11/17/98	--	--	77.55	496	<750	<500	0.559	< 0.5	< 0.5	<0.5
02/08/99	--	--	104.80	<250	<750	<50	<0.5	< 0.5	< 0.5	<1.0
04/19/99	--	--	89.48	**797**	<750	**1,660**	**179**	<0.500	147	82.8
08/09/99	--	--	83.40	**1,030**	**872**	106	2.45	<0.500	<0.500	<1.0
11/15/99	108.45	26.26	82.19	362	<750	<50	0.667	<0.500	<0.500	<0.1
02/28/00	108.45	21.48	86.97	424	<500	149	2.68	<1.10	1.93	1.22
05/17/00	108.45	--	--	<250	<500	148	**10.3**	<0.500	<0.500	<1.00
01/12/01	108.45	23.59	84.86	<250	<500	131	**56.7**	<0.500	<0.500	5.44
04/06/01	108.45	23.39	85.06	<250	<500	51.2	3.66	<0.500	0.718	<1.00
07/12/01	108.45	25.48	82.97	<250	<500	<50.0	<0.500	<0.500	<0.500	<1.00
10/23/01	108.45	27.09	81.36	<250	<500	<50	<0.500	<0.500	< 0.500	<1.00
01/25/02	108.45	18.56	89.89	<250	<500	**1,090**	**235**	<2.50	60.7	50.0
04/19/02	108.45	20.97	87.48	<250	<500	**1,550**	**341**	<5.00	132	59.7
07/12/02	108.45	25.30	83.15	<250	<500	<50.0	0.584	<0.500	< 0.500	<1.00
10/29/02	108.45	27.12	81.33	<250	<500	<50.0	<0.500	<0.500	< 0.500	<1.00
01/09/03	108.45	26.93	81.52	<250	<500	<50.0	<0.500	<0.500	< 0.500	<1.00
04/15/03	108.45	22.30	86.15	<250	<500	<50.0	<0.500	<0.500	< 0.500	<1.00
07/16/03	108.45	25.96	82.49	<250	<500	<50.0	<0.500	<0.500	< 0.500	<1.00
10/02/03	108.45	27.59	80.86	<250	<500	<50.0	<0.500	<0.500	< 0.500	<1.00
11/12/03	108.45	28.02	80.43	--	--	--	--	--	--	--
01/20/04	108.45	24.31	84.14	<250	<500	<50.0	<0.500	<0.500	<0.500	<1.00
03/10/04				<250	<500	<50.0	7.62	<0.500	0.997	1.22
04/02/04	108.45	20.79	87.66	<250	<500	85.5	**17.1**	<0.500	2.22	5.33
07/09/04	108.45	26.00	82.45	<250	<500	<50.0	<0.500	<0.500	<0.500	<1.00
10/08/04	108.45	27.12	81.33	<250	<500	<50.0	<0.500	<0.500	<0.500	<1.00
02/02/05	108.45	19.24	89.21	<250	<500	134	**36.0**	<0.500	7.21	2.39
05/03/05	108.45	22.48	85.97	**609**	**545**	<50.0	<0.200	<0.200	<0.200	<1.00
08/23/05	108.45	27.85	80.60	<250	<500	<50.0	<0.500	<0.500	<0.500	<1.00
11/02/05	108.45	28.25	80.20	< 236	<472	<50.0	<0.500	0.545	<0.500	<1.00
02/15/06	108.45	20.12	88.33	< 236	<472	197	**26.6**	<0.500	5.56	<1.00
06/01/06	108.45	25.51	82.94	< 236	<472	<50.0	<0.500	< 0.500	< 0.500	<1.00
08/09/06	108.45	24.83	83.62	<250	<500	<50.0	<0.500	<0.500	<0.500	<1.00
11/01/06	108.45	25.82	82.63	<240	<480	<250	<2.0	<2.0	<2.0	<5.0

TABLE 5
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-9 (cont.)										
01/26/07	108.45	18.91	89.54	--	--	<48	**11**	<0.5	2.8	<1.5
04/21/07	108.45	22.52	85.93	--	--	120	**8.6**	<0.5	1.3	<1.5
07/09/07	108.45	25.53	82.92	<79	<99	<50	<0.5	<0.5	<0.5	<1.5
10/22/07	108.45	27.23	81.22	220	<100	<50	<0.5	<0.5	<0.5	<1.5
01/02/08	108.45	23.15	85.30	200	<110	<50	<0.5	<0.5	<0.5	<1.5
04/03/08	108.45	23.85	84.60	140	<99	<50	<0.5	<0.5	<0.5	<1.5
07/21/08	108.45	24.72	83.73	<80	<100	<50	<0.5	<0.5	<0.5	<1.5
10/07/08	108.45	27.24	81.21	81	<97	<50	<0.5	<0.5	<0.5	<1.5
01/09/09	108.45	22.34	86.11	89	68	<50	<0.5	<0.5	<0.5	<1.5
MW-10										
04/23/91	--	--	77.91	< 1,000	--	< 1,000	**85**	< 0.5	1.9	3.1
08/01/91	--	--	80.96	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
11/05/91	--	--	75.82	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
02/27/92	--	--	83.20	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
05/28/92	--	--	84.49	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
08/27/92	--	--	83.85	--	--	--	--	--	--	--
12/01/92	--	--	80.77	--	--	--	--	--	--	--
02/25/93	--	--	84.77	--	--	--	--	--	--	--
05/19/93	--	--	84.62	--	--	--	--	--	--	--
08/30/93	--	--	83.36	--	--	--	--	--	--	--
11/09/93	--	--	84.23	--	--	--	--	--	--	--
08/31/94	--	--	81.99	--	--	--	--	--	--	--
11/17/94	--	--	74.05	--	--	--	--	--	--	--
02/28/95	--	--	84.74	--	--	--	--	--	--	--
05/16/95	--	--	84.44	--	--	--	--	--	--	--
09/27/95	--	--	79.29	--	--	--	--	--	--	--
02/01/96	--	--	85.40	--	--	--	--	--	--	--
MW-11										
04/23/91	--	--	92.23	<1,000	--	**2,000**	< 0.5	36	53	32
08/01/91	--	--	89.89	<1,000	--	**7,000**	< 0.5	2.1	12	32
11/05/91	--	--	88.45	**2,000**	--	**14,000**	< 0.5	< 0.5	30	32
02/27/92	--	--	93.68	<1,000	--	< 1,000	< 0.5	< 0.5	2.5	2.2
05/28/92	--	--	91.85	<1,000	--	**6,000**	0.7	< 0.5	4.5	108
08/27/92	--	--	90.61	<1,000	--	< 1,000	< 0.5	< 0.5	3.1	2.3
12/01/92	--	--	91.43	<1,000	--	< 1,000	< 0.5	< 0.5	1.5	2.1
02/25/93	--	--	92.28	--	--	**820**	1.2	0.6	0.5	8.2
05/19/93	--	--	91.19	--	--	650	**5.5**	<0.5	1.7	2.8

TABLE 5
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-11 (cont.)										
08/30/93	--	--	89.31	--	--	**1,300**	1	2.3	6.4	13
11/09/93	--	--	87.18	--	--	**3,100**	0.9	3.2	12	26
08/31/94	--	--	87.18	--	--	**860**	< 0.5	0.79	1.3	5.7
11/17/94	--	--	86.16	--	--	720	< 0.5	< 0.5	1.2	3.9
02/28/95	--	--	94.38	--	--	330	< 0.5	< 0.5	0.89	0.15
05/16/95	--	--	91.51	--	--	290	< 0.5	< 0.5	0.56	3.7
09/27/95	--	--	88.43	--	--	580	< 0.5	< 0.5	< 0.5	<1.0
02/01/96	--	--	94.72	--	--	--	--	--	--	--
MW-12										
05/17/91	--	--	78.82	< 1,000	--	< 1,000	< 0.5	1.1	4	5.9
08/02/91	--	--	77.24	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
11/05/91	--	--	76.49	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
02/28/92	--	--	77.75	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
05/28/92	--	--	77.56	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
08/27/92	--	--	77.21	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
12/01/92	--	--	76.61	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
02/25/93	--	--	77.28	<300	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
05/19/93	--	--	76.75	370	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
08/30/93	--	--	77.14	<250	<750	< 100	< 0.5	< 0.5	< 0.5	< 0.5
11/09/93	--	--	75.70	470	2,000	< 100	< 0.5	< 0.5	< 0.5	< 0.5
08/31/94	--	--	74.60	--	--	--	--	--	--	--
11/17/94	--	--	74.55	--	--	<50	< 0.5	< 0.5	< 0.5	< 1
02/28/95	--	--	75.85	--	--	--	--	--	--	--
05/16/95	--	--	75.48	--	--	<50	< 0.5	0.5	< 0.5	< 1.0
09/27/95	--	--	74.95	--	--	<50	< 0.5	0.5	< 0.5	< 1.0
02/01/96	--	--	77.10	--	--	--	--	--	--	--
04/23/96	--	--	77.27	**740**	<750	<50	< 0.5	0.5	< 0.5	< 1.0
10/17/96	--	--	76.60	<250	<750	<50	< 0.5	0.5	< 0.5	< 1
03/03/97	--	--	78.38	--	--	--	--	--	--	--
05/13/97	--	--	78.11	<250	<750	<50	< 0.5	< 0.5	< 0.5	< 1
08/21/97	--	--	--	<250	<750	<50	< 0.5	< 0.5	< 0.5	< 1
MW-13										
05/17/91	--	--	--	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
08/02/91	--	--	76.81	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5

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101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-13 (cont.)										
11/05/91	--	--	76.31	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
02/28/92	--	--	77.52	< 1,000	--	< 1,000	< 0.5	< 0.5	< 0.5	< 0.5
05/28/92	--	--	77.33	--	--	--	--	--	--	--
08/27/92	--	--	76.82	--	--	--	--	--	--	--
12/01/92	--	--	76.73	--	--	--	--	--	--	--
02/25/93	--	--	--	--	--	--	--	--	--	--
05/19/93	--	--	--	--	--	--	--	--	--	--
08/30/93	--	--	76.16	--	--	--	--	--	--	--
11/09/93	--	--	75.44	--	--	--	--	--	--	--
08/31/94	--	--	74.42	--	--	--	--	--	--	--
11/17/94	--	--	74.59	--	--	<50	< 0.5	< 0.5	< 0.5	< 1.0
02/28/95	--	--	74.61	--	--	--	--	--	--	--
09/27/95	--	--	74.80	--	--	<50	< 0.5	< 0.5	< 0.5	< 1.0
02/01/96	--	--	76.99	--	--	--	--	--	--	--
04/23/96	--	--	77.26	<250	<750	<50	< 0.5	< 0.5	< 0.5	< 1.0
03/03/97	--	--	78.64	--	--	--	--	--	--	--
05/13/97	--	--	77.79	<250	<750	<50	< 0.5	< 0.5	< 0.5	< 0.5
PW-1										
04/11/95	--	--	--	<250	<750	<50	< 0.5	< 0.5	< 0.5	< 1
TRIP BLANK										
QA										
01/26/07	--	--	--	--	--	<48	<0.5	<0.5	<0.5	<1.5
04/21/07	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5
07/09/07	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5
10/22/07	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5
01/02/08	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5
04/03/08	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5
07/21/08	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5
10/07/08	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5
01/09/09	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5
11/16/10	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5
06/29/11	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5
09/12/11	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5
01/13/12	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5
03/16/12	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5
06/28/12	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5
09/27/12	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5
12/19/12	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5

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101 NW Coveland Street
Coupeville, Washington
Concentrations reported in µg/L

Well ID/ Date	TOC[2] (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes
				TPH-D	TPH-O	TPH-G	B	T	E	X
Standard Laboratory Reporting Limits:				--	--	50	0.5	0.5	0.5	1.5
MTCA Method A Cleanup Levels:				500	500	800/1,000	5	1,000	700	1,000
Current Method:[3]				NWTPH-D + Extended[4]		NWTPH-G and USEPA 8260B				

Abbreviations:

BTEX = Benzene, toluene, ethylbenzene, and total xylenes
CULs = Cleanup levels
D. Lead = Dissolved Lead
DTW = Depth to Water
(ft.) = Feet
GC = Gas chromatography
GWE = Groundwater Elevation
LFP = Low Flow Purge
MTBE = Methyl Tertiary Butyl Ether
MTCA = Model Toxics Control Act
NP = No purge
PER = Peristaltic pump
QA = Quality Assurance/Trip Blank
R = Re-analysis
SAIC = SAIC Energy, Environment & Infrastructure, LLC
TOC = Top of Casing
TPH = Total Petroleum Hydrocarbons
TPH-DRO = TPH as diesel-range organics
TPH-GRO = TPH as gasoline-range organics
TPH-HRO = TPH as heavy oil-range organics
USEPA = United States Environmental Protection Agency
µg/L = Micrograms per liter
-- = Not Measured/Not Analyzed

Notes:

1 Analytical results in bold font indicate concentrations exceed MTCA Method A cleanup levels.
2 TOC elevations have been surveyed in to a relative benchmark of 100 feet.
3 Laboratory analytical methods for historical data may not be consistent with list of current analytical methods. When necessary, consult original laboratory reports to verify methods used.
4 Analyzed with silica-gel clean up.

TABLE 6
SOIL VAPOR ANALYTICAL RESULTS
FORMER UNOCAL BULK PLANT NO. 306563
101 NW Coveland Street, Coupeville, Washington
Concentrations reported in ug/m^3

Sample ID/Depth (ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	TPH-Gasoline	MTBE	Naphthalene	1,2-Dichloroethane-d4	Toluene-d8	4-Bromoflourobenzene
VP-1-092310	09/23/10	11	21.0000	4.3	17	6.9	4,500	<0.55	<4.0	120	100	100
VP-2-092310	09/23/10	2.4	15	3.6	16	8	2,500	<0.55	<4	111	101	104
VP-3-092310	09/23/10	2.4	6.0	2.8	12	6.2	2,300	<0.58	<4.2	107	101	100
VP-4-092310	09/23/10	17	20	4.2	19	7.900	12,000	<0.56	<4.1	114	104	101
AMB-1-092310	09/23/10	0.80	0.69	<0.66	0.74	<0.66	160	<0.55	<4.0	108	100	99

EXPLANATIONS

ug/m^3 = micrograms per cubic meter of air

Vapor Analytical data by Modified EPA Method TO-15 GC/MS Full Scan

TPH = Total Petroleum Hydrocarbons

AMB-1-092310 is an ambient air sample collected above ground and outside the building

SAIC

Appendix A:
Vapor Modeling Memo and Calculations

Vapor Intrusion Modeling Memo
Former Unocal Bulk Plant No. 306563
101 NW Coveland St, Coupeville, WA

This memo details the Johnson and Ettinger vapor modeling information for the former Unocal Bulk Plant located at 101 NW Coveland Street in Coupeville, Washington. The vapor model was completed to determine the predicted incremental risk from soil vapor intrusion of volatile compounds to indoor air affecting occupants within the current residential dwelling. The model was run to predict the incremental risk for carcinogens from vapor analytical results. The memo and attachment present the input data used, assumptions made, and the resulting degree of incremental risk predicted.

The vapor points were installed along the north side of the current residential building at a depth of five feet below ground surface (bgs). Each vapor point consists of a 3/8-inch diameter by 6-inch long stainless-steel screen with stainless-steel end caps. The screens are attached to a ¼-inch outside diameter nylon tubing that continues to the ground surface for sample collection. The annular space around and six inches above and below each vapor point screen is filled with graded 2-12 silica sand. A one-foot thick seal of pre-hydrated bentonite chips was placed above the sand pack sections. The remaining annular space was filled with grout to within one-foot of the ground surface. Each vapor point is placed within a temporary well box for protection.

Soil vapor analytical results indicate that soil vapor at concentrations above the laboratory detection limits exists in the subsurface adjacent to the current residential building. The model calculations were performed based on the following assumptions and model inputs:

Analytical measurements of the soil physical parameters present have not been performed; therefore, common literature values for observed soil types were used. Soil beneath the building have been described as fill from the surface to approximately 3 feet bgs and silt with fine to medium sand underlying the fill. For this model, a permeable, sandy loam was used as the soil type in order to obtain conservative results.

The highest detection of benzene detected in the soil vapor was used as model input with benzene concentrations at 17µg/m^3, which was collected from vapor point VP-4 at five feet bgs.

A conservative approach was taken by using residential slab-on-grade values for floor thickness, indoor air exchange rate, and average vapor flow rate in to the building. The default floor-wall seam crack width for residential-slab-on-grade (0.0038 cm) was not used; instead, a conservative value of 375 cm was used as an input. The footprint of the current residential dwelling is assumed to lie over the entire contaminated zone. The area of the building was measured at 1,700 square

feet and the default height is used for slab-on-grade residential housing (2.44 m; 8 feet).

As indicated, these assumptions yielded conservative results for risk modeling. These assumptions include that the soils beneath the proposed building are continuously contaminated at the highest level of soil vapor concentrations detected onsite, across the entire footprint of the residential dwelling. In actuality, the vapor points were installed outside of the building footprint adjacent to the north and within the footprint of the former ASTs. The majority of the building was constructed outside of the former AST footprints and upgradient. In addition, the residential building is actually over 20 feet in height and is not slab-on-grade but constructed with a crawl space.

An exposure frequency of 350 days a year over 70 years were used as model inputs for exposure duration and averaging times for carcinogens and non-carcinogens.

The model results are as follows:

- The incremental carcinogenic risk, resulting from the predicted vapor intrusion to indoor air for benzene, based on soil analytical results is: 1.9×10^{-7}.

Incremental risks for carcinogens greater than or equal to one (1) in one-million cancer risk (1.0×10^{-6}) exceed the broadly accepted criterion for human health risk, established by the U.S. Environmental Protection Agency and adopted through reference by the Washington State Department of Ecology. The EPAs accepted hazard quotient from vapor intrusion to indoor air for non-carcinogens is less than or equal to 1.0.

Even with the above conservative inputs, the Johnson and Ettinger model results show that incremental carcinogenic risk from vapor intrusion to indoor air is insignificant for occupants living in the current residential housing.

SG-ADV
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.70E+01			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of Ls (cell F24)					
10	150	15	150	0	0	SL		

MORE ↓

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
SL	1.62	0.387	0.103	SL	1.62	0.387	0.103	SL	1.62	0.387	0.103

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1500	1050	244	375	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.9E-07	1.9E-03

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

SG-ADV
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108883	2.10E+01			Toluene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of Ls (cell F24)					
10	150	15	150	0	0	SL		

MORE ↓

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
SL	1.62	0.387	0.103	SL	1.62	0.387	0.103	SL	1.62	0.387	0.103

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1500	1050	244	375	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.8E-04

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

SG-ADV
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
100414	2.10E+01			Ethylbenzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	150	15	150	0	0	SL		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SL	1.62	0.387	0.103	SL	1.62	0.387	0.103	SL	1.62	0.387	0.103

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1500	1050	244	375	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	6.1E-05

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

SG-ADV
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108383	2.10E+01			m-Xylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of Ls (cell F24)					
10	150	15	150	0	0	SL		

MORE ↓

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
SL	1.62	0.387	0.103	SL	1.62	0.387	0.103	SL	1.62	0.387	0.103

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1500	1050	244	375	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	5.7E-04

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Appendix B:
Method B Memo and Calculations

Site Specific MTCA Method B Memo
Former Unocal Bulk Plant No. 306563
101 NW Coveland St, Coupeville, WA

In May and June 2011 ten soil borings (SB-9 to SB-18) were installed in the vicinity of former ASTs (Figure 1). Soil boring SB-11 contained the highest residual petroleum hydrocarbon concentrations during the May 2011 site assessment event. SAIC returned the site on 6/29/2011 and collected a sample (SB-11-5-062911) as close to SB-11 as possible without augering into or sampling the disturbed soil of boring SB-11. A site specific MTCA Method B Cleanup Level for total petroleum hydrocarbons (TPH) was calculated using data collected from the soil sample SB-11-062911.

MTCA Method B Cleanup levels based on an unrestricted land use soil direct contact exposure pathway were developed for this site using the WDOE Workbook for Calculating Cleanup Levels for Petroleum Contaminated sites (MTCATPH Version NO 11.1) along with analytical data from soil samples collected at the site.

The following steps were taken in order to calculate the Method B cleanup level for the site:

- Half detection limits used for Toluene and n-hexane.
- AL_EC>5-6, AL_EC>6-8, benzene, MTBE, EDB, EDC, Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, Chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene have never been detected on the site (based on nine separate soil samples) so a value of zero was entered.
- Double counting was avoided for E-C fractions.
- Default values were used for total porosity, soil bulk density, and fraction organic carbon. A dilution factor of 20 was entered for unsaturated soil zones. A dilution factor of 20 is used because soil sample SB-11-5-062911 was collected from the unsaturated zone in boring SB-11 at 5 feet bgs, which is approximately 14 to 25 feet above the saturated zone and upper perched aquifer.

The site specific MTCA Method B cleanup level for protection of direct contact was calculated to be 2,829 mg/kg for TPH in soil.

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 02/19/13
Site Name: Former Unocal Bulk Plant No. 306563
Sample Name: SB-11-5 (SB-11-5-062911)

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	0	0.00%
AL_EC >6-8	0	0.00%
AL_EC >8-10	110	16.18%
AL_EC >10-12	30.4087	4.47%
AL_EC >12-16	165.6704	24.37%
AL_EC >16-21	161.4801	23.75%
AL_EC >21-34	27.342	4.02%
AR_EC >8-10	66.29	9.75%
AR_EC >10-12	2.5038	0.37%
AR_EC >12-16	26.3956	3.88%
AR_EC >16-21	72.1487	10.61%
AR_EC >21-34	13.0547	1.92%
Benzene	0	0.00%
Toluene	0.029	0.00%
Ethylbenzene	0.083	0.01%
Total Xylenes	0.127	0.02%
Naphthalene	0.66	0.10%
1-Methyl Naphthalene	2	0.29%
2-Methyl Naphthalene	1.7	0.25%
n-Hexane	0.029	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0	0.00%
Benzo(b)fluoranthene	0	0.00%
Benzo(k)fluoranthene	0	0.00%
Benzo(a)pyrene	0	0.00%
Chrysene	0	0.00%
Dibenz(a,h)anthracene	0	0.00%
Indeno(1,2,3-cd)pyrene	0	0.00%
Sum	679.922	100.00%

Notes for Data Entry | Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared

REMARK:
1) Half detection limits used for Toluene and n-hexane.

2) AL_EC>5-6, AL_EC>6-8, benzene, MTBE, EDB, EDC, Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, Chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene have never been detected on the site so a value of zero was entered.

3) Double counting was avoided for E-C fractions.

4) Default values were used for total porosity, fractional organic carbon, and soil bulk density.

5) A dilution factor of 20 was entered for unsaturated soil zones. The soil sample was collect in the unsaturated zone approximately 14 to 25 above the water bearing and saturated zones.

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: 500 ug/L

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 2/19/2013
Site Name: Former Unocal Bulk Plant No. 306563
Sample Name: SB-11-5 (SB-11-5-062911)
Measured Soil TPH Concentration, mg/kg: **679.922**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	2,829	0.00E+00	2.40E-01	Pass
	Method C	39,127	0.00E+00	1.74E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	100% NAPL	0.00E+00	7.15E-01	Pass
	Target TPH GW Conc. @ 500 ug/L	2,746	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through -7494).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	2,829.35	39,127.23
Most Stringent Criterion	HI =1	HI =1

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	2.83E+03	0.00E+00	1.00E+00	YES	3.91E+04	0.00E+00	1.00E+00
Total Risk=1E-5	NA	NA	NA	NA	NA	NA	NA	NA
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA	NA			
EDB	NA	NA	NA	NA	NA			
EDC	NA	NA	NA	NA	NA			

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	NA
Protective Ground Water Concentration, ug/L	NA
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!

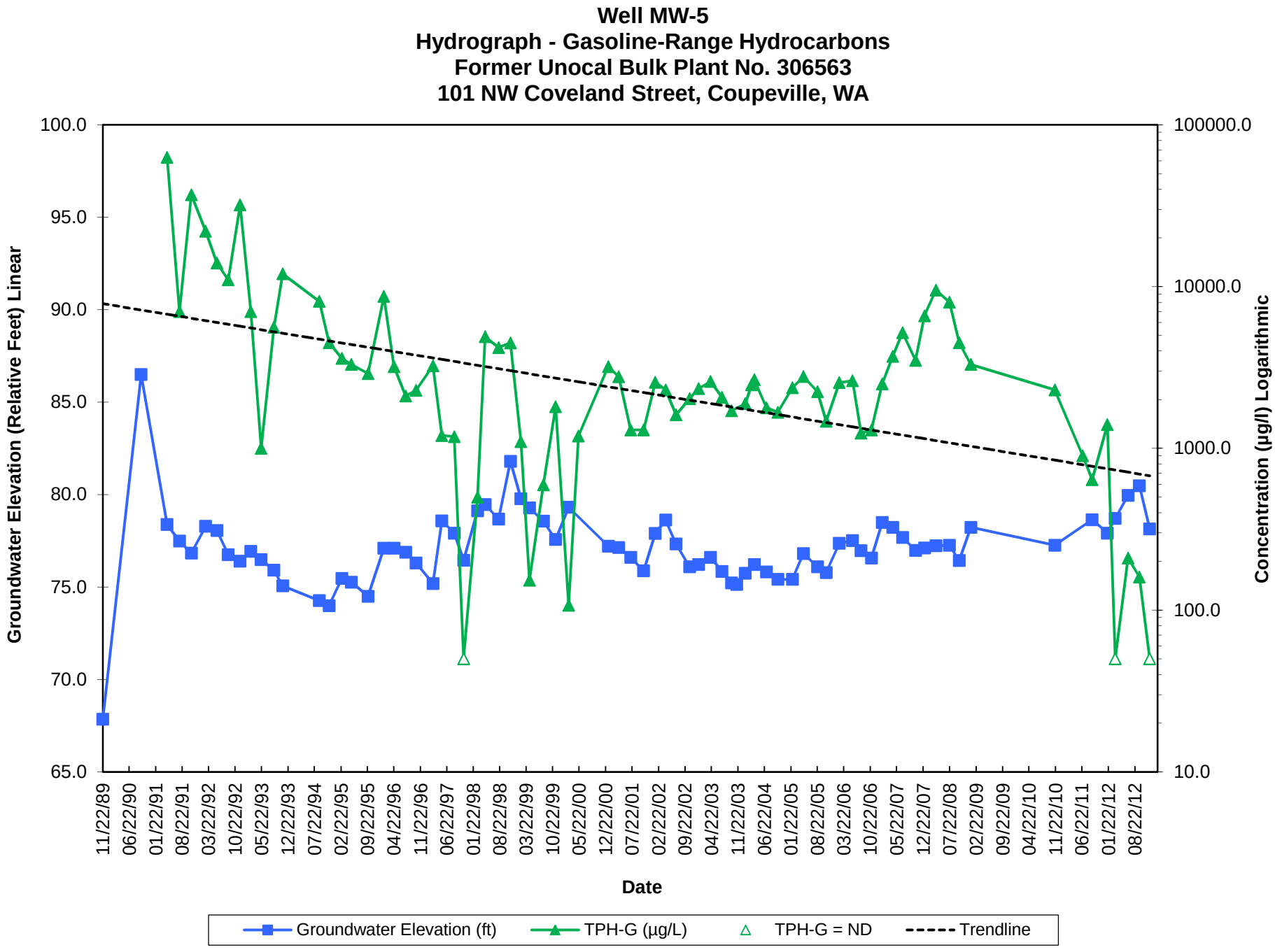
Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	5.23E+02	0.00E+00	8.36E-01	100% NAPL
Total Risk = 1E-5	NA	NA	NA	NA	NA
Total Risk = 1E-6	NA	NA	NA	NA	NA
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 70000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 500 ug/L	5.00E+02	0.00E+00	8.04E-01	2.75E+03

Appendix C:
Hydrographs


Well MW-5
Hydrograph - Gasoline-Range Hydrocarbons
Former Unocal Bulk Plant No. 306563
101 NW Coveland Street, Coupeville, WA
Groundwater Elevation (Relative Feet) Linear
Concentration (µg/l) Logarithmic
100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
100000.0
10000.0
1000.0
100.0
10.0
11/22/89
06/22/90
01/22/91
08/22/91
03/22/92
10/22/92
05/22/93
12/22/93
07/22/94
02/22/95
09/22/95
04/22/96
11/22/96
06/22/97
01/22/98
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03/22/99
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05/22/00
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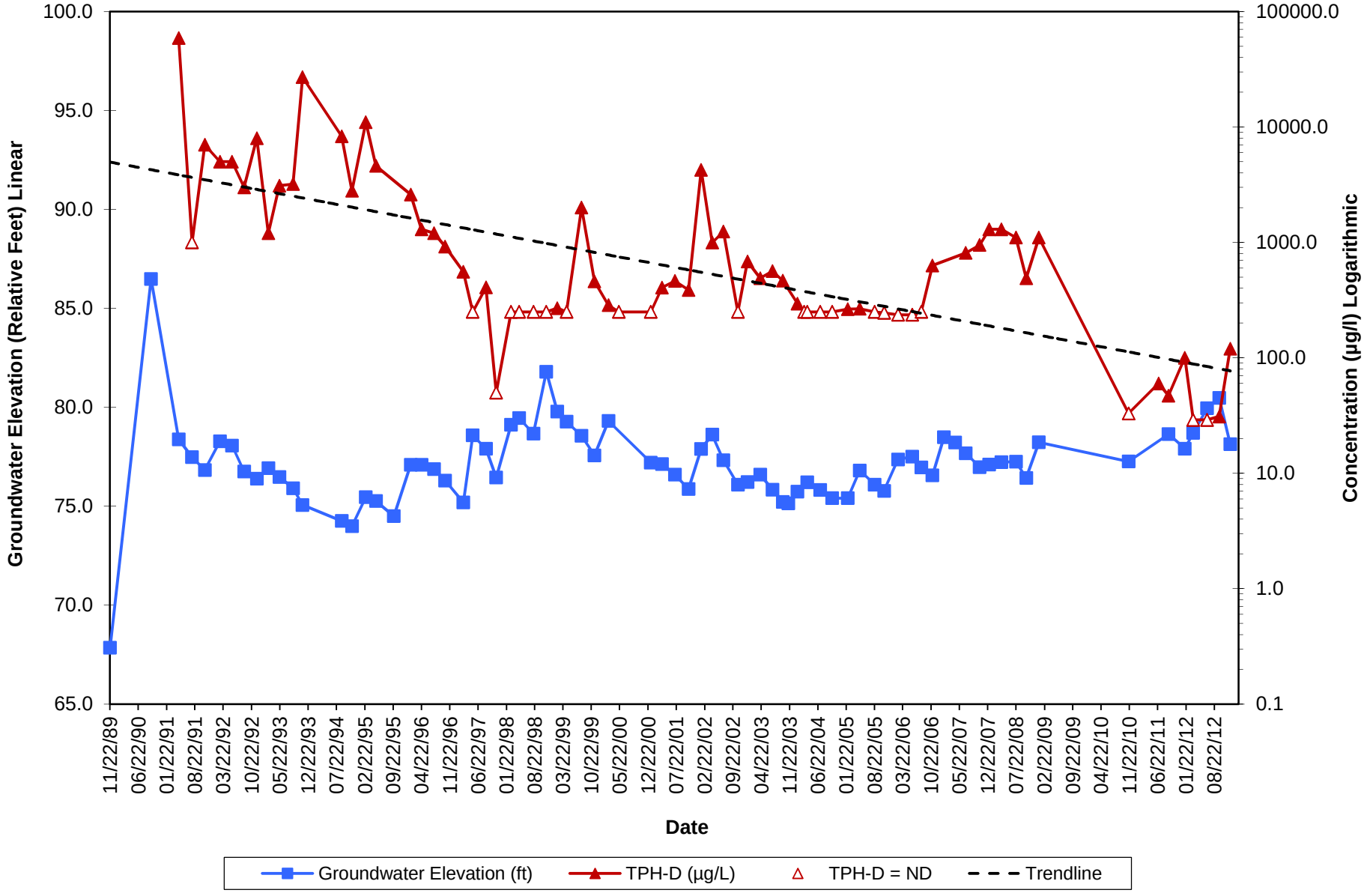
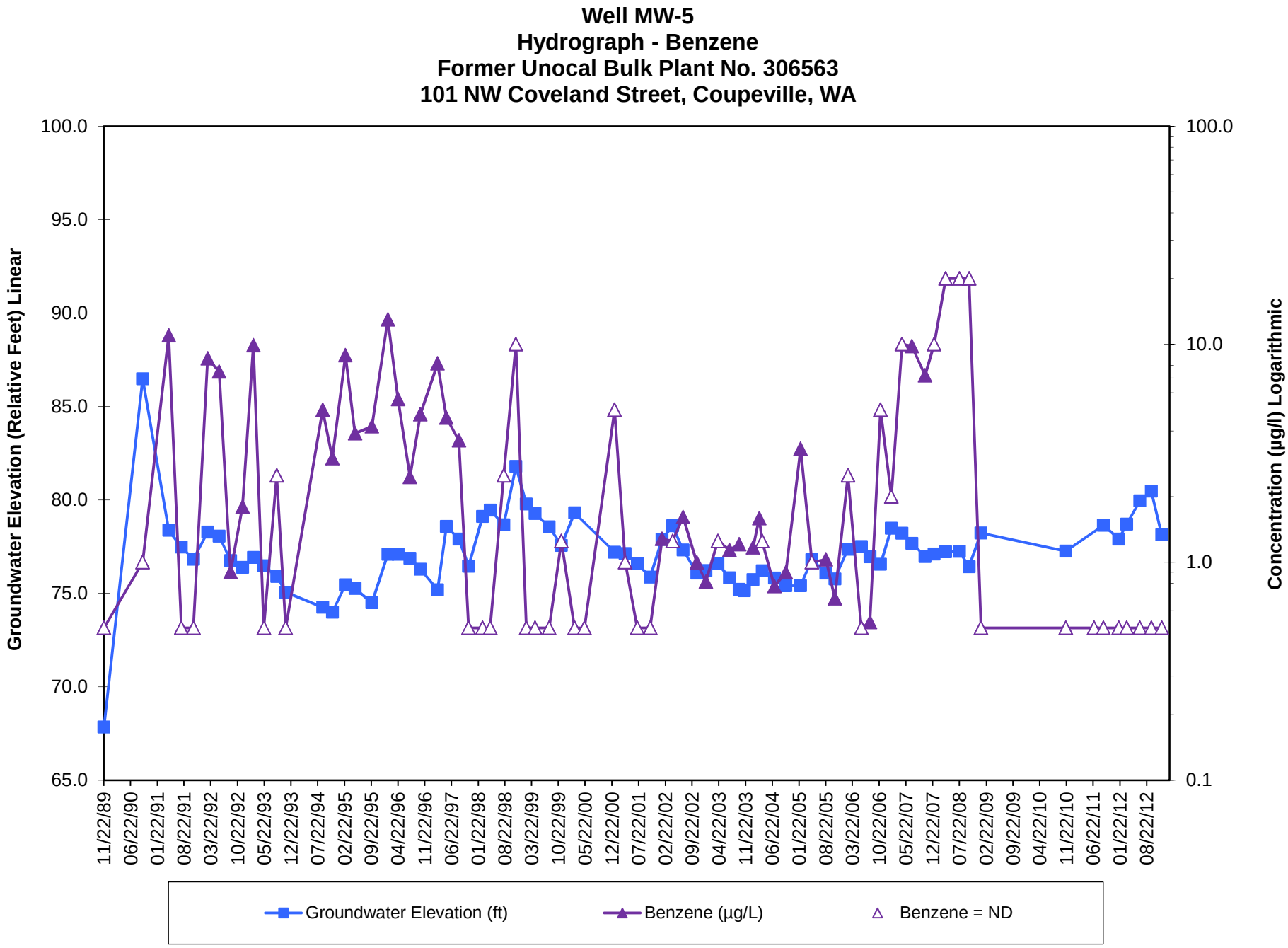
07/22/01
02/22/02
09/22/02
04/22/03
11/22/03
06/22/04
01/22/05
08/22/05
03/22/06
10/22/06
05/22/07
12/22/07
07/22/08
02/22/09
09/22/09
04/22/10
11/22/10
06/22/11
01/22/12
08/22/12
Date
Groundwater Elevation (ft)
TPH-G (µg/L)
TPH-G = ND
Trendline

Well MW-5
Hydrograph - Diesel-Range Hydrocarbons
Former Unocal Bulk Plant No. 306563
101 NW Coveland Street, Coupeville, WA




Well MW-5
Hydrograph - Benzene
Former Unocal Bulk Plant No. 306563
101 NW Coveland Street, Coupeville, WA
Groundwater Elevation (Relative Feet) Linear
Concentration (µg/l) Logarithmic
100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
10.0
1.0
0.1
11/22/89
06/22/90
01/22/91
08/22/91
03/22/92
10/22/92
05/22/93
12/22/93
07/22/94
02/22/95
09/22/95
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08/22/05
03/22/06
10/22/06
05/22/07
12/22/07
07/22/08
02/22/09
09/22/09
04/22/10
11/22/10
06/22/11
01/22/12
08/22/12
Groundwater Elevation (ft)
Benzene (µg/L)
Benzene = ND

Appendix D:
Laboratory Reports

Lancaster Laboratories

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

May 20, 2011

Project: 306563

Submittal Date: 05/10/2011
Group Number: 1246099
PO Number: 0015061824
Release Number: HUNTER
State of Sample Origin: WA

Client Sample Description	Lancaster Labs (LLI) #
SB-10-4 Grab Soil Sample	6281757
SB-10-6 Grab Soil Sample	6281758
SB-9-5 Grab Soil Sample	6281759
SB-11-5 Grab Soil Sample	6281760
SB-12-4 Grab Soil Sample	6281761
SB-12-7 Grab Soil Sample	6281762

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

ELECTRONIC COPY TO	SAIC	Attn: Don Wyll
ELECTRONIC COPY TO	SAIC	Attn: Mike Lange
ELECTRONIC COPY TO	CRA	Attn: Cortlandt Toczylowski

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Analysis Report

Questions? Contact your Client Services Representative
Jill M Parker at (717) 656-2300 Ext. 1241

Respectfully Submitted,

Tracy A. Cole
Senior Specialist

Lancaster Laboratories

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Analysis Report

Sample Description: SB-10-4 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6281757
LLI Group # 1246099
Account # 11255

Project Name: 306563

Collected: 05/06/2011 12:30 by GC

Submitted: 05/10/2011 10:15
Reported: 05/20/2011 08:39

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC104

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.4	30.76
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0028	30.76
08179	Ethylbenzene	100-41-4	N.D.	0.0028	30.76
08179	Toluene	108-88-3	N.D.	0.0028	30.76
08179	Total Xylenes	1330-20-7	0.011	0.0071	30.76
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.4	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	6.93	0.0119	2
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	13.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11133A31B	05/16/2011 13:32	Carrie E Miller	30.76
08179	BTEX by 8021	SW-846 8021B	1	11133A31B	05/16/2011 13:32	Carrie E Miller	30.76
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113124371	05/06/2011 12:30	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113124371	05/06/2011 12:30	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111320021A	05/16/2011 12:58	Glorines Suarez-Rivera	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111320021A	05/13/2011 10:10	Denise L Trimby	1
06135	Lead	SW-846 6020	1	111311026001A	05/12/2011 11:07	Choon Y Tian	2
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	111311026001	05/11/2011 20:31	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11133820003A	05/13/2011 19:54	Scott W Freisher	1

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Analysis Report

Sample Description: SB-10-6 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6281758
LLI Group # 1246099
Account # 11255

Project Name: 306563

Collected: 05/06/2011 12:40 by GC

Submitted: 05/10/2011 10:15
Reported: 05/20/2011 08:39

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC106

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	9.4	1.5	33.28
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0030	33.28
08179	Ethylbenzene	100-41-4	0.0054	0.0030	33.28
08179	Toluene	108-88-3	N.D.	0.0030	33.28
08179	Total Xylenes	1330-20-7	0.022	0.0076	33.28
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.4	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	5.48	0.0117	2
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	12.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11133A31B	05/16/2011 14:09	Carrie E Miller	33.28
08179	BTEX by 8021	SW-846 8021B	1	11133A31B	05/16/2011 14:09	Carrie E Miller	33.28
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113124371	05/06/2011 12:40	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113124371	05/06/2011 12:40	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111320021A	05/16/2011 14:28	Dustin A Underkoffler	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111320021A	05/13/2011 10:10	Denise L Trimby	1
06135	Lead	SW-846 6020	1	111311026001A	05/12/2011 11:09	Choon Y Tian	2
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	111311026001	05/11/2011 20:31	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11133820003A	05/13/2011 19:54	Scott W Freisher	1

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Analysis Report

Sample Description: SB-9-5 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6281759
LLI Group # 1246099
Account # 11255

Project Name: 306563

Collected: 05/06/2011 13:00 by GC

Submitted: 05/10/2011 10:15
Reported: 05/20/2011 08:39

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC95-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.2	25.31
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0024	25.31
08179	Ethylbenzene	100-41-4	N.D.	0.0024	25.31
08179	Toluene	108-88-3	0.0040	0.0024	25.31
08179	Total Xylenes	1330-20-7	0.0091	0.0059	25.31
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	33	3.5	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	12	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	11.1	0.0118	2
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	14.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11133A31B	05/16/2011 14:57	Carrie E Miller	25.31
08179	BTEX by 8021	SW-846 8021B	1	11133A31B	05/16/2011 14:57	Carrie E Miller	25.31
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113124371	05/06/2011 13:00	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113124371	05/06/2011 13:00	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111320021A	05/16/2011 17:00	Dustin A Underkoffler	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111320021A	05/13/2011 10:10	Denise L Trimby	1
06135	Lead	SW-846 6020	1	111311026001A	05/12/2011 11:11	Choon Y Tian	2
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	111311026001	05/11/2011 20:31	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11133820003A	05/13/2011 19:54	Scott W Freisher	1

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Analysis Report

Sample Description: SB-11-5 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6281760
LLI Group # 1246099
Account # 11255

Project Name: 306563

Collected: 05/06/2011 15:00 by GC

Submitted: 05/10/2011 10:15
Reported: 05/20/2011 08:39

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC115

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	890	52	1107.38
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.026	276.84
08179	Ethylbenzene	100-41-4	0.18	0.026	276.84
08179	Toluene	108-88-3	N.D.	0.026	276.84
08179	Total Xylenes	1330-20-7	0.93	0.065	276.84
	Reporting limits were raised due to interference from the sample matrix.				
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	810	42	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	140	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	5.35	0.0120	2
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	14.2	0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11133A31B	05/16/2011 20:23	Elizabeth J Marin	1107.38
08179	BTEX by 8021	SW-846 8021B	1	11133A31B	05/16/2011 16:45	Carrie E Miller	276.84
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113124371	05/06/2011 15:00	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113124371	05/06/2011 15:00	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111320021A	05/16/2011 14:50	Dustin A Underkoffler	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111320021A	05/13/2011 10:10	Denise L Trimby	1
06135	Lead	SW-846 6020	1	111311026001A	05/12/2011 11:12	Choon Y Tian	2
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	111311026001	05/11/2011 20:31	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11133820003A	05/13/2011 19:54	Scott W Freisher	1

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Analysis Report

Sample Description: SB-12-4 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6281761
LLI Group # 1246099
Account # 11255

Project Name: 306563

Collected: 05/06/2011 16:00 by GC

Submitted: 05/10/2011 10:15
Reported: 05/20/2011 08:39

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC124

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.1	26.64
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0022	26.64
08179	Ethylbenzene	100-41-4	N.D.	0.0022	26.64
08179	Toluene	108-88-3	N.D.	0.0022	26.64
08179	Total Xylenes	1330-20-7	N.D.	0.0055	26.64
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.1	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	10	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	3.60	0.0107	2
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	3.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11133A31B	05/16/2011 15:33	Carrie E Miller	26.64
08179	BTEX by 8021	SW-846 8021B	1	11133A31B	05/16/2011 15:33	Carrie E Miller	26.64
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113124371	05/06/2011 16:00	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113124371	05/06/2011 16:00	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111320021A	05/16/2011 16:38	Dustin A Underkoffler	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111320021A	05/13/2011 10:10	Denise L Trimby	1
06135	Lead	SW-846 6020	1	111311026001A	05/12/2011 11:14	Choon Y Tian	2
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	111311026001	05/11/2011 20:31	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11133820003A	05/13/2011 19:54	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: SB-12-7 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6281762
LLI Group # 1246099
Account # 11255

Project Name: 306563

Collected: 05/06/2011 16:00 by GC

Submitted: 05/10/2011 10:15
Reported: 05/20/2011 08:39

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC127

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.1	25.39
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0021	25.39
08179	Ethylbenzene	100-41-4	N.D.	0.0021	25.39
08179	Toluene	108-88-3	0.0025	0.0021	25.39
08179	Total Xylenes	1330-20-7	N.D.	0.0053	25.39
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.1	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	10	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	3.27	0.0107	2
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	4.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11133A31B	05/16/2011 16:09	Carrie E Miller	25.39
08179	BTEX by 8021	SW-846 8021B	1	11133A31B	05/16/2011 16:09	Carrie E Miller	25.39
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113124371	05/06/2011 16:00	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113124371	05/06/2011 16:00	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111320021A	05/16/2011 16:17	Dustin A Underkoffler	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111320021A	05/13/2011 10:10	Denise L Trimby	1
06135	Lead	SW-846 6020	1	111311026001A	05/12/2011 11:16	Choon Y Tian	2
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	111311026001	05/11/2011 20:31	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11133820003A	05/13/2011 19:54	Scott W Freisher	1

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Analysis Report

Quality Control Summary

Client Name: Chevron Group Number: 1246099
Reported: 05/20/11 at 08:39 AM

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

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 11133A31B	Sample number(s): 6281757-6281762							
Benzene	N.D.	0.0020	mg/kg	97	97	76-118	1	30
Ethylbenzene	N.D.	0.0020	mg/kg	104	104	77-115	1	30
NWTPH-Gx soil C7-C12	N.D.	1.0	mg/kg	84	95	67-119	11	30
Toluene	N.D.	0.0020	mg/kg	103	103	80-120	0	30
Total Xylenes	N.D.	0.0050	mg/kg	106	106	78-115	0	30
Batch number: 111320021A	Sample number(s): 6281757-6281762							
DRO C12-C24 w/Si Gel	N.D.	3.0	mg/kg	82		60-120		
HRO C24-C40 w/Si Gel	N.D.	10.	mg/kg					
Batch number: 111311026001A	Sample number(s): 6281757-6281762							
Lead	N.D.	0.0104	mg/kg	103		83-110		
Batch number: 11133820003A	Sample number(s): 6281757-6281762							
Moisture				100		99-101		

Sample Matrix Quality Control

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 111320021A	Sample number(s): 6281757-6281762 BKG: 6281757								
DRO C12-C24 w/Si Gel						N.D.	N.D.	0 (1)	20
HRO C24-C40 w/Si Gel						N.D.	N.D.	0 (1)	20
Batch number: 111311026001A	Sample number(s): 6281757-6281762 UNSPK: P279920 BKG: P279920								
Lead	164*	141*	75-125	9	20	2.95	4.26	36*	20
Batch number: 11133820003A	Sample number(s): 6281757-6281762 BKG: 6281760								
Moisture						14.2	14.4	1	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.

Analysis Name: NWTPH-Gx soil C7-C12
Batch number: 11133A31B

*- 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.

Quality Control Summary

Client Name: Chevron Group Number: 1246099
Reported: 05/20/11 at 08:39 AM

Surrogate Quality Control

	Trifluorotoluene-F	Trifluorotoluene-P
6281757	92	91
6281758	92	88
6281759	87	84
6281760	108	97
6281761	96	95
6281762	91	92
Blank	99	100
LCS	87	96
LCSD	98	95
Limits:	61-122	73-117

Analysis Name: NWTPH-Dx soil w/Si Gel
Batch number: 111320021A

	Orthoterphenyl
6281757	89
6281758	86
6281759	86
6281760	99
6281761	90
6281762	90
Blank	95
DUP	97
LCS	99
Limits:	50-150

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

Chevron Northwest Region Analysis Request/Chain of Custody

221600

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Where quality is a science.

For Lancaster Laboratories use only
Acct. #: 11255 Sample #: 6281756-62 SCR#:

Grp# 1246099

Facility #: Former Unocal Bulk Plant No. 306563
Site Address: 101 NW Cleveland St., Coupeville, WA
Chevron PM: Marlea Hamner Lead Consultant: SAIC
Consultant/Office: Bothell
Consultant Prj. Mgr.: Don Wyll
Consultant Phone #: 425-482-3315 Fax #: 425-485-5566
Sampler: G. Cisneros / S. Brown
Service Order #: ☐ Non SAR:

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water	Matrix: Oil	Matrix: Potable	Matrix: NPDES	Matrix: Air	Total Number of Containers	BTEX / MTBE 8021 ☒ 8260 ☐ Naphth ☐	8260 full scan	Oxygenates	NW TPH G X	NW TPH D Extended Rng. ☒ Silica Gel Cleanup ☒	Lead Total ☐ Diss. ☐ Method 6020	VPH/EPH	NWTPH H HCID ☐ quantification	Moisture
TB-1	5/6	1200									2	/			/					
SB-10-4		1230	/		/						7	/			/	/	/			/
SB-10-6		1240	/		/						7	/			/	/	/			/
SB-9-5		1300	/		/						7	/			/	/	/			/
SB-11-5		1500 → 1500	/		/						7	/			/	/	/			/
SB-12-4		1600	/		/						7	/			/	/	/			/
SB-12-7		1600	/		/						7	/			/	/	/			/

Preservative Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy s on highest hit
☐ Run ____ oxy s on all hits

Comments / Remarks

Trip blank not analyzed per G. Cisneros. jmp 5/11/11

Turnaround Time Requested (TAT) (please circle)
STD. TAT 72 hour 48 hour
24 hour 4 day 5 day

Data Package Options (please circle if required)
QC Summary Type I - Full
Type VI (Raw Data) Disk / EDD
WIP (RWQCB) Standard Format
Disk ____ Other.

	Date	Time		Date	Time
Relinquished by:	5/6	1840	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by:		
Relinquished by Commercial Carrier: UPS FedEx Other			Received by:	5/10/11	1015
Temperature Upon Receipt 4.7 C°			Custody Seals Intact? Yes No		

Explanation of Symbols and Abbreviations

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

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

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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 of gas 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.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC 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.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

May 26, 2011

Project: 306563

Submittal Date: 05/11/2011
Group Number: 1246413
PO Number: 0015061824
Release Number: HUNTER
State of Sample Origin: WA

Client Sample Description	Lancaster Labs (LLI) #
SB-10-9 Grab Soil Sample	6283490
SB-10-11 Grab Soil Sample	6283491
SB-13-5 Grab Soil Sample	6283492
SB-11-9 Grab Soil Sample	6283493
SB-11-11 Grab Soil Sample	6283494
SB-12-10 Grab Soil Sample	6283495
SB-13-10 Grab Soil Sample	6283496
SB-14-5 Grab Soil Sample	6283497
SB-15-5 Grab Soil Sample	6283498
SB-14-10 Grab Soil Sample	6283499

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

ELECTRONIC COPY TO	SAIC	Attn: Don Wyll
ELECTRONIC COPY TO	SAIC	Attn: Mike Lange
ELECTRONIC COPY TO	CRA	Attn: Cortlandt Toczylowski

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Analysis Report

Questions? Contact your Client Services Representative
Jill M Parker at (717) 656-2300 Ext. 1241

Respectfully Submitted,

Sarah M. Snyder
Senior Specialist

Lancaster Laboratories

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Analysis Report

Sample Description: SB-10-9 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283490
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 10:50 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC109

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	4.7	1.1	23.68
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0022	23.68
08179	Ethylbenzene	100-41-4	0.0040	0.0022	23.68
08179	Toluene	108-88-3	N.D.	0.0022	23.68
08179	Total Xylenes	1330-20-7	0.012	0.0055	23.68
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.5	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	12	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	4.68	0.0118	2
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	13.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/18/2011 04:41	Elizabeth J Marin	23.68
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/18/2011 04:41	Elizabeth J Marin	23.68
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 10:50	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 10:50	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111320021A	05/16/2011 15:12	Dustin A Underkoffler	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111320021A	05/13/2011 10:10	Denise L Trimby	1
06135	Lead	SW-846 6020	1	111321026002A	05/13/2011 07:35	Choon Y Tian	2
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	111321026002	05/12/2011 20:24	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11136820003A	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-10-11 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283491
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 11:00 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

C1011

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	430	24	533.19
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.049	533.19
08179	Ethylbenzene	100-41-4	0.19	0.049	533.19
08179	Toluene	108-88-3	N.D.	0.049	533.19
08179	Total Xylenes	1330-20-7	1.1	0.12	533.19
	Reporting limits were raised due to interference from the sample matrix.				
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	41	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	140	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	7.62	0.0117	2
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	12.5	0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/18/2011 02:52	Elizabeth J Marin	533.19
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/18/2011 02:52	Elizabeth J Marin	533.19
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 11:00	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 11:00	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111320021A	05/16/2011 15:33	Dustin A Underkoffler	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111320021A	05/13/2011 10:10	Denise L Trimby	1
06135	Lead	SW-846 6020	1	111321026002A	05/13/2011 07:37	Choon Y Tian	2
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	111321026002	05/12/2011 20:24	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11136820003A	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-13-5 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283492
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 11:30 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC135

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.1	26.25
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0022	26.25
08179	Ethylbenzene	100-41-4	N.D.	0.0022	26.25
08179	Toluene	108-88-3	N.D.	0.0022	26.25
08179	Total Xylenes	1330-20-7	N.D.	0.0055	26.25
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.2	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/17/2011 18:24	Elizabeth J Marin	26.25
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/17/2011 18:24	Elizabeth J Marin	26.25
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 11:30	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 11:30	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111320021A	05/16/2011 15:55	Dustin A Underkoffler	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111320021A	05/13/2011 10:10	Denise L Trimby	1
00111	Moisture	SM20 2540 G	1	11136820003A	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-11-9 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283493
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 12:30 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC119

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	250	23	492.75
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.010	110.1
08179	Ethylbenzene	100-41-4	N.D.	0.070	110.1
08179	Toluene	108-88-3	0.012	0.010	110.1
08179	Total Xylenes	1330-20-7	0.80	0.026	110.1
	Reporting limits were raised due to interference from the sample matrix.				
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	66	3.5	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	12	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	13.9	0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/18/2011 11:20	Elizabeth J Marin	492.75
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/18/2011 03:29	Elizabeth J Marin	110.1
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 12:30	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 12:30	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 11:35	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003A	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-11-11 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283494
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 12:40 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

C1111

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	11	1.2	26.79
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0025	26.79
08179	Ethylbenzene	100-41-4	N.D.	0.0025	26.79
08179	Toluene	108-88-3	N.D.	0.0025	26.79
08179	Total Xylenes	1330-20-7	0.021	0.0062	26.79
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	13	3.5	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	12	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	13.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/17/2011 19:00	Elizabeth J Marin	26.79
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/17/2011 19:00	Elizabeth J Marin	26.79
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 12:40	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 12:40	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 11:57	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003A	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-12-10 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283495
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 13:20 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

C1210

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	26	1.1	23.6
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0021	23.6
08179	Ethylbenzene	100-41-4	N.D.	0.0021	23.6
08179	Toluene	108-88-3	N.D.	0.0021	23.6
08179	Total Xylenes	1330-20-7	0.0086	0.0053	23.6
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	44	3.4	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	11.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/17/2011 19:36	Elizabeth J Marin	23.6
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/17/2011 19:36	Elizabeth J Marin	23.6
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 13:20	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 13:20	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 12:19	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003A	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-13-10 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283496
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 13:40 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

C1310

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	6.1	1.1	25.01
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0023	25.01
08179	Ethylbenzene	100-41-4	N.D.	0.0023	25.01
08179	Toluene	108-88-3	0.0049	0.0023	25.01
08179	Total Xylenes	1330-20-7	0.023	0.0057	25.01
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.4	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	12.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/17/2011 20:13	Elizabeth J Marin	25.01
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/17/2011 20:13	Elizabeth J Marin	25.01
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 13:40	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 13:40	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 12:40	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003A	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-14-5 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283497
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 14:45 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC145

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.0	24.5
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0021	24.5
08179	Ethylbenzene	100-41-4	N.D.	0.0021	24.5
08179	Toluene	108-88-3	N.D.	0.0021	24.5
08179	Total Xylenes	1330-20-7	N.D.	0.0052	24.5
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	5.5	3.2	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/17/2011 20:49	Elizabeth J Marin	24.5
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/17/2011 20:49	Elizabeth J Marin	24.5
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 14:45	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 14:45	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 14:28	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003A	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-15-5 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283498
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 15:30 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC155

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.1	23.47
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0022	23.47
08179	Ethylbenzene	100-41-4	N.D.	0.0022	23.47
08179	Toluene	108-88-3	N.D.	0.0022	23.47
08179	Total Xylenes	1330-20-7	N.D.	0.0056	23.47
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.6	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	12	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	16.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/17/2011 21:26	Elizabeth J Marin	23.47
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/17/2011 21:26	Elizabeth J Marin	23.47
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 15:30	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 15:30	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 13:02	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003A	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-14-10 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6283499
LLI Group # 1246413
Account # 11255

Project Name: 306563

Collected: 05/09/2011 15:45 by GC

Submitted: 05/11/2011 09:30
Reported: 05/26/2011 16:06

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

C1410

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.1	23.07
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0022	23.07
08179	Ethylbenzene	100-41-4	N.D.	0.0022	23.07
08179	Toluene	108-88-3	N.D.	0.0022	23.07
08179	Total Xylenes	1330-20-7	0.0061	0.0055	23.07
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	3.9	3.6	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	12	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	15.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/17/2011 15:37	Elizabeth J Marin	23.07
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/17/2011 15:37	Elizabeth J Marin	23.07
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113224382	05/09/2011 15:45	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113224382	05/09/2011 15:45	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 13:23	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003B	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Quality Control Summary

Client Name: Chevron Group Number: 1246413
Reported: 05/26/11 at 04:06 PM

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

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 11137A31A	Sample number(s): 6283490-6283499							
Benzene	N.D.	0.0020	mg/kg	107	102	76-118	4	30
Ethylbenzene	N.D.	0.0020	mg/kg	110	106	77-115	4	30
NWTPH-Gx soil C7-C12	N.D.	1.0	mg/kg	90	89	67-119	1	30
Toluene	N.D.	0.0020	mg/kg	111	105	80-120	5	30
Total Xylenes	N.D.	0.0050	mg/kg	111	108	78-115	3	30
Batch number: 111320021A	Sample number(s): 6283490-6283492							
DRO C12-C24 w/Si Gel	N.D.	3.0	mg/kg	82		60-120		
HRO C24-C40 w/Si Gel	N.D.	10.	mg/kg					
Batch number: 111370009A	Sample number(s): 6283493-6283499							
DRO C12-C24 w/Si Gel	N.D.	3.0	mg/kg	89		60-120		
HRO C24-C40 w/Si Gel	N.D.	10.	mg/kg					
Batch number: 111321026002A	Sample number(s): 6283490-6283491							
Lead	N.D.	0.0104	mg/kg	101		83-110		
Batch number: 11136820003A	Sample number(s): 6283490-6283498							
Moisture				100		99-101		
Batch number: 11136820003B	Sample number(s): 6283499							
Moisture				100		99-101		

Sample Matrix Quality Control

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 111320021A	Sample number(s): 6283490-6283492 BKG: P281757								
DRO C12-C24 w/Si Gel						N.D.	N.D.	0 (1)	20
HRO C24-C40 w/Si Gel						N.D.	N.D.	0 (1)	20
Batch number: 111370009A	Sample number(s): 6283493-6283499 BKG: 6283493								
DRO C12-C24 w/Si Gel						57	47	19	20
HRO C24-C40 w/Si Gel						N.D.	N.D.	0 (1)	20
Batch number: 111321026002A	Sample number(s): 6283490-6283491 UNSPK: P282740 BKG: P282740								
Lead	224 (2)	143 (2)	75-125	11	20	16.1	19.7	20	20
Batch number: 11136820003A	Sample number(s): 6283490-6283498 BKG: 6283498								

*- 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.

Quality Control Summary

Client Name: Chevron Group Number: 1246413
Reported: 05/26/11 at 04:06 PM

Sample Matrix Quality Control

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Moisture						16.0	14.9	7	15
Batch number: 11136820003B	Sample number(s): 6283499			BKG: 6283499					
Moisture						15.8	15.4	3	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.

Analysis Name: Method 8021 Soil Master
Batch number: 11137A31A

	Trifluorotoluene-F	Trifluorotoluene-P
6283490	88	88
6283491	113	112
6283492	95	95
6283493	108	97
6283494	85	89
6283495	85	89
6283496	78	83
6283497	94	93
6283498	76	77
6283499	81	84
Blank	90	94
LCS	94	95
LCSD	97	91
Limits:	61-122	73-117

Analysis Name: NWTPH-Dx soil w/Si Gel
Batch number: 111320021A

	Orthoterphenyl
6283490	89
6283491	91
6283492	91
Blank	95
DUP	97
LCS	99
Limits:	50-150

Analysis Name: NWTPH-Dx soil w/Si Gel
Batch number: 111370009A

	Orthoterphenyl
6283493	102
6283494	96
6283495	106

*- 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.

Quality Control Summary

Client Name: Chevron Group Number: 1246413
Reported: 05/26/11 at 04:06 PM

Surrogate Quality Control

6283496	89
6283497	103
6283498	101
6283499	86
Blank	112
DUP	85
LCS	114
Limits:	50-150

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

Chevron Northwest Region Analysis Request/Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. #: 11255 Sample #: 6283490-99 SCR#: 221599

Grp #1246413

Facility #: 306563
Site Address: 10a NW Cleveland St. Camasville, WA
Chevron PM: Marlea Herman Lead Consultant: SAIC
Consultant/Office: Bothell
Consultant Prj. Mgr.: Don Wyll
Consultant Phone #: 425-482-3315 Fax #: 425-485-5556
Sampler: G. Cisneros
Service Order #: ☐ Non SAR:

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water	Matrix: Oil	Matrix: Air	Total Number of Containers	Preservation Codes	Analyses Requested
SB-10-9	5/9	1050	✓		✓				7		
SB-10-11	5/9	1100	✓		✓				7		
SB-13-5	5/9	1130	✓		✓				6		
SB-11-9	5/9	1230	✓		✓				6		
SB-11-11	5/9	1240	✓		✓				6		
SB-12-10	5/9	1320	✓		✓				6		
SB-13-16	5/9	1340	✓		✓				6		
SB-14-5	5/9	1445	✓		✓				6		
SB-15-5	5/9	1530	✓		✓				6		
SB-14-10	5/9	1545	✓		✓				6		
TB-1	5/9	1600	✓		Dry				2		

Preservation Codes: BTEX ☐ MTBE ☐ 8021 ☐ 8260 ☐ Naphth ☐ 8260 full scan ☐ Oxygenates ☐ NWTPH G ✓ NWTPH D ✓ Extended Rng. ☐ Silica Gel Cleanup ☐ Lead ☐ Total ☐ Diss. ☐ Method 6020 ☐ VPH/EPH ☐ NWTPH H HCID ☐ quantification ☐ Moisture ✓

Preservative Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

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

Comments / Remarks
Trip blank not analyzed per G. Cisneros - jmp 5/12/11

Turnaround Time Requested (TAT) (please circle)
STD. TAT | 72 hour | 48 hour
24 hour | 4 day | 5 day

Data Package Options (please circle if required)
QC Summary | Type I - Full
Type VI (Raw Data) | Disk / EDD
WIP (RWQCB) | Standard Format
Disk | _____ Other.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	5/9/11	1830	[signature]		
[signature]	5/10/11	1900	[signature]		

Relinquished by Commercial Carrier: UPS FedEx Other
Temperature Upon Receipt 2.4 °C

Received by: [signature] Date 5/11/11 Time 930
Custody Seals Intact? Yes No

Explanation of Symbols and Abbreviations

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

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

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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 of gas 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.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC 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.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

May 26, 2011

Project: 306563

Submittal Date: 05/12/2011
Group Number: 1246637
PO Number: 0015061824
Release Number: HUNTER
State of Sample Origin: WA

Client Sample Description	Lancaster Labs (LLI) #
SB-15-9 Grab Soil Sample	6285155
SB-17-5 Grab Soil Sample	6285156
SB-17-6 Grab Soil Sample	6285157
SB-17-9 Grab Soil Sample	6285158
SB-9-8 Grab Soil Sample	6285159
SB-9-11 Grab Soil Sample	6285160
SB-16-5 Grab Soil Sample	6285161

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

ELECTRONIC COPY TO SAIC Attn: Don Wyll

ELECTRONIC COPY TO SAIC Attn: Mike Lange

Lancaster Laboratories

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Analysis Report

Questions? Contact your Client Services Representative
Jill M Parker at (717) 656-2300 Ext. 1241

Respectfully Submitted,

Sarah M. Snyder
Senior Specialist

Lancaster Laboratories

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Analysis Report

Sample Description: SB-15-9 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6285155
LLI Group # 1246637
Account # 11255

Project Name: 306563

Collected: 05/10/2011 09:24 by GC

Submitted: 05/12/2011 09:30
Reported: 05/26/2011 16:18

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC159

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.2	26.39
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0025	26.39
08179	Ethylbenzene	100-41-4	N.D.	0.0025	26.39
08179	Toluene	108-88-3	N.D.	0.0025	26.39
08179	Total Xylenes	1330-20-7	N.D.	0.0062	26.39
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.5	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	12	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	14.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/17/2011 23:51	Elizabeth J Marin	26.39
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/17/2011 23:51	Elizabeth J Marin	26.39
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113324403	05/10/2011 09:24	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113324403	05/10/2011 09:24	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 13:45	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003B	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-17-5 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6285156
LLI Group # 1246637
Account # 11255

Project Name: 306563

Collected: 05/10/2011 11:25 by GC

Submitted: 05/12/2011 09:30
Reported: 05/26/2011 16:18

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC175

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	12	242.34
	Reporting limits were raised due to sample foaming.				
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.023	242.34
08179	Ethylbenzene	100-41-4	N.D.	0.023	242.34
08179	Toluene	108-88-3	0.036	0.023	242.34
08179	Total Xylenes	1330-20-7	0.15	0.058	242.34
	Reporting limits were raised due to sample foaming.				
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	61	3.6	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	12	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	16.8	0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/17/2011 16:31	Elizabeth J Marin	242.34
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/17/2011 16:31	Elizabeth J Marin	242.34
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113324403	05/10/2011 11:25	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113324403	05/10/2011 11:25	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 14:49	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003B	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-17-6 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6285157
LLI Group # 1246637
Account # 11255

Project Name: 306563

Collected: 05/10/2011 11:30 by GC

Submitted: 05/12/2011 09:30
Reported: 05/26/2011 16:18

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC176

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.3	28.6
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0026	28.6
08179	Ethylbenzene	100-41-4	N.D.	0.0026	28.6
08179	Toluene	108-88-3	0.0075	0.0026	28.6
08179	Total Xylenes	1330-20-7	N.D.	0.0064	28.6
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	4.4	3.4	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	10.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/18/2011 00:27	Elizabeth J Marin	28.6
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/18/2011 00:27	Elizabeth J Marin	28.6
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113324403	05/10/2011 11:30	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113324403	05/10/2011 11:30	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111370009A	05/23/2011 14:06	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111370009A	05/17/2011 18:30	Sally L Appleyard	1
00111	Moisture	SM20 2540 G	1	11136820003B	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-17-9 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6285158
LLI Group # 1246637
Account # 11255

Project Name: 306563

Collected: 05/10/2011 13:45 by GC

Submitted: 05/12/2011 09:30
Reported: 05/26/2011 16:18

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC179

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	45	2.0	44.26
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0021	23.02
08179	Ethylbenzene	100-41-4	0.0030	0.0021	23.02
08179	Toluene	108-88-3	N.D.	0.0021	23.02
08179	Total Xylenes	1330-20-7	0.014	0.0052	23.02
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	18	3.4	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	12.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/18/2011 10:43	Elizabeth J Marin	44.26
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/18/2011 01:03	Elizabeth J Marin	23.02
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113324403	05/10/2011 13:45	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113324403	05/10/2011 13:45	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111390020A	05/20/2011 19:06	Glorines Suarez-Rivera	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111390020A	05/20/2011 10:45	Denise L Trimby	1
00111	Moisture	SM20 2540 G	1	11136820003B	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-9-8 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6285159
LLI Group # 1246637
Account # 11255

Project Name: 306563

Collected: 05/10/2011 14:45 by GC

Submitted: 05/12/2011 09:30
Reported: 05/26/2011 16:18

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC98-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.1	24.89
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0022	24.89
08179	Ethylbenzene	100-41-4	N.D.	0.0022	24.89
08179	Toluene	108-88-3	N.D.	0.0022	24.89
08179	Total Xylenes	1330-20-7	N.D.	0.0056	24.89
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.4	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	11.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/18/2011 01:40	Elizabeth J Marin	24.89
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/18/2011 01:40	Elizabeth J Marin	24.89
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113324403	05/10/2011 14:45	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113324403	05/10/2011 14:45	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111390020A	05/20/2011 19:49	Glorines Suarez-Rivera	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111390020A	05/20/2011 10:45	Denise L Trimby	1
00111	Moisture	SM20 2540 G	1	11136820003B	05/16/2011 18:34	Scott W Freisher	1

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Analysis Report

Sample Description: SB-9-11 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6285160
LLI Group # 1246637
Account # 11255

Project Name: 306563

Collected: 05/10/2011 14:50 by GC

Submitted: 05/12/2011 09:30
Reported: 05/26/2011 16:18

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC911

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.0	23.07
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0020	23.07
08179	Ethylbenzene	100-41-4	N.D.	0.0020	23.07
08179	Toluene	108-88-3	N.D.	0.0020	23.07
08179	Total Xylenes	1330-20-7	0.0063	0.0050	23.07
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.3	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	8.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/18/2011 02:16	Elizabeth J Marin	23.07
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/18/2011 02:16	Elizabeth J Marin	23.07
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113324403	05/10/2011 14:50	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113324403	05/10/2011 14:50	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111390020A	05/20/2011 20:10	Glorines Suarez-Rivera	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111390020A	05/20/2011 10:45	Denise L Trimby	1
00111	Moisture	SM20 2540 G	1	11136820003B	05/16/2011 18:34	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: SB-16-5 Grab Soil Sample
Facility# 306563
101 NW Coveland St - Coupeville, WA

LLI Sample # SW 6285161
LLI Group # 1246637
Account # 11255

Project Name: 306563

Collected: 05/10/2011 15:00 by GC

Submitted: 05/12/2011 09:30
Reported: 05/26/2011 16:18

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CC166

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	1.2	26.15
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0024	26.15
08179	Ethylbenzene	100-41-4	N.D.	0.0024	26.15
08179	Toluene	108-88-3	0.0037	0.0024	26.15
08179	Total Xylenes	1330-20-7	N.D.	0.0060	26.15
GC Extractable TPH w/Si Gel	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	42	3.4	1
02214	HRO C24-C40 w/Si Gel	n.a.	13	11	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	12.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11137A31A	05/18/2011 05:17	Elizabeth J Marin	26.15
08179	BTEX by 8021	SW-846 8021B	1	11137A31A	05/18/2011 05:17	Elizabeth J Marin	26.15
06647	GC-5g Field Preserved MeOH	SW-846 5035A	1	201113324403	05/10/2011 15:00	Client Supplied	n.a.
06647	GC-5g Field Preserved MeOH	SW-846 5035A	2	201113324403	05/10/2011 15:00	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111390020A	05/20/2011 21:15	Glorines Suarez-Rivera	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111390020A	05/20/2011 10:45	Denise L Trimby	1
00111	Moisture	SM20 2540 G	1	11136820003B	05/16/2011 18:34	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Quality Control Summary

Client Name: Chevron Group Number: 1246637
Reported: 05/26/11 at 04:18 PM

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

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 11137A31A	Sample number(s): 6285155-6285161							
Benzene	N.D.	0.0020	mg/kg	107	102	76-118	4	30
Ethylbenzene	N.D.	0.0020	mg/kg	110	106	77-115	4	30
NWTPH-Gx soil C7-C12	N.D.	1.0	mg/kg	90	89	67-119	1	30
Toluene	N.D.	0.0020	mg/kg	111	105	80-120	5	30
Total Xylenes	N.D.	0.0050	mg/kg	111	108	78-115	3	30
Batch number: 111370009A	Sample number(s): 6285155-6285157							
DRO C12-C24 w/Si Gel	N.D.	3.0	mg/kg	89		60-120		
HRO C24-C40 w/Si Gel	N.D.	10.	mg/kg					
Batch number: 111390020A	Sample number(s): 6285158-6285161							
DRO C12-C24 w/Si Gel	N.D.	3.0	mg/kg	96		60-120		
HRO C24-C40 w/Si Gel	N.D.	10.	mg/kg					
Batch number: 11136820003B	Sample number(s): 6285155-6285161							
Moisture				100		99-101		

Sample Matrix Quality Control

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 111370009A	Sample number(s): 6285155-6285157					BKG: P283493			
DRO C12-C24 w/Si Gel						57	47	19	20
HRO C24-C40 w/Si Gel						N.D.	N.D.	0 (1)	20
Batch number: 111390020A	Sample number(s): 6285158-6285161					BKG: 6285158			
DRO C12-C24 w/Si Gel						16	N.D.	200* (1)	20
HRO C24-C40 w/Si Gel						N.D.	N.D.	0 (1)	20
Batch number: 11136820003B	Sample number(s): 6285155-6285161					BKG: P283499			
Moisture						15.8	15.4	3	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.

*- 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.

Quality Control Summary

Client Name: Chevron
Group Number: 1246637
Reported: 05/26/11 at 04:18 PM

Surrogate Quality Control

Analysis Name: Method 8021 Soil Master
Batch number: 11137A31A

	Trifluorotoluene-F	Trifluorotoluene-P
6285155	84	85
6285156	100	94
6285157	83	83
6285158	90	82
6285159	79	83
6285160	88	89
6285161	93	97
Blank	90	94
LCS	94	95
LCSD	97	91
Limits:	61-122	73-117

Analysis Name: NWTPH-Dx soil w/Si Gel
Batch number: 111370009A

	Orthoterphenyl
6285155	99
6285156	107
6285157	117
Blank	112
DUP	85
LCS	114
Limits:	50-150

Analysis Name: NWTPH-Dx soil w/Si Gel
Batch number: 111390020A

	Orthoterphenyl
6285158	100
6285159	99
6285160	112
6285161	112
Blank	114
DUP	108
LCS	122
Limits:	50-150

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

Chevron Northwest Region Analysis Request/Chain of Custody

Lancaster Laboratories
Where quality is a science.

Acct. #: 11255 | For Lancaster Laboratories use only | Sample #: 6285155-61 | 221594 | SCR#: 105038

Grp#1246637

Facility #: 306563 Former Unocal Bulk Plant
Site Address: 101 NW Coveland St, Coupeville WA
Chevron PM: Marlea Herman Lead Consultant: SAK
Consultant/Office: Bothell
Consultant Prj. Mgr.: Don Wyll
Consultant Phone #: 4254823315 Fax #: 425-485-5566
Sampler: G. Cisneros, S. Brown
Service Order #: ☐ Non SAR:

Analyses Requested / **Preservation Codes**

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Oil ☐ Air ☐	Total Number of Containers	BTEX + MTBE 8021 ☒ 8260 ☐ Naphth ☐	8260 full scan	Oxygenates	NWTPH G X	NWTPH D (☒ Extended Rng. ☒ Silica Gel Cleanup)	Lead Total ☐ Diss. ☐ Method 6020	VPH/EPH	NWTPH H HCID ☐ quantification	Moisture	TCLP Benzene	TCLP RCRA 8 Metals	3-DAY TAT
SB-15-9	5/10	0924	✓		✓			6	✓			✓	✓				✓			
SB-17-5	5/10	1125	✓		✓			6	✓			✓	✓				✓			
SB-17-6	5/10	1130	✓		✓			6	✓			✓	✓				✓			
SB-17-9	5/10	1345	✓		✓			6	✓			✓	✓				✓			
SB-9-8	5/10	1445	✓		✓			6	✓			✓	✓				✓			
SB-9-11	5/10	1450	✓		✓			6	✓			✓	✓				✓			
SB-16-5	5/10	1500	✓		✓			6	✓			✓	✓				✓			
WASTE-05102011	5/10	1530	[illegible]	✓	✓			8	✓			✓	✓				✓	✓	✓	*

5/11/11

Preservative Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy s on highest hit
☐ Run ____ oxy s on all hits

Comments / Remarks
Run TCLP analyses only if there has been a benzene detection at or >10mg/kg; & only if there has been a lead dectection at or > 100mg/kg.
*3 DAY TAT for WASTE sample.
- Please cc Analytical Data to ctoczylowski@CRAWorld.com

Turnaround Time Requested (TAT) (please circle)
(STD. TAT) & (72 hour) 48 hour
24 hour 4 day 5 day

Data Package Options (please circle if required)
QC Summary Type I - Full
Type VI (Raw Data) Disk / EDD
WIP (RWQCB) Standard Format
Disk ________ Other.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	4/28/11	0700			
[signature]	5/11/11	1350			

Relinquished by Commercial Carrier:
UPS (FedEx) Other ________
Received by: Deborah A Nesbit Date 5/12/11 Time 0930
Temperature Upon Receipt 3.8 C°
Custody Seals Intact? (Yes) No

Explanation of Symbols and Abbreviations

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

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

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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 of gas 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.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC 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.

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

October 10, 2011

Project: 306563

Submittal Date: 07/01/2011
Group Number: 1254479
PO Number: 0015087368
Release Number: HARMON
State of Sample Origin: WA

Client Sample Description	Lancaster Labs (LLI) #
SB-18-5 Grab Soil Sample	6334676
SB-11-5 Grab Soil Sample	6334677
MW-5-062911 Grab Water Sample	6334678
TB-1 Water Sample	6334679

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

ELECTRONIC COPY TO	SAIC	Attn: Don Wyll
ELECTRONIC COPY TO	SAIC	Attn: Mike Lange

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Questions? Contact your Client Services Representative
Elizabeth A Leonhardt at (510) 232-8894

Respectfully Submitted,

Robin C. Runkle
Senior Specialist

Sample Description: SB-18-5 Grab Soil Sample
Facility# 306563
101 NW Coveland Street - Coupeville, WA

LLI Sample # SW 6334676
LLI Group # 1254479
Account # 11255

Project Name: 306563

Collected: 06/29/2011 10:15 by JG

Submitted: 07/01/2011 09:10
Reported: 10/10/2011 18:41

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CSC18

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02006	NWTPH-Gx soil C7-C12	n.a.	N.D.	12	243.19
	Reporting limits were raised due to sample foaming.				
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.062	243.19
08179	Ethylbenzene	100-41-4	N.D.	0.062	243.19
08179	Toluene	108-88-3	N.D.	0.062	243.19
08179	Total Xylenes	1330-20-7	N.D.	0.19	243.19
	Reporting limits were raised due to sample foaming.				
GC Petroleum Hydrocarbons	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	100	3.8	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	13	1
	The reverse surrogate, capric acid, was present at 0%.				
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	21.9	0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

General Sample Comments

State of Washington Lab Certification No. C259

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
02006	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11189A16B	07/11/2011 14:02	Carrie E Miller	243.19
08179	BTEX by 8021	SW-846 8021B	1	11189A16B	07/11/2011 14:02	Carrie E Miller	243.19
06647	GC-5g Field Preserved MeOH	SW-846 5035	1	201118624843	06/29/2011 10:15	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111830007A	07/06/2011 01:31	Dustin A Underkoffler	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111830007A	07/05/2011 02:00	David V Hershey Jr	1
00111	Moisture	SM20 2540 G	1	11186820002B	07/05/2011 21:33	Scott W Freisher	1

Sample Description: SB-11-5 Grab Soil Sample
Facility# 306563
101 NW Coveland Street - Coupeville, WA

LLI Sample # SW 6334677
LLI Group # 1254479
Account # 11255

Project Name: 306563

Collected: 06/29/2011 11:00 by JG

Submitted: 07/01/2011 09:10
Reported: 10/10/2011 18:41

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CSC11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**mg/kg**	**mg/kg**	
10950	Benzene	71-43-2	N.D.	0.029	49.79
10950	1,2-Dibromoethane	106-93-4	N.D.	0.058	49.79
10950	1,2-Dichloroethane	107-06-2	N.D.	0.058	49.79
10950	Ethylbenzene	100-41-4	0.083	0.058	49.79
10950	n-Hexane	110-54-3	N.D.	0.058	49.79
10950	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.029	49.79
10950	Naphthalene	91-20-3	0.66	0.058	49.79
10950	Toluene	108-88-3	N.D.	0.058	49.79
10950	Xylene (Total)	1330-20-7	0.070	0.058	49.79
Reporting limits were raised due to interference from the sample matrix.					
GC/MS Semivolatiles	**SW-846 8270C SIM**		**mg/kg**	**mg/kg**	
10722	Benzo(a)anthracene	56-55-3	N.D.	0.078	100
10722	Benzo(a)pyrene	50-32-8	N.D.	0.078	100
10722	Benzo(b)fluoranthene	205-99-2	N.D.	0.078	100
10722	Benzo(k)fluoranthene	207-08-9	N.D.	0.078	100
10722	Chrysene	218-01-9	N.D.	0.039	100
10722	Dibenz(a,h)anthracene	53-70-3	N.D.	0.078	100
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.078	100
10722	1-Methylnaphthalene	90-12-0	2.0	0.078	100
10722	2-Methylnaphthalene	91-57-6	1.7	0.078	100
10722	Naphthalene	91-20-3	0.49	0.078	100
Reporting limits were raised due to interference from the sample matrix.					
GC Volatiles	**ECY 97-602 NWTPH-Gx**		**mg/kg**	**mg/kg**	
02005	TPH by NWTPH-Gx soils	n.a.	550	43	912.27
GC Volatiles	**ECY 97-602 WA VPH**		**mg/kg**	**mg/kg**	
05666	Benzene	71-43-2	N.D.	0.111	94.5
05666	C5-C6 Aliphatic Hydrocarbons	n.a.	N.D.	5.53	94.5
05666	C6-C8 Aliphatic Hydrocarbons	n.a.	N.D.	5.53	94.5
05666	C8-C10 Aliphatic Hydrocarbons	n.a.	110	5.53	94.5
05666	C8-C10 Aromatic Hydrocarbons	n.a.	66.5	5.53	94.5
05666	Ethylbenzene	100-41-4	N.D.	0.111	94.5
05666	Methyl t-butyl ether	1634-04-4	N.D.	0.111	94.5
05666	Toluene	108-88-3	N.D.	0.111	94.5
05666	o-Xylene	95-47-6	0.127	0.111	94.5
05666	m,p-Xylenes	179601-23-1	N.D.	0.221	94.5
Reporting limits were raised due to interference from the sample matrix.					
GC Petroleum Hydrocarbons	**ECY 97-602 NWTPH-Dx modified**		**mg/kg**	**mg/kg**	
02214	DRO C12-C24 w/Si Gel	n.a.	390	17	5
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	58	5
The reverse surrogate, capric acid, was present at 0%.					
GC Petroleum Hydrocarbons	**ECY 97-602 WA EPH**		**mg/kg**	**mg/kg**	

Sample Description: SB-11-5 Grab Soil Sample
Facility# 306563
101 NW Coveland Street - Coupeville, WA

LLI Sample # SW 6334677
LLI Group # 1254479
Account # 11255

Project Name: 306563

Collected: 06/29/2011 11:00 by JG

Submitted: 07/01/2011 09:10
Reported: 10/10/2011 18:41

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CSC11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC Petroleum Hydrocarbons	**ECY 97-602 WA EPH**		**mg/kg**	**mg/kg**	
05970	>C10-C12 Aliphatic	n.a.	32	1.1	1
05970	>C10-C12 Aromatic	n.a.	3.7	1.1	1
05970	>C12-C16 Aliphatic	n.a.	190	1.1	1
05970	>C12-C16 Aromatic	n.a.	35	1.1	1
05970	>C16-C21 Aliphatic	n.a.	190	3.4	1
05970	>C16-C21 Aromatic	n.a.	84	2.3	1
05970	>C21-C34 Aliphatic	n.a.	32	1.1	1
05970	>C21-C34 Aromatic	n.a.	15	2.3	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	14.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C259
Carcinogenic PAHs have been reported for this sample.

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10950	VOCs by 8260B - Solid	SW-846 8260B	1	R111921AA	07/11/2011 22:40	Kristen D Pelliccia	49.79
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	201118624843	06/29/2011 11:00	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	201118624843	06/29/2011 11:00	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035	1	201118624843	06/29/2011 11:00	Client Supplied	1
10722	PAH SIM 8270 Soil Microwave	SW-846 8270C SIM	1	11186SLB026	07/14/2011 12:44	Joseph M Gambler	100
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	11186SLB026	07/06/2011 07:35	Katheryne V Sponheimer	1
02005	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	11189A16B	07/11/2011 15:17	Carrie E Miller	912.27
05666	WA- VPH soils	ECY 97-602 WA VPH	1	11193A08A	07/12/2011 18:11	Carrie E Miller	94.5
00388	GC - Field Preserved (MA-VPH)	MA DEP VPH modified	1	201118724850	06/29/2011 11:00	Client Supplied	1
00388	GC - Field Preserved (MA-VPH)	MA DEP VPH modified	2	201118724850	06/29/2011 11:00	Client Supplied	1
06647	GC-5g Field Preserved MeOH	SW-846 5035	1	201118624843	06/29/2011 11:00	Client Supplied	n.a.

Sample Description: SB-11-5 Grab Soil Sample
Facility# 306563
101 NW Coveland Street - Coupeville, WA

LLI Sample # SW 6334677
LLI Group # 1254479
Account # 11255

Project Name: 306563

Collected: 06/29/2011 11:00 by JG

Submitted: 07/01/2011 09:10
Reported: 10/10/2011 18:41

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CSC11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111830007A	07/09/2011 00:33	Glorines Suarez-Rivera	5
05970	WA EPH in Soil	ECY 97-602 WA EPH	1	111930015A	07/23/2011 15:22	Heather E Williams	1
05970	WA EPH in Soil	ECY 97-602 WA EPH	1	111930015A	07/23/2011 16:06	Heather E Williams	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	111830007A	07/05/2011 02:00	David V Hershey Jr	1
11213	WA EPH Soils Extraction	ECY 97-602 WA EPH	1	111930015A	07/13/2011 03:30	Sherry L Morrow	1
00497	Silica Gel Fractionation	SW-846 3630C modified	1	111930015A	07/20/2011 15:10	Edwin Ortiz	1
00111	Moisture	SM20 2540 G	1	11186820002B	07/05/2011 21:33	Scott W Freisher	1

Sample Description: MW-5-062911 Grab Water Sample
Facility# 306563
101 NW Coveland Street - Coupeville, WA

LLI Sample # WW 6334678
LLI Group # 1254479
Account # 11255

Project Name: 306563

Collected: 06/29/2011 12:10 by JG

Submitted: 07/01/2011 09:10
Reported: 10/10/2011 18:41

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CSC05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10903	Benzene	71-43-2	N.D.	0.5	1
10903	Ethylbenzene	100-41-4	53	0.5	1
10903	Toluene	108-88-3	N.D.	0.5	1
10903	Xylene (Total)	1330-20-7	50	0.5	1
GC Volatiles	**ECY 97-602 NWTPH-Gx**		ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	900	50	1
GC Petroleum Hydrocarbons	**ECY 97-602 NWTPH-Dx modified**		ug/l	ug/l	
02211	DRO C12-C24 w/Si Gel	n.a.	60	29	1
02211	HRO C24-C40 w/Si Gel	n.a.	210	69	1

The reverse surrogate, capric acid, was present at 0%.

General Sample Comments

State of Washington Lab Certification No. C259

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
10903	8260 BTEX Only	SW-846 8260B	1	W111931AA	07/12/2011 19:14	Frank A Valla, Jr	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W111931AA	07/12/2011 19:14	Frank A Valla, Jr	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	11187B07A	07/08/2011 15:35	Laura M Krieger	1
01146	GC VOA Water Prep	SW-846 5030B	1	11187B07A	07/08/2011 15:35	Laura M Krieger	1
02211	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	111880023A	07/14/2011 06:58	Dustin A Underkoffler	1
02135	Extraction - DRO Water Special	ECY 97-602 NWTPH-Dx 06/97	1	111880023A	07/08/2011 08:30	Catherine R Wiker	1

Sample Description: TB-1 Water Sample
Facility# 306563
101 NW Coveland Street - Coupeville, WA

LLI Sample # WW 6334679
LLI Group # 1254479
Account # 11255

Project Name: 306563

Collected: 06/29/2011 11:30

Submitted: 07/01/2011 09:10
Reported: 10/10/2011 18:41

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CSCTB

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

General Sample Comments

State of Washington Lab Certification No. C259

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	11188A53A	07/08/2011 17:49	Laura M Krieger	1
02102	Method 8021 Water Master	SW-846 8021B	1	11188A53A	07/08/2011 17:49	Laura M Krieger	1
01146	GC VOA Water Prep	SW-846 5030B	1	11188A53A	07/08/2011 17:49	Laura M Krieger	1

Quality Control Summary

Client Name: Chevron Group Number: 1254479
Reported: 10/10/11 at 06:41 PM

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.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: R111921AA	Sample number(s): 6334677							
Benzene	N.D.	0.025	mg/kg	105	103	80-120	2	30
1,2-Dibromoethane	N.D.	0.050	mg/kg	97	98	80-120	0	30
1,2-Dichloroethane	N.D.	0.050	mg/kg	93	93	71-129	1	30
Ethylbenzene	N.D.	0.050	mg/kg	97	97	80-120	0	30
n-Hexane	N.D.	0.050	mg/kg	92	109	48-126	17	30
Methyl Tertiary Butyl Ether	N.D.	0.025	mg/kg	91	91	74-121	1	30
Naphthalene	N.D.	0.050	mg/kg	70	74	59-123	5	30
Toluene	N.D.	0.050	mg/kg	103	104	80-120	1	30
Xylene (Total)	N.D.	0.050	mg/kg	98	99	80-120	1	30
Batch number: W111931AA	Sample number(s): 6334678							
Benzene	N.D.	0.5	ug/l	102	103	79-120	1	30
Ethylbenzene	N.D.	0.5	ug/l	98	98	79-120	1	30
Toluene	N.D.	0.5	ug/l	98	98	79-120	0	30
Xylene (Total)	N.D.	0.5	ug/l	101	99	80-120	1	30
Batch number: 11186SLB026	Sample number(s): 6334677							
Benzo(a)anthracene	N.D.	0.00067	mg/kg	96	95	74-112	1	30
Benzo(a)pyrene	N.D.	0.00067	mg/kg	95	93	70-109	2	30
Benzo(b)fluoranthene	N.D.	0.00067	mg/kg	105	102	60-126	3	30
Benzo(k)fluoranthene	N.D.	0.00067	mg/kg	91	90	65-130	1	30
Chrysene	N.D.	0.00033	mg/kg	95	94	79-111	0	30
Dibenz(a,h)anthracene	N.D.	0.00067	mg/kg	91	90	49-135	1	30
Indeno(1,2,3-cd)pyrene	N.D.	0.00067	mg/kg	92	91	53-128	1	30
1-Methylnaphthalene	N.D.	0.00067	mg/kg	93	91	72-114	2	30
2-Methylnaphthalene	N.D.	0.00067	mg/kg	89	86	62-115	3	30
Naphthalene	N.D.	0.00067	mg/kg	90	89	67-105	2	30
Batch number: 11187B07A	Sample number(s): 6334678							
NWTPH-Gx water C7-C12	N.D.	50.	ug/l	91	100	75-135	10	30
Batch number: 11188A53A	Sample number(s): 6334679							
Benzene	N.D.	0.2	ug/l	105		80-120		
Ethylbenzene	N.D.	0.2	ug/l	105		80-120		
NWTPH-Gx water C7-C12	N.D.	50.	ug/l	118	118	75-135	0	30
Toluene	N.D.	0.2	ug/l	110		80-120		
Total Xylenes	N.D.	0.6	ug/l	107		80-120		
Batch number: 11189A16B	Sample number(s): 6334676-6334677							
Benzene	N.D.	0.0020	mg/kg	104	101	76-118	2	30
Ethylbenzene	N.D.	0.0020	mg/kg	105	102	77-115	3	30
NWTPH-Gx soil C7-C12	N.D.	1.0	mg/kg	98	105	67-119	7	30
Toluene	N.D.	0.0020	mg/kg	107	103	80-120	3	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.

Quality Control Summary

Client Name: Chevron Group Number: 1254479
Reported: 10/10/11 at 06:41 PM

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
TPH by NWTPH-Gx soils	N.D.	1.0	mg/kg	98	105	67-119	7	30
Total Xylenes	N.D.	0.0050	mg/kg	107	105	78-115	2	30
Batch number: 11193A08A	Sample number(s): 6334677							
Benzene	N.D.	0.0500	mg/kg	97	95	70-130	2	50
C5-C6 Aliphatic Hydrocarbons	N.D.	2.50	mg/kg	87	83	70-130	4	50
C6-C8 Aliphatic Hydrocarbons	N.D.	2.50	mg/kg	79	79	70-130	1	50
C8-C10 Aliphatic Hydrocarbons	N.D.	2.50	mg/kg	79	82	70-130	3	50
C8-C10 Aromatic Hydrocarbons	N.D.	2.50	mg/kg	96	93	70-130	3	50
Ethylbenzene	N.D.	0.0500	mg/kg	94	93	70-130	1	50
Methyl t-butyl ether	N.D.	0.0500	mg/kg	97	105	70-130	8	50
Toluene	N.D.	0.0500	mg/kg	106	97	70-130	9	50
o-Xylene	N.D.	0.0500	mg/kg	96	94	70-130	3	50
m,p-Xylenes	N.D.	0.100	mg/kg	98	96	70-130	1	50
Batch number: 111830007A	Sample number(s): 6334676-6334677							
DRO C12-C24 w/Si Gel	N.D.	3.0	mg/kg	79		60-120		
HRO C24-C40 w/Si Gel	N.D.	10.	mg/kg					
Batch number: 111880023A	Sample number(s): 6334678							
DRO C12-C24 w/Si Gel	N.D.	30.	ug/l	74	73	56-103	2	20
HRO C24-C40 w/Si Gel	N.D.	70.	ug/l					
Batch number: 111930015A	Sample number(s): 6334677							
>C10-C12 Aliphatic	N.D.	1.0	mg/kg	97	100	31-137	3	50
>C10-C12 Aromatic	N.D.	1.0	mg/kg	95	78	22-119	20	50
>C12-C16 Aliphatic	N.D.	1.0	mg/kg	108	109	42-146	0	50
>C12-C16 Aromatic	N.D.	1.0	mg/kg	100	91	24-136	9	50
>C16-C21 Aliphatic	N.D.	3.0	mg/kg	99	95	57-111	5	50
>C16-C21 Aromatic	N.D.	2.0	mg/kg	106	100	34-143	5	50
>C21-C34 Aliphatic	2.0	1.0	mg/kg	112	110	50-124	2	50
>C21-C34 Aromatic	N.D.	2.0	mg/kg	103	98	44-134	4	50
Batch number: 11186820002B	Sample number(s): 6334676-6334677							
Moisture				100		99-101		

Sample Matrix Quality Control

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 11188A53A	Sample number(s): 6334679 UNSPK: P333134								
Benzene	115	115	80-130	0	30				
Ethylbenzene	115	115	80-133	0	30				
Toluene	115	115	80-133	0	30				
Total Xylenes	115	117	80-148	1	30				
Batch number: 111830007A	Sample number(s): 6334676-6334677 BKG: P327654								
DRO C12-C24 w/Si Gel						N.D.	N.D.	0 (1)	20
HRO C24-C40 w/Si Gel						N.D.	N.D.	0 (1)	20

*- 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.

Quality Control Summary

Client Name: Chevron Group Number: 1254479
Reported: 10/10/11 at 06:41 PM

Sample Matrix Quality Control

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 111930015A	Sample number(s): 6334677			BKG: 6334677					
>C10-C12 Aliphatic						27	38	33*	25
>C10-C12 Aromatic						3.2	3.3	5 (1)	25
>C12-C16 Aliphatic						170	180	9	25
>C12-C16 Aromatic						30	29	3	25
>C16-C21 Aliphatic						160	160	2	25
>C16-C21 Aromatic						72	65	10	25
>C21-C34 Aliphatic						27	23	18 (1)	25
>C21-C34 Aromatic						13	11	19 (1)	25
Batch number: 11186820002B	Sample number(s): 6334676-6334677			BKG: P333980					
Moisture						12.3	12.5	2	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.

Analysis Name: VOCs by 8260B - Solid
Batch number: R111921AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6334677	81	83	87	94
Blank	84	87	90	85
LCS	82	82	85	85
LCSD	85	84	90	89
Limits:	71-114	70-109	70-123	70-111

Analysis Name: VOCs by 8260B - Water
Batch number: W111931AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6334678	101	102	97	92
Blank	101	103	96	88
LCS	103	107	99	94
LCSD	103	108	97	94
Limits:	80-116	77-113	80-113	78-113

Analysis Name: PAH SIM 8270 Soil Microwave
Batch number: 11186SLB026

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6334677	874*	123	97
Blank	113	108	116
LCS	113	105	110
LCSD	107	102	108

*- 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.

Quality Control Summary

Client Name: Chevron Group Number: 1254479
Reported: 10/10/11 at 06:41 PM

Surrogate Quality Control

Limits: 53-152 52-132 51-141

Analysis Name: NWTPH-Gx water C7-C12
Batch number: 11187B07A

	Trifluorotoluene-F
6334678	102
Blank	102
LCS	107
LCSD	109
Limits:	63-135

Analysis Name: Method 8021 Water Master
Batch number: 11188A53A

	Trifluorotoluene-P	Trifluorotoluene-F
6334679	66	70
Blank	67	69
LCS	66	88
LCSD		87
MS	67	
MSD	67	
Limits:	58-146	63-135

Analysis Name: Method 8021 Soil Master
Batch number: 11189A16B

	Trifluorotoluene-F	Trifluorotoluene-P
6334676	73	86
6334677	77	
Blank	85	101
LCS	83	104
LCSD	86	93
Limits:	61-122	73-117

Analysis Name: WA- VPH soils
Batch number: 11193A08A

	Trifluorotoluene-P	Trifluorotoluene-F
6334677	83	98
Limits:	60-140	60-140

Analysis Name: NWTPH-Dx soil w/Si Gel
Batch number: 111830007A

	Orthoterphenyl
6334676	90
6334677	80
Blank	101
DUP	96
LCS	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.

Quality Control Summary

Client Name: Chevron
Group Number: 1254479
Reported: 10/10/11 at 06:41 PM

Surrogate Quality Control

Limits: 50-150

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 111880023A

	Orthoterphenyl
6334678	95
Blank	90
LCS	96
LCSD	100
Limits:	50-150

Analysis Name: WA EPH in Soil
Batch number: 111930015A

	Orthoterphenyl	1-chlorooctadecane
6334677	107	113
Blank	82	80
DUP	93	93
LCS	90	102
LCSD	89	98
Limits:	30-127	33-122

*- 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.

Chevron Northwest Region Analysis Request/Chain of Custody

Lancaster Laboratories
Where quality is a science.

Acct. #: 11255 For Lancaster Laboratories use only Sample #: 03346676-79 SCR#: 107476 221589

C# 1254479

Facility #: Former Unocal Bulk Plant / Chevron Facility No. 306563
Site Address: 101 NW Cleveland Street, Coupeville, WA
Chevron PM: Marlea Hacmon Lead Consultant: SAIC
Consultant/Office: Bothell
Consultant Prj. Mgr.: Don Wyll
Consultant Phone #: 425-482-3315 Fax #: 425-485-5566
Sampler: J. Green / G. Cisneros
Service Order #: ☐ Non SAR:

Sample Identification	Location ID	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water	Matrix: Oil ☐ Air ☐	Total Number of Containers	BTEX + 8021 ☒ 8260 ☐ Naphth ☐	8260 full scan EDB Naphth n-Hexane, EDC, MTBE	Oxygenates	NW TPH Gx	NW TPH Dx ☒ Extended Rng. ☒ Silica Gel Cleanup	Lead Total ☐ Diss. ☐ Method	VPH/EPH	NWTPH H HCID ☐ quantification	Moisture	BTEX + MTBE 8260 and 8021 Naphth	cPAHs Naphth
SB-18-5	SB-18	6/29/11	1015						6											
SB-11-5	SB-11	6/29/11	1100						10											
MW-5-062911	MW-5	6/29/11	1210						8											
TB-1		6/29/11	1130						2											

Preservative Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy s on highest hit
☐ Run ____ oxy s on all hits

Comments / Remarks
10g Silica Gel Column Cleanup Required for Dx for Soil & Water samples.

-For Water Sample MW-5-062911 RUN 8260B Method for BTEX.
- SB-11-5 is 8260B
- SB-18-5 is 8021

Turnaround Time Requested (TAT) (please circle)
STD. TAT 72 hour 48 hour
24 hour 4 day 5 day

Data Package Options (please circle if required)
QC Summary Type I - Full
Type VI (Raw Data) Disk / EDD
WIP (RWQCB) Standard Format
Disk ____ Other.

Relinquished by:	Date	Time	Received by:	Date	Time
	6-23-11				
	6/30/11	1250			
Relinquished by Commercial Carrier: UPS FedEx Other			Received by:	7/1/11	910

Temperature Upon Receipt 2.2°C C°
Custody Seals Intact? Yes No

3468 Rev. 8/6/01

eurofins | Lancaster Laboratories

Explanation of Symbols and Abbreviations

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

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

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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 of gas 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.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC 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.