Prepared for:
Chevron Environmental Management Company
San Luis Obispo, CA

Soil Excavation Report

Former Unocal Bulk Plant #0082

Chelan, Washington

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1.0 INTRODUCTION

1.1 Site Description

This report documents recent soil excavation activities at the Former Unocal Bulk Terminal located near Chelan, Washington at the intersection of Highway 97 and East Street (Figure 1).

1.2 Site History

1927-1989: Operating Unocal Bulk Plant. From approximately 1927 until 1989 this site was used as a bulk plant for the storage and distribution of petroleum fuel.

1989: GeoEngineers, Inc. conducted a Site Assessment to evaluate potential petroleum contamination of the soil and/or groundwater. The assessment included collection of one surface soil sample, three test pits, three soil borings completed as monitoring wells (MW-1, MW-2 and MW-3) and groundwater samples.

In 1989, the bulk plant was permanently closed, and by 1992, all tanks (both above ground and underground) and structures had been demolished and removed.

1991: GeoEngineers advanced three additional soil borings completed as monitoring wells (MW-4, MW-5 and MW-6). Groundwater samples were collected from wells MW-1 through MW-6.

Ground water monitoring occurred from 1991 to 1999 on a quarterly to semi-annual basis. By 2001, there were a total of eight monitoring wells on-site. From 2001 to 2002, quarterly groundwater samples were taken from all monitoring wells on the site.

1992: GeoEngineers collected a surface soil sample and installed an additional well (MW-7).

1995: GeoEngineers excavated 15 test pits to assess the lateral extent of the shallow petroleum-impacted soil.

1991-1999: GeoEngineers collected groundwater samples from all the monitoring wells on a quarterly to semi-annual basis.

2001: Maul Foster & Alongi, Inc. (MFA) installed an additional monitoring well (MW-8) to assess the eastern extent of petroleum-impacted groundwater. In 2001 an air sparge and soil vapor extraction (AS/SVE) system was installed to remediate impacted soil and groundwater. The system was deactivated in 2002.

2001-2002: MFA collected groundwater samples from all the monitoring wells on a quarterly basis.

Jan 2003: MFA drilled and sampled 5 soil borings to evaluate soil conditions.

April 2003: Unocal submitted a request for NFA Determination.

April 2003: DOE requested further information before issuing an NFA

April & May 2003: MFA collected groundwater samples for all the monitoring wells in April and May 2003. Four wells (MW-1, MW-3, MW-4, MW-5 and MW-8) contained TPH-diesel concentrations exceeding MTCA Method A standards. Three wells (MW-3, MW-5, and MW-8) contained TPH-oil concentrations exceeding MTCA Method A standards. Diesel compounds were detected exceeding clean-up standards in wells MW-1, MW-3, MW-5, and MW-8 during the May 2003 GW sampling event.

1.3 Recent Activities

During 2003 and 2004 quarterly groundwater sampling showed exceedances of TPH-diesel (TPH-D) standards in two of eight monitoring wells (MW-1 and MW-5). In 2005 a review of historical soil sampling and analysis data confirmed that contaminated soils had been left in place in the areas immediately surrounding those wells. It was determined that as long as those impacted soils remained in place the wells would be very slow to remediate.

Starting on April 25, 2005, field operations were conducted to remove secondary source contaminated soils remaining above groundwater at the site. A review of historical soil sampling and analysis reports clearly indicated that contaminated soils remained on site in the soils surrounding wells MW-1 and MW-5. All other wells on site appeared to be surrounded by soils containing little or no contamination. This led to the conclusion that groundwater in wells MW-1 and MW-5 will likely remain impacted for an extended period of time unless these secondary source soils are removed.

Additionally, the Washington State Department of Ecology (DOE) had expressed concerns about soils left in place during excavation operations that occurred in 2001 (October 24, 2002 letter from DOE to Unocal, Mark Brearley). Examination of drilling records for the installation of groundwater monitor wells MW-1 and MW-5 indicated that contaminated soils remained in place. The limits of an excavation called 2001 Excavation #1 clearly did not remove the soils surrounding these two monitoring wells.

In an excavation called 2001 Excavation #3, located in the northern part of the site, an absence of excavation floor samples caused DOE to question whether all contaminated soils had been removed, particularly in soils under Test Pit 11989.

1.4 Purpose and Objectives

The primary objectives of the operations described in this document were: 1) Remove secondary source soils in the soils surrounding MW-1 and MW-5, and 2) Explore the area of the site around 2001 Excavation #3 and either remove any contaminated soils or confirm that remaining soils are below MTCA Method A cleanup levels for soil.

The excavation extended to the north sufficiently to examine and remove any impacted soils remaining under Excavation #3.

In preparation for this work effort, ENSR prepared the following documents:

Residual Soil Excavation Work Plan, ENSR, December 2004

This document details the logic and data that were used to determine that excavation and disposal provided the most cost effective and timely remediation of the site.

Soil Boring Report, ENSR, March 2005

Soil borings were conducted in the site in February to confirm the data contained in the Residual Excavation Work Plan, and to verify the extents of contamination in certain areas.

Residual Soil Excavation - Excavation Execution Plan, ENSR, April 2005

This plan details the procedures that were to be used to effectively remove impacted soils from the site.

2.0 EXCAVATION

2.1 Target Zones

Based on the results of past site investigations, the primary focus of this excavation work was soils near and between the locations of former wells MW-1 and MW-5 (Figure 3). Additionally, a secondary objective was the examination of soils under the 2001 Excavation #3.

The excavation targeted impacted soil identified in the Residual Soil Excavation Work Plan (see references and Section 1.4). The soil requiring removal occurs below approximately 15 feet of clean overburden and extends to groundwater depth (approximately 25 to 30 feet below ground surface during the late winter months). No excavation was expected below the depth w'.ere groundwater was encountered.

2.2 Field Screening

Non-impacted overburden was segregated from impacted soils based on field screening. Field screening included:

visual observations

odor

PID field screening

2.2.1 Visual Observations

The primary contaminant remaining in site soils is diesel. This has primarily been indicated by the groundwater data shown in the Residual Soil Excavation Work Plan , ENSR, December 2004, Table 2 Summary of Groundwater Analytical Data.

Soils impacted with diesel were readily identified visually from non-impacted soils. Impacted soils contained a grey/green color. Side wall areas that were affected by diesel were easily distinguished from non-impacted soils, as were impacted soils removed from the excavation by the track hoe.

2.2.2 Odor

The second indicator for the presence of contamination was odor. It was readily apparent when the track hoe had encountered contaminated soils. Whenever the grey/green soils were encountered or removed from the excavation, the strong smell of diesel was present.

2.2.3 PID

Appearance and odor were used as preliminary indicators for the presence of contamination. When field samples were taken for on-site laboratory analysis (Section 2.3), a second sample was also taken for analysis by hand held PID. The second sample was placed immediately in a zip lock bag, sealed, and allowed to come to equilibrium. After several minutes in the zip lock bag, a small opening was made in the zip lock and the PID tube was placed in the bag. The PID reading obtained using this method is given in Table 1.

2.3 On-Site Analytical Laboratory

An on-site mobile laboratory was contracted to provide fast turnaround on analysis of field samples in order to guide the excavation process. The term "Field Sample" refers to samples taken during the excavation process. The mobile laboratory was used to analyze field samples for BTEX, TPH-gas, TPH-diesel, and TPH-oil. When field samples collected from the sidewalls were determined by the mobile lab to be non-impacted (below MTCA Method A Cleanup Levels), the excavation was considered delineated in that area. Field sample results that confirm the lateral extents of the excavation are displayed in Table 1; sample locations are shown on Figure 3. The analytical results from all field samples are included in Appendix A.

2.4 Field Sampling and Analysis

At the very beginning of the excavation process, the top 15 feet of overburden was removed from the target area and stockpiled on site for later use as backfill. None of these soils were found to be impacted based on field screening.

As indicated on Figure 3, impacted soils were encountered below 15 feet below ground surface (bgs) at two non-congruent locations; the east end of the target area and the west end, with a "bridge" of non-impacted material separating the two areas.

The first area to be excavated, after reaching 15 feet bgs throughout the target zone, was the east end. This becomes the east excavation pit. Soils were removed from the east excavation pit until analytical results from the field laboratory indicated that all impacted soils had been removed. Soils impacted by petroleum products were loaded into trucks, covered with tarps, and transported to the Waste Management Landfill in East Wenatchee, Washington. Clean soils were stockpiled on site. This same procedure was repeated on the west end of the target zone, in what became the west excavation pit.

The results of field sampling were used to guide the excavation process in each excavation pit by identifying those areas of the excavation where contaminated soils remained, and for confirming removal of all contaminated soils from the final extents of the excavation. All of the field samples collected, and their analytical results, are included in Appendix A.

Due to the depth of the excavation, all field samples were collected from the bucket of the track hoe. Samples were placed in an 8 ounce jars and given immediately to the on-site analytical lab for analysis. Samples were analyzed for:

diesel- and oil-range hydrocarbons by method NWTPH-Dx extended,

benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8021B

gasoline range hydrocarbons by NWTPH-G.

Table 1 contains the analytical results for those field samples that were used for confirming removal of all contaminated soils within the excavation. Appendix A contains the analytical results of all field samples taken during the excavation process.

A total of 1,241 cubic yards of impacted soils were ultimately removed from the excavation and directly transported to, and disposed of, at the Waste Management landfill in Wenatchee, Washington.

2.5 Confirmational Sampling and Analysis - Excavation

Confirmational samples were samples that were collected from the horizontal and vertical (the excavation floor) extents of the excavation in each excavation pit. These samples were sent to a laboratory facility (North

Creek Analytical) for a complete suite of analysis that covered all of the potential contaminants of concern. These samples were analyzed for:

Volatile Petroleum Products by NWTPH-Gx

Semivolatile Petroleum Products by NWTPH-Dx

Total Metals by EPA 6000/7000 Series Methods

Polychlorinated Biphenyls by EPA Method 8082

Volatile Organic Compounds per EPA Method 8260B

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

The purpose of these samples was to confirm that the analysis of the field samples conducted by the on-site laboratory was accurate and that the extents of contamination had been removed. Also, the samples were to provide assurance that all possible contaminants of concern had been analyzed for and confirmed to be within Model Toxics Control Act cleanup concentrations.

Five confirmational samples were collected from the excavation sidewalls when the excavation was at the greatest lateral extents.

Two conformational samples were to be collected from the excavation floor to confirm that the vertical extents of contamination had been removed. However, the presence of groundwater at 25 feet prevented collection of a representative sample. In order to confirm the vertical extent of contamination, it was decided that the vertical confirmational samples would be collected during the drilling of replacement wells MW-1A and MW-5A.

2.6 Excavation Results

Figure 3 contains a site diagram with the limits of excavation shown at its greatest lateral extent in all directions. Also shown in Figure 3 are the locations of the field samples taken at that lateral extent.

Table 1 gives the analytical results for all of the field samples shown in Figure 3. In particular, Table 1 contains the analytical results of the field samples that were used to indicate that all of the contaminated soils had been removed. All of the field samples listed in Table 1 are sidewall samples except 036/29' and 037/25', which came from the floor of the excavation.

Table 2 gives the analytical results for all of the confirmational samples taken during excavation. These were all sidewall samples.

Also included in Table 2 are the analytical results for samples collected during the installation of replacement wells MW-1A, MW-3A, and MW-5A. These analytical results verify the extent of removal of impacted soils in the vertical direction

2.6.1 Sidewalls

At the limits of excavation, all of the field samples collected from sidewalls and submitted to field analysis were below MTCA Method A cleanup levels for soils (Table 1).

Five confirmation samples were collected from the sidewalls of the excavation. All results were below reporting limits or below cleanup levels (Table 2).

This confirms that throughout the depth of the excavation, all contaminated soils in all lateral directions have been removed.

2.6.2 Excavation Floor

Although groundwater was encountered at the deepest extent of the excavation, a field sample was taken from the floor of each excavation pit to determine contamination conditions at that depth.

Field sample 036/29' was collected from the east excavation pit, and was below reporting limits for all analytes (Table 1).

Field sample 037/25' was collected from the west excavation pit. As noted previously, the soils surrounding MW-5 and contained within the west excavation pit, were expected to be more heavily contaminated. Sample 037/25' contained 4,600 mg/kg diesel range petroleum hydrocarbons (TPH-D), which exceeds MTCA Method A soil cleanup levels for soil (100mg/kg). All other analytes were below cleanup levels (Table 1).

These field samples confirm that all of the petroleum impacted soils have been removed from the east excavation pit, which surrounds the former monitoring well MW-1 (replacement well MW-1A). However, due to the water table, not all of the petroleum impacted soils have been removed from the west excavation pit.

There were no confirmation samples collected from the floor of the excavation in either the east excavation pit or the west excavation pit. This is because the bottom of the excavation encountered groundwater at 25 feet bgs. Confirmation samples, to determine the vertical extent of contamination, were collected during the drilling of wells MW-1A and MW-5A.

2.7 2001 Excavation #3

Figure 4 shows the location of Excavation #3. This excavation work was performed in 2001. This excavation went to a depth of 13'. It is possible that this 2001 excavation effort removed all of the contaminated soils in this area. However, no conformational samples were collected from the floor of the excavation. This was particularly important in the area of test pit TP-1, which indicated that total petroleum hydrocarbon concentrations at a depth of 11 feet bgs was 1,900 mg/kg. This was a significant cause for concern.

The 2001 Excavation #3 was investigated during the recent excavation work. As shown in Figure 4, the northern most portion of the west excavation pit extended into the area covered by 2001 Excavation #3 (Figure 4). Three samples were collected in this area: field sample 032 at a depth of 16 feet, field sample 042 at a depth of 25 feet, and EX0430NW1. All samples were below MTCA Method A Cleanup Levels for Soils.

The current excavation went to a depth of 25 feet and removed all impacted soils encountered. This excavation went under the area where Test Pit #11989 was located. The three samples described above indicate that in the area of the 2001 Excavation #3 the vertical extents of contamination have been removed.

3.0 REPLACEMENT WELLS

Prior to beginning the excavation work, it was anticipated that three wells would be destroyed during the excavation process. These wells were MW-1, MW-4, and MW-5 (Figure 2). These wells were abandoned in place per WAC 173-160-425 on March 17, 2005. In addition, former sparge wells AS-1, AS-2, and AS-3 were abandoned in place during this effort. Well closure documentation is provided in Appendix B.

A fourth well, MW-3, was destroyed during the excavation process.

3.1 Replacement Wells

On May 5, 2005, the four monitoring wells lost prior to and during the excavation process were replaced by wells MW-1A, MW-3A, MW-4A, and MW-5A. These wells were drilled with a rotary auger and completed as 2" groundwater monitoring wells (Appendix C contains well construction details). These wells were located as near as possible to the wells they replaced (Figure 5). Wells MW-1A, MW-3A, and MW-5A were located within the excavation area.

There was no on-site analytical laboratory during the drilling phase of operations. Samples were sent to North Creek Analytical for normal turn around processing. Results are contained in Table 2.

3.2 Confirmational Sampling and Analysis - Drilling

Soils were removed during the recent excavation to a depth of approximately 25 feet bgs in both the east and west excavation pits. At that depth groundwater was encountered and no further excavation was attempted. In wells MW-1 and MW-5, contaminated soil appeared to exist just above the groundwater level and extend into the groundwater to some unknown depth. Therefore, while drilling MW-1 and MW-5, it was expected that at 25 feet bgs the drill cuttings would pass from uncontaminated backfill into potentially contaminated native soils. For that reason, while drilling MW-1A and MW-5A down to 25 feet, cuttings were field screened using a PID and monitored for color and odor.

3.2.1 Monitor Well MW-1A

Monitor well MW-1A was drilled to 25 feet bgs, where a sample (MW1A-26) was collected. The sample had no odor (PID reading of 0.4 ppm). This sample was submitted to North Creek Analytical for analysis for: BTEX by EPA Method 8021B, gasoline range petroleum hydrocarbons by NWTPH-G, diesel and oil range petroleum hydrocarbons by NWTPH-Dx.

Monitor well MW-1A was then drilled to 30 feet where a second sample (MW1A-31) was collected. This sample had a slight odor (PID reading 0.8). This sample was sent to North Creek Analytical and analyzed as a confirmational sample for the full set of contaminants of concern as described in Section 2.5.

Both samples from MW-1A were below MTCA Method A cleanup levels for soils for all analytes. This provides vertical confirmation that all petroleum impacted soils have been removed from the east excavation pit.

3.2.2 Monitor Well MW-5A

Monitor well MW-5A was drilled to 24 feet bgs, where cuttings had a heavy fuel odor. At 25 feet bgs a sample was collected (MW5A-26), which also had a strong fuel odor (PID reading 141 ppm).

The well was then drilled to 30 feet bgs where a second sample was collected (MW5A-31). This sample also had a strong fuel odor (PID reading 62.7).

This confirms that throughout the depth of the excavation, all contaminated soils in all lateral directions have been removed.

2.6.2 Excavation Floor

Although groundwater was encountered at the deepest extent of the excavation, a field sample was taken from the floor of each excavation pit to determine contamination conditions at that depth.

Field sample 036/29' was collected from the east excavation pit, and was below reporting limits for all analytes (Table 1).

Field sample 037/25' was collected from the west excavation pit. As noted previously, the soils surrounding MW-5 and contained within the west excavation pit, were expected to be more heavily contaminated. Sample 037/25' contained 4,600 mg/kg diesel range petroleum hydrocarbons (TPH-D), which exceeds MTCA Method A soil cleanup levels for soil (100mg/kg). All other analytes were below cleanup levels (Table 1).

These field samples confirm that all of the petroleum impacted soils have been removed from the east excavation pit, which surrounds the former monitoring well MW-1 (replacement well MW-1A). However, due to the water table, not all of the petroleum impacted soils have been removed from the west excavation pit.

There were no confirmation samples collected from the floor of the excavation in either the east excavation pit or the west excavation pit. This is because the bottom of the excavation encountered groundwater at 25 feet bgs. Confirmation samples, to determine the vertical extent of contamination, were collected during the drilling of wells MW-1A and MW-5A.

2.7 2001 Excavation #3

Figure 4 shows the location of Excavation #3. This excavation work was performed in 2001. This excavation went to a depth of 13'. It is possible that this 2001 excavation effort removed all of the contaminated soils in this area. However, no conformational samples were collected from the floor of the excavation. This was particularly important in the area of test pit TP-1, which indicated that total petroleum hydrocarbon concentrations at a depth of 11 feet bgs was 1,900 mg/kg. This was a significant cause for concern.

The 2001 Excavation #3 was investigated during the recent excavation work. As shown in Figure 4, the northern most portion of the west excavation pit extended into the area covered by 2001 Excavation #3 (Figure 4). Three samples were collected in this area: field sample 032 at a depth of 16 feet, field sample 042 at a depth of 25 feet, and EX0430NW1. All samples were below MTCA Method A Cleanup Levels for Soils.

The current excavation went to a depth of 25 feet and removed all impacted soils encountered. This excavation went under the area where Test Pit #11989 was located. The three samples described above indicate that in the area of the 2001 Excavation #3 the vertical extents of contamination have been removed.

4.0 CONCLUSIONS

4.1 East Excavation Pit

Petroleum impacted soils in the east end of the excavation (the east excavation pit) appear to have been successfully removed. Side wall samples indicate that the lateral extents of contamination have been reached. Samples taken from the excavation floor, and from the drilling of monitoring well MW-1A, indicate that the impacted soils have been completely removed to their vertical extents.

4.2 West Excavation Pit

All petroleum contaminated soils above 25 feet have been removed.

In the west end of the excavation there are a small amount of impacted soils remaining. They extend from approximately 25 feet bgs down to no farther than 31 feet bgs. The diesel range petroleum concentrations in those soils may be as high as 1,360 mg/kg (sample MW5A-26 from the drilling of MW-5A at 26 feet bgs) to possibly 4,600 mg/kg (sample 037/25' from the excavation floor). Gasoline concentrations may range from below method reporting limits to as high as 260 mg/kg (sample MW5A-26).

The horizontal extents of these impacted soils is not known, but the impacted soils above them had a radius of approximately 15 to 25 feet.

4.3 2001 Excavation #3

The 2001 Excavation #3 has been investigated. The northern most portion of the west excavation pit went deeply into the area covered by 2001 Excavation #3, and appeared to extend as far as test pits TP-1 and TP-3.

The 2001 Excavation #3 went to a depth of 13', but failed to confirm that all impacted soils had been removed through collection of samples from the floor of the excavation. The area under Test Pit #11989 was a source of concern because soils had been left in place in the bottom of the test pit with 1,900 mg/kg. The vertical extent of those soils had never been determined.

The current excavation went to a depth of 25 feet and removed all impacted soils encountered. This excavation went under the area where Test Pit #11989 was located and extended to the approximate location of TP-3. Two field samples and one conformational sample indicate that the combination of the current excavation and the 2001 Excavation #3 have removed the vast majority of contaminated soils from this area.

5.0 Tables and Figures

TABLE 1
SUMMARY OF FIELD SAMPLE ANALYTICAL DATA

Former Unocal Bulk Plant #0082

Hwy 97 and East Street, Chelan, Washington

06940-248

Sample Number/ Depth	Date Collected	PID Reading	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[c]
MTCA Method A Cleanup Levels[f]			*0.03*	*7*	*6*	*9*	*30/100*	*2,000*	*2,000*
East End of Excavation									
022/27'	4/25/2005	na	<0.02	<0.05	<0.05	<0.05	<10.0	1,000	<40.0
023/27'	4/26/2005	25.6	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
024/27'	4/25/2005	19.2	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
025/18'	4/25/2005	4.8	<0.02	<0.05	<0.05	<0.05	<10.0	41	<40.0
026/25'	4/25/2005	3.5	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
027/25'	4/25/2005	3.2	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
031/24'	4/25/2005	1.9	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
036/29'	4/25/2005	0.3	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
West End of Excavation									
032/16'	4/26/2005	4.4	<0.02	<0.05	<0.05	<0.05	<10.0	110	<40.0
037/25'	4/27/2005	313	<0.02	<0.05	<0.05	0.3	<10.0	4,600	<40.0
038/24'	4/28/2005	0.4	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	120
040/24'	4/28/2005	na	<0.02	<0.05	<0.05	<0.05	<10.0	88	<40.0
042/25'	4/29/2005	na	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
043/25'	4/29/2005	1.2	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
044/25'	4/29/2005	2.8	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
045/25'	4/29/2005	6.4	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0
046/25'	4/29/2005	5.7	<0.02	<0.05	<0.05	<0.05	<10.0	<20.0	<40.0

[a]B = Benzene, E = Ethylbenzene, T = Toluene, X = Total Xylenes. Analyzed by EPA Method 8021B.

[b]Gasoline-range hydrocarbons analyzed by Ecology Method WTPH-G or NWTPH-Gx.

[c]Diesel- and heavy oil-range hydrocarbons analyzed by Ecology Method WTPH-D extended or NWTPH-Dx with Acid/Silica Gel cleanup.

all concentrations in milligrams per kilogram (mg/kg)

TABLE 2
CONFIRMATIONAL SOIL SAMPLING ANALYTICAL DATA

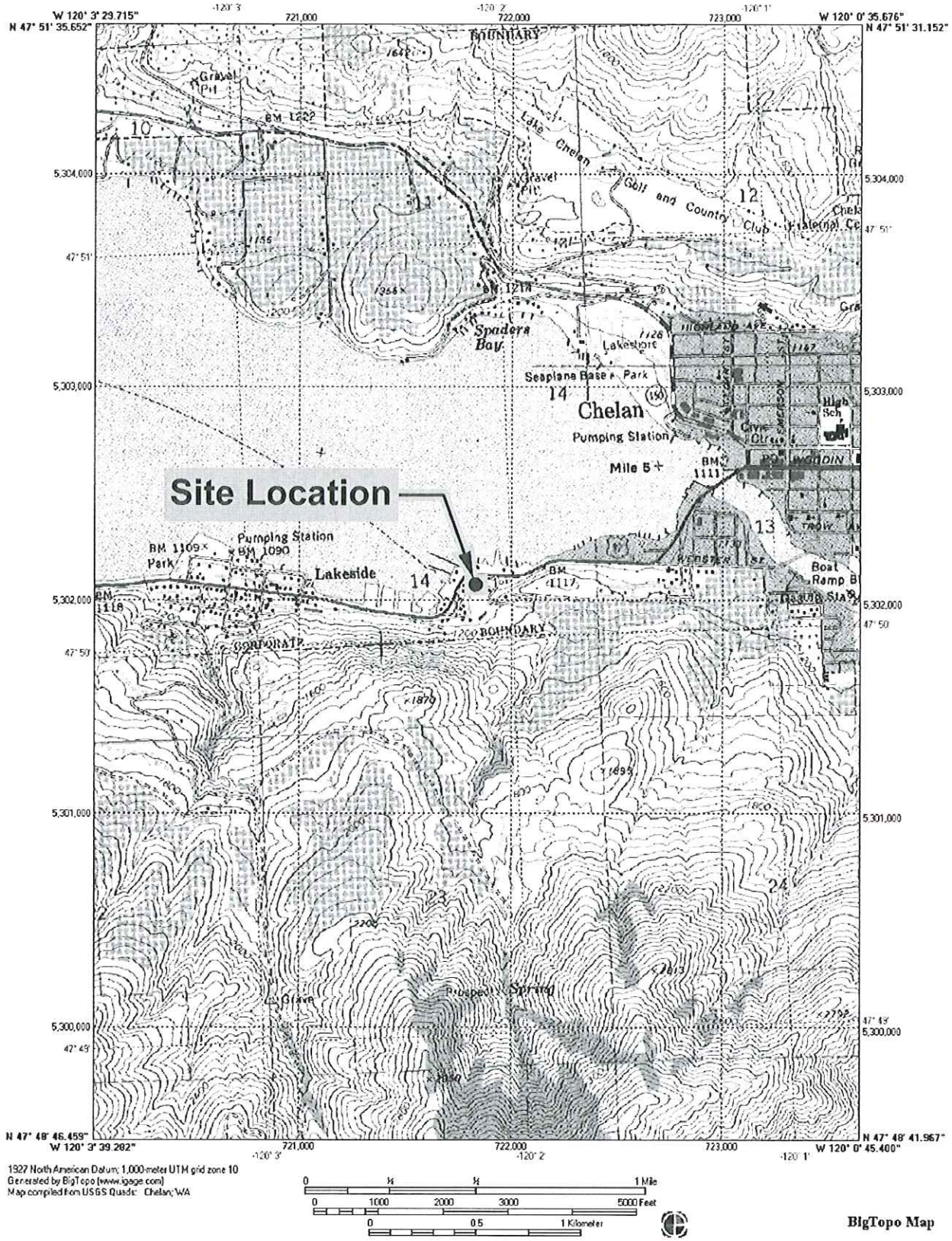
Former Unocal Bulk Plant #0082
Highway 97 and East Street, Chelan, WA
06940-248

Sample Number/ Depth	Date Collected	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	Semivolatile Pet. Products TPH-D[c]	Semivolatile Pet. Products TPH-O[c]	Total Metals[d] Cd	Total Metals[d] Cr Total	Total Metals[d] PB	PCBs[e]	Volatile Organic Compounds[f]	Polynuclear Aromatic Hydrocarbons[g]
MTCA Method A Cleanup Levels[1] (mg/kg)		*0.03*	*7*	*6*	*9*	*30/100*	*2,000*	*2,000*	*2*	*2000/19*	*250*			
Excavation														
EX0426NW1	4/26/2005	<0.00127	<0.00127	<0.00339	<0.00847	<4.32	12.4	<25.0	<0.500	13.9	2.05	ND	ND	<0.0100
EX0426EW1	4/26/2005	<0.00150	<0.00150	<0.00400	<0.0100	<4.08	11.1	<25.0	<0.500	17.4	1.57	ND	ND	<0.0100
EX0430SW1	4/30/2005	<0.00150	<0.00150	<0.00400	<0.0100	<5.00	<10.0	<25.0	<0.500	31.7	1.45	ND	ND	<0.0100
EX0430WW1	4/30/2005	<0.00129	<0.00129	<0.00345	<0.00862	<5.00	<10.0	<25.0	<0.500	30.2	1.87	ND	ND	<0.0100
EX0430NW1	4/30/2005	<0.00132	<0.00132	<0.00351	<0.00877	7.01	18.7	<25.0	<0.500	19.0	1.72	ND for all compounds	ND for all compounds	<0.0100 for all compounds
Drilling														
MW1A-26	5/5/2005	<0.0246	<0.0410	<0.0410	<0.0820	<4.10	<10.0	<25.0						
MW1A-31	5/5/2005	<0.00127	<0.00127	<0.00340	<0.00849	<3.71	<10.0	<25.0	<0.500	19.1	1.05	ND for all compounds	2-Butanone 0.0137	<0.0100 for all compounds
MW5A-26	5/5/2005	<0.0250	<0.0417	0.0959	0.675	260	1,360	<125						
MW5A-31	5/5/2005	<0.0238	<0.0396	<0.0396	<0.0792	<3.96	<10.0	<25.0						
MW-5A-36	5/5/2005	<0.00150	<0.00150	<0.00400	<0.0100	<5.00	<10.0	<25.0	<0.500	15.5	1.00	ND for all compounds	2-Butanone 0.0186	<0.0100 for all compounds
MW3A-31	5/5/2005	<0.0219	<0.0365	<0.0365	<0.0731	18.9	185	<25.0						
MW4A-31	5/6/2005	<0.0235	<0.0392	<0.0392	<0.0784	<3.92	<10.0	<25.0						

[a]B = Benzene, E = Ethylbenzene, T = Toluene, X = Total Xylenes. Analyzed by EPA Method 8021B.
[b]Gasoline-range hydrocarbons analyzed by Ecology Method WTPH-G or NWTPH-Gx.
[c]Diesel- and heavy oil-range hydrocarbons analyzed by Ecology Method WTPH-D extended or NWTPH-Dx with Acid/Silica Gel cleanup.
[d]Total metals by EPA 6000/7000 Series Methods
[e]Polychlorinated biphenyls by EPA method 8082
[f]Voloatile organic compounds by EPA Method 8260B
[g]Polynuclear aromatic hydrocarbons by GC/MS-SIM
all concentrations in milligrams per kilogram (mg/kg)

Figure 1-5.3 Site Location

Chelan-06



BigTopo Map

ENSR | AECOM

ENSR CORPORATION
9521 WILLOWS ROAD NE
REDMOND, WASHINGTON 98052
PHONE: (425) 881-7700
FAX: (425) 883-4473
WEB: HTTP://WWW.ENSR.AECOM.COM

SITE LOCATION MAP

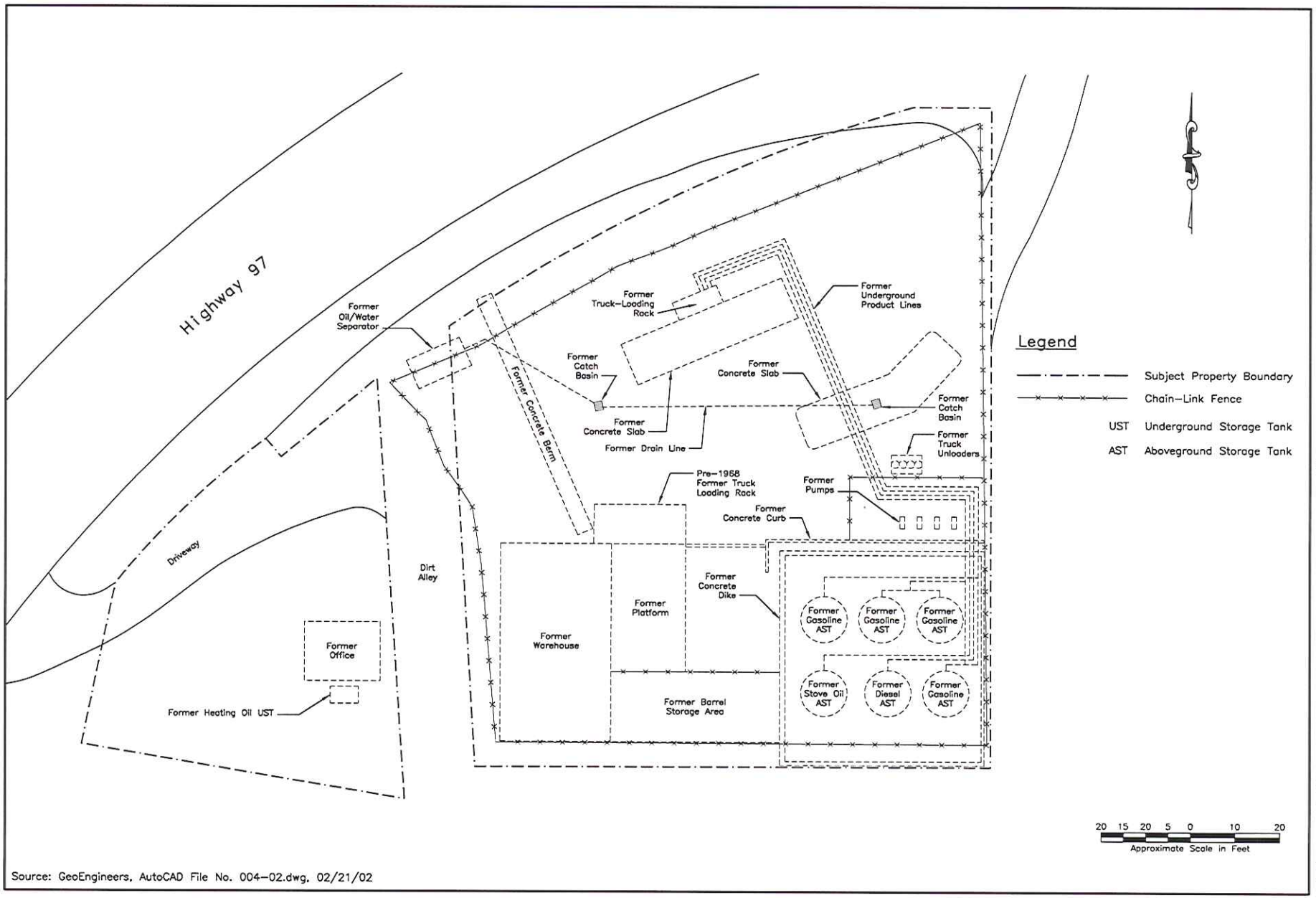
Chevron Site No. 306562
Former Unocal Bulk Plant No. 0082
Highway 97 at East Street, Chelan, Washington

FIGURE NUMBER: 1

DRAWN BY:	DATE:	PROJECT NUMBER:	CHECKED BY:
KM	03/06/07	01231-222	ML

FILENAME: 01231222OM1A

Figure 2-5.4 Site Plan



Source: GeoEngineers, AutoCAD File No. 004-02.dwg, 02/21/02

DESIGNED BY:	REVISIONS		
MG	NO:	DESCRIPTION:	DATE: BY:
DRAWN BY:			
KM			
CHECKED BY:			
ML			
APPROVED BY:			
DL			

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PHONE: (425) 881-7700
FAX: (425) 883-4473
WEB: HTTP://WWW.ENSR.AECOM.COM

SITE PLAN

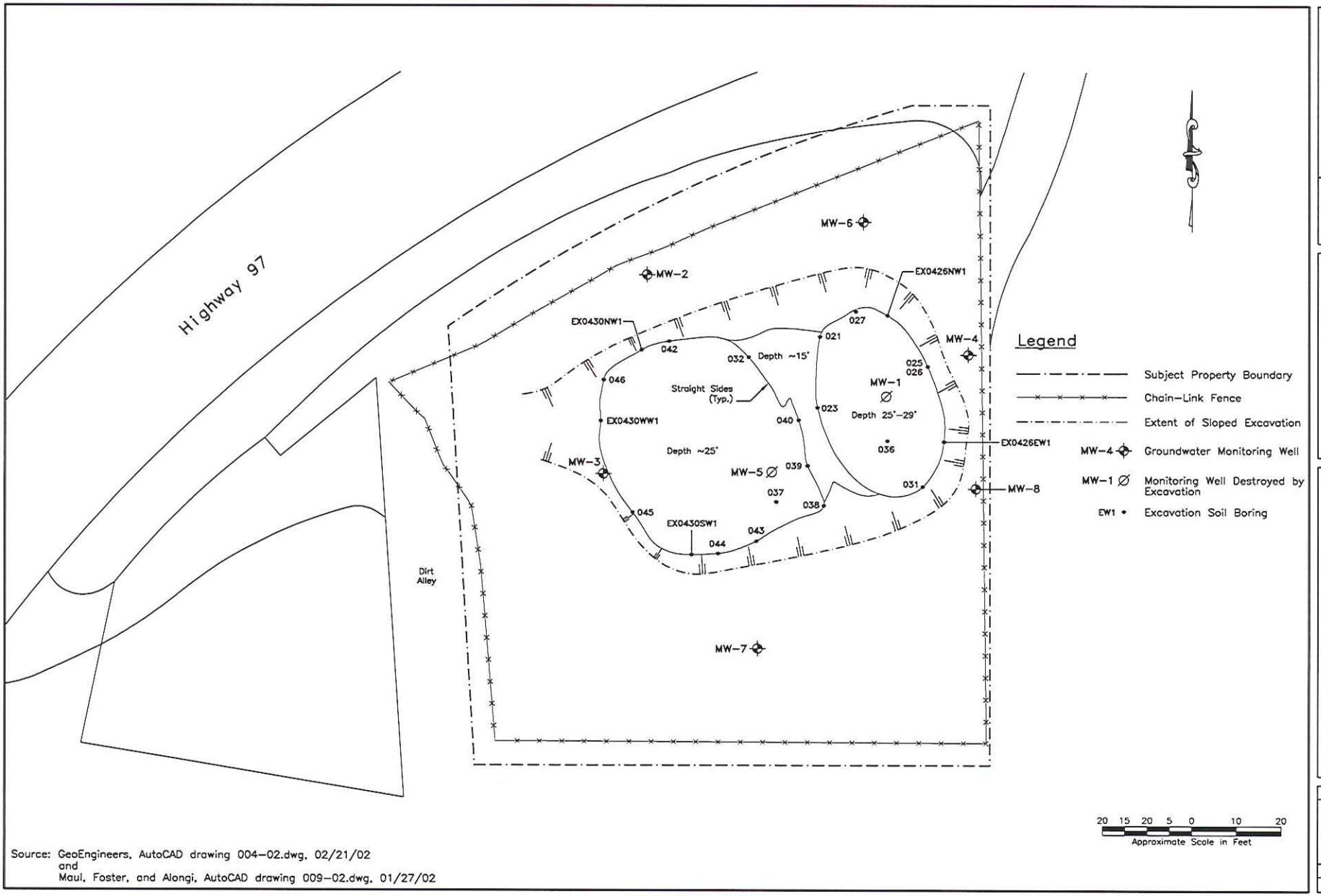
Chevron Site No. 306562
Former Unocal Bulk Plant No. 0082
Highway 97 at East Street, Chelan, Washington

SCALE:	DATE:	PROJECT NUMBER:
1" = 20'	11/07/07	01231-222-0M1

FIGURE NUMBER: 2

FILENAME: 012312220M1F

Figure 3-5.5 2005 Excavation Location



Source: GeoEngineers, AutoCAD drawing 004-02.dwg, 02/21/02
and
Maul, Foster, and Alongi, AutoCAD drawing 009-02.dwg, 01/27/02

REVISIONS			
NO:	DESCRIPTION:	DATE:	BY:

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED BY:
MG	KM	ML	DL

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FAX: (425) 883-4473
WEB: HTTP://WWW.ENSR.AECOM.COM

2005 EXCAVATION LOCATION

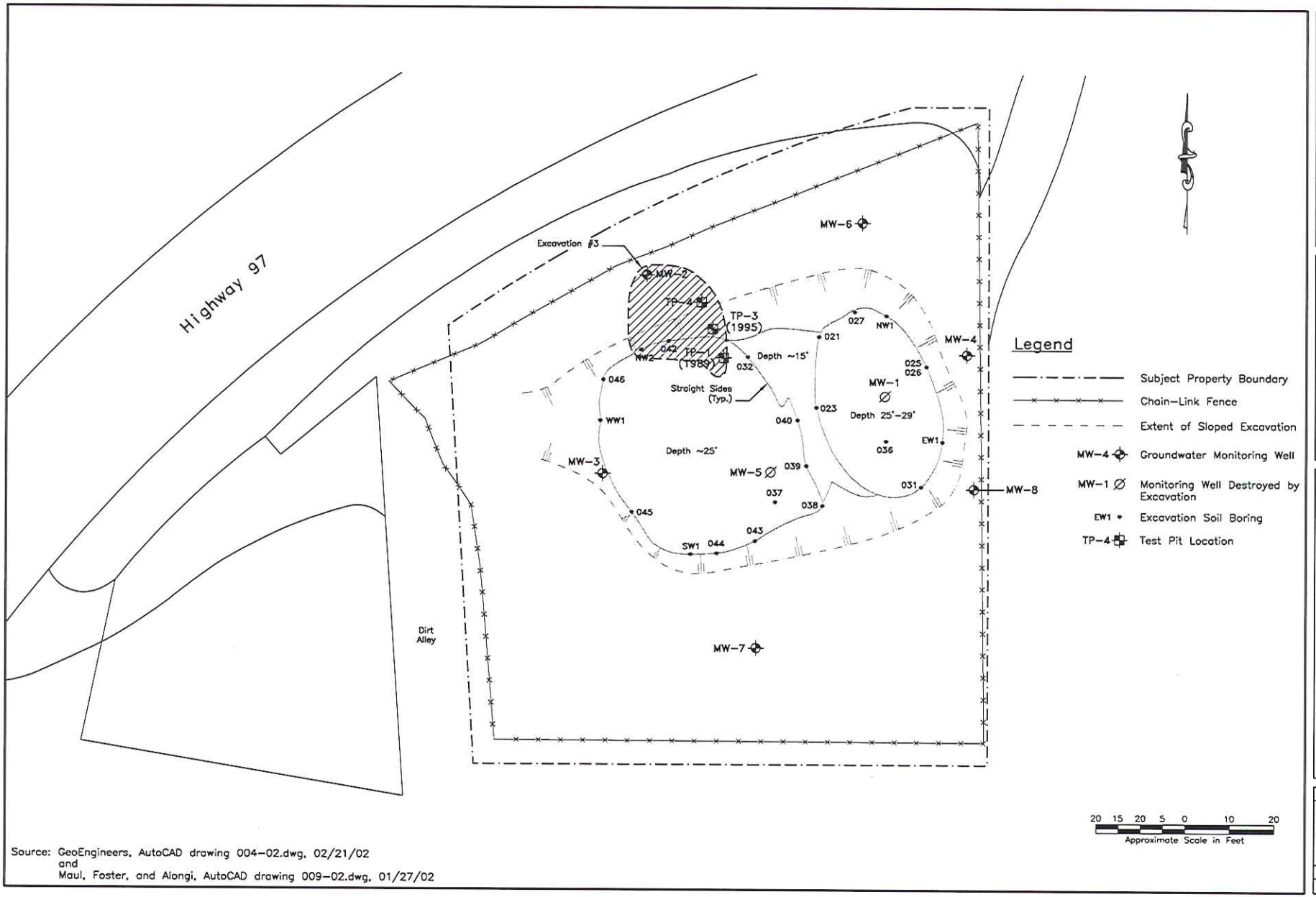
Chevron Site No. 306562
Former Unocal Bulk Plant No. 0082
Highway 97 at East Street, Chelan, Washington

SCALE:	DATE:	PROJECT NUMBER:
1" = 20'	11/07/07	01231-222-OM1

FIGURE NUMBER:
3

FILENAME:
012312220M1N

Figure 4-5.6 2005 Excavation Location With Former Features



Source: GeoEngineers, AutoCAD drawing 004-02.dwg, 02/21/02
and
Maul, Foster, and Alongi, AutoCAD drawing 009-02.dwg, 01/27/02

DESIGNED BY:	REVISIONS		
MG	NO:	DESCRIPTION:	DATE: BY:
DRAWN BY:			
KM			
CHECKED BY:			
ML			
APPROVED BY:			
DL			

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PHONE: (425) 881-7700
FAX: (425) 883-4473
WEB: HTTP://WWW.ENSRAECOM.COM

2005 EXCAVATION LOCATION WITH FORMER FEATURES

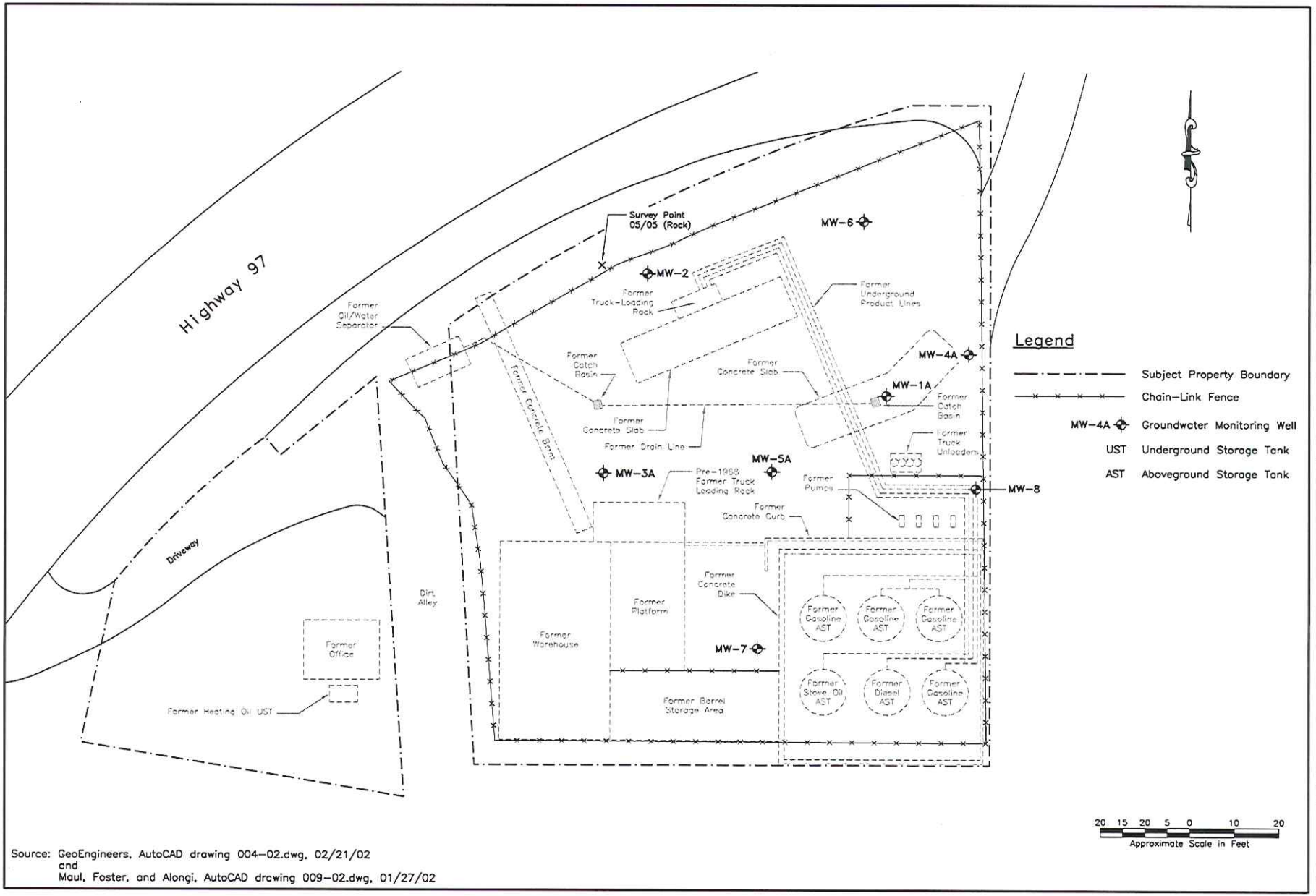
Chevron Site No. 306562
Former Unocal Bulk Plant No. 0082
Highway 97 at East Street, Chelan, Washington

SCALE:	DATE:	PROJECT NUMBER:
1" = 20'	11/07/07	01231-222-OM1

FIGURE NUMBER:
4

FILENAME:
012312220M1Q

Figure 5-5.7 Site Plan



Source: GeoEngineers, AutoCAD drawing 004-02.dwg, 02/21/02
and
Maul, Foster, and Alongi, AutoCAD drawing 009-02.dwg, 01/27/02

REVISIONS			
NO:	DESCRIPTION:	DATE:	BY:

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED BY:
MG	KM	ML	DL

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9521 WILLOWS ROAD NE
REDMOND, WASHINGTON 98052
PHONE: (425) 881-7700
FAX: (425) 883-4173
WEB: HTTP://WWW.ENSR.AECOM.COM

SITE PLAN

Chevron Site No. 306562
Former Unocal Bulk Plant No. 0082
Highway 97 at East Street, Chelan, Washington

SCALE:	DATE:	PROJECT NUMBER:
1" = 20'	11/07/07	01231-222-OM1

FIGURE NUMBER:
5

FILENAME:
012312220M1R

6.0 APPENDIX A ON-SITE LABORATORY ANALYTICAL RESULTS

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan. Washington
ENSR

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)	Mineral Oil (mg/kg)
Method Blank	1/0/1900	106	nd	nd	nd
014	4/25/2005	int	1,900	nd	nd
015	4/25/2005	int	2,400	nd	nd
018	4/25/2005	98	nd	nd	nd
019	4/25/2005	97	nd	nd	nd
019 Dup.	4/25/2005	99	nd	nd	nd
020	4/25/2005	101	nd	nd	nd
021	4/25/2005	114	nd	nd	nd
022	4/25/2005	int	1,000	nd	nd
Method Detection Limits			20	40	40

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan, Washington
ENSR

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8021B) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	4/25/2005	nd	nd	nd	nd	nd	121
LCS	4/25/2005	105%	108%	109%	105%	---	97
014	4/25/2005	nd	nd	nd	nd	nd	92
015	4/25/2005	nd	nd	nd	nd	nd	93
018	4/25/2005	nd	nd	nd	nd	nd	80
019	4/25/2005	nd	nd	nd	nd	nd	107
019 Dup.	4/25/2005	nd	nd	nd	nd	nd	75
020	4/25/2005	nd	nd	nd	nd	nd	100
021	4/25/2005	nd	nd	nd	nd	nd	130
022	4/25/2005	nd	nd	nd	nd	nd	99
Method Detection Limits		0.02	0.05	0.05	0.05	10	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan, Washington
ENSR

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)	Mineral Oil (mg/kg)
Method Blank	4/26/2005	114	nd	nd	nd
023	4/26/2005	86	nd	nd	nd
023 Dup.	4/26/2005	118	nd	nd	nd
024	4/26/2005	70	nd	nd	nd
025	4/26/2005	87	41	nd	nd
026	4/26/2005	114	nd	nd	nd
027	4/26/2005	83	nd	nd	nd
029	4/26/2005	123	33	nd	nd
031	4/26/2005	116	nd	nd	nd
032	4/26/2005	int	110	nd	nd
033	4/26/2005	ibt	3,100	nd	nd
Method Detection Limits			20	40	40

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan, Washington
ENSR

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8021B) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	4/26/2005	nd	nd	nd	nd	nd	104
Method Blank	4/25/2005	nd	nd	nd	nd	nd	121
LCS	4/25/2005	105%	108%	109%	105%	---	97
023	4/26/2005	nd	nd	nd	nd	nd	88
023 Dup.	4/26/2005	nd	nd	nd	nd	nd	100
024	4/26/2005	nd	nd	nd	nd	nd	98
025	4/26/2005	nd	nd	nd	nd	nd	74
026	4/26/2005	nd	nd	nd	nd	nd	103
027	4/26/2005	nd	nd	nd	nd	nd	72
029	4/26/2005	nd	nd	nd	nd	nd	99
031	4/26/2005	nd	nd	nd	nd	nd	106
032	4/26/2005	nd	nd	nd	nd	nd	85
033	4/26/2005	nd	nd	nd	nd	nd	103
Method Detection Limits		0.02	0.05	0.05	0.05	10	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan, Washington
ENSR

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)	Mineral Oil (mg/kg)
Method Blank	4/27/2005	101	nd	nd	nd
034	4/27/2005	int	1,900	1,000	nd
035	4/27/2005	87	nd	nd	nd
036	4/27/2005	92	nd	nd	nd
036 Dup.	4/27/2005	116	nd	nd	nd
037	4/27/2005	int	4,600	nd	nd
Method Detection Limits			20	40	40

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan, Washington
ENSR

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8021B) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	4/27/2005	nd	nd	nd	nd	nd	101
LCS	4/27/2005	97%	96%	100%	95%	---	85
034	4/27/2005	nd	nd	nd	nd	nd	92
035	4/27/2005	nd	nd	nd	nd	nd	90
036	4/27/2005	nd	nd	nd	nd	nd	100
036 Dup.	4/27/2005	nd	nd	nd	nd	nd	101
037	4/27/2005	nd	nd	nd	0.30	nd	86
Method Detection Limits		0.02	0.05	0.05	0.05	10	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan, Washington
ENSR

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8021B) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	4/28/2005	nd	nd	nd	nd	nd	110
LCS	4/28/2005	109%	109%	112%	108%	---	96
038	4/28/2005	nd	nd	nd	nd	nd	91
039	4/28/2005	nd	nd	nd	nd	nd	128
040	4/28/2005	nd	nd	nd	nd	nd	82
040 Dup.	4/28/2005	nd	nd	nd	nd	nd	113
Method Detection Limits		0.02	0.05	0.05	0.05	10	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan, Washington
ENSR

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)	Mineral Oil (mg/kg)
Method Blank	4/28/2005	101	nd	nd	nd
038	4/28/2005	93	150	nd	nd
039	4/28/2005	89	nd	nd	nd
040	4/28/2005	121	88	nd	nd
040 Dup.	4/28/2005	115	69	nd	nd
Method Detection Limits			20	40	40

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan, Washington
ENSR

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)	Mineral Oil (mg/kg)
Method Blank	4/29/2005	106	nd	nd	nd
041	4/29/2005	int	1,400	nd	nd
042	4/29/2005	115	nd	nd	nd
043	4/29/2005	93	nd	nd	nd
044	4/29/2005	77	nd	nd	nd
045	4/29/2005	110	nd	nd	nd
045 Dup.	4/29/2005	119	nd	nd	nd
046	4/29/2005	99	nd	nd	nd
047	4/29/2005	98	nd	nd	nd
Method Detection Limits			20	40	40

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

UNOCAL CHELAN EXCAVATION PROJECT
Chelan, Washington
ENSR

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8021B) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	4/29/2005	nd	nd	nd	nd	nd	117
LCS	4/29/2005	115%	115%	112%	113%	---	102
041	4/29/2005	nd	nd	nd	nd	nd	87
041 Dup.	4/29/2005	nd	nd	nd	nd	nd	118
042	4/29/2005	nd	nd	nd	nd	nd	95
043	4/29/2005	nd	nd	nd	nd	nd	117
044	4/29/2005	nd	nd	nd	nd	nd	79
045	4/29/2005	nd	nd	nd	nd	nd	99
046	4/29/2005	nd	nd	nd	nd	nd	116
047	4/29/2005	nd	nd	nd	nd	nd	99
Method Detection Limits		0.02	0.05	0.05	0.05	10	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65% TO 135%

ANALYSES PERFORMED BY: Matthew Sebonia

Table 1. On-Site Lab and Field Screening Results, Unocal Site #XXXX Remedial Excavation.

Sample Location:		West End									
Sample ID:		032	037	038	039	040	042	043	044	045	046
Sample Depth (ft):		16	25	24	24	24	25	25	25	25	25
Sample Date:	Soil Cleanup Level[1]	4/26/2005	4/27/2005	4/28/2005	4/28/2005	4/28/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005
Field Screening (ppm)											
Photoionization Detector	na	4.4	313	0.4	14.4	na	na	1.2	2.8	6.4	5.7
Bulk Petroleum Hydrocarbons [NWTPH-Gx, NWTPH-Dx] (mg/kg)											
Gasoline Range Organics	30/100[B]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diesel Range Organics	2,000[A]	110	**4,600**	150	ND	88	ND	ND	ND	ND	ND
Heavy Oil Range Hydrocarbons	2,000	ND	ND	ND	ND	N	ND	ND	ND	ND	ND
Volatile Organic Compounds [8021] (mg/kg)											
Benzene	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	na	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	na	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	na	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Key:

-- = Analysis not performed on this sample.

NA = Not available.

ND = Parameter not detected above the method quantitation limit.

mg/kg = milligrams per kilogram

Note:

Values in bold indicate exceedance of the cleanup level.

[1] = Values taken from Oregon Department of Environmental Quality table of risk-based concentrations (RBCs). The most stringent RBCs were selected from two exposure pathways. (1) Soil Ingestion, Dermal Contact, and Inhalation pathway (occupational, construction worker, and excavation worker receptor scenarios), and (2) Vapor Intrusion into Buildings pathway (occupational receptor scenario).

[A] = Soil Ingestion, Dermal Contact, and Inhilation exposure pathway; Occupational receptor scenario.

[B] = Soil Ingestion, Dermal Contact, and Inhilation exposure pathway; Consruction Worker receptor scenario.

[C] = Soil Ingestion, Dermal Contact, and Inhilation exposure pathway; Excavation worker receptor scenario.

[D] = Vapor Intrusion into Buildings exposure pathway; Occupational receptor scenario.

Table .. On-Site Lab and Field Screening Results, Unocal Site #XXXX Remedial Excavation.

Sample Location:		East End							
Sample ID:		022	023	024	025	026	027	031	036
Sample Depth (ft):		27	27	27	18	25	25	24	29
Sample Date:	Soil Cleanup Level[1]	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005
Field Screening (ppm)									
Photoionization Detector	na	na	25.6	19.2	4.8	3.5	3.2	1.9	0.3
Bulk Petroleum Hydrocarbons [NWTPH-Gx, NWTPH-Dx] (mg/kg)									
Gasoline Range Organics	30/100[B]	ND	ND	ND	ND	ND	ND	ND	ND
Diesel Range Organics	2,000[B]	1,000	ND	ND	41	ND	ND	ND	ND
Heavy Oil Range Hydrocarbons	2,000	ND	ND	ND	N	ND	ND	ND	ND
Volatile Organic Compounds [8021] (mg/kg)									
Benzene	0.03	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	na	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	na	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	na	ND	ND	ND	ND	ND	ND	ND	ND

Key:

NA = Not available.

ND = Parameter not detected above the method quantitation limit.

mg/kg = milligrams per kilogram.

Note:

Values in **bold** indicate exceedance of the cleanup level.

[1] = Values taken from Oregon Department of Environmental Quality table of risk-based concentrations (RBCs). The most stringent RBCs were selected from two exposure pathways: (1) Soil Ingestion, Dermal Contact, and Inhalation pathway (occupational, construction worker, and excavation worker receptor scenarios), and (2) Vapor Intrusion into Buildings pathway (occupational receptor scenario).

[A] = Soil Ingestion, Dermal Contact, and Inhilation exposure pathway; Occupational receptor scenario.

[B] = Soil Ingestion, Dermal Contact, and Inhilation exposure pathway; Consruction Worker receptor scenario.

[C] = Soil Ingestion, Dermal Contact, and Inhilation exposure pathway; Excavation worker receptor scenario.

[D] = Vapor Intrusion Into Buildings exposure pathway; Occupational receptor scenario.

7.0 APPENDIX B WELL ABANDONMENT DOCUMENTATION

NOTICE OF INTENT TO DECOMMISSION A WELL

Notification Number
A 69880

WASHINGTON STATE DEPARTMENT OF ECOLOGY

This form MUST BE RECEIVED by the Department of Ecology 72 HOURS BEFORE you decommission a well.

Submit one form for each job site. Mail this form to the Department of Ecology, Water Resources Program, Well Drilling Unit, PO Box 47600, Olympia WA 98504-7600. Instructions for filling out this form are printed on the back.

NOTE: PLEASE PRINT ALL ANSWERS. PROCESSING YOUR NOTICE OF INTENT MAY BE DELAYED IF ALL FIELDS OUTLINED IN THE (BOXES) ARE NOT FILLED IN COMPLETELY.

1. Property Owner Unocal # 0082 Phone No. ~

Address (include city, state and zip) C/O ENSR

2. Agent (if different from #1) ENSR Phone No. 425/881-7700

Address (include city, state and zip) 9521 Willows Rd, Redmond WA 98052

3. Well Location: NW 1/4-1/4 of the SE 1/4 Section 14 Township 27N Range 22E (W)M or WWM (circle one)

4. Print COUNTY NAME of well location (DO NOT ABBREVIATE) Chelan

5. Type of well to decommission *(please "x" appropriate circle)*

○ Water Well ○ Geotech Soil Boring How many? ____

(X) Resource Protection How many? 3

Lattitude and Longitude (if available) NOTE: 1/4-1/4, 1/4, section, township and range are REQUIRED.

Lat Degrees ____ Lat Time ____ Horizontal collection method ____

Long Degrees ____ Long Time ____

6. Well Site Street Address Hwy 97 + East Street, Chelan

7. Notice of Intent No. of well being decommissioned and Unique Well ID Tag# *(if applicable)* ____

8. Tax parcel number ~ 9. Approx. decommissioning start date 4/20/05

10. Contractor L & I Registration No. CASCADTO-88KIL

11. Well Drilling Company Name Cascade Drilling, Inc Phone No. 425 485-8908

12. Well Driller Name Kasey Goble License No. 2501

13. SEND THE ENTIRE FORM. The bottom portion of this notice will be validated in our office and sent back to the name and address contained on the address label. This is the proof of notification. Please fill out the portion below CAREFULLY.

NOTE: Please copy the Notification Number (located in the upper and lower right corner) and keep in a safe place. Please reference this number when communicating with the Department of Ecology.

This notification number must be provided to your well driller: A 69880

RETURN NAME AND MAILING ADDRESS

WDS-230

Name CASCADE DRILLING, INC.

Address P.O. BOX 1184 WOODINVILLE WA 98072

City ____ State ____ Zip ____

Client Name ENSR

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. # 169880

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

Construction

X Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well *("x" in circle)*

X Resource Protection

O Geotech Soil Boring

Property Owner Unocal Terminal # 0082

Consulting Firm ENSR

Site Address Hwy 97 & East Strut

City Chelan County: Chelan

Unique Ecology Well ID Tag No: _____

Location NW 1/4 SE 1/4 Sec. 14 Twn. 27 N R. 20 E (E)WM *circle one* WWM

Lat/Long (s, t, r still) REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

X Driller ☐ Engineer ☐ Trainee Name (Print) Kasey Cable

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2501

Tax Parcel No. ~

Cased or Uncased Diameter 2" Static Level _____

Work/Decommission Start Date 4/22/05

Work/Decommission Completed Date 4/22/05

If trainee, licensed driller's Signature and License no. _____

Well Data W05-230

Construction/Design	Formation Description
CONCRETE SURFACE SEAL	0 – ft.
BACKFILL Bentonite Chips	— ft.
	Chip in place
	— ft.
DEPTH OF BORING 31.0 ft.	

CLIENTS WELL ID #

AS-1

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. A 69880

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

( ) Construction

(X) Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well ("x" in circle)

(X) Resource Protection

( ) Geotech Soil Boring

Property Owner Unocal Terminal # 0082

Consulting Firm ENSR

Site Address Hwy 97 & East Street

Unique Ecology Well ID

Tag No: _____

City Chelan County: Chelan

Location NW 1/4 SE 1/4 Sec. 14 Twn. 27 N R. 20 E (E)(W)(M) circle one or WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

(X) Driller ( ) Engineer ( ) Trainee Name (Print) Kasey Cobble

Tax Parcel No. ~

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2501

Cased or Uncased Diameter 2" Static Level _____

Work/Decommission Start Date 4/22/05

Work/Decommission Completed Date 4/22/05

If trainee, licensed driller's Signature and License no. _____

Well Data W05- 230

Construction/Design	Formation Description
CONCRETE SURFACE SEAL	0 – ft.
BACKFILL Bentonite Chips	– ft.
	Chip in place
	– ft.
DEPTH OF BORING 31'0"	

CLIENTS WELL ID # AS - 2

Scale 1"= Page of

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. A 109880

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

( ) Construction

(X) Decommission *ORIGINAL INSTALLATION Notice of Intent Number*_____

Type of Well ("x" in circle)

(X) Resource Protection

( ) Geotech Soil Boring

Property Owner Unocal Terminal # 0092

Consulting Firm ENSR

Site Address Hwy 97 & East Street

Unique Ecology Well ID

Tag No: _____

City Chelan County: Chelan

Location NW 1/4 SE 1/4 Sec. 14 Twn. 27N R. 22E (EWM) circle one

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Lat Min/Sec ____

Long Deg ____ Long Min/Sec ____

(X) Driller ( ) Engineer ( ) Trainee Name (Print) Kasey Cobble

Driller/Engineer/Trainee Signature [signature]

Tax Parcel No. ~

Driller or Trainee License No. 2501

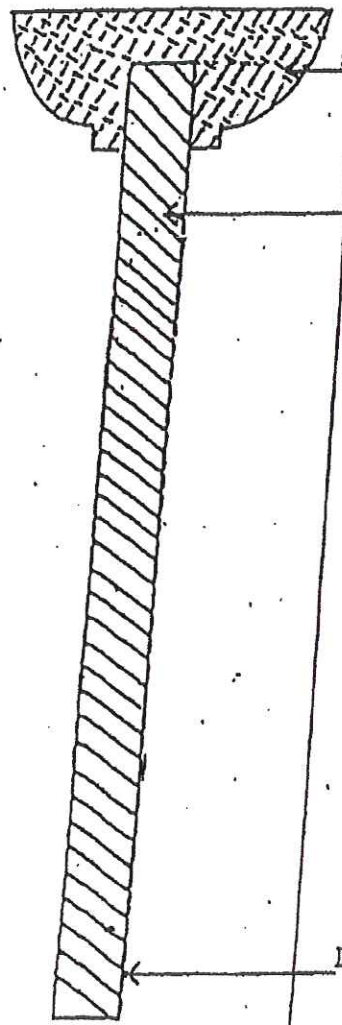
Cased or Uncased Diameter 2" Static Level ____

Work/Decommission Start Date 4/22/05

If trainee, licensed driller's Signature and License no. _____

Work/Decommission Completed Date 4/22/05

Construction/Design — Well Data 1005-230 — Formation Description



CONCRETE SURFACE SEAL — 0 – ___ ft.

BACKFILL bentonite chips — ___ – ___ ft.

Chips in place — ___ – ___ ft.

DEPTH OF BORING 31.0 ft.

CLIENTS WELL ID # AS-3

Scale 1"= _____ Page ____ of ____

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. A 69871

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

O Construction

X Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm ENSR

Unique Ecology Well ID Tag No: ~

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Frank Scott

Driller/Engineer/Trainee Signature [signature]

Driller or Trainee License No. 2549

If trainee, licensed driller's Signature and License no. ~

Type of Well ("x" in circle)

☒ Resource Protection

O Geotech Soil Boring

Property Owner Unocal Terminal

Site Address Hwy 97 & East Street

City Chelan County: Chelan

Location NW 1/4 SE 1/4 Sec 4 Twn 27N R. 22 E W (M) circle one WWM

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. ~

Cased or Uncased Diameter 2" Static Level ~

Work/Decommission Start Date 3/17/05

Work/Decommission Completed Date 3/17/05

Well Data W05-154

Construction/Design	Formation Description
CONCRETE SURFACE SEAL	0 – ft.
BACKFILL Bent. chips	– ft.
	– ft.
DEPTH OF BORING 29' 0"	

CLIENTS WELL ID # MW-1

Scale 1"= Page ___ of ___

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. A 69871

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

O Construction

X Decommission *ORIGINAL INSTALLATION Notice of Intent Number*

Type of Well ("x" in circle)

X Resource Protection

O Geotech Soil Boring

Property Owner Unocal Terminal

Site Address Hwy 97 & East Street

Consulting Firm ENSR

City Chelan County: Chelan

Unique Ecology Well ID

Tag No: ~

Location NW 1/4 SE 1/4 Sec 14 Twn 27N R 22 E W (circle one) WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Lat Min/Sec ____

Long Deg ____ Long Min/Sec ____

X Driller ☐ Engineer ☐ Trainee Name (Print) Frank Scott

Driller/Engineer/Trainee Signature [signature]

Driller or Trainee License No. 2549

Tax Parcel No. ~

Cased or Uncased Diameter 2" Static Level ~

Work/Decommission Start Date 3/17/05

If trainee, licensed driller's Signature and License no. ~

Work/Decommission Completed Date 3/17/05

Well Data W05-154

Construction/Design	Formation Description
CONCRETE SURFACE SEAL	0 – ft.
BACKFILL Bent chips	– ft.
	– ft.
DEPTH OF BORING 30' 0"	

CLIENTS WELL ID # MW4

Scale 1"= ____ Page ____ of ____

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. A 69871

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

O Construction

X Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well ("x" in circle)

X Resource Protection

O Geotech Soil Boring

Property Owner Unocal Terminal

Consulting Firm ENSR

Site Address Hwy 97 & East Street

City Chelan County: Chelan

Unique Ecology Well ID ~

Tag No: _____

Location NW 1/4 SE 1/4 Sec 4 Twp 27N R 23 E W (circle one) WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

X Driller ☐ Engineer ☐ Trainee Name (Prin Frank Scott

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2549

Tax Parcel No. ~

Cased or Uncased Diameter 2" Static Level ~

Work/Decommission Start Date 3/17/05

Work/Decommission Completed Date 3/17/05

If trainee, licensed driller's Signature and License no. ~

Well Data W05-154

Construction/Design	Formation Description
CONCRETE SURFACE SEAL	0 – ft.
BACKFILL bent chips	– ft.
	– ft.
DEPTH OF BORING 30' 0"	

CLIENTS WELL ID # MW-5

Scale 1"= Page of

ECY 050-12 (Rev 2/01)

8.0 APPENDIX C NEW WELL CONSTRUCTION DOCUMENTATION

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. R 606613

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

MW-1A

Construction/Decommission *("x" in circle)*
- X Construction
- O Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*
- X Resource Protection
- O Geotech Soil Boring

Property Owner Unocal Bulk Terminal

Unique Ecology Well ID Tag No. AKY 332

Consulting Firm ENSR

Driller or Trainee Name Frank Stott

Driller or Trainee Signature [signature]

Driller or Trainee License No. 2649

If trainee, licensed driller's Signature and License no. /

Site Address Hwy 97 & East Street

City Chelan County: Chelan

Location NW 1/4- 1/4 SE 1/4 Sec 14 Twn 27N R 22E (E/W/M) circle one or WWM

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

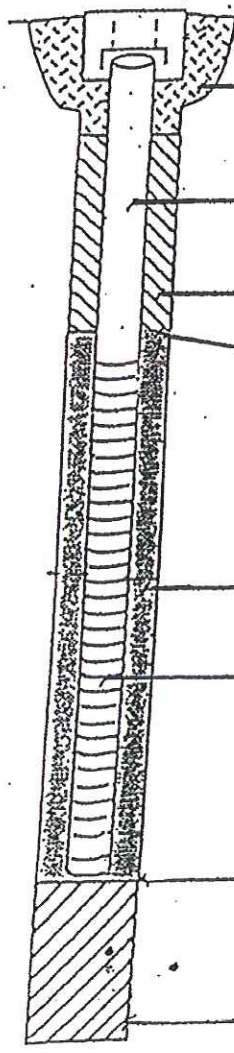
Tax Parcel No. ~

Cased or Uncased Diameter 8" Static Level 25'

Work/Decommission Start Date 5/4/05

Work/Decommission Completed Date 5-4-05

Well Data W05-253



Construction/Design

Well Cover

Concrete Surface Seal Depth = 2'

Blank Casing 2" ID

Material PVC

Backfill 6 ft

Type: Bent-chips

Seal

Material

Gravel Pack 22 ft

Material: 2/12 sand

Screen 2 "x 20'

Slot Size w/10

Material PVC

Well Depth 30'0"

Backfill

Material

Total Hole Depth

Formation Description

0 - 25 ft
Fill

25 - 30 ft
Brown silty sand

- ft

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. R 606613

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

MW-5A

Construction/Decommission *("x" in circle)*
- (X) Construction
- ( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*
- (X) Resource Protection
- ( ) Geotech Soil Boring

Property Owner Unocal Bulk Terminal

Site Address Hwy 97 & East Street

Unique Ecology Well ID Tag No. AKY 333

City Chelan County: Chelan

Consulting Firm ENSR

Location NW 1/4- 1/4 SE 1/4 Sec 14 Twn 27N R 22E (E/W/M) or WWM circle one

Driller or Trainee Name Frank Scott

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Driller or Trainee Signature [signature]

Long Deg _____ Long Min/Sec _____

Driller or Trainee License No. 2541

Tax Parcel No. ~

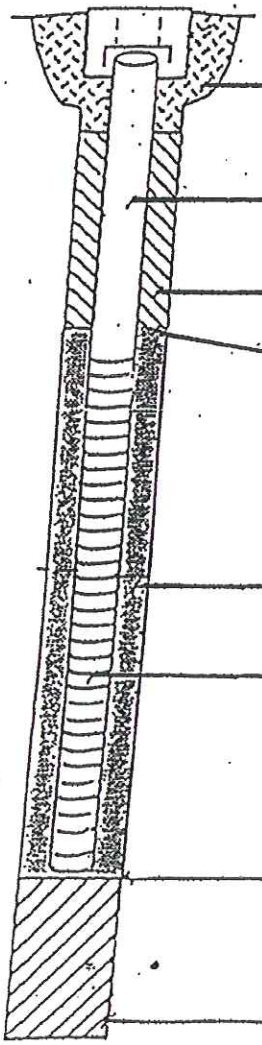
If trainee, licensed driller's Signature and License no. /

Cased or Uncased Diameter 8" Static Level 25'

Work/Decommission Start Date 5/3/05

Work/Decommission Completed Date 5-5-05

Well Data WDS-253

Construction/Design		Formation Description
	Well Cover Concrete Surface Seal Depth 2' Blank Casing 2 " 10 Material PVC Backfill 6 ft Type: Bent. Chips Seal Material Gravel Pack 24' ft Material: 2/12 Sand Screen 2 "x 20 ' Slot Size .010 Material PVC Well Depth 30 '0 " Backfill 3' Material Bent. Chips Total Hole Depth 35'0"	0 - 25 ft Fill 25 - 35 ft Brown silty sand - ft

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. R 606613

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

MW-3A

Construction/Decommission *("x" in circle)*

(X) Construction

( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection

( ) Geotech Soil Boring

Property Owner Unocal Bulk Terminal

Unique Ecology Well ID Tag No. AKY 334

Consulting Firm ENSR

Driller or Trainee Name Frank Scott

Driller or Trainee Signature F/ Scott

Driller or Trainee License No. 2549

If trainee, licensed driller's Signature and License no. /

Site Address Hwy 97 & East Street

City Chelan County: Chelan

Location NW 1/4- 1/4 SE 1/4 Sec 14 Twn 27N R 22E E W M or WWM *circle one*

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

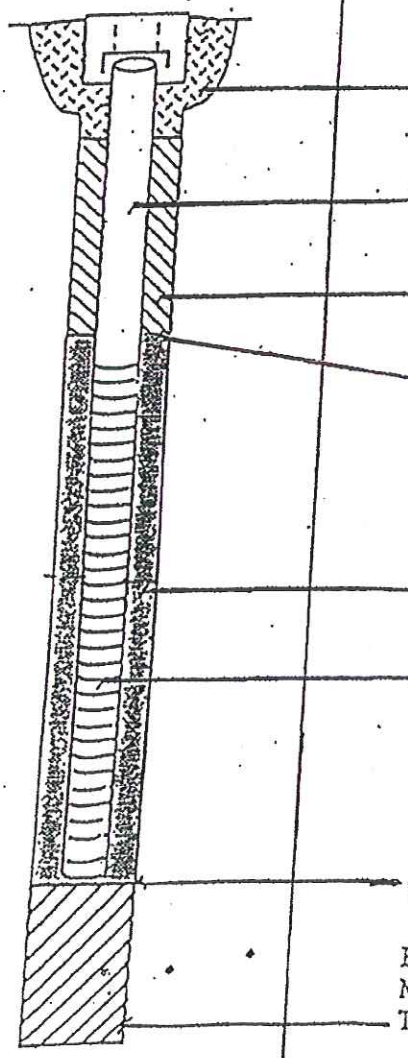
Tax Parcel No. ~

Cased or Uncased Diameter 8" Static Level: 25

Work/Decommission Start Date 5/4/05

Work/Decommission Completed Date 5-5-05

Construction/Design — Well Data WDS-253 — Formation Description



Well Cover

Concrete Surface Seal Depth = 2'

Blank Casing 2" ø Material Bent. Chips

Backfill 6 ft Type: Bent. Chips

Seal _____ Material _____

Gravel Pack 24 ft Material: 2/12 Sand

Screen 2" x 20' Slot Size .010 Material PVC

Well Depth 30' 0"

Backfill 3' Material Bent. Chips

Total Hole Depth 35' 0"

0 - 25 ft Brown silty sand & gravels w/ cobbles

_____ - _____ ft

_____ - _____ ft

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. R 606613

MW-4A

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*
- (X) Construction
- ( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*
- (X) Resource Protection
- ( ) Geotech Soil Boring

Property Owner Unocal Bulk Terminal

Unique Ecology Well ID Tag No. AKY 335

Consulting Firm ENSR

Driller or Trainee Name Frank Scott

Driller or Trainee Signature [signature]

Driller or Trainee License No. 2549

If trainee, licensed driller's Signature and License no. /

Site Address Hwy 97 & East Street

City Chelan County: Chelan

Location NW 1/4 - 1/4 SE 1/4 Sec 14 Twn 27N R 22E (E)WM *circle one*

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. ~

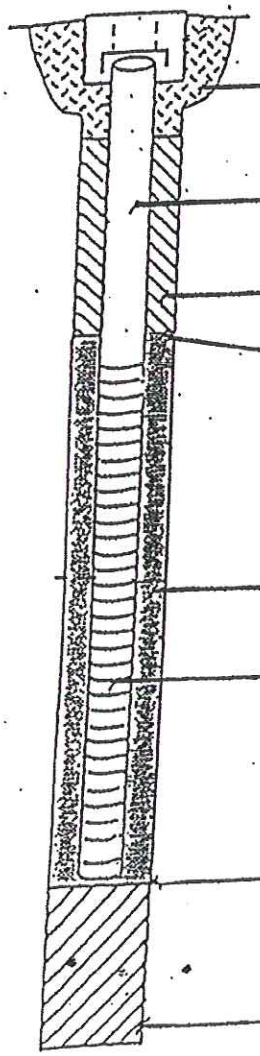
Cased or Uncased Diameter 8" Static Level 25'

Work/Decommission Start Date 5/4/05

Work/Decommission Completed Date 5-6-05

Well Data WDS-253

Construction/Design



Well Cover

Concrete Surface Seal Depth = 2'

Blank Casing 2 " 10

Material PVC

Backfill 6 ft

Type: Bent. chips

Seal _____

Material _____

Gravel Pack 22 ft

Material: 7/12 Sand

Screen 2 "x 20'

Slot Size .010

Material PVC

Well Depth 30' 0"

Backfill _____

Material _____

Total Hole Depth _____

Formation Description

0 - 25 ft
Brown Silty Sand, gravels & cobbles

25 - 30 ft
Brown Silty Sand

_____ ft

9.0 APPENDIX D CONFIRMATIONAL SAMPLING ANALYTICAL RESULTS

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

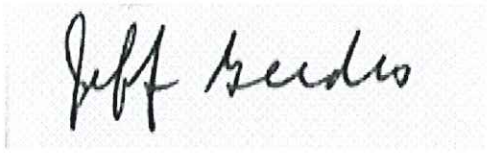
11 May 2005

Jim Borthen
ENSR-Redmond
9521 Willows Road NE
Redmond, WA 98052

RE: UNOCAL #0082

Enclosed are the results of analyses for samples received by the laboratory on 04/27/05 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jeff Gerdes
Project Manager

www.ncalabs.com

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425.420.9200 fax 425.420.9210
Spokane 11922 E. 1st Avenue, Spokane Valley, WA 99206-5302
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EX0426NW1	B5D0856-01	Soil	04/26/05 13:25	04/27/05 16:10
EX0426EW1	B5D0856-02	Soil	04/26/05 13:40	04/27/05 16:10

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes, Project Manager

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Petroleum Products by NWTPH-Gx
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426NW1 (B5D0856-01) Soil Sampled: 04/26/05 13:25 Received: 04/27/05 16:10									
Gasoline Range Hydrocarbons	ND	4.32	mg/kg dry	1	5E03066	05/03/05	05/03/05	NWTPH-Gx	
Surrogate: 4-BFB (FID)	*77.2 %*	*50-150*			"	"	"	"	
EX0426EW1 (B5D0856-02) Soil Sampled: 04/26/05 13:40 Received: 04/27/05 16:10									
Gasoline Range Hydrocarbons	ND	4.08	mg/kg dry	1	5E03066	05/03/05	05/03/05	NWTPH-Gx	
Surrogate: 4-BFB (FID)	*76.9 %*	*50-150*			"	"	"	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes

Jeff Gerdes, Project Manager

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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426NW1 (B5D0856-01) Soil Sampled: 04/26/05 13:25 Received: 04/27/05 16:10									
Diesel Range Hydrocarbons	**12.4**	10.0	mg/kg dry	1	5D28052	04/28/05	04/29/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*69.1 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*88.5 %*	*50-150*			"	"	"	"	
EX0426EW1 (B5D0856-02) Soil Sampled: 04/26/05 13:40 Received: 04/27/05 16:10									
Diesel Range Hydrocarbons	**11.1**	10.0	mg/kg dry	1	5D28052	04/28/05	04/29/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*72.4 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*90.7 %*	*50-150*			"	"	"	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes, Project Manager

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425.420.9200 fax 425.420.9210
Spokane 11922 E. 1st Avenue, Spokane Valley, WA 99206-5302
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426NW1 (B5D0856-01) Soil Sampled: 04/26/05 13:25 Received: 04/27/05 16:10									
Cadmium	ND	0.500	mg/kg dry	1	5D28013	04/28/05	04/28/05	EPA 6020	
Chromium	**13.9**	0.500	"	"	"	"	"	"	
Lead	**2.05**	0.500	"	"	"	"	"	"	
EX0426EW1 (B5D0856-02RE1) Soil Sampled: 04/26/05 13:40 Received: 04/27/05 16:10									
Cadmium	ND	0.500	mg/kg dry	1	5D29007	04/29/05	04/29/05	EPA 6020	
Chromium	**17.4**	0.500	"	"	"	"	"	"	
Lead	**1.57**	0.500	"	"	"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Polychlorinated Biphenyls by EPA Method 8082
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426NW1 (B5D0856-01) Soil Sampled: 04/26/05 13:25 Received: 04/27/05 16:10									
Aroclor 1016	ND	25.0	ug/kg dry	1	5D29047	04/29/05	05/05/05	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	ND	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	*75.9 %*	*19-149*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*77.4 %*	*37-151*			"	"	"	"	
EX0426EW1 (B5D0856-02) Soil Sampled: 04/26/05 13:40 Received: 04/27/05 16:10									
Aroclor 1016	ND	25.0	ug/kg dry	1	5D29047	04/29/05	05/05/05	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	ND	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	*76.8 %*	*19-149*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*78.7 %*	*37-151*			"	"	"	"	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426NW1 (B5D0856-01) Soil Sampled: 04/26/05 13:25 Received: 04/27/05 16:10									
Acetone	ND	0.0254	mg/kg dry	1	5E04012	05/04/05	05/04/05	EPA 8260B	
Benzene	ND	0.00127	"	"	"	"	"	"	
Bromobenzene	ND	0.00424	"	"	"	"	"	"	
Bromochloromethane	ND	0.00424	"	"	"	"	"	"	
Bromodichloromethane	ND	0.00424	"	"	"	"	"	"	
Bromoform	ND	0.00424	"	"	"	"	"	"	
Bromomethane	ND	0.00847	"	"	"	"	"	"	
2-Butanone	ND	0.0127	"	"	"	"	"	"	
n-Butylbenzene	ND	0.00424	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.00424	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.00424	"	"	"	"	"	"	
Carbon disulfide	ND	0.00254	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.00424	"	"	"	"	"	"	
Chlorobenzene	ND	0.00169	"	"	"	"	"	"	
Chloroethane	ND	0.00424	"	"	"	"	"	"	
Chloroform	ND	0.00212	"	"	"	"	"	"	
Chloromethane	ND	0.00847	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.00424	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.00424	"	"	"	"	"	"	
Dibromochloromethane	ND	0.00424	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.00847	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.00424	"	"	"	"	"	"	
Dibromomethane	ND	0.00424	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.00424	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.00424	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.00424	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.00424	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.00169	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.00106	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.00254	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.00254	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.00212	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.00424	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.00424	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.00847	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.00424	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.00424	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.00106	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426NW1 (B5D0856-01) Soil Sampled: 04/26/05 13:25 Received: 04/27/05 16:10									
Ethylbenzene	ND	0.00339	mg/kg dry	1	5E04012	05/04/05	05/04/05	EPA 8260B	
Hexachlorobutadiene	ND	0.00424	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.000847	"	"	"	"	"	"	
2-Hexanone	ND	0.0169	"	"	"	"	"	"	
Isopropylbenzene	ND	0.00424	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.00424	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	0.0169	"	"	"	"	"	"	
Methylene chloride	ND	0.00297	"	"	"	"	"	"	
Naphthalene	ND	0.00424	"	"	"	"	"	"	
n-Propylbenzene	ND	0.00424	"	"	"	"	"	"	
Styrene	ND	0.000847	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.00424	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.00424	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.00424	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.00424	"	"	"	"	"	"	
Tetrachloroethene	ND	0.00169	"	"	"	"	"	"	
Toluene	ND	0.00127	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.00212	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.00106	"	"	"	"	"	"	
Trichloroethene	ND	0.00212	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.00424	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.00424	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.00424	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.00424	"	"	"	"	"	"	
Vinyl chloride	ND	0.00212	"	"	"	"	"	"	
Total Xylenes	ND	0.00847	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*92.1 %*	*60-140*			"	"	"	"	
Surrogate: Toluene-d8	*108 %*	*60-140*			"	"	"	"	
Surrogate: 4-BFB	*122 %*	*60-140*			"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426EW1 (B5D0856-02) Soil Sampled: 04/26/05 13:40 Received: 04/27/05 16:10									
Acetone	ND	0.0300	mg/kg dry	1	5E03070	05/03/05	05/03/05	EPA 8260B	
Benzene	ND	0.00150	"	"	"	"	"	"	
Bromobenzene	ND	0.00500	"	"	"	"	"	"	
Bromochloromethane	ND	0.00500	"	"	"	"	"	"	
Bromodichloromethane	ND	0.00500	"	"	"	"	"	"	
Bromoform	ND	0.00500	"	"	"	"	"	"	
Bromomethane	ND	0.0100	"	"	"	"	"	"	
2-Butanone	ND	0.0150	"	"	"	"	"	"	
n-Butylbenzene	ND	0.00500	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.00500	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.00500	"	"	"	"	"	"	
Carbon disulfide	ND	0.00300	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.00500	"	"	"	"	"	"	
Chlorobenzene	ND	0.00200	"	"	"	"	"	"	
Chloroethane	ND	0.00500	"	"	"	"	"	"	
Chloroform	ND	0.00250	"	"	"	"	"	"	
Chloromethane	ND	0.0100	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.00500	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.00500	"	"	"	"	"	"	
Dibromochloromethane	ND	0.00500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.0100	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.00500	"	"	"	"	"	"	
Dibromomethane	ND	0.00500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.00500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.00500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.00500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.00500	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.00200	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.00125	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.00300	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.00300	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.00250	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.00500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.00500	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.0100	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.00500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.00500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.00125	"	"	"	"	"	"	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426EW1 (B5D0856-02) Soil Sampled: 04/26/05 13:40 Received: 04/27/05 16:10									
Ethylbenzene	ND	0.00400	mg/kg dry	1	5E03070	05/03/05	05/03/05	EPA 8260B	
Hexachlorobutadiene	ND	0.00500	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.00100	"	"	"	"	"	"	
2-Hexanone	ND	0.0200	"	"	"	"	"	"	
Isopropylbenzene	ND	0.00500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.00500	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	0.0200	"	"	"	"	"	"	
Methylene chloride	ND	0.00350	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
n-Propylbenzene	ND	0.00500	"	"	"	"	"	"	
Styrene	ND	0.00100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.00500	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.00500	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.00500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.00500	"	"	"	"	"	"	
Tetrachloroethene	ND	0.00200	"	"	"	"	"	"	
Toluene	ND	0.00150	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.00250	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.00125	"	"	"	"	"	"	
Trichloroethene	ND	0.00250	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.00500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.00500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.00500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.00500	"	"	"	"	"	"	
Vinyl chloride	ND	0.00250	"	"	"	"	"	"	
Total Xylenes	ND	0.0100	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*96.9 %*	*60-140*			"	"	"	"	
Surrogate: Toluene-d8	*111 %*	*60-140*			"	"	"	"	
Surrogate: 4-BFB	*126 %*	*60-140*			"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426NW1 (B5D0856-01) Soil Sampled: 04/26/05 13:25 Received: 04/27/05 16:10									
1-Methylnaphthalene	ND	0.0100	mg/kg dry	1	5E02063	05/02/05	05/04/05	EPA 8270-SIM	
2-Methylnaphthalene	ND	0.0100	"	"	"	"	"	"	
Acenaphthene	ND	0.0100	"	"	"	"	"	"	
Acenaphthylene	ND	0.0100	"	"	"	"	"	"	
Anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Chrysene	ND	0.0100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	ND	0.0100	"	"	"	"	"	"	
Fluorene	ND	0.0100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Naphthalene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	ND	0.0100	"	"	"	"	"	"	
Pyrene	ND	0.0100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*100 %*	*28-161*			"	"	"	"	
EX0426EW1 (B5D0856-02) Soil Sampled: 04/26/05 13:40 Received: 04/27/05 16:10									
1-Methylnaphthalene	ND	0.0100	mg/kg dry	1	5E02063	05/02/05	05/04/05	EPA 8270-SIM	
2-Methylnaphthalene	ND	0.0100	"	"	"	"	"	"	
Acenaphthene	ND	0.0100	"	"	"	"	"	"	
Acenaphthylene	ND	0.0100	"	"	"	"	"	"	
Anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Chrysene	ND	0.0100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	ND	0.0100	"	"	"	"	"	"	
Fluorene	ND	0.0100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Naphthalene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	ND	0.0100	"	"	"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426EW1 (B5D0856-02) Soil Sampled: 04/26/05 13:40 Received: 04/27/05 16:10									
Pyrene	ND	0.0100	mg/kg dry	1	5E02063	05/02/05	05/04/05	EPA 8270-SIM	
Surrogate: p-Terphenyl-d14	*94.9 %*	*28-161*			"	"	"	"	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0426NW1 (B5D0856-01) Soil Sampled: 04/26/05 13:25 Received: 04/27/05 16:10									
Dry Weight	**92.3**	1.00	%	1	5E03061	05/03/05	05/04/05	BSOPSPL003R08	
EX0426EW1 (B5D0856-02) Soil Sampled: 04/26/05 13:40 Received: 04/27/05 16:10									
Dry Weight	**92.7**	1.00	%	1	5E03061	05/03/05	05/04/05	BSOPSPL003R08	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Petroleum Products by NWTPH-Gx - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E03066: Prepared 05/03/05 Using EPA 5030B (MeOH)										
Blank (5E03066-BLK1)										
Gasoline Range Hydrocarbons	ND	5.00	mg/kg							
Surrogate: 4-BFB (FID)	*2.29*		"	*3.00*		*76.3*	*50-150*			
LCS (5E03066-BS1)										
Gasoline Range Hydrocarbons	52.8	5.00	mg/kg	50.0		106	75-125			
Surrogate: 4-BFB (FID)	*2.62*		"	*3.00*		*87.3*	*50-150*			
LCS Dup (5E03066-BSD1)										
Gasoline Range Hydrocarbons	54.4	5.00	mg/kg	50.0		109	75-125	2.99	25	
Surrogate: 4-BFB (FID)	*2.63*		"	*3.00*		*87.7*	*50-150*			
Matrix Spike (5E03066-MS1)					**Source: B5D0856-01**					
Gasoline Range Hydrocarbons	59.5	4.32	mg/kg dry	46.8	1.43	124	42-125			
Surrogate: 4-BFB (FID)	*2.52*		"	*2.81*		*89.7*	*50-150*			
Matrix Spike Dup (5E03066-MSD1)					**Source: B5D0856-01**					
Gasoline Range Hydrocarbons	60.0	4.32	mg/kg dry	46.8	1.43	125	42-125	0.837	40	
Surrogate: 4-BFB (FID)	*2.54*		"	*2.81*		*90.4*	*50-150*			

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5D28052: Prepared 04/28/05 Using EPA 3550B										
Blank (5D28052-BLK1)										
Diesel Range Hydrocarbons	ND	10.0	mg/kg							
Lube Oil Range Hydrocarbons	ND	25.0	"							
Surrogate: 2-FBP	*6.85*		"	*8.33*		*82.2*	*50-150*			
Surrogate: Octacosane	*7.27*		"	*8.33*		*87.3*	*50-150*			
LCS (5D28052-BS1)										
Diesel Range Hydrocarbons	62.6	10.0	mg/kg	66.7		93.9	71-120			
Surrogate: 2-FBP	*8.15*		"	*8.33*		*97.8*	*50-150*			
LCS Dup (5D28052-BSD1)										
Diesel Range Hydrocarbons	63.9	10.0	mg/kg	66.7		95.8	71-120	2.06	40	
Surrogate: 2-FBP	*8.15*		"	*8.33*		*97.8*	*50-150*			
Duplicate (5D28052-DUP1)					**Source: B5D0824-01**					
Diesel Range Hydrocarbons	85.3	10.0	mg/kg dry		77.8			9.20	40	
Lube Oil Range Hydrocarbons	65.1	25.0	"		64.8			0.462	40	
Surrogate: 2-FBP	*11.8*		"	*9.16*		*129*	*50-150*			
Surrogate: Octacosane	*11.1*		"	*9.16*		*121*	*50-150*			

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5D28013: Prepared 04/28/05 Using EPA 3050B										
Blank (5D28013-BLK1)										
Cadmium	ND	0.500	mg/kg							
Chromium	ND	0.500	"							
Lead	ND	0.500	"							
LCS (5D28013-BS1)										
Cadmium	36.2	0.500	mg/kg	40.0		90.5	80-120			
Chromium	35.8	0.500	"	40.0		89.5	80-120			
Lead	35.8	0.500	"	40.0		89.5	80-120			
LCS Dup (5D28013-BSD1)										
Cadmium	36.7	0.500	mg/kg	40.0		91.8	80-120	1.37	20	
Chromium	35.9	0.500	"	40.0		89.8	80-120	0.279	20	
Lead	36.1	0.500	"	40.0		90.2	80-120	0.834	20	
Matrix Spike (5D28013-MS1)					**Source: B5D0836-01**					
Cadmium	40.7	0.500	mg/kg dry	46.7	0.386	86.3	78-125			
Chromium	59.4	0.500	"	46.7	19.8	84.8	52-141			
Lead	50.5	0.500	"	46.7	15.3	75.4	62-137			
Matrix Spike Dup (5D28013-MSD1)					**Source: B5D0836-01**					
Cadmium	44.9	0.500	mg/kg dry	51.0	0.386	87.3	78-125	9.81	30	
Chromium	64.6	0.500	"	51.0	19.8	87.8	52-141	8.39	30	
Lead	58.7	0.500	"	51.0	15.3	85.1	62-137	15.0	30	
Post Spike (5D28013-PS1)					**Source: B5D0836-01**					
Cadmium	62.9	0.500	mg/kg dry	64.3	0.386	97.2	75-125			
Chromium	82.0	0.500	"	64.7	19.8	96.1	75-125			
Lead	77.9	0.500	"	64.0	15.3	97.8	75-125			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5D29007: Prepared 04/29/05 Using EPA 3050B										
Blank (5D29007-BLK1)										
Cadmium	ND	0.500	mg/kg							
Chromium	ND	0.500	"							
Lead	ND	0.500	"							
LCS (5D29007-BS1)										
Cadmium	40.2	0.500	mg/kg	40.0		100	80-120			
Chromium	40.7	0.500	"	40.0		102	80-120			
Lead	40.0	0.500	"	40.0		100	80-120			
LCS Dup (5D29007-BSD1)										
Cadmium	41.0	0.500	mg/kg	40.0		102	80-120	1.97	20	
Chromium	41.0	0.500	"	40.0		102	80-120	0.734	20	
Lead	40.6	0.500	"	40.0		102	80-120	1.49	20	
Matrix Spike (5D29007-MS1)					**Source: B5D0856-02RE1**					
Cadmium	46.0	0.500	mg/kg dry	45.4	0.108	101	78-125			
Chromium	64.4	0.500	"	45.4	17.4	104	52-141			
Lead	46.9	0.500	"	45.4	1.57	99.8	62-137			
Matrix Spike Dup (5D29007-MSD1)					**Source: B5D0856-02RE1**					
Cadmium	46.6	0.500	mg/kg dry	45.4	0.108	102	78-125	1.30	30	
Chromium	70.2	0.500	"	45.4	17.4	116	52-141	8.62	30	
Lead	47.8	0.500	"	45.4	1.57	102	62-137	1.90	30	
Post Spike (5D29007-PS1)					**Source: B5D0856-02RE1**					
Cadmium	0.0967		ug/ml	0.100	0.000200	96.5	75-125			
Chromium	0.130		"	0.100	0.0323	97.7	75-125			
Lead	0.0993		"	0.0995	0.00291	96.9	75-125			

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5D29047: Prepared 04/29/05 Using EPA 3550B										
Blank (5D29047-BLK1)										
Aroclor 1016	ND	25.0	ug/kg							
Aroclor 1221	ND	50.0	"							
Aroclor 1232	ND	25.0	"							
Aroclor 1242	ND	25.0	"							
Aroclor 1248	ND	25.0	"							
Aroclor 1254	ND	25.0	"							
Aroclor 1260	ND	25.0	"							
Aroclor 1262	ND	25.0	"							
Aroclor 1268	ND	25.0	"							
Surrogate: TCX	*5.54*		"	*6.67*		*83.1*	*19-149*			
Surrogate: Decachlorobiphenyl	*5.45*		"	*6.67*		*81.7*	*37-151*			
LCS (5D29047-BS2)										
Aroclor 1016	74.1	25.0	ug/kg	83.3		89.0	63-125			
Aroclor 1260	70.4	25.0	"	83.3		84.5	64-125			
Surrogate: TCX	*5.77*		"	*6.67*		*86.5*	*19-149*			
Surrogate: Decachlorobiphenyl	*5.54*		"	*6.67*		*83.1*	*37-151*			
LCS Dup (5D29047-BSD2)										
Aroclor 1016	78.9	25.0	ug/kg	83.3		94.7	63-125	6.27	30	
Aroclor 1260	72.5	25.0	"	83.3		87.0	64-125	2.94	30	
Surrogate: TCX	*6.01*		"	*6.67*		*90.1*	*19-149*			
Surrogate: Decachlorobiphenyl	*5.78*		"	*6.67*		*86.7*	*37-151*			
Matrix Spike (5D29047-MS1)					**Source: B5D0856-01**					
Aroclor 1016	74.5	25.0	ug/kg dry	89.1	ND	83.6	28-136			
Aroclor 1260	68.9	25.0	"	89.1	ND	77.3	35-152			
Surrogate: TCX	*5.09*		"	*7.13*		*71.4*	*19-149*			
Surrogate: Decachlorobiphenyl	*5.67*		"	*7.13*		*79.5*	*37-151*			

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5D29047: Prepared 04/29/05 Using EPA 3550B										
Matrix Spike Dup (5D29047-MSD1)					**Source: B5D0856-01**					
Aroclor 1016	64.9	25.0	ug/kg dry	90.6	ND	71.6	28-136	13.8	35	
Aroclor 1260	63.8	25.0	"	90.6	ND	70.4	35-152	7.69	35	
Surrogate: TCX	*5.25*		"	*7.25*		*72.4*	*19-149*			
Surrogate: Decachlorobiphenyl	*5.44*		"	*7.25*		*75.0*	*37-151*			

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E03070: Prepared 05/03/05 Using EPA 5035										
Blank (5E03070-BLK1)										
Acetone	ND	0.0300	mg/kg							
Benzene	ND	0.00150	"							
Bromobenzene	ND	0.00500	"							
Bromochloromethane	ND	0.00500	"							
Bromodichloromethane	ND	0.00500	"							
Bromoform	ND	0.00500	"							
Bromomethane	ND	0.0100	"							
2-Butanone	ND	0.0150	"							
n-Butylbenzene	ND	0.00500	"							
sec-Butylbenzene	ND	0.00500	"							
tert-Butylbenzene	ND	0.00500	"							
Carbon disulfide	ND	0.00300	"							
Carbon tetrachloride	ND	0.00500	"							
Chlorobenzene	ND	0.00200	"							
Chloroethane	ND	0.00500	"							
Chloroform	ND	0.00250	"							
Chloromethane	ND	0.0100	"							
2-Chlorotoluene	ND	0.00500	"							
4-Chlorotoluene	ND	0.00500	"							
Dibromochloromethane	ND	0.00500	"							
1,2-Dibromo-3-chloropropane	ND	0.0100	"							
1,2-Dibromoethane (EDB)	ND	0.00500	"							
Dibromomethane	ND	0.00500	"							
1,2-Dichlorobenzene	ND	0.00500	"							
1,3-Dichlorobenzene	ND	0.00500	"							
1,4-Dichlorobenzene	ND	0.00500	"							
Dichlorodifluoromethane	ND	0.00500	"							
1,1-Dichloroethane	ND	0.00200	"							
1,2-Dichloroethane	ND	0.00125	"							
1,1-Dichloroethene	ND	0.00300	"							
cis-1,2-Dichloroethene	ND	0.00300	"							
trans-1,2-Dichloroethene	ND	0.00250	"							
1,2-Dichloropropane	ND	0.00500	"							
1,3-Dichloropropane	ND	0.00500	"							
2,2-Dichloropropane	ND	0.0100	"							

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E03070: Prepared 05/03/05 Using EPA 5035										
Blank (5E03070-BLK1)										
1,1-Dichloropropene	ND	0.00500	mg/kg							
cis-1,3-Dichloropropene	ND	0.00500	"							
trans-1,3-Dichloropropene	ND	0.00125	"							
Ethylbenzene	ND	0.00400	"							
Hexachlorobutadiene	ND	0.00500	"							
Methyl tert-butyl ether	ND	0.00100	"							
2-Hexanone	ND	0.0200	"							
Isopropylbenzene	ND	0.00500	"							
p-Isopropyltoluene	ND	0.00500	"							
4-Methyl-2-pentanone	ND	0.0200	"							
Methylene chloride	ND	0.00350	"							
Naphthalene	ND	0.00500	"							
n-Propylbenzene	ND	0.00500	"							
Styrene	ND	0.00100	"							
1,2,3-Trichlorobenzene	ND	0.00500	"							
1,2,4-Trichlorobenzene	ND	0.00500	"							
1,1,1,2-Tetrachloroethane	ND	0.00500	"							
1,1,2,2-Tetrachloroethane	ND	0.00500	"							
Tetrachloroethene	ND	0.00200	"							
Toluene	ND	0.00150	"							
1,1,1-Trichloroethane	ND	0.00250	"							
1,1,2-Trichloroethane	ND	0.00125	"							
Trichloroethene	ND	0.00250	"							
Trichlorofluoromethane	ND	0.00500	"							
1,2,3-Trichloropropane	ND	0.00500	"							
1,2,4-Trimethylbenzene	ND	0.00500	"							
1,3,5-Trimethylbenzene	ND	0.00500	"							
Vinyl chloride	ND	0.00250	"							
Total Xylenes	ND	0.0100	"							
Surrogate: 1,2-DCA-d4	*0.0398*		"	*0.0400*		*99.5*	*60-140*			
Surrogate: Toluene-d8	*0.0440*		"	*0.0400*		*110*	*60-140*			
Surrogate: 4-BFB	*0.0502*		"	*0.0400*		*126*	*60-140*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E03070: Prepared 05/03/05 Using EPA 5035										
LCS (5E03070-BS1)										
Acetone	0.390	0.0300	mg/kg	0.400		97.5	70-130			
Benzene	0.0498	0.00150	"	0.0400		124	70-130			
2-Butanone	0.509	0.0150	"	0.400		127	70-130			
Carbon disulfide	0.0473	0.00300	"	0.0400		118	70-130			
Chlorobenzene	0.0422	0.00200	"	0.0400		106	70-130			
1,1-Dichloroethane	0.0473	0.00200	"	0.0400		118	70-130			
1,1-Dichloroethene	0.0414	0.00300	"	0.0400		104	70-130			
cis-1,2-Dichloroethene	0.0461	0.00300	"	0.0400		115	70-130			
Ethylbenzene	0.0435	0.00400	"	0.0400		109	70-130			
4-Methyl-2-pentanone	0.436	0.0200	"	0.400		109	70-130			
Tetrachloroethene	0.0412	0.00200	"	0.0400		103	70-130			
Toluene	0.0425	0.00150	"	0.0400		106	70-130			
1,1,1-Trichloroethane	0.0466	0.00250	"	0.0400		116	70-130			
Trichloroethene	0.0452	0.00250	"	0.0400		113	70-130			
Surrogate: 1,2-DCA-d4	*0.0797*		"	*0.0800*		*99.6*	*60-140*			
Surrogate: Toluene-d8	*0.0657*		"	*0.0800*		*82.1*	*60-140*			
Surrogate: 4-BFB	*0.0686*		"	*0.0800*		*85.8*	*60-140*			
LCS Dup (5E03070-BSD1)										
Acetone	0.418	0.0300	mg/kg	0.400		104	70-130	6.93	30	
Benzene	0.0451	0.00150	"	0.0400		113	70-130	9.91	30	
2-Butanone	0.503	0.0150	"	0.400		126	70-130	1.19	30	
Carbon disulfide	0.0487	0.00300	"	0.0400		122	70-130	2.92	30	
Chlorobenzene	0.0430	0.00200	"	0.0400		108	70-130	1.88	30	
1,1-Dichloroethane	0.0490	0.00200	"	0.0400		122	70-130	3.53	30	
1,1-Dichloroethene	0.0430	0.00300	"	0.0400		108	70-130	3.79	30	
cis-1,2-Dichloroethene	0.0468	0.00300	"	0.0400		117	70-130	1.51	30	
Ethylbenzene	0.0429	0.00400	"	0.0400		107	70-130	1.39	30	
4-Methyl-2-pentanone	0.456	0.0200	"	0.400		114	70-130	4.48	30	
Tetrachloroethene	0.0392	0.00200	"	0.0400		98.0	70-130	4.98	30	
Toluene	0.0433	0.00150	"	0.0400		108	70-130	1.86	30	
1,1,1-Trichloroethane	0.0422	0.00250	"	0.0400		106	70-130	9.91	30	
Trichloroethene	0.0446	0.00250	"	0.0400		112	70-130	1.34	30	
Surrogate: 1,2-DCA-d4	*0.0764*		"	*0.0800*		*95.5*	*60-140*			
Surrogate: Toluene-d8	*0.0756*		"	*0.0800*		*94.5*	*60-140*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E03070: Prepared 05/03/05 Using EPA 5035										
LCS Dup (5E03070-BSD1)										
Surrogate: 4-BFB	*0.0786*		*mg/kg*	*0.0800*		*98.2*	*60-140*			
Batch 5E04012: Prepared 05/04/05 Using EPA 5035										
Blank (5E04012-BLK1)										
Acetone	ND	0.0300	mg/kg							
Benzene	ND	0.00150	"							
Bromobenzene	ND	0.00500	"							
Bromochloromethane	ND	0.00500	"							
Bromodichloromethane	ND	0.00500	"							
Bromoform	ND	0.00500	"							
Bromomethane	ND	0.0100	"							
2-Butanone	ND	0.0150	"							
n-Butylbenzene	ND	0.00500	"							
sec-Butylbenzene	ND	0.00500	"							
tert-Butylbenzene	ND	0.00500	"							
Carbon disulfide	ND	0.00300	"							
Carbon tetrachloride	ND	0.00500	"							
Chlorobenzene	ND	0.00200	"							
Chloroethane	ND	0.00500	"							
Chloroform	ND	0.00250	"							
Chloromethane	ND	0.0100	"							
2-Chlorotoluene	ND	0.00500	"							
4-Chlorotoluene	ND	0.00500	"							
Dibromochloromethane	ND	0.00500	"							
1,2-Dibromo-3-chloropropane	ND	0.0100	"							
1,2-Dibromoethane (EDB)	ND	0.00500	"							
Dibromomethane	ND	0.00500	"							
1,2-Dichlorobenzene	ND	0.00500	"							
1,3-Dichlorobenzene	ND	0.00500	"							
1,4-Dichlorobenzene	ND	0.00500	"							
Dichlorodifluoromethane	ND	0.00500	"							
1,1-Dichloroethane	ND	0.00200	"							
1,2-Dichloroethane	ND	0.00125	"							
1,1-Dichloroethene	ND	0.00300	"							

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E04012: Prepared 05/04/05 Using EPA 5035										
Blank (5E04012-BLK1)										
cis-1,2-Dichloroethene	ND	0.00300	mg/kg							
trans-1,2-Dichloroethene	ND	0.00250	"							
1,2-Dichloropropane	ND	0.00500	"							
1,3-Dichloropropane	ND	0.00500	"							
2,2-Dichloropropane	ND	0.0100	"							
1,1-Dichloropropene	ND	0.00500	"							
cis-1,3-Dichloropropene	ND	0.00500	"							
trans-1,3-Dichloropropene	ND	0.00125	"							
Ethylbenzene	ND	0.00400	"							
Hexachlorobutadiene	ND	0.00500	"							
Methyl tert-butyl ether	ND	0.00100	"							
2-Hexanone	ND	0.0200	"							
Isopropylbenzene	ND	0.00500	"							
p-Isopropyltoluene	ND	0.00500	"							
4-Methyl-2-pentanone	ND	0.0200	"							
Methylene chloride	ND	0.00350	"							
Naphthalene	ND	0.00500	"							
n-Propylbenzene	ND	0.00500	"							
Styrene	ND	0.00100	"							
1,2,3-Trichlorobenzene	ND	0.00500	"							
1,2,4-Trichlorobenzene	ND	0.00500	"							
1,1,1,2-Tetrachloroethane	ND	0.00500	"							
1,1,2,2-Tetrachloroethane	ND	0.00500	"							
Tetrachloroethene	ND	0.00200	"							
Toluene	ND	0.00150	"							
1,1,1-Trichloroethane	ND	0.00250	"							
1,1,2-Trichloroethane	ND	0.00125	"							
Trichloroethene	ND	0.00250	"							
Trichlorofluoromethane	ND	0.00500	"							
1,2,3-Trichloropropane	ND	0.00500	"							
1,2,4-Trimethylbenzene	ND	0.00500	"							
1,3,5-Trimethylbenzene	ND	0.00500	"							
Vinyl chloride	ND	0.00250	"							
Total Xylenes	ND	0.0100	"							

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E04012: Prepared 05/04/05 Using EPA 5035										
Blank (5E04012-BLK1)										
Surrogate: 1,2-DCA-d4	*0.0386*		*mg/kg*	*0.0400*		*96.5*	*60-140*			
Surrogate: Toluene-d8	*0.0425*		*"*	*0.0400*		*106*	*60-140*			
Surrogate: 4-BFB	*0.0492*		*"*	*0.0400*		*123*	*60-140*			
LCS (5E04012-BS1)										
Acetone	0.409	0.0300	mg/kg	0.400		102	70-130			
Benzene	0.0446	0.00150	"	0.0400		112	70-130			
2-Butanone	0.494	0.0150	"	0.400		124	70-130			
Carbon disulfide	0.0473	0.00300	"	0.0400		118	70-130			
Chlorobenzene	0.0398	0.00200	"	0.0400		99.5	70-130			
1,1-Dichloroethane	0.0466	0.00200	"	0.0400		116	70-130			
1,1-Dichloroethene	0.0409	0.00300	"	0.0400		102	70-130			
cis-1,2-Dichloroethene	0.0449	0.00300	"	0.0400		112	70-130			
Ethylbenzene	0.0414	0.00400	"	0.0400		104	70-130			
4-Methyl-2-pentanone	0.434	0.0200	"	0.400		108	70-130			
Tetrachloroethene	0.0389	0.00200	"	0.0400		97.2	70-130			
Toluene	0.0408	0.00150	"	0.0400		102	70-130			
1,1,1-Trichloroethane	0.0428	0.00250	"	0.0400		107	70-130			
Trichloroethene	0.0449	0.00250	"	0.0400		112	70-130			
Surrogate: 1,2-DCA-d4	*0.0811*		*"*	*0.0800*		*101*	*60-140*			
Surrogate: Toluene-d8	*0.0857*		*"*	*0.0800*		*107*	*60-140*			
Surrogate: 4-BFB	*0.0820*		*"*	*0.0800*		*102*	*60-140*			
LCS Dup (5E04012-BSD1)										
Acetone	0.416	0.0300	mg/kg	0.400		104	70-130	1.70	30	
Benzene	0.0450	0.00150	"	0.0400		112	70-130	0.893	30	
2-Butanone	0.480	0.0150	"	0.400		120	70-130	2.87	30	
Carbon disulfide	0.0506	0.00300	"	0.0400		126	70-130	6.74	30	
Chlorobenzene	0.0435	0.00200	"	0.0400		109	70-130	8.88	30	
1,1-Dichloroethane	0.0476	0.00200	"	0.0400		119	70-130	2.12	30	
1,1-Dichloroethene	0.0452	0.00300	"	0.0400		113	70-130	9.99	30	
cis-1,2-Dichloroethene	0.0475	0.00300	"	0.0400		119	70-130	5.63	30	
Ethylbenzene	0.0451	0.00400	"	0.0400		113	70-130	8.55	30	
4-Methyl-2-pentanone	0.464	0.0200	"	0.400		116	70-130	6.68	30	
Tetrachloroethene	0.0429	0.00200	"	0.0400		107	70-130	9.78	30	
Toluene	0.0440	0.00150	"	0.0400		110	70-130	7.55	30	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E04012: Prepared 05/04/05 Using EPA 5035										
LCS Dup (5E04012-BSD1)										
1,1,1-Trichloroethane	0.0455	0.00250	mg/kg	0.0400		114	70-130	6.12	30	
Trichloroethene	0.0472	0.00250	"	0.0400		118	70-130	4.99	30	
Surrogate: 1,2-DCA-d4	*0.0861*		"	*0.0800*		*108*	*60-140*			
Surrogate: Toluene-d8	*0.0925*		"	*0.0800*		*116*	*60-140*			
Surrogate: 4-BFB	*0.0850*		"	*0.0800*		*106*	*60-140*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02063: Prepared 05/02/05 Using EPA 3550B										
Blank (5E02063-BLK1)										
1-Methylnaphthalene	ND	0.0100	mg/kg							
2-Methylnaphthalene	ND	0.0100	"							
Acenaphthene	ND	0.0100	"							
Acenaphthylene	ND	0.0100	"							
Anthracene	ND	0.0100	"							
Benzo (a) anthracene	ND	0.0100	"							
Benzo (a) pyrene	ND	0.0100	"							
Benzo (b) fluoranthene	ND	0.0100	"							
Benzo (ghi) perylene	ND	0.0100	"							
Benzo (k) fluoranthene	ND	0.0100	"							
Chrysene	ND	0.0100	"							
Dibenz (a,h) anthracene	ND	0.0100	"							
Fluoranthene	ND	0.0100	"							
Fluorene	ND	0.0100	"							
Indeno (1,2,3-cd) pyrene	ND	0.0100	"							
Naphthalene	ND	0.0100	"							
Phenanthrene	ND	0.0100	"							
Pyrene	ND	0.0100	"							
Surrogate: p-Terphenyl-d14	*1.75*		"	*1.67*		*105*	*28-161*			
LCS (5E02063-BS1)										
1-Methylnaphthalene	0.313	0.0100	mg/kg	0.333		94.0	50-150			
2-Methylnaphthalene	0.295	0.0100	"	0.333		88.6	50-150			
Acenaphthene	0.299	0.0100	"	0.333		89.8	53-120			
Acenaphthylene	0.319	0.0100	"	0.333		95.8	52-120			
Anthracene	0.313	0.0100	"	0.333		94.0	39-145			
Benzo (a) anthracene	0.311	0.0100	"	0.333		93.4	64-120			
Benzo (a) pyrene	0.337	0.0100	"	0.333		101	46-148			
Benzo (b) fluoranthene	0.358	0.0100	"	0.333		108	52-139			
Benzo (ghi) perylene	0.311	0.0100	"	0.333		93.4	54-125			
Benzo (k) fluoranthene	0.355	0.0100	"	0.333		107	47-138			
Chrysene	0.380	0.0100	"	0.333		114	57-125			
Dibenz (a,h) anthracene	0.355	0.0100	"	0.333		107	52-120			
Fluoranthene	0.359	0.0100	"	0.333		108	61-128			
Fluorene	0.328	0.0100	"	0.333		98.5	63-120			

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02063: Prepared 05/02/05 Using EPA 3550B										
LCS (5E02063-BS1)										
Indeno (1,2,3-cd) pyrene	0.345	0.0100	mg/kg	0.333		104	54-128			
Naphthalene	0.301	0.0100	"	0.333		90.4	54-120			
Phenanthrene	0.322	0.0100	"	0.333		96.7	28-120			
Pyrene	0.349	0.0100	"	0.333		105	59-124			
Surrogate: p-Terphenyl-d14	*1.77*		"	*1.67*		*106*	*28-161*			
LCS Dup (5E02063-BSD1)										
1-Methylnaphthalene	0.285	0.0100	mg/kg	0.333		85.6	50-150	9.36	40	
2-Methylnaphthalene	0.267	0.0100	"	0.333		80.2	50-150	9.96	40	
Acenaphthene	0.275	0.0100	"	0.333		82.6	53-120	8.36	40	
Acenaphthylene	0.291	0.0100	"	0.333		87.4	52-120	9.18	40	
Anthracene	0.293	0.0100	"	0.333		88.0	39-145	6.60	40	
Benzo (a) anthracene	0.297	0.0100	"	0.333		89.2	64-120	4.61	40	
Benzo (a) pyrene	0.312	0.0100	"	0.333		93.7	46-148	7.70	26	
Benzo (b) fluoranthene	0.329	0.0100	"	0.333		98.8	52-139	8.44	40	
Benzo (ghi) perylene	0.306	0.0100	"	0.333		91.9	54-125	1.62	40	
Benzo (k) fluoranthene	0.363	0.0100	"	0.333		109	47-138	2.23	40	
Chrysene	0.365	0.0100	"	0.333		110	57-125	4.03	24	
Dibenz (a,h) anthracene	0.347	0.0100	"	0.333		104	52-120	2.28	40	
Fluoranthene	0.343	0.0100	"	0.333		103	61-128	4.56	40	
Fluorene	0.306	0.0100	"	0.333		91.9	63-120	6.94	43	
Indeno (1,2,3-cd) pyrene	0.339	0.0100	"	0.333		102	54-128	1.75	39	
Naphthalene	0.269	0.0100	"	0.333		80.8	54-120	11.2	40	
Phenanthrene	0.299	0.0100	"	0.333		89.8	28-120	7.41	40	
Pyrene	0.332	0.0100	"	0.333		99.7	59-124	4.99	40	
Surrogate: p-Terphenyl-d14	*1.65*		"	*1.67*		*98.8*	*28-161*			
Matrix Spike (5E02063-MS1)					**Source: B5D0856-02**					
1-Methylnaphthalene	0.315	0.0100	mg/kg dry	0.356	ND	88.5	40-150			
2-Methylnaphthalene	0.293	0.0100	"	0.356	ND	82.3	40-150			
Acenaphthene	0.303	0.0100	"	0.356	ND	85.1	41-120			
Acenaphthylene	0.322	0.0100	"	0.356	ND	90.4	46-120			
Anthracene	0.320	0.0100	"	0.356	ND	89.9	23-151			
Benzo (a) anthracene	0.325	0.0100	"	0.356	ND	91.3	44-124			
Benzo (a) pyrene	0.344	0.0100	"	0.356	ND	96.6	21-138			

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02063: Prepared 05/02/05 Using EPA 3550B										
Matrix Spike (5E02063-MS1)					**Source: B5D0856-02**					
Benzo (b) fluoranthene	0.360	0.0100	mg/kg dry	0.356	ND	101	32-139			
Benzo (ghi) perylene	0.276	0.0100	"	0.356	ND	77.5	20-140			
Benzo (k) fluoranthene	0.424	0.0100	"	0.356	ND	119	23-138			
Chrysene	0.399	0.0100	"	0.356	ND	112	33-126			
Dibenz (a,h) anthracene	0.311	0.0100	"	0.356	ND	87.4	26-125			
Fluoranthene	0.397	0.0100	"	0.356	ND	112	36-141			
Fluorene	0.334	0.0100	"	0.356	ND	93.8	46-126			
Indeno (1,2,3-cd) pyrene	0.307	0.0100	"	0.356	ND	86.2	24-138			
Naphthalene	0.297	0.0100	"	0.356	ND	83.4	35-120			
Phenanthrene	0.334	0.0100	"	0.356	ND	93.8	29-140			
Pyrene	0.352	0.0100	"	0.356	ND	98.9	27-143			
Surrogate: p-Terphenyl-d14	*1.80*		"	*1.78*		*101*	*28-161*			
Matrix Spike Dup (5E02063-MSD1)					**Source: B5D0856-02**					
1-Methylnaphthalene	0.289	0.0100	mg/kg dry	0.360	ND	80.3	40-150	8.61	40	
2-Methylnaphthalene	0.267	0.0100	"	0.360	ND	74.2	40-150	9.29	40	
Acenaphthene	0.293	0.0100	"	0.360	ND	81.4	41-120	3.36	50	
Acenaphthylene	0.310	0.0100	"	0.360	ND	86.1	46-120	3.80	50	
Anthracene	0.319	0.0100	"	0.360	ND	88.6	23-151	0.313	50	
Benzo (a) anthracene	0.315	0.0100	"	0.360	ND	87.5	44-124	3.12	50	
Benzo (a) pyrene	0.339	0.0100	"	0.360	ND	94.2	21-138	1.46	50	
Benzo (b) fluoranthene	0.434	0.0100	"	0.360	ND	121	32-139	18.6	50	
Benzo (ghi) perylene	0.267	0.0100	"	0.360	ND	74.2	20-140	3.31	50	
Benzo (k) fluoranthene	0.309	0.0100	"	0.360	ND	85.8	23-138	31.4	50	
Chrysene	0.383	0.0100	"	0.360	ND	106	33-126	4.09	44	
Dibenz (a,h) anthracene	0.306	0.0100	"	0.360	ND	85.0	26-125	1.62	50	
Fluoranthene	0.377	0.0100	"	0.360	ND	105	36-141	5.17	50	
Fluorene	0.332	0.0100	"	0.360	ND	92.2	46-126	0.601	52	
Indeno (1,2,3-cd) pyrene	0.302	0.0100	"	0.360	ND	83.9	24-138	1.64	43	
Naphthalene	0.274	0.0100	"	0.360	ND	76.1	35-120	8.06	50	
Phenanthrene	0.329	0.0100	"	0.360	ND	91.4	29-140	1.51	50	
Pyrene	0.346	0.0100	"	0.360	ND	96.1	27-143	1.72	50	
Surrogate: p-Terphenyl-d14	*1.82*		"	*1.80*		*101*	*28-161*			

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E03061: Prepared 05/03/05 Using Dry Weight										
Blank (5E03061-BLK1)										
Dry Weight	100	1.00	%							

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/11/05 13:45

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

ESN NORTHWEST | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

B5D0856

CLIENT: ENSR / Unocal

ADDRESS: ENSR Corp. 9521 Willows Rd NE, Redmond, WA

PHONE: 881-7700 FAX:

CLIENT PROJECT #: 06940-248 PROJECT MANAGER: Jim Barthen

DATE: 4-26-05 PAGE 1 OF 1

PROJECT NAME: Chelan Excavation

LOCATION: Chelan, WA

COLLECTOR: Chad Thompson DATE OF COLLECTION 4-26-05

Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	TPH - HCID	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (G & O)	PAH 8100	PAH 8270	PCBs 8082	Pesticides 8081	EPH	VPH	Methamphetamine	Pb	Hex Chrome	Metals (Pb, Cr, Cd)	PCB	NOTES	Total Number of Containers	Laboratory Note Number
1. EX0426NW1	25'	1325	SO	VOA stir Bar			2																	Metals: Lead, Chromium, Cadmium		
2.				VOA meth			1																			
3.				2 oz Jar			1																		-01	
4.				VOA meth			X		2																	
5.				8 oz Jar						1			1								1	1				
6. EX0426EW1	25'	1340	SO	VOA stir			2																			
7.				VOA Meth			1																			
8.				2 oz Jar			1																			
9.				VOA Meth					2																-02	
10.				8 oz Jar						1			1								1	1				
11.																										
12.																										
13.																										
14.																										
15.																										
16.																										
17.																										
18.																										

Samples were not @2-6c upon receipt!

6.8° w/o

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	4-26-05 2323	[signature]	4/27/05
[signature]	4/27/05	[signature]	4/27/05 1610

SAMPLE DISPOSAL INSTRUCTIONS

☐ ESN DISPOSAL ◉ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

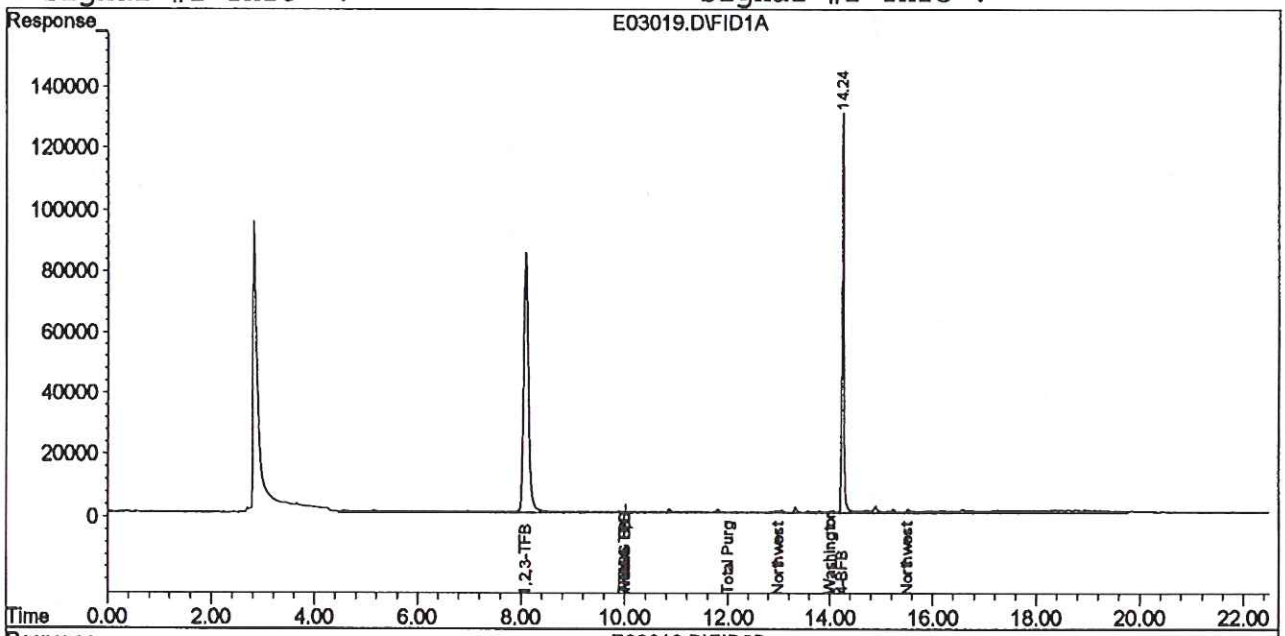
Turn Around Time: 24 HR 48 HR 5 DAY

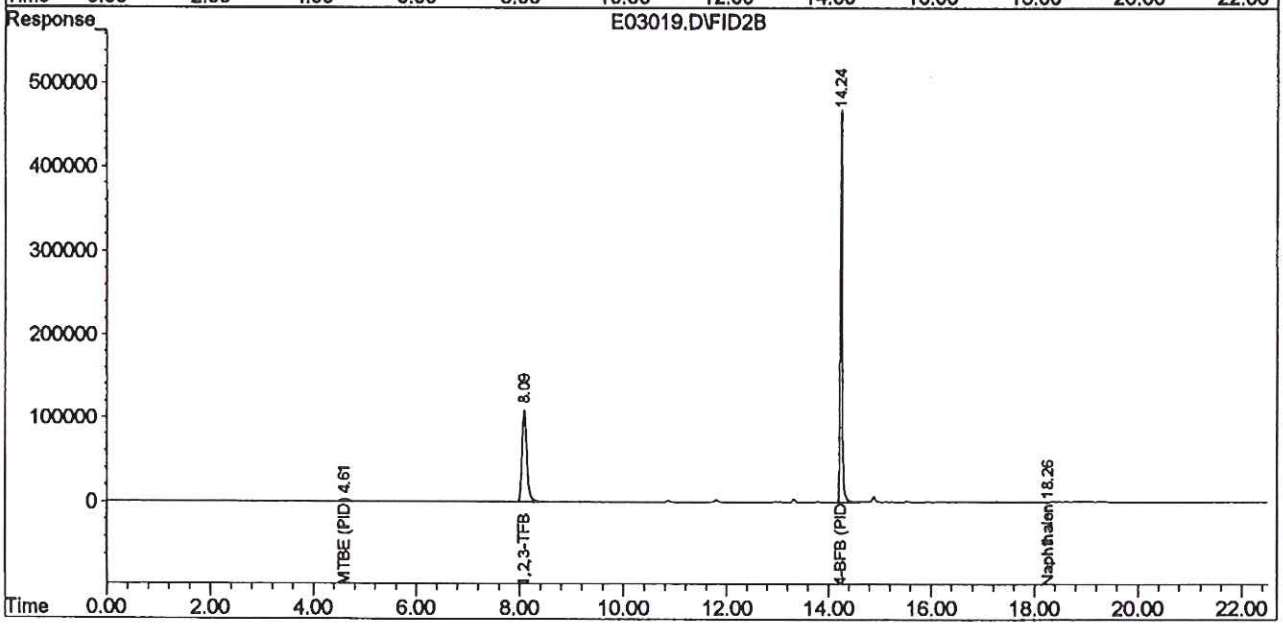
Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\050305\E03019.D\FID1A.CH Vial: 19
Signal #2 : D:\HPCHEM\1\DATA\050305\E03019.D\FID2B.CH
Acq On : 3 May 2005 20:29 Operator: mam
Sample : b5d0856-01 Inst : GC-10
Misc : 1x 100 uL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: May 3 20:52 2005 Quant Results File: TGD2005.RES

Quant Method : D:\HPCHEM\1\METHODS\TGD2005.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Thu Apr 21 13:55:54 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGD2005.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



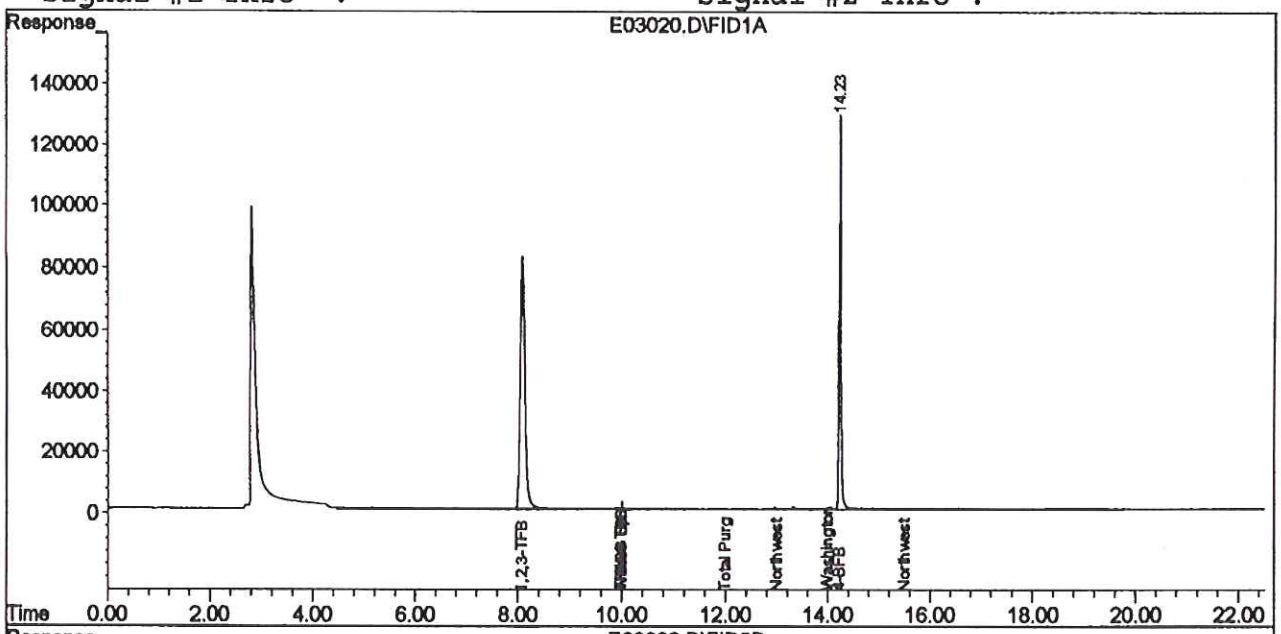


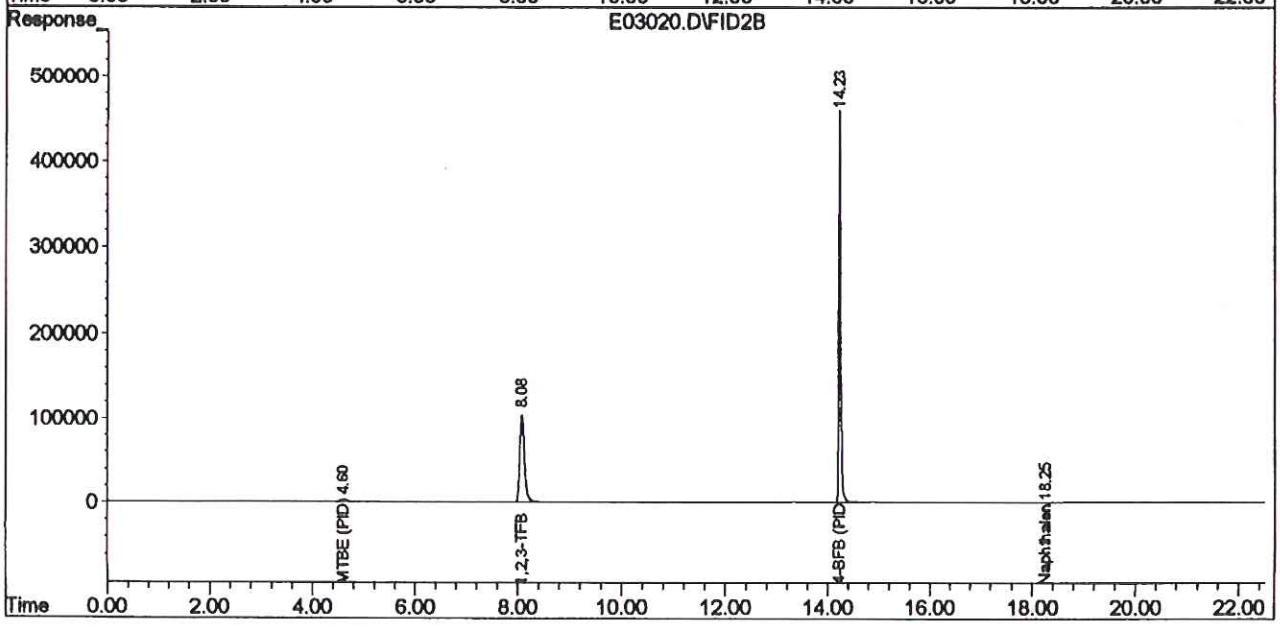
Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\050305\E03020.D\FID1A.CH Vial: 20
Signal #2 : D:\HPCHEM\1\DATA\050305\E03020.D\FID2B.CH
Acq On : 3 May 2005 20:59 Operator: mam
Sample : b5d0856-02 Inst : GC-10
Misc : 1x 100 uL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: May 3 21:22 2005 Quant Results File: TGD2005.RES

Quant Method : D:\HPCHEM\1\METHODS\TGD2005.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Thu Apr 21 13:55:54 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGD2005.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



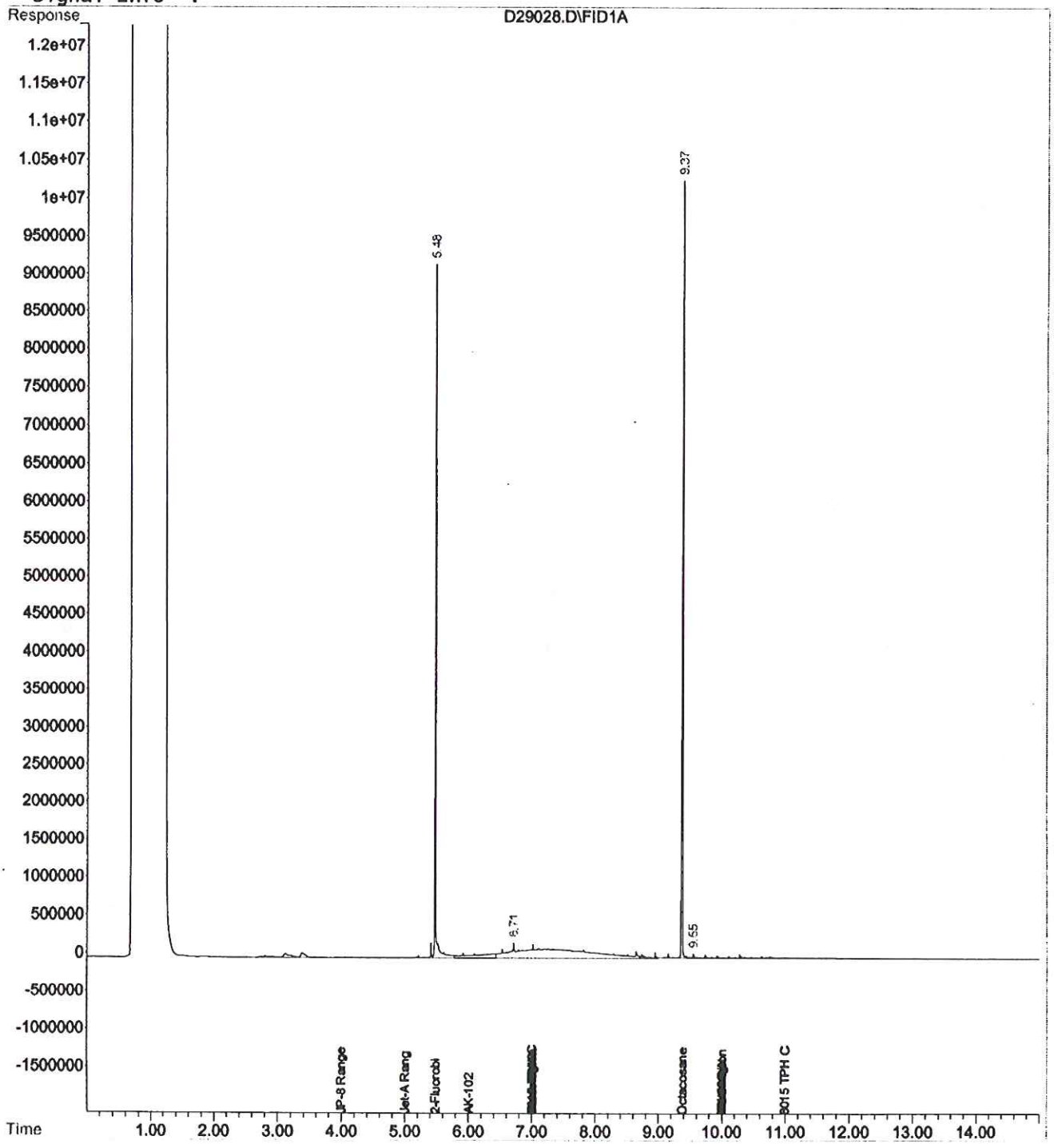


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\042905\D29028.D Vial: 43
Acq On : 29 Apr 2005 20:07 Operator: GSM
Sample : b5d0856-01 Inst : GC-9
Misc : 1x nwdx sp s Multiplr: 1.00
IntFile : SURR.E
Quant Time: Apr 29 20:20 2005 Quant Results File: TFD1405B.RES

Quant Method : D:\HPCHEM\1\METHODS\TFD1405B.M (Chemstation Integrator)
Title : TPH-D Front
Last Update : Wed Apr 20 09:28:44 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1405B.M

Volume Inj. :
Signal Phase :
Signal Info :

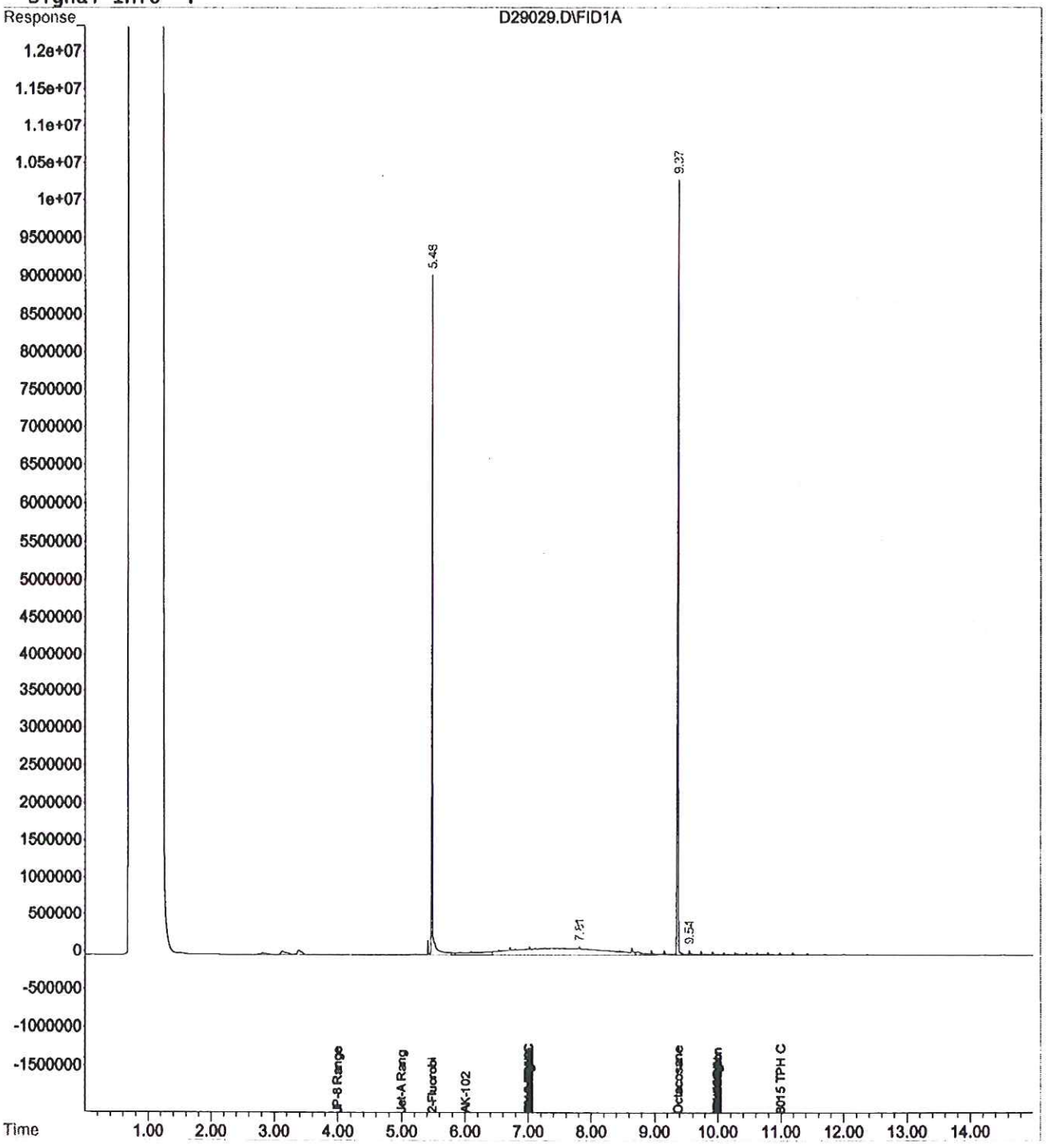


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\042905\D29029.D Vial: 44
Acq On : 29 Apr 2005 20:37 Operator: GSM
Sample : b5d0856-02 Inst : GC-9
Misc : 1x nwdx sp s Multiplr: 1.00
IntFile : SURR.E
Quant Time: Apr 29 20:42 2005 Quant Results File: TFD1405B.RES

Quant Method : D:\HPCHEM\1\METHODS\TFD1405B.M (Chemstation Integrator)
Title : TPH-D Front
Last Update : Wed Apr 20 09:28:44 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1405B.M

Volume Inj. :
Signal Phase :
Signal Info :



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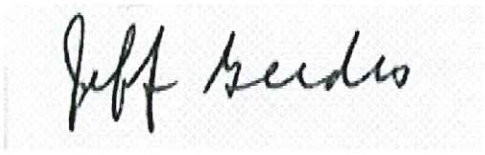
16 May 2005

Jim Borthen
ENSR-Redmond
9521 Willows Road NE
Redmond, WA 98052

RE: UNOCAL #0082

Enclosed are the results of analyses for samples received by the laboratory on 04/30/05 11:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jeff Gerdes
Project Manager

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EX0430SW1	B5D0973-01	Soil	04/30/05 07:45	04/30/05 11:30
EX0430WW1	B5D0973-02	Soil	04/30/05 07:15	04/30/05 11:30
EX0430NW1	B5D0973-03	Soil	04/30/05 07:30	04/30/05 11:30

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Petroleum Products by NWTPH-Gx
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430SW1 (B5D0973-01) Soil Sampled: 04/30/05 07:45 Received: 04/30/05 11:30									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	5E03066	05/03/05	05/03/05	NWTPH-Gx	
Surrogate: 4-BFB (FID)	*75.5 %*	*50-150*			"	"	"	"	
EX0430WW1 (B5D0973-02) Soil Sampled: 04/30/05 07:15 Received: 04/30/05 11:30									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	5E03066	05/03/05	05/03/05	NWTPH-Gx	
Surrogate: 4-BFB (FID)	*74.9 %*	*50-150*			"	"	"	"	
EX0430NW1 (B5D0973-03) Soil Sampled: 04/30/05 07:30 Received: 04/30/05 11:30									
Gasoline Range Hydrocarbons	**7.01**	5.00	mg/kg dry	1	5E03066	05/03/05	05/03/05	NWTPH-Gx	G-02
Surrogate: 4-BFB (FID)	*76.8 %*	*50-150*			"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430SW1 (B5D0973-01) Soil Sampled: 04/30/05 07:45 Received: 04/30/05 11:30									
Diesel Range Hydrocarbons	ND	10.0	mg/kg dry	1	5D29050	05/02/05	05/07/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*90.3 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*90.2 %*	*50-150*			"	"	"	"	
EX0430WW1 (B5D0973-02) Soil Sampled: 04/30/05 07:15 Received: 04/30/05 11:30									
Diesel Range Hydrocarbons	ND	10.0	mg/kg dry	1	5D29050	05/02/05	05/07/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*89.6 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*86.8 %*	*50-150*			"	"	"	"	
EX0430NW1 (B5D0973-03) Soil Sampled: 04/30/05 07:30 Received: 04/30/05 11:30									
Diesel Range Hydrocarbons	**18.7**	10.0	mg/kg dry	1	5D29050	05/02/05	05/07/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*96.1 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*91.6 %*	*50-150*			"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430SW1 (B5D0973-01) Soil Sampled: 04/30/05 07:45 Received: 04/30/05 11:30									
Cadmium	ND	0.500	mg/kg dry	1	5E02054	05/02/05	05/03/05	EPA 6020	
Chromium	**31.7**	0.500	"	"	"	"	"	"	
Lead	**1.45**	0.500	"	"	"	"	"	"	
EX0430WW1 (B5D0973-02) Soil Sampled: 04/30/05 07:15 Received: 04/30/05 11:30									
Cadmium	ND	0.500	mg/kg dry	1	5E02054	05/02/05	05/03/05	EPA 6020	
Chromium	**30.2**	0.500	"	"	"	"	"	"	
Lead	**1.87**	0.500	"	"	"	"	"	"	
EX0430NW1 (B5D0973-03) Soil Sampled: 04/30/05 07:30 Received: 04/30/05 11:30									
Cadmium	ND	0.500	mg/kg dry	1	5E02054	05/02/05	05/03/05	EPA 6020	
Chromium	**19.0**	0.500	"	"	"	"	"	"	
Lead	**1.72**	0.500	"	"	"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Polychlorinated Biphenyls by EPA Method 8082
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430SW1 (B5D0973-01) Soil Sampled: 04/30/05 07:45 Received: 04/30/05 11:30									
Aroclor 1016	ND	25.0	ug/kg dry	1	5E02062	05/02/05	05/05/05	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	ND	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	*83.0 %*	*19-149*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*66.2 %*	*37-151*			"	"	"	"	
EX0430WW1 (B5D0973-02) Soil Sampled: 04/30/05 07:15 Received: 04/30/05 11:30									
Aroclor 1016	ND	25.0	ug/kg dry	1	5E02062	05/02/05	05/05/05	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	ND	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	*87.0 %*	*19-149*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*71.3 %*	*37-151*			"	"	"	"	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Polychlorinated Biphenyls by EPA Method 8082

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430NW1 (B5D0973-03) Soil Sampled: 04/30/05 07:30 Received: 04/30/05 11:30									
Aroclor 1016	ND	25.0	ug/kg dry	1	5E02062	05/02/05	05/05/05	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	ND	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	*78.5 %*	*19-149*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*71.7 %*	*37-151*			"	"	"	"	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430SW1 (B5D0973-01) Soil Sampled: 04/30/05 07:45 Received: 04/30/05 11:30									
Acetone	ND	0.0300	mg/kg dry	1	5E04012	05/04/05	05/04/05	EPA 8260B	
Benzene	ND	0.00150	"	"	"	"	"	"	
Bromobenzene	ND	0.00500	"	"	"	"	"	"	
Bromochloromethane	ND	0.00500	"	"	"	"	"	"	
Bromodichloromethane	ND	0.00500	"	"	"	"	"	"	
Bromoform	ND	0.00500	"	"	"	"	"	"	
Bromomethane	ND	0.0100	"	"	"	"	"	"	
2-Butanone	ND	0.0150	"	"	"	"	"	"	
n-Butylbenzene	ND	0.00500	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.00500	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.00500	"	"	"	"	"	"	
Carbon disulfide	ND	0.00300	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.00500	"	"	"	"	"	"	
Chlorobenzene	ND	0.00200	"	"	"	"	"	"	
Chloroethane	ND	0.00500	"	"	"	"	"	"	
Chloroform	ND	0.00250	"	"	"	"	"	"	
Chloromethane	ND	0.0100	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.00500	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.00500	"	"	"	"	"	"	
Dibromochloromethane	ND	0.00500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.0100	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.00500	"	"	"	"	"	"	
Dibromomethane	ND	0.00500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.00500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.00500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.00500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.00500	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.00200	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.00125	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.00300	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.00300	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.00250	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.00500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.00500	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.0100	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.00500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.00500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.00125	"	"	"	"	"	"	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430SW1 (B5D0973-01) Soil Sampled: 04/30/05 07:45 Received: 04/30/05 11:30									
Ethylbenzene	ND	0.00400	mg/kg dry	1	5E04012	05/04/05	05/04/05	EPA 8260B	
Hexachlorobutadiene	ND	0.00500	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.00100	"	"	"	"	"	"	
2-Hexanone	ND	0.0200	"	"	"	"	"	"	
Isopropylbenzene	ND	0.00500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.00500	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	0.0200	"	"	"	"	"	"	
Methylene chloride	ND	0.00350	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
n-Propylbenzene	ND	0.00500	"	"	"	"	"	"	
Styrene	ND	0.00100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.00500	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.00500	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.00500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.00500	"	"	"	"	"	"	
Tetrachloroethene	ND	0.00200	"	"	"	"	"	"	
Toluene	ND	0.00150	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.00250	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.00125	"	"	"	"	"	"	
Trichloroethene	ND	0.00250	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.00500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.00500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.00500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.00500	"	"	"	"	"	"	
Vinyl chloride	ND	0.00250	"	"	"	"	"	"	
Total Xylenes	ND	0.0100	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*99.0 %*	*60-140*			"	"	"	"	
Surrogate: Toluene-d8	*107 %*	*60-140*			"	"	"	"	
Surrogate: 4-BFB	*127 %*	*60-140*			"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430WW1 (B5D0973-02) Soil Sampled: 04/30/05 07:15 Received: 04/30/05 11:30									
Acetone	ND	0.0259	mg/kg dry	1	5E11047	05/11/05	05/11/05	EPA 8260B	
Benzene	ND	0.00129	"	"	"	"	"	"	
Bromobenzene	ND	0.00431	"	"	"	"	"	"	
Bromochloromethane	ND	0.00431	"	"	"	"	"	"	
Bromodichloromethane	ND	0.00431	"	"	"	"	"	"	
Bromoform	ND	0.00431	"	"	"	"	"	"	
Bromomethane	ND	0.00862	"	"	"	"	"	"	
2-Butanone	ND	0.0129	"	"	"	"	"	"	
n-Butylbenzene	ND	0.00431	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.00431	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.00431	"	"	"	"	"	"	
Carbon disulfide	ND	0.00259	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.00431	"	"	"	"	"	"	
Chlorobenzene	ND	0.00172	"	"	"	"	"	"	
Chloroethane	ND	0.00431	"	"	"	"	"	"	
Chloroform	ND	0.00216	"	"	"	"	"	"	
Chloromethane	ND	0.00862	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.00431	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.00431	"	"	"	"	"	"	
Dibromochloromethane	ND	0.00431	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.00862	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.00431	"	"	"	"	"	"	
Dibromomethane	ND	0.00431	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.00431	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.00431	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.00431	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.00431	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.00172	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.00108	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.00259	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.00259	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.00216	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.00431	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.00431	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.00862	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.00431	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.00431	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.00108	"	"	"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430WW1 (B5D0973-02) Soil Sampled: 04/30/05 07:15 Received: 04/30/05 11:30									
Ethylbenzene	ND	0.00345	mg/kg dry	1	5E11047	05/11/05	05/11/05	EPA 8260B	
Hexachlorobutadiene	ND	0.00431	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.000862	"	"	"	"	"	"	
2-Hexanone	ND	0.0172	"	"	"	"	"	"	
Isopropylbenzene	ND	0.00431	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.00431	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	0.0172	"	"	"	"	"	"	
Methylene chloride	ND	0.00302	"	"	"	"	"	"	
Naphthalene	ND	0.00431	"	"	"	"	"	"	
n-Propylbenzene	ND	0.00431	"	"	"	"	"	"	
Styrene	ND	0.000862	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.00431	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.00431	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.00431	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.00431	"	"	"	"	"	"	
Tetrachloroethene	ND	0.00172	"	"	"	"	"	"	
Toluene	ND	0.00129	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.00216	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.00108	"	"	"	"	"	"	
Trichloroethene	ND	0.00216	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.00431	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.00431	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.00431	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.00431	"	"	"	"	"	"	
Vinyl chloride	ND	0.00216	"	"	"	"	"	"	
Total Xylenes	ND	0.00862	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*91.4 %*	*60-140*			"	"	"	"	
Surrogate: Toluene-d8	*121 %*	*60-140*			"	"	"	"	
Surrogate: 4-BFB	*132 %*	*60-140*			"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430NW1 (B5D0973-03) Soil Sampled: 04/30/05 07:30 Received: 04/30/05 11:30									
Acetone	ND	0.0263	mg/kg dry	1	5E11047	05/11/05	05/11/05	EPA 8260B	
Benzene	ND	0.00132	"	"	"	"	"	"	
Bromobenzene	ND	0.00439	"	"	"	"	"	"	
Bromochloromethane	ND	0.00439	"	"	"	"	"	"	
Bromodichloromethane	ND	0.00439	"	"	"	"	"	"	
Bromoform	ND	0.00439	"	"	"	"	"	"	
Bromomethane	ND	0.00877	"	"	"	"	"	"	
2-Butanone	ND	0.0132	"	"	"	"	"	"	
n-Butylbenzene	ND	0.00439	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.00439	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.00439	"	"	"	"	"	"	
Carbon disulfide	ND	0.00263	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.00439	"	"	"	"	"	"	
Chlorobenzene	ND	0.00175	"	"	"	"	"	"	
Chloroethane	ND	0.00439	"	"	"	"	"	"	
Chloroform	ND	0.00219	"	"	"	"	"	"	
Chloromethane	ND	0.00877	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.00439	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.00439	"	"	"	"	"	"	
Dibromochloromethane	ND	0.00439	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.00877	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.00439	"	"	"	"	"	"	
Dibromomethane	ND	0.00439	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.00439	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.00439	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.00439	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.00439	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.00175	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.00110	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.00263	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.00263	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.00219	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.00439	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.00439	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.00877	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.00439	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.00439	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.00110	"	"	"	"	"	"	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method)

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430NW1 (B5D0973-03) Soil Sampled: 04/30/05 07:30 Received: 04/30/05 11:30									
Ethylbenzene	ND	0.00351	mg/kg dry	1	5E11047	05/11/05	05/11/05	EPA 8260B	
Hexachlorobutadiene	ND	0.00439	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.000877	"	"	"	"	"	"	
2-Hexanone	ND	0.0175	"	"	"	"	"	"	
Isopropylbenzene	ND	0.00439	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.00439	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	0.0175	"	"	"	"	"	"	
Methylene chloride	ND	0.00307	"	"	"	"	"	"	
Naphthalene	ND	0.00439	"	"	"	"	"	"	
n-Propylbenzene	ND	0.00439	"	"	"	"	"	"	
Styrene	ND	0.000877	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.00439	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.00439	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.00439	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.00439	"	"	"	"	"	"	
Tetrachloroethene	ND	0.00175	"	"	"	"	"	"	
Toluene	ND	0.00132	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.00219	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.00110	"	"	"	"	"	"	
Trichloroethene	ND	0.00219	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.00439	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.00439	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.00439	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.00439	"	"	"	"	"	"	
Vinyl chloride	ND	0.00219	"	"	"	"	"	"	
Total Xylenes	ND	0.00877	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*88.5 %*	*60-140*			"	"	"	"	
Surrogate: Toluene-d8	*121 %*	*60-140*			"	"	"	"	
Surrogate: 4-BFB	*136 %*	*60-140*			"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430SW1 (B5D0973-01) Soil Sampled: 04/30/05 07:45 Received: 04/30/05 11:30									
1-Methylnaphthalene	ND	0.0100	mg/kg dry	1	5E02063	05/02/05	05/04/05	EPA 8270-SIM	
2-Methylnaphthalene	ND	0.0100	"	"	"	"	"	"	
Acenaphthene	ND	0.0100	"	"	"	"	"	"	
Acenaphthylene	ND	0.0100	"	"	"	"	"	"	
Anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Chrysene	ND	0.0100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	ND	0.0100	"	"	"	"	"	"	
Fluorene	ND	0.0100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Naphthalene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	ND	0.0100	"	"	"	"	"	"	
Pyrene	ND	0.0100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*74.1 %*	*28-161*			"	"	"	"	
EX0430WW1 (B5D0973-02) Soil Sampled: 04/30/05 07:15 Received: 04/30/05 11:30									
1-Methylnaphthalene	ND	0.0100	mg/kg dry	1	5E02063	05/02/05	05/04/05	EPA 8270-SIM	
2-Methylnaphthalene	ND	0.0100	"	"	"	"	"	"	
Acenaphthene	ND	0.0100	"	"	"	"	"	"	
Acenaphthylene	ND	0.0100	"	"	"	"	"	"	
Anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Chrysene	ND	0.0100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	ND	0.0100	"	"	"	"	"	"	
Fluorene	ND	0.0100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Naphthalene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	ND	0.0100	"	"	"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430WW1 (B5D0973-02) Soil Sampled: 04/30/05 07:15 Received: 04/30/05 11:30									
Pyrene	ND	0.0100	mg/kg dry	1	5E02063	05/02/05	05/04/05	EPA 8270-SIM	
Surrogate: p-Terphenyl-d14	*86.4 %*	*28-161*			"	"	"	"	
EX0430NW1 (B5D0973-03) Soil Sampled: 04/30/05 07:30 Received: 04/30/05 11:30									
1-Methylnaphthalene	ND	0.0100	mg/kg dry	1	5E02063	05/02/05	05/04/05	EPA 8270-SIM	
2-Methylnaphthalene	ND	0.0100	"	"	"	"	"	"	
Acenaphthene	ND	0.0100	"	"	"	"	"	"	
Acenaphthylene	ND	0.0100	"	"	"	"	"	"	
Anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Chrysene	ND	0.0100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	ND	0.0100	"	"	"	"	"	"	
Fluorene	ND	0.0100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Naphthalene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	ND	0.0100	"	"	"	"	"	"	
Pyrene	ND	0.0100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*86.1 %*	*28-161*			"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EX0430SW1 (B5D0973-01) Soil Sampled: 04/30/05 07:45 Received: 04/30/05 11:30									
Dry Weight	**94.7**	1.00	%	1	5E02067	05/02/05	05/03/05	BSOPSPL003R08	
EX0430WW1 (B5D0973-02) Soil Sampled: 04/30/05 07:15 Received: 04/30/05 11:30									
Dry Weight	**93.3**	1.00	%	1	5E02067	05/02/05	05/03/05	BSOPSPL003R08	
EX0430NW1 (B5D0973-03) Soil Sampled: 04/30/05 07:30 Received: 04/30/05 11:30									
Dry Weight	**96.2**	1.00	%	1	5E02067	05/02/05	05/03/05	BSOPSPL003R08	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Petroleum Products by NWTPH-Gx - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E03066: Prepared 05/03/05 Using EPA 5030B (MeOH)										
Blank (5E03066-BLK1)										
Gasoline Range Hydrocarbons	ND	5.00	mg/kg							
Surrogate: 4-BFB (FID)	*2.29*		"	*3.00*		*76.3*	*50-150*			
LCS (5E03066-BS1)										
Gasoline Range Hydrocarbons	52.8	5.00	mg/kg	50.0		106	75-125			
Surrogate: 4-BFB (FID)	*2.62*		"	*3.00*		*87.3*	*50-150*			
LCS Dup (5E03066-BSD1)										
Gasoline Range Hydrocarbons	54.4	5.00	mg/kg	50.0		109	75-125	2.99	25	
Surrogate: 4-BFB (FID)	*2.63*		"	*3.00*		*87.7*	*50-150*			
Matrix Spike (5E03066-MS1)					**Source: B5D0856-01**					
Gasoline Range Hydrocarbons	59.5	4.32	mg/kg dry	46.8	1.43	124	42-125			
Surrogate: 4-BFB (FID)	*2.52*		"	*2.81*		*89.7*	*50-150*			
Matrix Spike Dup (5E03066-MSD1)					**Source: B5D0856-01**					
Gasoline Range Hydrocarbons	60.0	4.32	mg/kg dry	46.8	1.43	125	42-125	0.837	40	
Surrogate: 4-BFB (FID)	*2.54*		"	*2.81*		*90.4*	*50-150*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5D29050: Prepared 05/02/05 Using EPA 3550B										
Blank (5D29050-BLK1)										
Diesel Range Hydrocarbons	ND	10.0	mg/kg							
Lube Oil Range Hydrocarbons	ND	25.0	"							
Surrogate: 2-FBP	*8.00*		"	*8.33*		*96.0*	*50-150*			
Surrogate: Octacosane	*7.78*		"	*8.33*		*93.4*	*50-150*			
LCS (5D29050-BS1)										
Diesel Range Hydrocarbons	67.9	10.0	mg/kg	66.7		102	71-120			
Surrogate: 2-FBP	*9.00*		"	*8.33*		*108*	*50-150*			
LCS Dup (5D29050-BSD1)										
Diesel Range Hydrocarbons	73.9	10.0	mg/kg	66.7		111	71-120	8.46	40	
Surrogate: 2-FBP	*8.83*		"	*8.33*		*106*	*50-150*			
Matrix Spike (5D29050-MS1)					**Source: B5D0896-01**					
Diesel Range Hydrocarbons	87.3	10.0	mg/kg dry	82.0	6.01	99.1	45-144			
Surrogate: 2-FBP	*10.1*		"	*10.2*		*99.0*	*50-150*			
Matrix Spike Dup (5D29050-MSD1)					**Source: B5D0896-01**					
Diesel Range Hydrocarbons	90.0	10.0	mg/kg dry	82.2	6.01	102	45-144	3.05	40	
Surrogate: 2-FBP	*10.5*		"	*10.3*		*102*	*50-150*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02054: Prepared 05/02/05 Using EPA 3050B										
Blank (5E02054-BLK1)										
Cadmium	ND	0.500	mg/kg							
Chromium	ND	0.500	"							
Lead	ND	0.500	"							
LCS (5E02054-BS1)										
Cadmium	38.4	0.500	mg/kg	40.0		96.0	80-120			
Chromium	38.2	0.500	"	40.0		95.5	80-120			
Lead	37.9	0.500	"	40.0		94.8	80-120			
LCS Dup (5E02054-BSD1)										
Cadmium	38.5	0.500	mg/kg	40.0		96.2	80-120	0.260	20	
Chromium	38.3	0.500	"	40.0		95.8	80-120	0.261	20	
Lead	37.8	0.500	"	40.0		94.5	80-120	0.264	20	
Matrix Spike (5E02054-MS1)					**Source: B5D0893-01**					
Cadmium	42.4	0.500	mg/kg dry	44.7	0.168	94.5	78-125			
Chromium	64.9	0.500	"	44.7	18.1	105	52-141			
Lead	94.0	0.500	"	44.7	40.9	119	62-137			
Matrix Spike Dup (5E02054-MSD1)					**Source: B5D0893-01**					
Cadmium	39.8	0.500	mg/kg dry	42.1	0.168	94.1	78-125	6.33	30	
Chromium	63.4	0.500	"	42.1	18.1	108	52-141	2.34	30	
Lead	82.3	0.500	"	42.1	40.9	98.3	62-137	13.3	30	
Post Spike (5E02054-PS1)					**Source: B5D0893-01**					
Cadmium	0.0965		ug/ml	0.100	0.000319	96.2	75-125			
Chromium	0.131		"	0.100	0.0344	96.6	75-125			
Lead	0.175		"	0.0995	0.0777	97.8	75-125			

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02062: Prepared 05/02/05 Using EPA 3550B										
Blank (5E02062-BLK1)										
Aroclor 1016	ND	25.0	ug/kg							
Aroclor 1221	ND	50.0	"							
Aroclor 1232	ND	25.0	"							
Aroclor 1242	ND	25.0	"							
Aroclor 1248	ND	25.0	"							
Aroclor 1254	ND	25.0	"							
Aroclor 1260	ND	25.0	"							
Aroclor 1262	ND	25.0	"							
Aroclor 1268	ND	25.0	"							
Surrogate: TCX	*6.50*		"	*6.67*		*97.5*	*19-149*			
Surrogate: Decachlorobiphenyl	*6.02*		"	*6.67*		*90.3*	*37-151*			
LCS (5E02062-BS1)										
Aroclor 1016	74.7	25.0	ug/kg	83.3		89.7	63-125			
Aroclor 1260	77.7	25.0	"	83.3		93.3	64-125			
Surrogate: TCX	*6.57*		"	*6.67*		*98.5*	*19-149*			
Surrogate: Decachlorobiphenyl	*6.21*		"	*6.67*		*93.1*	*37-151*			
LCS Dup (5E02062-BSD1)										
Aroclor 1016	76.9	25.0	ug/kg	83.3		92.3	63-125	2.90	30	
Aroclor 1260	78.1	25.0	"	83.3		93.8	64-125	0.513	30	
Surrogate: TCX	*6.40*		"	*6.67*		*96.0*	*19-149*			
Surrogate: Decachlorobiphenyl	*6.13*		"	*6.67*		*91.9*	*37-151*			
Matrix Spike (5E02062-MS1)					**Source: B5D0893-01**					
Aroclor 1016	67.2	25.0	ug/kg dry	88.6	ND	75.8	28-136			
Aroclor 1260	58.5	25.0	"	88.6	ND	66.0	35-152			
Surrogate: TCX	*5.43*		"	*7.08*		*76.7*	*19-149*			
Surrogate: Decachlorobiphenyl	*4.42*		"	*7.08*		*62.4*	*37-151*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02062: Prepared 05/02/05 Using EPA 3550B										
Matrix Spike Dup (5E02062-MSD1)					**Source: B5D0893-01**					
Aroclor 1016	64.0	25.0	ug/kg dry	88.6	ND	72.2	28-136	4.88	35	
Aroclor 1260	55.1	25.0	"	88.6	ND	62.2	35-152	5.99	35	
Surrogate: TCX	*5.68*		"	*7.08*		*80.2*	*19-149*			
Surrogate: Decachlorobiphenyl	*4.51*		"	*7.08*		*63.7*	*37-151*			

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E04012: Prepared 05/04/05 Using EPA 5035										
Blank (5E04012-BLK1)										
Acetone	ND	0.0300	mg/kg							
Benzene	ND	0.00150	"							
Bromobenzene	ND	0.00500	"							
Bromochloromethane	ND	0.00500	"							
Bromodichloromethane	ND	0.00500	"							
Bromoform	ND	0.00500	"							
Bromomethane	ND	0.0100	"							
2-Butanone	ND	0.0150	"							
n-Butylbenzene	ND	0.00500	"							
sec-Butylbenzene	ND	0.00500	"							
tert-Butylbenzene	ND	0.00500	"							
Carbon disulfide	ND	0.00300	"							
Carbon tetrachloride	ND	0.00500	"							
Chlorobenzene	ND	0.00200	"							
Chloroethane	ND	0.00500	"							
Chloroform	ND	0.00250	"							
Chloromethane	ND	0.0100	"							
2-Chlorotoluene	ND	0.00500	"							
4-Chlorotoluene	ND	0.00500	"							
Dibromochloromethane	ND	0.00500	"							
1,2-Dibromo-3-chloropropane	ND	0.0100	"							
1,2-Dibromoethane (EDB)	ND	0.00500	"							
Dibromomethane	ND	0.00500	"							
1,2-Dichlorobenzene	ND	0.00500	"							
1,3-Dichlorobenzene	ND	0.00500	"							
1,4-Dichlorobenzene	ND	0.00500	"							
Dichlorodifluoromethane	ND	0.00500	"							
1,1-Dichloroethane	ND	0.00200	"							
1,2-Dichloroethane	ND	0.00125	"							
1,1-Dichloroethene	ND	0.00300	"							
cis-1,2-Dichloroethene	ND	0.00300	"							
trans-1,2-Dichloroethene	ND	0.00250	"							
1,2-Dichloropropane	ND	0.00500	"							
1,3-Dichloropropane	ND	0.00500	"							
2,2-Dichloropropane	ND	0.0100	"							

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E04012: Prepared 05/04/05 Using EPA 5035										
Blank (5E04012-BLK1)										
1,1-Dichloropropene	ND	0.00500	mg/kg							
cis-1,3-Dichloropropene	ND	0.00500	"							
trans-1,3-Dichloropropene	ND	0.00125	"							
Ethylbenzene	ND	0.00400	"							
Hexachlorobutadiene	ND	0.00500	"							
Methyl tert-butyl ether	ND	0.00100	"							
2-Hexanone	ND	0.0200	"							
Isopropylbenzene	ND	0.00500	"							
p-Isopropyltoluene	ND	0.00500	"							
4-Methyl-2-pentanone	ND	0.0200	"							
Methylene chloride	ND	0.00350	"							
Naphthalene	ND	0.00500	"							
n-Propylbenzene	ND	0.00500	"							
Styrene	ND	0.00100	"							
1,2,3-Trichlorobenzene	ND	0.00500	"							
1,2,4-Trichlorobenzene	ND	0.00500	"							
1,1,1,2-Tetrachloroethane	ND	0.00500	"							
1,1,2,2-Tetrachloroethane	ND	0.00500	"							
Tetrachloroethene	ND	0.00200	"							
Toluene	ND	0.00150	"							
1,1,1-Trichloroethane	ND	0.00250	"							
1,1,2-Trichloroethane	ND	0.00125	"							
Trichloroethene	ND	0.00250	"							
Trichlorofluoromethane	ND	0.00500	"							
1,2,3-Trichloropropane	ND	0.00500	"							
1,2,4-Trimethylbenzene	ND	0.00500	"							
1,3,5-Trimethylbenzene	ND	0.00500	"							
Vinyl chloride	ND	0.00250	"							
Total Xylenes	ND	0.0100	"							
Surrogate: 1,2-DCA-d4	*0.0386*		"	*0.0400*		*96.5*	*60-140*			
Surrogate: Toluene-d8	*0.0425*		"	*0.0400*		*106*	*60-140*			
Surrogate: 4-BFB	*0.0492*		"	*0.0400*		*123*	*60-140*			

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E04012: Prepared 05/04/05 Using EPA 5035										
LCS (5E04012-BS1)										
Acetone	0.409	0.0300	mg/kg	0.400		102	70-130			
Benzene	0.0446	0.00150	"	0.0400		112	70-130			
2-Butanone	0.494	0.0150	"	0.400		124	70-130			
Carbon disulfide	0.0473	0.00300	"	0.0400		118	70-130			
Chlorobenzene	0.0398	0.00200	"	0.0400		99.5	70-130			
1,1-Dichloroethane	0.0466	0.00200	"	0.0400		116	70-130			
1,1-Dichloroethene	0.0409	0.00300	"	0.0400		102	70-130			
cis-1,2-Dichloroethene	0.0449	0.00300	"	0.0400		112	70-130			
Ethylbenzene	0.0414	0.00400	"	0.0400		104	70-130			
4-Methyl-2-pentanone	0.434	0.0200	"	0.400		108	70-130			
Tetrachloroethene	0.0389	0.00200	"	0.0400		97.2	70-130			
Toluene	0.0408	0.00150	"	0.0400		102	70-130			
1,1,1-Trichloroethane	0.0428	0.00250	"	0.0400		107	70-130			
Trichloroethene	0.0449	0.00250	"	0.0400		112	70-130			
Surrogate: 1,2-DCA-d4	*0.0811*		"	*0.0800*		*101*	*60-140*			
Surrogate: Toluene-d8	*0.0857*		"	*0.0800*		*107*	*60-140*			
Surrogate: 4-BFB	*0.0820*		"	*0.0800*		*102*	*60-140*			
LCS Dup (5E04012-BSD1)										
Acetone	0.416	0.0300	mg/kg	0.400		104	70-130	1.70	30	
Benzene	0.0450	0.00150	"	0.0400		112	70-130	0.893	30	
2-Butanone	0.480	0.0150	"	0.400		120	70-130	2.87	30	
Carbon disulfide	0.0506	0.00300	"	0.0400		126	70-130	6.74	30	
Chlorobenzene	0.0435	0.00200	"	0.0400		109	70-130	8.88	30	
1,1-Dichloroethane	0.0476	0.00200	"	0.0400		119	70-130	2.12	30	
1,1-Dichloroethene	0.0452	0.00300	"	0.0400		113	70-130	9.99	30	
cis-1,2-Dichloroethene	0.0475	0.00300	"	0.0400		119	70-130	5.63	30	
Ethylbenzene	0.0451	0.00400	"	0.0400		113	70-130	8.55	30	
4-Methyl-2-pentanone	0.464	0.0200	"	0.400		116	70-130	6.68	30	
Tetrachloroethene	0.0429	0.00200	"	0.0400		107	70-130	9.78	30	
Toluene	0.0440	0.00150	"	0.0400		110	70-130	7.55	30	
1,1,1-Trichloroethane	0.0455	0.00250	"	0.0400		114	70-130	6.12	30	
Trichloroethene	0.0472	0.00250	"	0.0400		118	70-130	4.99	30	
Surrogate: 1,2-DCA-d4	*0.0861*		"	*0.0800*		*108*	*60-140*			
Surrogate: Toluene-d8	*0.0925*		"	*0.0800*		*116*	*60-140*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E04012: Prepared 05/04/05 Using EPA 5035										
LCS Dup (5E04012-BSD1)										
Surrogate: 4-BFB	*0.0850*		*mg/kg*	*0.0800*		*106*	*60-140*			
Batch 5E11047: Prepared 05/11/05 Using EPA 5035										
Blank (5E11047-BLK1)										
Acetone	ND	0.0300	mg/kg							
Benzene	ND	0.00150	"							
Bromobenzene	ND	0.00500	"							
Bromochloromethane	ND	0.00500	"							
Bromodichloromethane	ND	0.00500	"							
Bromoform	ND	0.00500	"							
Bromomethane	ND	0.0100	"							
2-Butanone	ND	0.0150	"							
n-Butylbenzene	ND	0.00500	"							
sec-Butylbenzene	ND	0.00500	"							
tert-Butylbenzene	ND	0.00500	"							
Carbon disulfide	ND	0.00300	"							
Carbon tetrachloride	ND	0.00500	"							
Chlorobenzene	ND	0.00200	"							
Chloroethane	ND	0.00500	"							
Chloroform	ND	0.00250	"							
Chloromethane	ND	0.0100	"							
2-Chlorotoluene	ND	0.00500	"							
4-Chlorotoluene	ND	0.00500	"							
Dibromochloromethane	ND	0.00500	"							
1,2-Dibromo-3-chloropropane	ND	0.0100	"							
1,2-Dibromoethane (EDB)	ND	0.00500	"							
Dibromomethane	ND	0.00500	"							
1,2-Dichlorobenzene	ND	0.00500	"							
1,3-Dichlorobenzene	ND	0.00500	"							
1,4-Dichlorobenzene	ND	0.00500	"							
Dichlorodifluoromethane	ND	0.00500	"							
1,1-Dichloroethane	ND	0.00200	"							
1,2-Dichloroethane	ND	0.00125	"							
1,1-Dichloroethene	ND	0.00300	"							

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E11047: Prepared 05/11/05 Using EPA 5035										
Blank (5E11047-BLK1)										
cis-1,2-Dichloroethene	ND	0.00300	mg/kg							
trans-1,2-Dichloroethene	ND	0.00250	"							
1,2-Dichloropropane	ND	0.00500	"							
1,3-Dichloropropane	ND	0.00500	"							
2,2-Dichloropropane	ND	0.0100	"							
1,1-Dichloropropene	ND	0.00500	"							
cis-1,3-Dichloropropene	ND	0.00500	"							
trans-1,3-Dichloropropene	ND	0.00125	"							
Ethylbenzene	ND	0.00400	"							
Hexachlorobutadiene	ND	0.00500	"							
Methyl tert-butyl ether	ND	0.00100	"							
2-Hexanone	ND	0.0200	"							
Isopropylbenzene	ND	0.00500	"							
p-Isopropyltoluene	ND	0.00500	"							
4-Methyl-2-pentanone	ND	0.0200	"							
Methylene chloride	ND	0.00350	"							
Naphthalene	ND	0.00500	"							
n-Propylbenzene	ND	0.00500	"							
Styrene	ND	0.00100	"							
1,2,3-Trichlorobenzene	ND	0.00500	"							
1,2,4-Trichlorobenzene	ND	0.00500	"							
1,1,1,2-Tetrachloroethane	ND	0.00500	"							
1,1,2,2-Tetrachloroethane	ND	0.00500	"							
Tetrachloroethene	ND	0.00200	"							
Toluene	ND	0.00150	"							
1,1,1-Trichloroethane	ND	0.00250	"							
1,1,2-Trichloroethane	ND	0.00125	"							
Trichloroethene	ND	0.00250	"							
Trichlorofluoromethane	ND	0.00500	"							
1,2,3-Trichloropropane	ND	0.00500	"							
1,2,4-Trimethylbenzene	ND	0.00500	"							
1,3,5-Trimethylbenzene	ND	0.00500	"							
Vinyl chloride	ND	0.00250	"							
Total Xylenes	ND	0.0100	"							

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E11047: Prepared 05/11/05 Using EPA 5035										
Blank (5E11047-BLK1)										
Surrogate: 1,2-DCA-d4	*0.0357*		*mg/kg*	*0.0400*		*89.2*	*60-140*			
Surrogate: Toluene-d8	*0.0494*		*"*	*0.0400*		*124*	*60-140*			
Surrogate: 4-BFB	*0.0551*		*"*	*0.0400*		*138*	*60-140*			
LCS (5E11047-BS1)										
Acetone	0.342	0.0300	mg/kg	0.400		85.5	70-130			
Benzene	0.0398	0.00150	"	0.0400		99.5	70-130			
2-Butanone	0.352	0.0150	"	0.400		88.0	70-130			
Carbon disulfide	0.0386	0.00300	"	0.0400		96.5	70-130			
Chlorobenzene	0.0370	0.00200	"	0.0400		92.5	70-130			
1,1-Dichloroethane	0.0382	0.00200	"	0.0400		95.5	70-130			
1,1-Dichloroethene	0.0321	0.00300	"	0.0400		80.2	70-130			
cis-1,2-Dichloroethene	0.0396	0.00300	"	0.0400		99.0	70-130			
Ethylbenzene	0.0384	0.00400	"	0.0400		96.0	70-130			
4-Methyl-2-pentanone	0.367	0.0200	"	0.400		91.8	70-130			
Tetrachloroethene	0.0386	0.00200	"	0.0400		96.5	70-130			
Toluene	0.0396	0.00150	"	0.0400		99.0	70-130			
1,1,1-Trichloroethane	0.0360	0.00250	"	0.0400		90.0	70-130			
Trichloroethene	0.0393	0.00250	"	0.0400		98.2	70-130			
Surrogate: 1,2-DCA-d4	*0.0763*		*"*	*0.0800*		*95.4*	*60-140*			
Surrogate: Toluene-d8	*0.0773*		*"*	*0.0800*		*96.6*	*60-140*			
Surrogate: 4-BFB	*0.0747*		*"*	*0.0800*		*93.4*	*60-140*			
LCS Dup (5E11047-BSD1)										
Acetone	0.422	0.0300	mg/kg	0.400		106	70-130	20.9	30	
Benzene	0.0417	0.00150	"	0.0400		104	70-130	4.66	30	
2-Butanone	0.410	0.0150	"	0.400		102	70-130	15.2	30	
Carbon disulfide	0.0417	0.00300	"	0.0400		104	70-130	7.72	30	
Chlorobenzene	0.0388	0.00200	"	0.0400		97.0	70-130	4.75	30	
1,1-Dichloroethane	0.0410	0.00200	"	0.0400		102	70-130	7.07	30	
1,1-Dichloroethene	0.0337	0.00300	"	0.0400		84.2	70-130	4.86	30	
cis-1,2-Dichloroethene	0.0420	0.00300	"	0.0400		105	70-130	5.88	30	
Ethylbenzene	0.0403	0.00400	"	0.0400		101	70-130	4.83	30	
4-Methyl-2-pentanone	0.426	0.0200	"	0.400		106	70-130	14.9	30	
Tetrachloroethene	0.0390	0.00200	"	0.0400		97.5	70-130	1.03	30	
Toluene	0.0392	0.00150	"	0.0400		98.0	70-130	1.02	30	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Volatile Organic Compounds (Special List) per EPA Method 8260B (Low Soil Method) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E11047: Prepared 05/11/05 Using EPA 5035										
LCS Dup (5E11047-BSD1)										
1,1,1-Trichloroethane	0.0396	0.00250	mg/kg	0.0400		99.0	70-130	9.52	30	
Trichloroethene	0.0410	0.00250	"	0.0400		102	70-130	4.23	30	
Surrogate: 1,2-DCA-d4	*0.0774*		"	*0.0800*		*96.8*	*60-140*			
Surrogate: Toluene-d8	*0.0701*		"	*0.0800*		*87.6*	*60-140*			
Surrogate: 4-BFB	*0.0707*		"	*0.0800*		*88.4*	*60-140*			

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02063: Prepared 05/02/05 Using EPA 3550B										
Blank (5E02063-BLK1)										
1-Methylnaphthalene	ND	0.0100	mg/kg							
2-Methylnaphthalene	ND	0.0100	"							
Acenaphthene	ND	0.0100	"							
Acenaphthylene	ND	0.0100	"							
Anthracene	ND	0.0100	"							
Benzo (a) anthracene	ND	0.0100	"							
Benzo (a) pyrene	ND	0.0100	"							
Benzo (b) fluoranthene	ND	0.0100	"							
Benzo (ghi) perylene	ND	0.0100	"							
Benzo (k) fluoranthene	ND	0.0100	"							
Chrysene	ND	0.0100	"							
Dibenz (a,h) anthracene	ND	0.0100	"							
Fluoranthene	ND	0.0100	"							
Fluorene	ND	0.0100	"							
Indeno (1,2,3-cd) pyrene	ND	0.0100	"							
Naphthalene	ND	0.0100	"							
Phenanthrene	ND	0.0100	"							
Pyrene	ND	0.0100	"							
Surrogate: p-Terphenyl-d14	*1.75*		"	*1.67*		*105*	*28-161*			
LCS (5E02063-BS1)										
1-Methylnaphthalene	0.313	0.0100	mg/kg	0.333		94.0	50-150			
2-Methylnaphthalene	0.295	0.0100	"	0.333		88.6	50-150			
Acenaphthene	0.299	0.0100	"	0.333		89.8	53-120			
Acenaphthylene	0.319	0.0100	"	0.333		95.8	52-120			
Anthracene	0.313	0.0100	"	0.333		94.0	39-145			
Benzo (a) anthracene	0.311	0.0100	"	0.333		93.4	64-120			
Benzo (a) pyrene	0.337	0.0100	"	0.333		101	46-148			
Benzo (b) fluoranthene	0.358	0.0100	"	0.333		108	52-139			
Benzo (ghi) perylene	0.311	0.0100	"	0.333		93.4	54-125			
Benzo (k) fluoranthene	0.355	0.0100	"	0.333		107	47-138			
Chrysene	0.380	0.0100	"	0.333		114	57-125			
Dibenz (a,h) anthracene	0.355	0.0100	"	0.333		107	52-120			
Fluoranthene	0.359	0.0100	"	0.333		108	61-128			
Fluorene	0.328	0.0100	"	0.333		98.5	63-120			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02063: Prepared 05/02/05 Using EPA 3550B										
LCS (5E02063-BS1)										
Indeno (1,2,3-cd) pyrene	0.345	0.0100	mg/kg	0.333		104	54-128			
Naphthalene	0.301	0.0100	"	0.333		90.4	54-120			
Phenanthrene	0.322	0.0100	"	0.333		96.7	28-120			
Pyrene	0.349	0.0100	"	0.333		105	59-124			
Surrogate: p-Terphenyl-d14	*1.77*		"	*1.67*		*106*	*28-161*			
LCS Dup (5E02063-BSD1)										
1-Methylnaphthalene	0.285	0.0100	mg/kg	0.333		85.6	50-150	9.36	40	
2-Methylnaphthalene	0.267	0.0100	"	0.333		80.2	50-150	9.96	40	
Acenaphthene	0.275	0.0100	"	0.333		82.6	53-120	8.36	40	
Acenaphthylene	0.291	0.0100	"	0.333		87.4	52-120	9.18	40	
Anthracene	0.293	0.0100	"	0.333		88.0	39-145	6.60	40	
Benzo (a) anthracene	0.297	0.0100	"	0.333		89.2	64-120	4.61	40	
Benzo (a) pyrene	0.312	0.0100	"	0.333		93.7	46-148	7.70	26	
Benzo (b) fluoranthene	0.329	0.0100	"	0.333		98.8	52-139	8.44	40	
Benzo (ghi) perylene	0.306	0.0100	"	0.333		91.9	54-125	1.62	40	
Benzo (k) fluoranthene	0.363	0.0100	"	0.333		109	47-138	2.23	40	
Chrysene	0.365	0.0100	"	0.333		110	57-125	4.03	24	
Dibenz (a,h) anthracene	0.347	0.0100	"	0.333		104	52-120	2.28	40	
Fluoranthene	0.343	0.0100	"	0.333		103	61-128	4.56	40	
Fluorene	0.306	0.0100	"	0.333		91.9	63-120	6.94	43	
Indeno (1,2,3-cd) pyrene	0.339	0.0100	"	0.333		102	54-128	1.75	39	
Naphthalene	0.269	0.0100	"	0.333		80.8	54-120	11.2	40	
Phenanthrene	0.299	0.0100	"	0.333		89.8	28-120	7.41	40	
Pyrene	0.332	0.0100	"	0.333		99.7	59-124	4.99	40	
Surrogate: p-Terphenyl-d14	*1.65*		"	*1.67*		*98.8*	*28-161*			
Matrix Spike (5E02063-MS1)					**Source: B5D0856-02**					
1-Methylnaphthalene	0.315	0.0100	mg/kg dry	0.356	ND	88.5	40-150			
2-Methylnaphthalene	0.293	0.0100	"	0.356	ND	82.3	40-150			
Acenaphthene	0.303	0.0100	"	0.356	ND	85.1	41-120			
Acenaphthylene	0.322	0.0100	"	0.356	ND	90.4	46-120			
Anthracene	0.320	0.0100	"	0.356	ND	89.9	23-151			
Benzo (a) anthracene	0.325	0.0100	"	0.356	ND	91.3	44-124			
Benzo (a) pyrene	0.344	0.0100	"	0.356	ND	96.6	21-138			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02063: Prepared 05/02/05 Using EPA 3550B										
Matrix Spike (5E02063-MS1)					**Source: B5D0856-02**					
Benzo (b) fluoranthene	0.360	0.0100	mg/kg dry	0.356	ND	101	32-139			
Benzo (ghi) perylene	0.276	0.0100	"	0.356	ND	77.5	20-140			
Benzo (k) fluoranthene	0.424	0.0100	"	0.356	ND	119	23-138			
Chrysene	0.399	0.0100	"	0.356	ND	112	33-126			
Dibenz (a,h) anthracene	0.311	0.0100	"	0.356	ND	87.4	26-125			
Fluoranthene	0.397	0.0100	"	0.356	ND	112	36-141			
Fluorene	0.334	0.0100	"	0.356	ND	93.8	46-126			
Indeno (1,2,3-cd) pyrene	0.307	0.0100	"	0.356	ND	86.2	24-138			
Naphthalene	0.297	0.0100	"	0.356	ND	83.4	35-120			
Phenanthrene	0.334	0.0100	"	0.356	ND	93.8	29-140			
Pyrene	0.352	0.0100	"	0.356	ND	98.9	27-143			
Surrogate: p-Terphenyl-d14	*1.80*		"	*1.78*		*101*	*28-161*			
Matrix Spike Dup (5E02063-MSD1)					**Source: B5D0856-02**					
1-Methylnaphthalene	0.289	0.0100	mg/kg dry	0.360	ND	80.3	40-150	8.61	40	
2-Methylnaphthalene	0.267	0.0100	"	0.360	ND	74.2	40-150	9.29	40	
Acenaphthene	0.293	0.0100	"	0.360	ND	81.4	41-120	3.36	50	
Acenaphthylene	0.310	0.0100	"	0.360	ND	86.1	46-120	3.80	50	
Anthracene	0.319	0.0100	"	0.360	ND	88.6	23-151	0.313	50	
Benzo (a) anthracene	0.315	0.0100	"	0.360	ND	87.5	44-124	3.12	50	
Benzo (a) pyrene	0.339	0.0100	"	0.360	ND	94.2	21-138	1.46	50	
Benzo (b) fluoranthene	0.434	0.0100	"	0.360	ND	121	32-139	18.6	50	
Benzo (ghi) perylene	0.267	0.0100	"	0.360	ND	74.2	20-140	3.31	50	
Benzo (k) fluoranthene	0.309	0.0100	"	0.360	ND	85.8	23-138	31.4	50	
Chrysene	0.383	0.0100	"	0.360	ND	106	33-126	4.09	44	
Dibenz (a,h) anthracene	0.306	0.0100	"	0.360	ND	85.0	26-125	1.62	50	
Fluoranthene	0.377	0.0100	"	0.360	ND	105	36-141	5.17	50	
Fluorene	0.332	0.0100	"	0.360	ND	92.2	46-126	0.601	52	
Indeno (1,2,3-cd) pyrene	0.302	0.0100	"	0.360	ND	83.9	24-138	1.64	43	
Naphthalene	0.274	0.0100	"	0.360	ND	76.1	35-120	8.06	50	
Phenanthrene	0.329	0.0100	"	0.360	ND	91.4	29-140	1.51	50	
Pyrene	0.346	0.0100	"	0.360	ND	96.1	27-143	1.72	50	
Surrogate: p-Terphenyl-d14	*1.82*		"	*1.80*		*101*	*28-161*			

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E02067: Prepared 05/02/05 Using Dry Weight										
Blank (5E02067-BLK1)										
Dry Weight	99.9	1.00	%							

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-230	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	05/16/05 15:54

Notes and Definitions

G-02	The chromatogram for this sample does not resemble a typical gasoline pattern. Please refer to the sample chromatogram.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
20332 Empire Ave, Ste F1, Bend, OR 97701-5712 541-383-9310 FAX 382-7588
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: B5D0973

NCA CLIENT:

INVOICE TO:

REPORT TO: ENSR Jim Bartlett
ADDRESS: Redmond, WA
PHONE: 881-7700 FAX:

P.O. NUMBER:

PROJECT NAME: Unocal Chelan
PROJECT NUMBER: 06940 248 230
SAMPLED BY: JB/CT

TURNAROUND REQUEST
in Business Days *
Organic & Inorganic Analyses: [X] STD. [7] [5] [4] [3] [2] [1] [<1]
Petroleum Hydrocarbon Analyses: [X] STD. [4] [3] [2] [1] [<1]
[OTHER] Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES: 8260B; TPH-G; TPH-Dx; PAH 8270 Metals 6010/7000; PCB

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	EX0430SW1	4/30/05 07:45	S	7		01
2	EX0430WW1	4/30/05 07:15	S	7		02
3	EX0430NW1	4/30/05 0730	S	7		03
4	Trip Blank	4/30/05 1200	W	1		04
5	Metals: Lead					
6	Chromium					
7	Cadmium					
8						
9						
10						

Revised Chain of Custody

RELEASED BY:	DATE: 4/30	RECEIVED BY: Demri Hardman	DATE: 4-30-05
PRINT NAME: James Bartlett FIRM: ENSR	TIME: 11:30 pm	PRINT NAME: Demri Hardman FIRM: NCA	TIME: 11:30
RELEASED BY:	DATE:	RECEIVED BY:	DATE:
PRINT NAME: FIRM:	TIME:	PRINT NAME: FIRM:	TIME:

ADDITIONAL REMARKS:

WO

TEMP: 4.1

COC REV 09/04

PAGE OF

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2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: B5D0973

NCA CLIENT:

REPORT TO: ENSR Jim Bartlett
ADDRESS: Redmond, WA
PHONE: 881-7700 FAX:

INVOICE TO:

P.O. NUMBER:

PROJECT NAME: Unocal Chelan
PROJECT NUMBER: 06940 248 230
SAMPLED BY: JB/CT

TURNAROUND REQUEST
in Business Days *
Organic & Inorganic Analyses: X STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: X STD. | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Request less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: 8260/5	TPH-G	TPH-Dx	PAH 8270 METALS 6000/7000	PCB	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	EX0430SW1	4/30/05 07:45							S	7		01
2	EX0430WW1	4/30/05 07:15							S	7		02
3	EX0430NW1	4/30/05 07:30							S	7		03
4												
5	Metals: Lead											
6	Chromium											
7	Cadmium											
8												
9												
10												

RELEASED BY: James Bartlett DATE: 4/30
PRINT NAME: James Bartlett FIRM: ENSR TIME: 11:30 Am

RECEIVED BY: Demri Hardware DATE: 4.30.05
PRINT NAME: Demri Hardware FIRM: NCA TIME: 11:30

RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

WO

TEMP: 4.1

REV 09/04

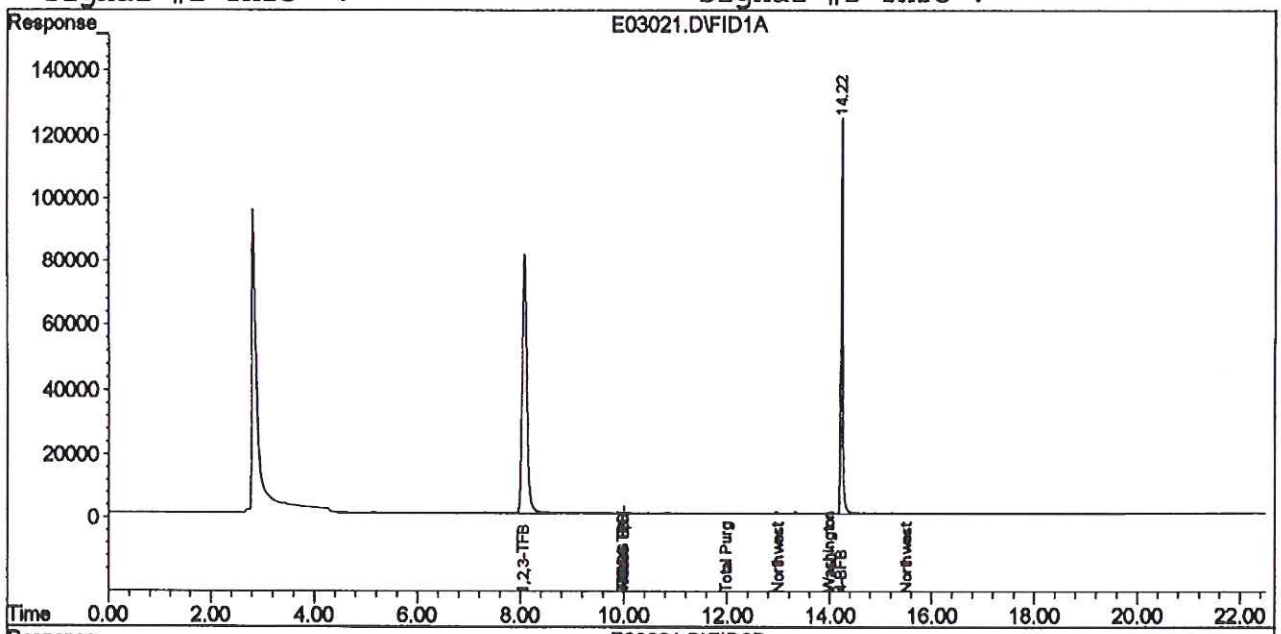
PAGE OF

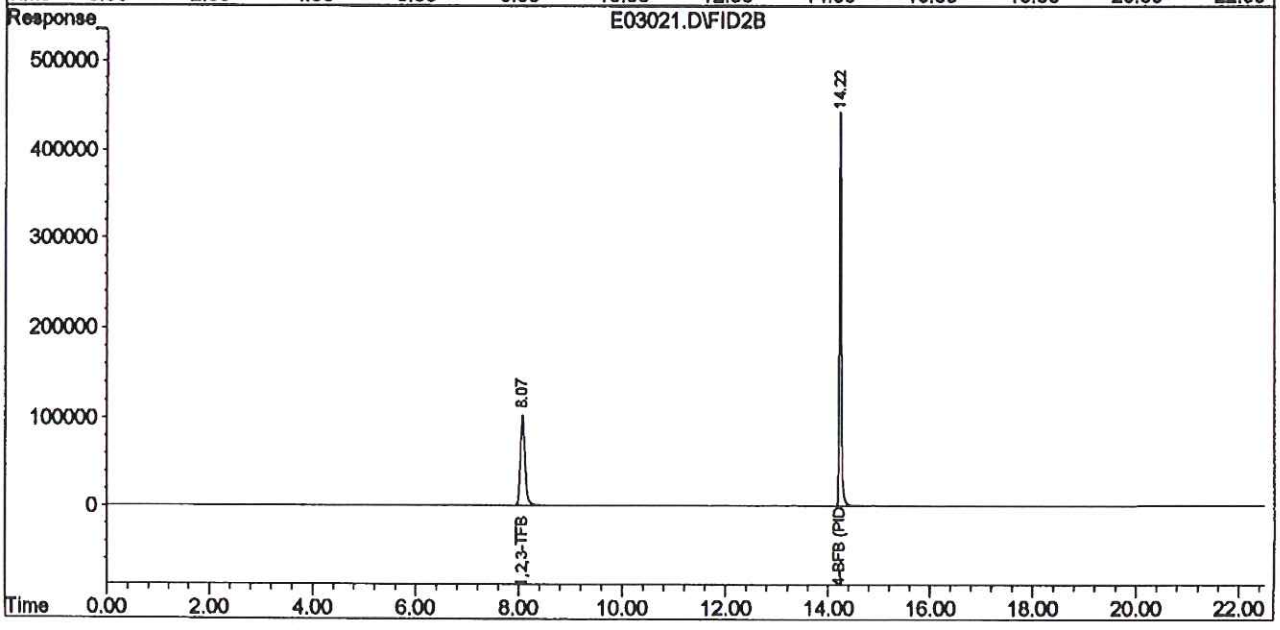
Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\050305\E03021.D\FID1A.CH Vial: 21
Signal #2 : D:\HPCHEM\1\DATA\050305\E03021.D\FID2B.CH
Acq On : 3 May 2005 21:29 Operator: mam
Sample : b5d0973-01 Inst : GC-10
Misc : 1x 100 uL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: May 3 21:51 2005 Quant Results File: TGD2005.RES

Quant Method : D:\HPCHEM\1\METHODS\TGD2005.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Thu Apr 21 13:55:54 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGD2005.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



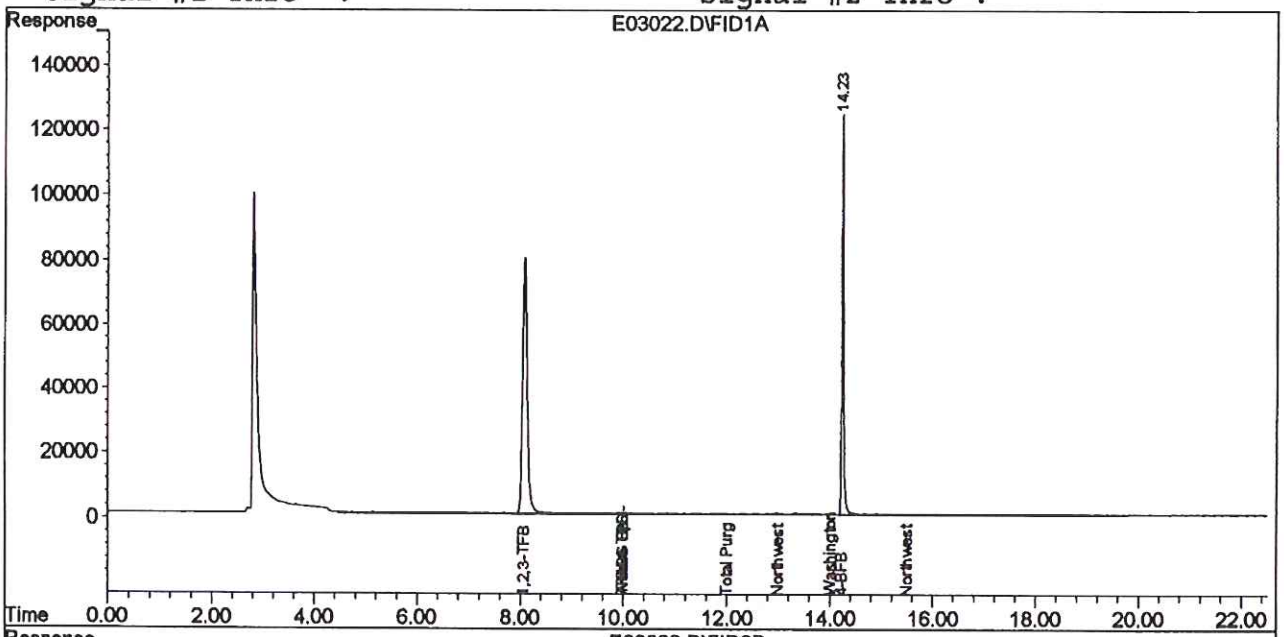


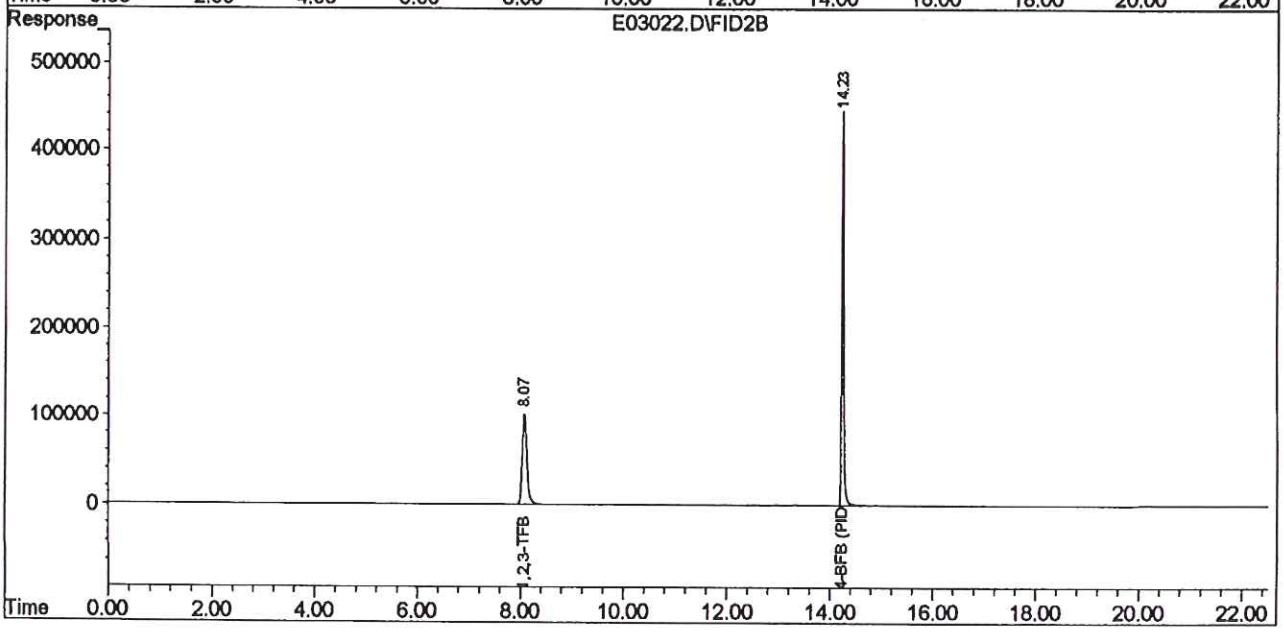
Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\050305\E03022.D\FID1A.CH Vial: 22
Signal #2 : D:\HPCHEM\1\DATA\050305\E03022.D\FID2B.CH
Acq On : 3 May 2005 21:58 Operator: mam
Sample : b5d0973-02 Inst : GC-10
Misc : 1x 100 uL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: May 3 22:21 2005 Quant Results File: TGD2005.RES

Quant Method : D:\HPCHEM\1\METHODS\TGD2005.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Thu Apr 21 13:55:54 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGD2005.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



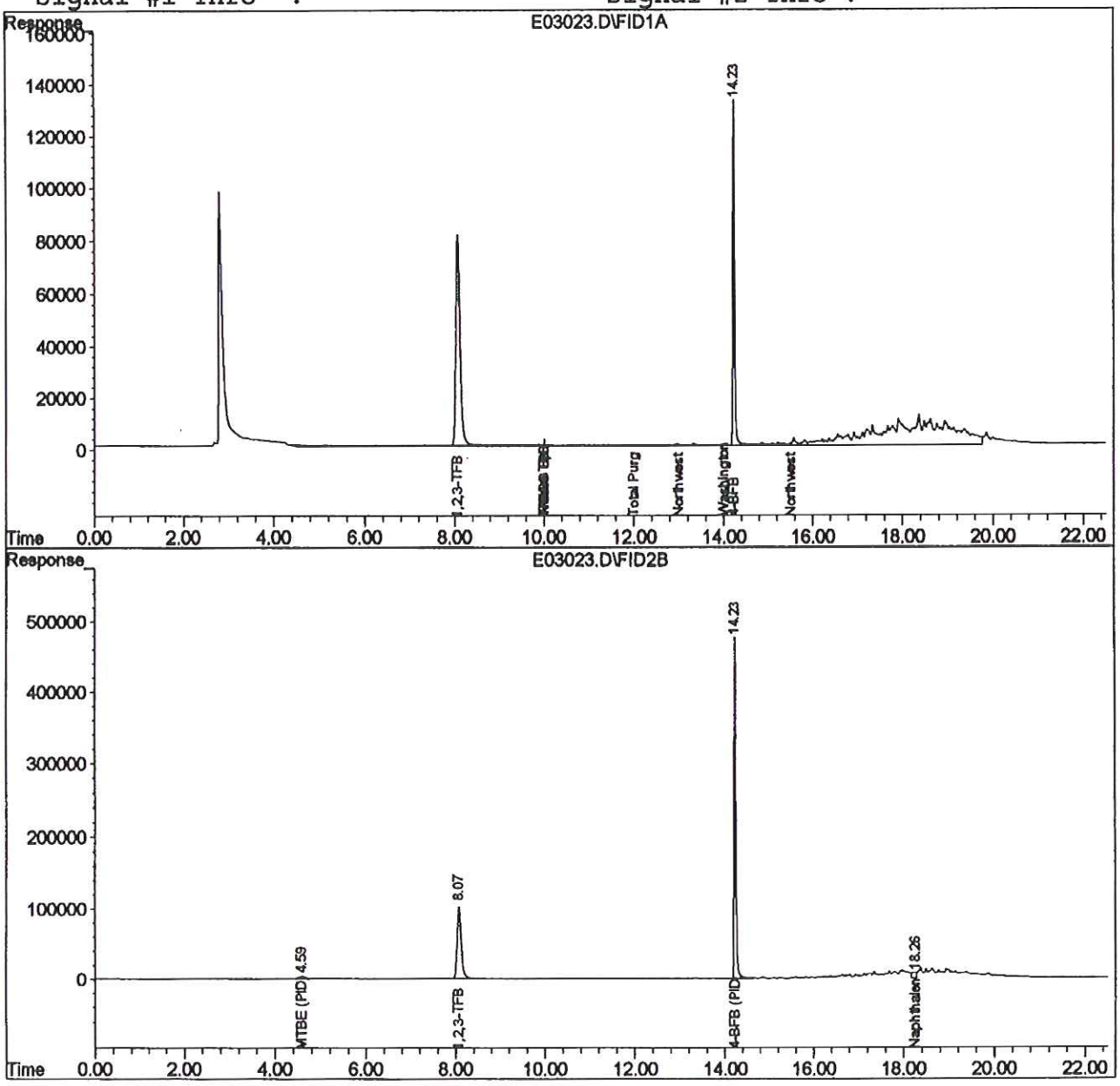


Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\050305\E03023.D\FID1A.CH Vial: 23
Signal #2 : D:\HPCHEM\1\DATA\050305\E03023.D\FID2B.CH
Acq On : 3 May 2005 22:28 Operator: mam
Sample : b5d0973-03 Inst : GC-10
Misc : 1x 100 uL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: May 3 22:51 2005 Quant Results File: TGD2005.RES

Quant Method : D:\HPCHEM\1\METHODS\TGD2005.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Thu Apr 21 13:55:54 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGD2005.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

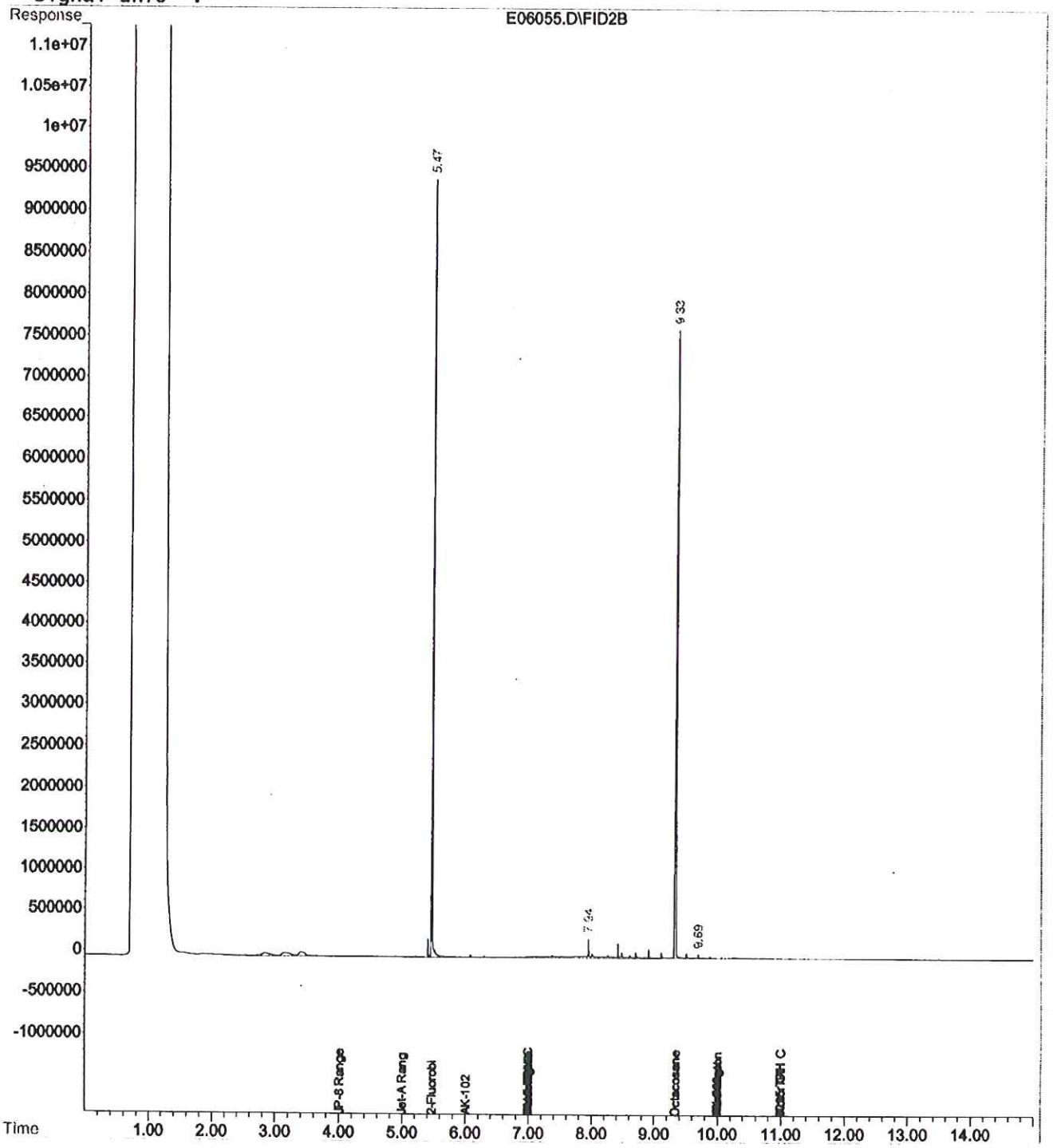


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\050605.SEC\E06055.D Vial: 61
Acq On : 7 May 2005 7:30 Operator: GSM
Sample : b5d0973-01 Inst : GC-9
Misc : 1x inwdx s Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 7 7:35 2005 Quant Results File: TRD1405B.RES

Quant Method : D:\HPCHEM\1\METHODS\TRD1405B.M (Chemstation Integrator)
Title : TPH-D Rear
Last Update : Wed Apr 20 09:17:21 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1405B.M

Volume Inj. :
Signal Phase :
Signal Info :

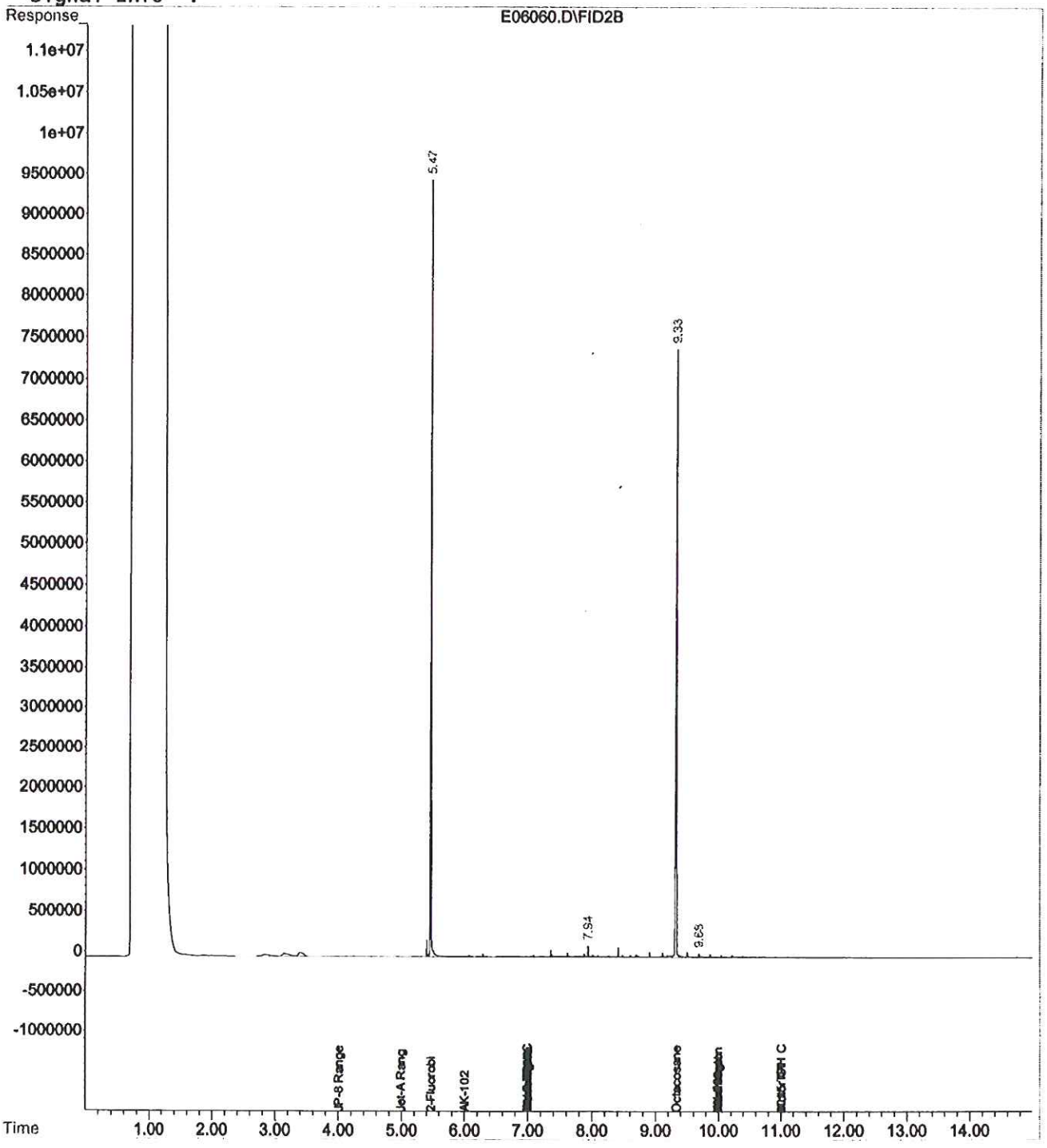


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\050605.SEC\E06060.D Vial: 66
Acq On : 7 May 2005 9:14 Operator: GSM
Sample : b5d0973-02 Inst : GC-9
Misc : 1x nwdx s Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 7 9:29 2005 Quant Results File: TRD1405B.RES

Quant Method : D:\HPCHEM\1\METHODS\TRD1405B.M (Chemstation Integrator)
Title : TPH-D Rear
Last Update : Wed Apr 20 09:17:21 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1405B.M

Volume Inj. :
Signal Phase :
Signal Info :

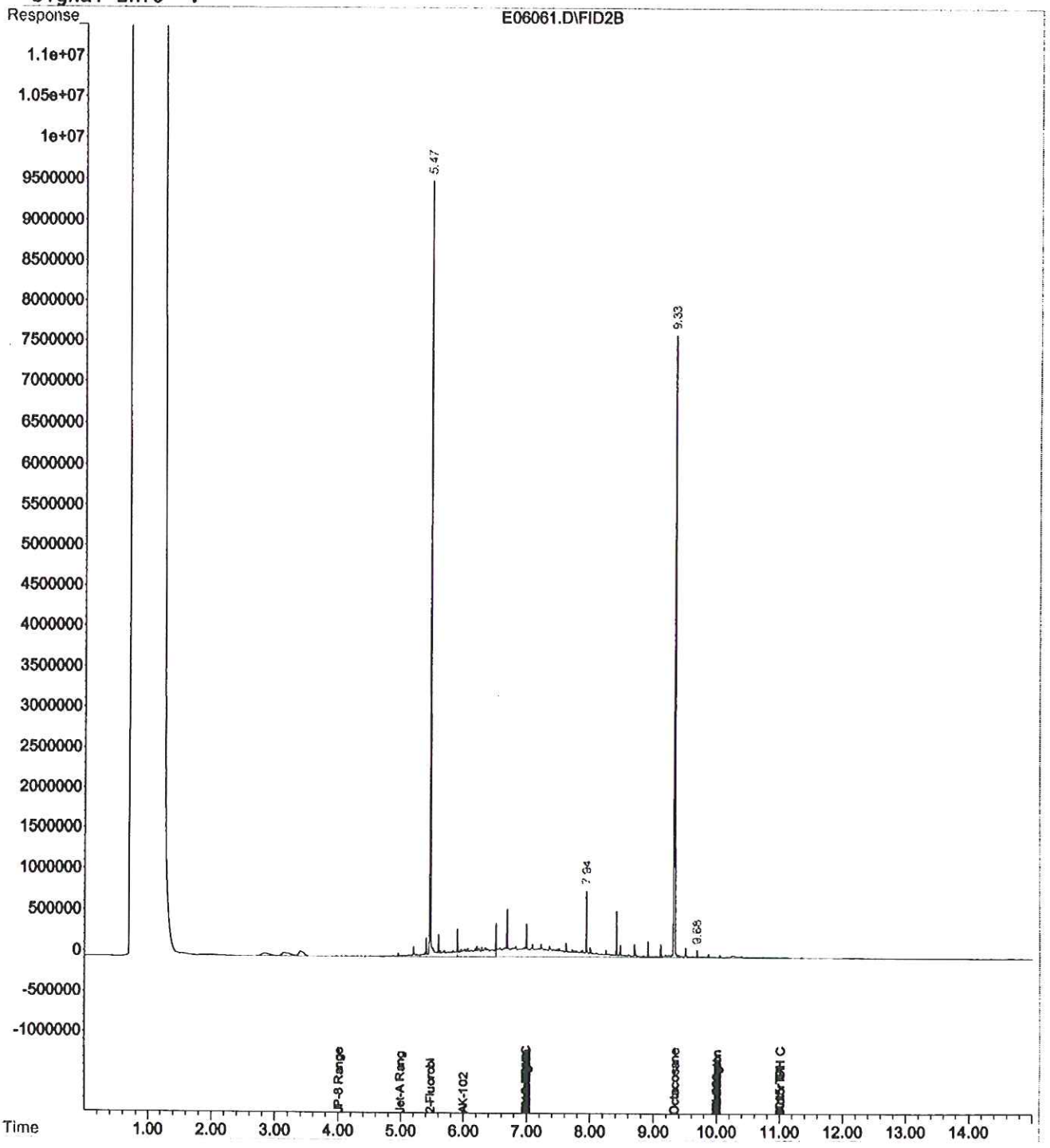


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\050605.SEC\E06061.D Vial: 67
Acq On : 7 May 2005 9:44 Operator: GSM
Sample : b5d0973-03 Inst : GC-9
Misc : 1x nwdx s Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 7 9:52 2005 Quant Results File: TRD1405B.RES

Quant Method : D:\HPCHEM\1\METHODS\TRD1405B.M (Chemstation Integrator)
Title : TPH-D Rear
Last Update : Wed Apr 20 09:17:21 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1405B.M

Volume Inj. :
Signal Phase :
Signal Info :



10.0 APPENDIX E DRILLING SAMPLE ANALYTICAL RESULTS

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907.563.9200 fax 907.563.9210

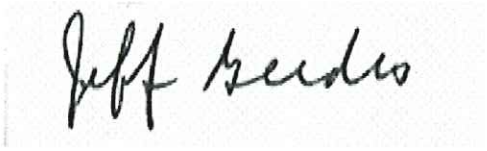
09 June 2005

Jim Borthen
ENSR-Redmond
9521 Willows Road NE
Redmond, WA 98052

RE: UNOCAL #0082

Enclosed are the results of analyses for samples received by the laboratory on 05/26/05 15:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jeff Gerdes
Project Manager

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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
248-MW2-052505	B5E0789-01	Water	05/25/05 13:45	05/26/05 15:20
248-MW5A-052505	B5E0789-02	Water	05/25/05 15:18	05/26/05 15:20
248-MW4A-052605	B5E0789-03	Water	05/26/05 08:15	05/26/05 15:20
248-MW8-052605	B5E0789-04	Water	05/26/05 08:55	05/26/05 15:20
248-MW1A-052605	B5E0789-05	Water	05/26/05 09:40	05/26/05 15:20
248-MW7-052605	B5E0789-06	Water	05/26/05 10:10	05/26/05 15:20
Trip blank	B5E0789-07	Water	05/26/05 12:00	05/26/05 15:20

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
248-MW2-052505 (B5E0789-01) Water	**Sampled: 05/25/05 13:45**		**Received: 05/26/05 15:20**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	5E31032	05/31/05	06/01/05	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*67.5 %*	*58-144*			"	"	"	"	
Surrogate: 4-BFB (PID)	*95.7 %*	*68-140*			"	"	"	"	
248-MW5A-052505 (B5E0789-02) Water	**Sampled: 05/25/05 15:18**		**Received: 05/26/05 15:20**						
Gasoline Range Hydrocarbons	**850**	50.0	ug/l	1	5E31032	05/31/05	06/01/05	NWTPH-Gx/8021B	G-02
Benzene	**3.64**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**8.28**	0.500	"	"	"	"	"	"	
Xylenes (total)	**7.76**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*89.8 %*	*58-144*			"	"	"	"	
Surrogate: 4-BFB (PID)	*112 %*	*68-140*			"	"	"	"	
248-MW4A-052605 (B5E0789-03) Water	**Sampled: 05/26/05 08:15**		**Received: 05/26/05 15:20**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	5E31032	05/31/05	06/01/05	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*72.8 %*	*58-144*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*68-140*			"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
248-MW8-052605 (B5E0789-04) Water	**Sampled: 05/26/05 08:55**		**Received: 05/26/05 15:20**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	5E31032	05/31/05	06/01/05	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*72.8 %*	*58-144*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*68-140*			"	"	"	"	
248-MW1A-052605 (B5E0789-05) Water	**Sampled: 05/26/05 09:40**		**Received: 05/26/05 15:20**						
Gasoline Range Hydrocarbons	**79.6**	50.0	ug/l	1	5E31032	05/31/05	06/01/05	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*75.3 %*	*58-144*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*68-140*			"	"	"	"	
248-MW7-052605 (B5E0789-06) Water	**Sampled: 05/26/05 10:10**		**Received: 05/26/05 15:20**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	5E31032	05/31/05	06/01/05	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*72.0 %*	*58-144*			"	"	"	"	
Surrogate: 4-BFB (PID)	*98.8 %*	*68-140*			"	"	"	"	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip blank (B5E0789-07) Water Sampled: 05/26/05 12:00 Received: 05/26/05 15:20									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	5E31032	05/31/05	06/01/05	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*69.0 %*	*58-144*			"	"	"	"	
Surrogate: 4-BFB (PID)	*93.7 %*	*68-140*			"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
248-MW2-052505 (B5E0789-01) Water	**Sampled: 05/25/05 13:45**		**Received: 05/26/05 15:20**						
Diesel Range Hydrocarbons	ND	250	ug/l	1	5E27001	05/27/05	06/01/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	500	"	"	"	"	"	"	
Surrogate: 2-FBP	*61.6 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*78.4 %*	*50-150*			"	"	"	"	
248-MW5A-052505 (B5E0789-02) Water	**Sampled: 05/25/05 15:18**		**Received: 05/26/05 15:20**						**D-16**
Diesel Range Hydrocarbons	**3350**	250	ug/l	1	5E27001	05/27/05	06/01/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	500	"	"	"	"	"	"	
Surrogate: 2-FBP	*77.0 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*91.8 %*	*50-150*			"	"	"	"	
248-MW4A-052605 (B5E0789-03) Water	**Sampled: 05/26/05 08:15**		**Received: 05/26/05 15:20**						
Diesel Range Hydrocarbons	ND	250	ug/l	1	5E27001	05/27/05	06/01/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	500	"	"	"	"	"	"	
Surrogate: 2-FBP	*67.8 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*75.5 %*	*50-150*			"	"	"	"	
248-MW8-052605 (B5E0789-04) Water	**Sampled: 05/26/05 08:55**		**Received: 05/26/05 15:20**						**D-15**
Diesel Range Hydrocarbons	**3260**	250	ug/l	1	5E27001	05/27/05	06/01/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	**911**	500	"	"	"	"	"	"	
Surrogate: 2-FBP	*87.2 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*110 %*	*50-150*			"	"	"	"	
248-MW1A-052605 (B5E0789-05) Water	**Sampled: 05/26/05 09:40**		**Received: 05/26/05 15:20**						**D-15**
Diesel Range Hydrocarbons	**13700**	1250	ug/l	5	5E27001	05/27/05	06/02/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	2500	"	"	"	"	"	"	
Surrogate: 2-FBP	*55.9 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*88.6 %*	*50-150*			"	"	"	"	

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
248-MW7-052605 (B5E0789-06) Water	**Sampled: 05/26/05 10:10**		**Received: 05/26/05 15:20**						**D-15**
Diesel Range Hydrocarbons	**315**	250	ug/l	1	5E27001	05/27/05	06/01/05	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	500	"	"	"	"	"	"	
Surrogate: 2-FBP	*67.3 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*79.2 %*	*50-150*			"	"	"	"	

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E31032: Prepared 05/31/05 Using EPA 5030B (P/T)										
Blank (5E31032-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*43.7*		"	*60.0*		*72.8*	*58-144*			
Surrogate: 4-BFB (PID)	*61.1*		"	*60.0*		*102*	*68-140*			
LCS (5E31032-BS1)										
Gasoline Range Hydrocarbons	1150	50.0	ug/l	1000		115	80-120			
Benzene	13.6	0.500	"	13.3		102	80-120			
Toluene	65.1	0.500	"	72.8		89.4	80-120			
Ethylbenzene	16.8	0.500	"	17.1		98.2	80-120			
Xylenes (total)	80.7	1.00	"	83.4		96.8	80-120			
Surrogate: 4-BFB (FID)	*51.9*		"	*60.0*		*86.5*	*58-144*			
Surrogate: 4-BFB (PID)	*59.7*		"	*60.0*		*99.5*	*68-140*			
LCS Dup (5E31032-BSD1)										
Gasoline Range Hydrocarbons	1180	50.0	ug/l	1000		118	80-120	2.58	25	
Benzene	14.2	0.500	"	13.3		107	80-120	4.32	25	
Toluene	67.7	0.500	"	72.8		93.0	80-120	3.92	25	
Ethylbenzene	17.4	0.500	"	17.1		102	80-120	3.51	25	
Xylenes (total)	83.9	1.00	"	83.4		101	80-120	3.89	25	
Surrogate: 4-BFB (FID)	*51.5*		"	*60.0*		*85.8*	*58-144*			
Surrogate: 4-BFB (PID)	*60.0*		"	*60.0*		*100*	*68-140*			
Matrix Spike (5E31032-MS1)					**Source: B5E0789-01**					
Gasoline Range Hydrocarbons	1240	50.0	ug/l	1000	ND	124	58-129			
Benzene	14.7	0.500	"	13.3	ND	111	46-130			
Toluene	70.4	0.500	"	72.8	ND	96.7	60-124			
Ethylbenzene	18.2	0.500	"	17.1	ND	106	56-141			
Xylenes (total)	87.1	1.00	"	83.4	ND	104	66-132			
Surrogate: 4-BFB (FID)	*52.2*		"	*60.0*		*87.0*	*58-144*			
Surrogate: 4-BFB (PID)	*59.5*		"	*60.0*		*99.2*	*68-140*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E31032: Prepared 05/31/05 Using EPA 5030B (P/T)										
Matrix Spike Dup (5E31032-MSD1)					**Source: B5E0789-01**					
Gasoline Range Hydrocarbons	1190	50.0	ug/l	1000	ND	119	58-129	4.12	25	
Benzene	13.7	0.500	"	13.3	ND	103	46-130	7.04	40	
Toluene	69.0	0.500	"	72.8	ND	94.8	60-124	2.01	40	
Ethylbenzene	17.6	0.500	"	17.1	ND	103	56-141	3.35	40	
Xylenes (total)	84.6	1.00	"	83.4	ND	101	66-132	2.91	40	
Surrogate: 4-BFB (FID)	*51.9*		"	*60.0*		*86.5*	*58-144*			
Surrogate: 4-BFB (PID)	*59.0*		"	*60.0*		*98.3*	*68-140*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5E27001: Prepared 05/27/05 Using EPA 3520C										
Blank (5E27001-BLK1)										
Diesel Range Hydrocarbons	ND	250	ug/l							
Lube Oil Range Hydrocarbons	ND	500	"							
Surrogate: 2-FBP	*190*		"	*250*		*76.0*	*50-150*			
Surrogate: Octacosane	*208*		"	*250*		*83.2*	*50-150*			
LCS (5E27001-BS1)										
Diesel Range Hydrocarbons	1420	250	ug/l	2000		71.0	45-119			
Surrogate: 2-FBP	*193*		"	*250*		*77.2*	*50-150*			
LCS (5E27001-BS2)										
Lube Oil Range Hydrocarbons	1430	500	ug/l	2000		71.5	50-150			
Surrogate: Octacosane	*208*		"	*250*		*83.2*	*50-150*			
LCS Dup (5E27001-BSD1)										
Diesel Range Hydrocarbons	1410	250	ug/l	2000		70.5	45-119	0.707	35	
Surrogate: 2-FBP	*177*		"	*250*		*70.8*	*50-150*			
LCS Dup (5E27001-BSD2)										
Lube Oil Range Hydrocarbons	1530	500	ug/l	2000		76.5	50-150	6.76	50	
Surrogate: Octacosane	*228*		"	*250*		*91.2*	*50-150*			
Duplicate (5E27001-DUP1)					**Source: B5E0789-01**					
Diesel Range Hydrocarbons	ND	250	ug/l		ND			NA	50	
Lube Oil Range Hydrocarbons	ND	500	"		91.5				50	
Surrogate: 2-FBP	*181*		"	*248*		*73.0*	*50-150*			
Surrogate: Octacosane	*196*		"	*248*		*79.0*	*50-150*			

North Creek Analytical - Bothell

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ENSR-Redmond	Project: UNOCAL #0082	
9521 Willows Road NE	Project Number: 06940-248-120	**Reported:**
Redmond, WA 98052	Project Manager: Jim Borthen	06/09/05 16:16

Notes and Definitions

D-15	Hydrocarbon pattern most closely resembles a Mineral Oil product.
D-16	Hydrocarbon pattern most closely resembles a blend of Diesel and Mineral Oil Range Hydrocarbons.
G-02	The chromatogram for this sample does not resemble a typical gasoline pattern. Please refer to the sample chromatogram.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

Jeff Gerdes, Project Manager

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ENSR CHAIN OF CUSTODY REPORT

Chain of Custody Record #: B5E0789

SITE INFORMATION

Facility Number: 2082
Site Address:
City, State, ZIP: Chelan WA
P.O. Number:

CERT INFO: (check one) ☐ Evaluation ☐ Remediation ☐ Detection ☐ Demolition ☐ Closure ☐ Miscellaneous

REPORT TO / INVOICE TO

Name: ENSR
Address: 9521 Willows Rd.
Redmond WA 98052
Phone: 425-881-7700 Fax:
Project No.: 06940-248-120
Project Manager: Jim Borthen
Samples collected by: Janine Burkhardt

Quality Assurance Data Level: A: Standard Summary B: Standard + Chromatograms

Laboratory Turnaround Days: (X) 5 3 2 1

☐ AK ☐ OR ☐ WA ☒ NW Series

SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	MATRIX (W, S, O)	NUMBER OF CONTAINERS	TPH-HCID	TPH-Gas	BTEX Only EPA 8021 Mod.	TPH-Gas + BTEX	TPH-Diesel	TPH-Diesel Extended	TPH-Diesel-Ext. w/SG cleanup	Halogen. Volatiles EPA	Pesticides/PCBs or PCBs only	GC/MS Volatiles BPA 8260	GC/MS Semivols. EPA 8270	PAHs: 8270 SIM or 8310	Lead: Total or Dissolved	TCLP or RCRA Metals (8)	NCA SAMPLE NUMBER
1. 248-MW2-052505	5-25-05/1345	W	5				X			X								01
2. 248-MW5A-052505	5-25-05/1518	W	5				X			X								02
3. 248-MW4A-052605	5-26-05/815	W	5				X			X								03
4. 248-MW8-052605	5-26-05/855	W	5				X			X								04
5. 248-MW1A-052605	5-26-05/940	W	5				X			X								05
6. 248-MW7-052605	5-26-05/1010	W	5				X			X								06
7. Trip blank		W	2				X			X								07
8.																		
9.																		
10.																		

Relinquished by	Firm	Date/Time	Received by	Firm	Date/Time
1. J Burkhardt	ENSR	5-26-05/15:20	Tom Blank	NCA	5/26/05 1520
2.					
3.					

Were all requested results provided? yes no
Were the results within the requested turnaround? yes no
Define "no" on back
11.9 w/o Final approval signature:
Firm: Date:

Page ____ of ____

Comments:

Samples were not @2-6c upon receipt!

ENSR COC rev 12/03

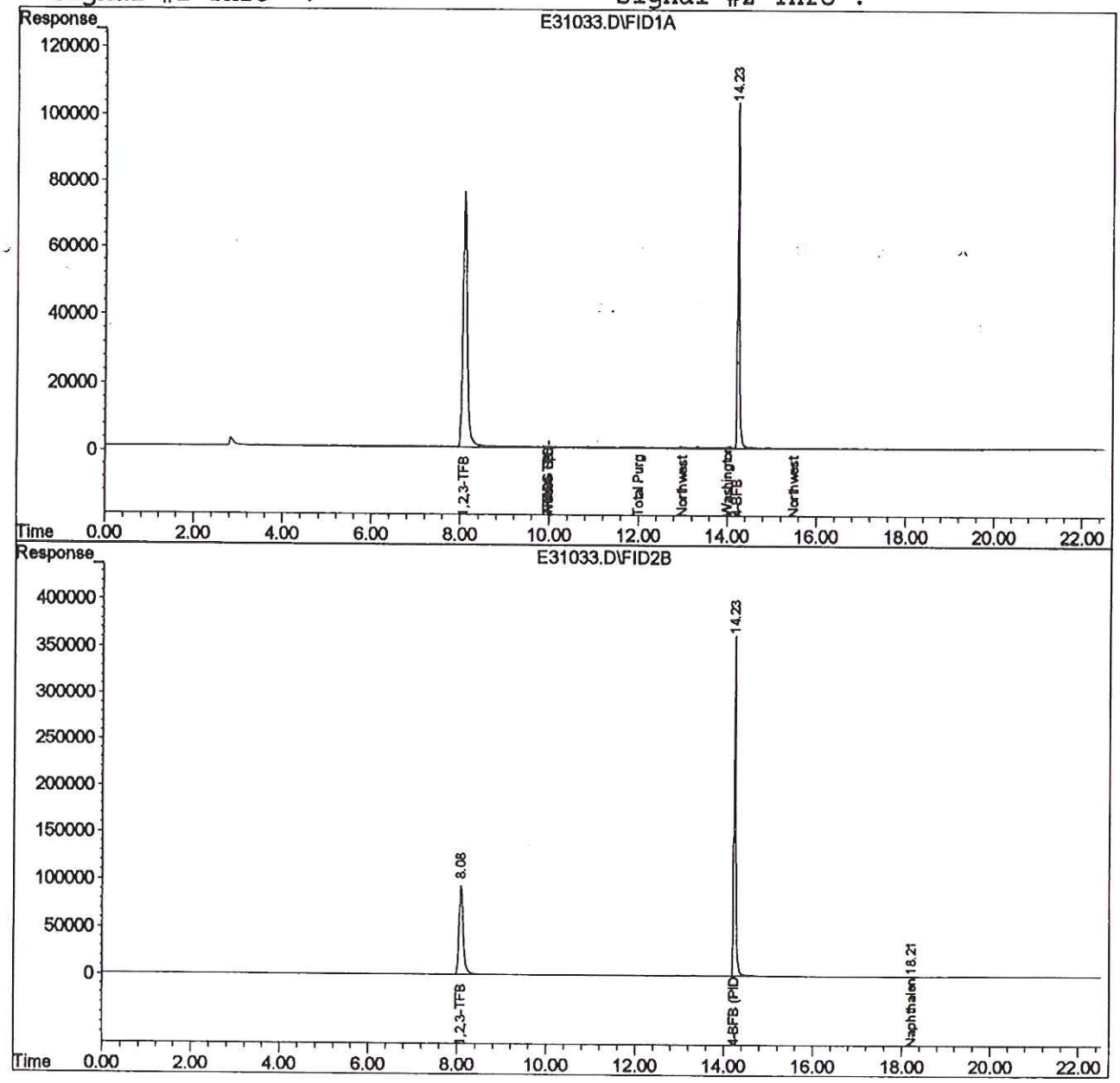
Distribution: White - Laboratory Yellow - Consultant

Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\053105\E31033.D\FID1A.CH Vial: 33
Signal #2 : D:\HPCHEM\1\DATA\053105\E31033.D\FID2B.CH
Acq On : 1 Jun 2005 4:05 Operator: mam
Sample : b5e0789-01 Inst : GC-10
Misc : 1x 5 mL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Jun 1 4:28 2005 Quant Results File: TGE1105.RES

Quant Method : D:\HPCHEM\1\METHODS\TGE1105.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Wed May 11 19:22:40 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGE1105.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

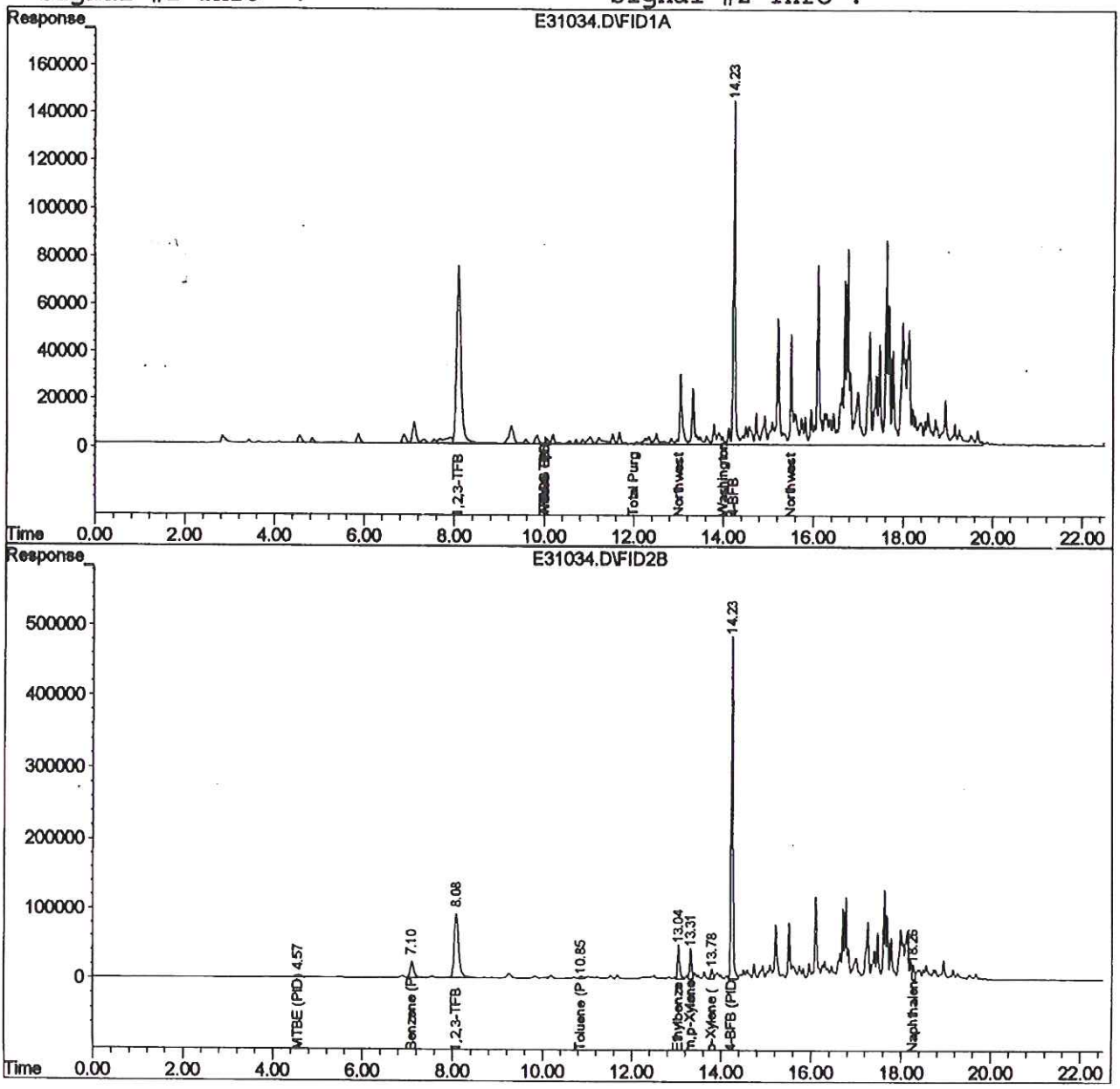


Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\053105\E31034.D\FID1A.CH Vial: 34
Signal #2 : D:\HPCHEM\1\DATA\053105\E31034.D\FID2B.CH
Acq On : 1 Jun 2005 4:35 Operator: mam
Sample : b5e0789-02 Inst : GC-10
Misc : 1x 5 mL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Jun 1 4:57 2005 Quant Results File: TGE1105.RES

Quant Method : D:\HPCHEM\1\METHODS\TGE1105.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Wed May 11 19:22:40 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGE1105.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

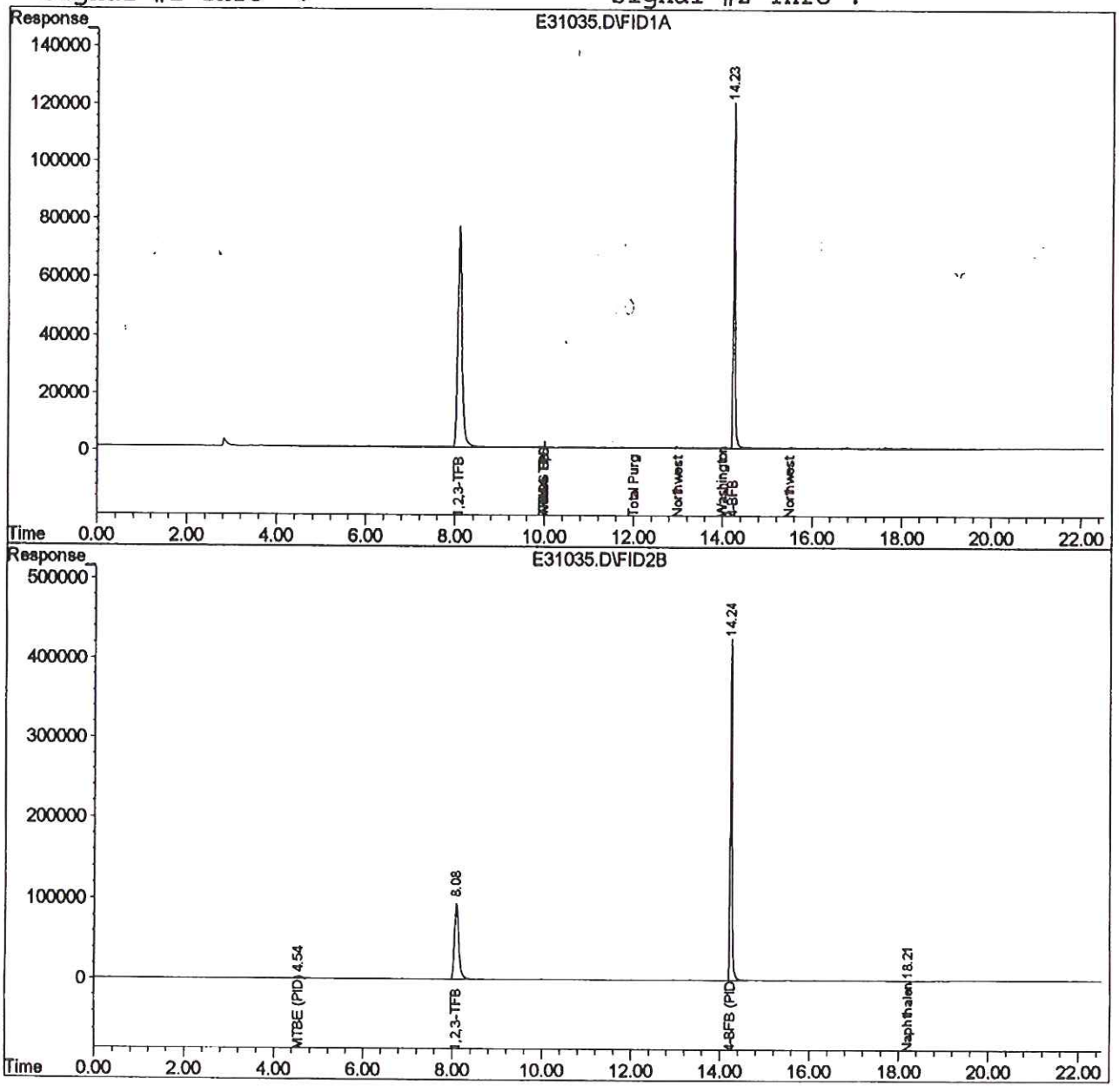


Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\053105\E31035.D\FID1A.CH Vial: 35
Signal #2 : D:\HPCHEM\1\DATA\053105\E31035.D\FID2B.CH
Acq On : 1 Jun 2005 5:04 Operator: mam
Sample : b5e0789-03 Inst : GC-10
Misc : 1x 5 mL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Jun 1 5:27 2005 Quant Results File: TGE1105.RES

Quant Method : D:\HPCHEM\1\METHODS\TGE1105.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Wed May 11 19:22:40 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGE1105.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

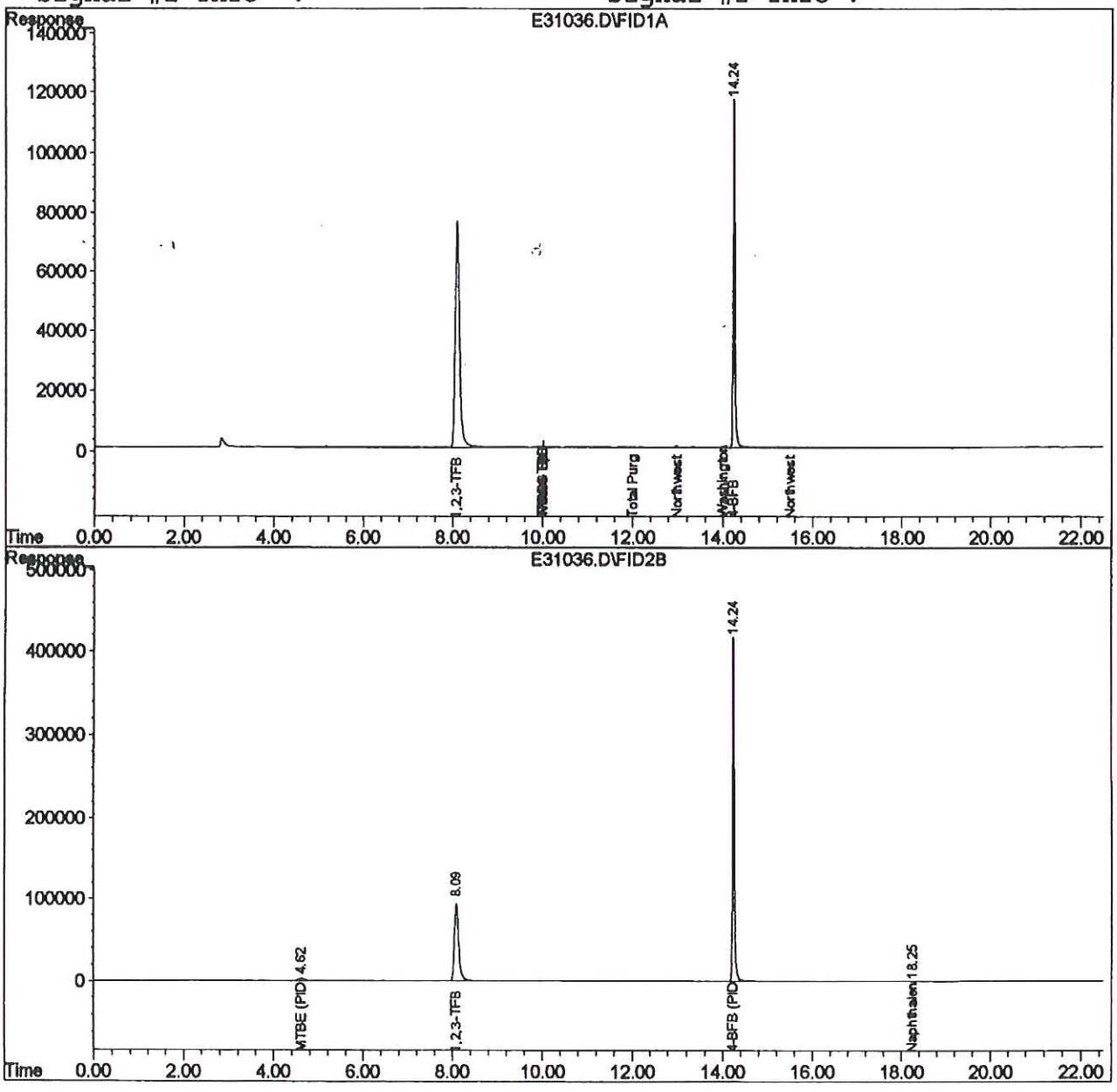


Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\053105\E31036.D\FID1A.CH Vial: 36
Signal #2 : D:\HPCHEM\1\DATA\053105\E31036.D\FID2B.CH
Acq On : 1 Jun 2005 5:34 Operator: mam
Sample : b5e0789-04 Inst : GC-10
Misc : 1x 5 mL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Jun 1 5:57 2005 Quant Results File: TGE1105.RES

Quant Method : D:\HPCHEM\1\METHODS\TGE1105.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Wed May 11 19:22:40 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGE1105.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

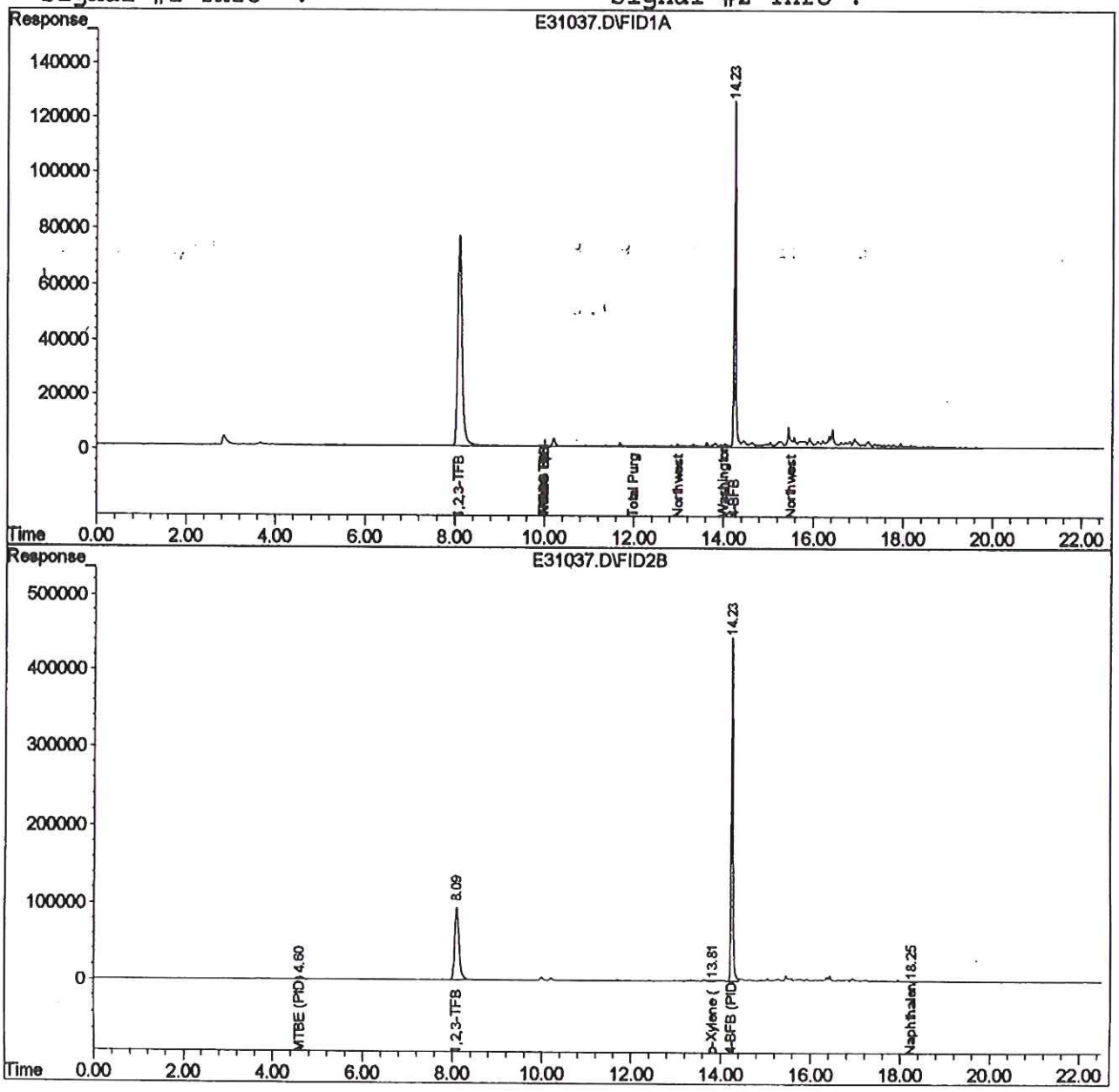


Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\053105\E31037.D\FID1A.CH Vial: 37
Signal #2 : D:\HPCHEM\1\DATA\053105\E31037.D\FID2B.CH
Acq On : 1 Jun 2005 6:04 Operator: mam
Sample : b5e0789-05 Inst : GC-10
Misc : 1x 5 mL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Jun 1 6:27 2005 Quant Results File: TGE1105.RES

Quant Method : D:\HPCHEM\1\METHODS\TGE1105.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Wed May 11 19:22:40 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGE1105.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

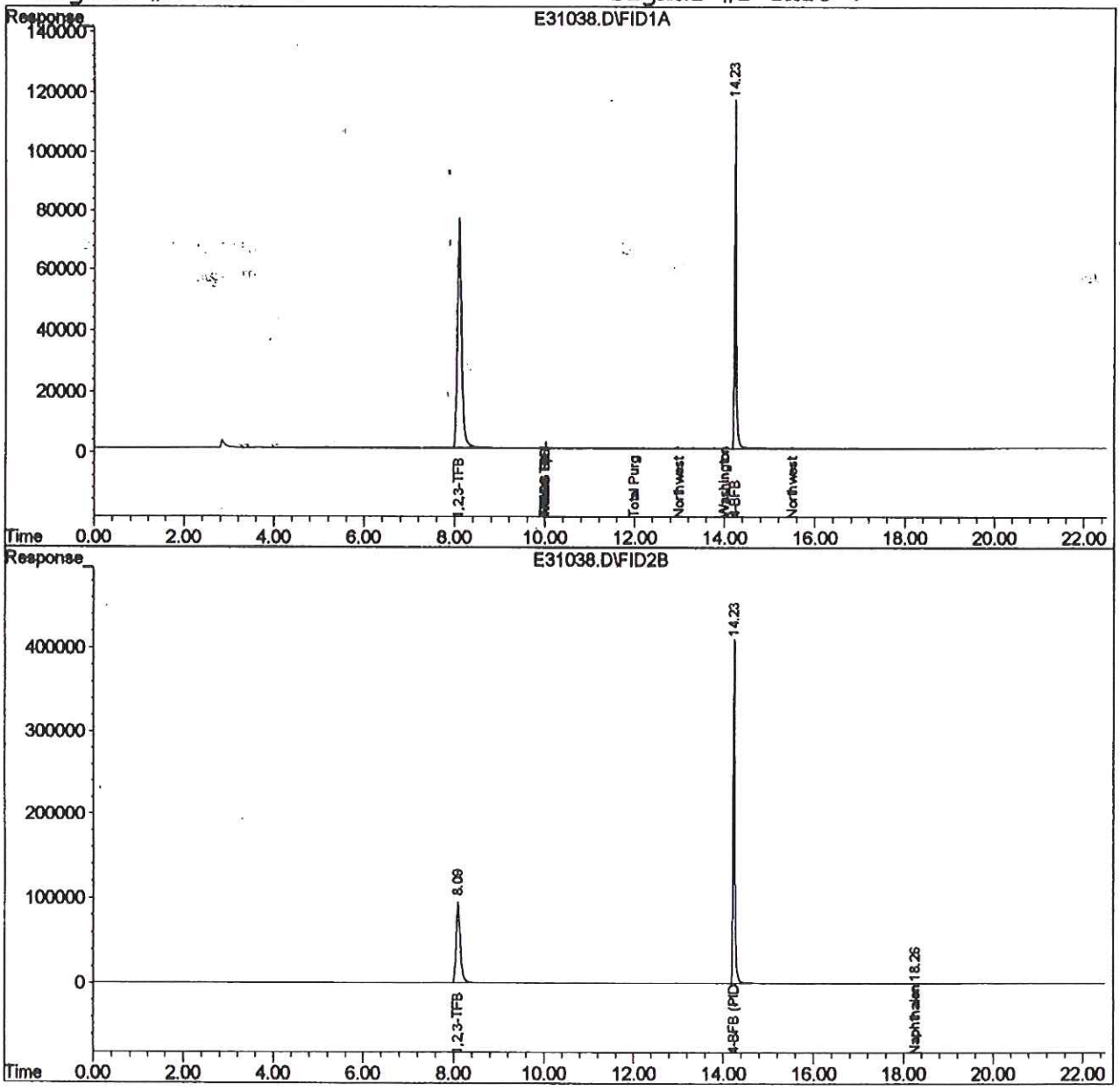


Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\053105\E31038.D\FID1A.CH Vial: 38
Signal #2 : D:\HPCHEM\1\DATA\053105\E31038.D\FID2B.CH
Acq On : 1 Jun 2005 6:34 Operator: mam
Sample : b5e0789-06 Inst : GC-10
Misc : 1x 5 mL Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Jun 1 6:56 2005 Quant Results File: TGE1105.RES

Quant Method : D:\HPCHEM\1\METHODS\TGE1105.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Wed May 11 19:22:40 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGE1105.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

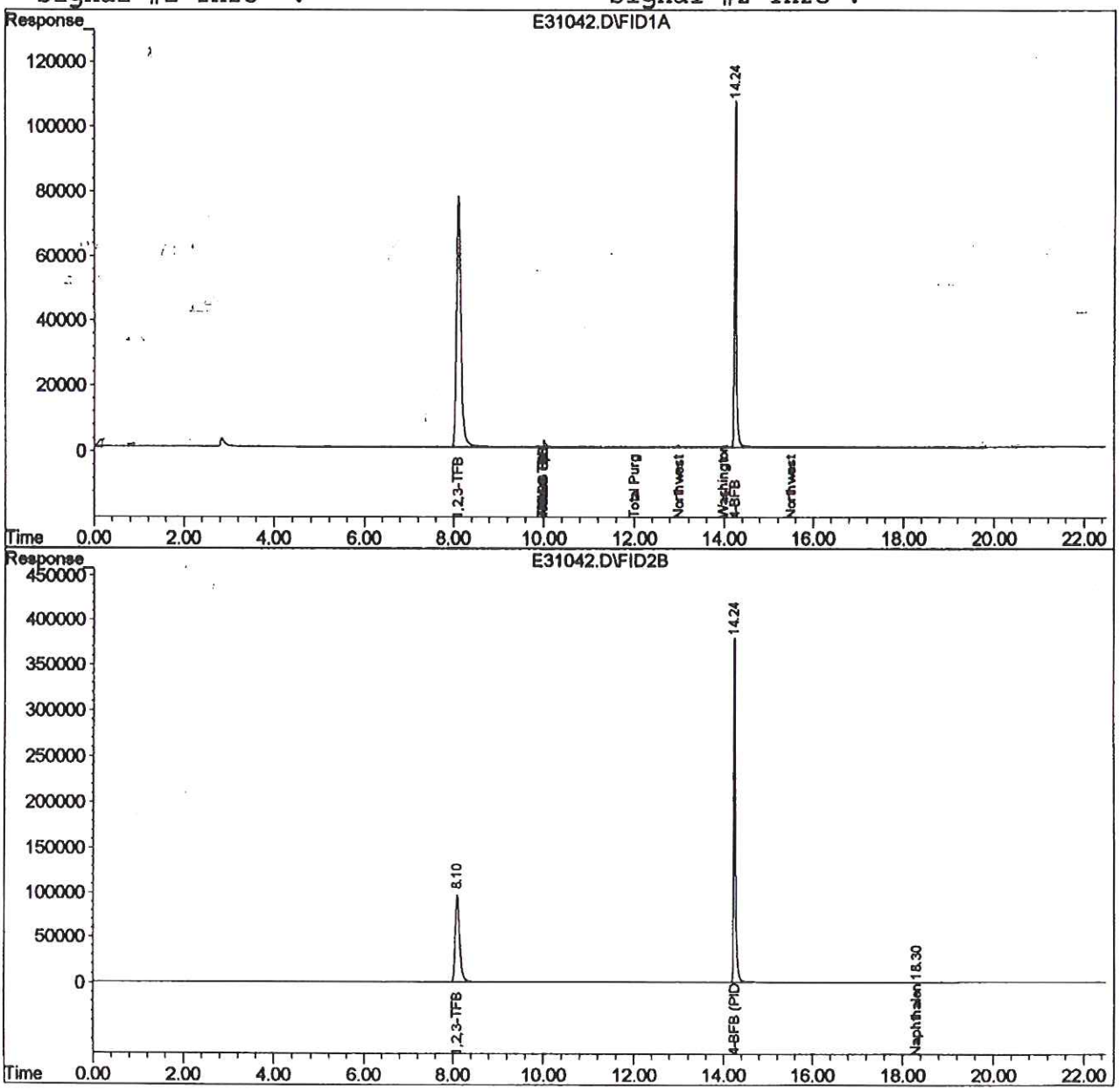


Quantitation Report

Signal #1 : D:\HPCHEM\1\DATA\053105\E31042.D\FID1A.CH Vial: 42
Signal #2 : D:\HPCHEM\1\DATA\053105\E31042.D\FID2B.CH
Acq On : 1 Jun 2005 8:32 Operator: mam
Sample : b5e0789-07 Inst : GC-10
Misc : 1x 5 mL tb Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Jun 1 8:55 2005 Quant Results File: TGE1105.RES

Quant Method : D:\HPCHEM\1\METHODS\TGE1105.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Wed May 11 19:22:40 2005
Response via : Multiple Level Calibration
DataAcq Meth : TGE1105.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

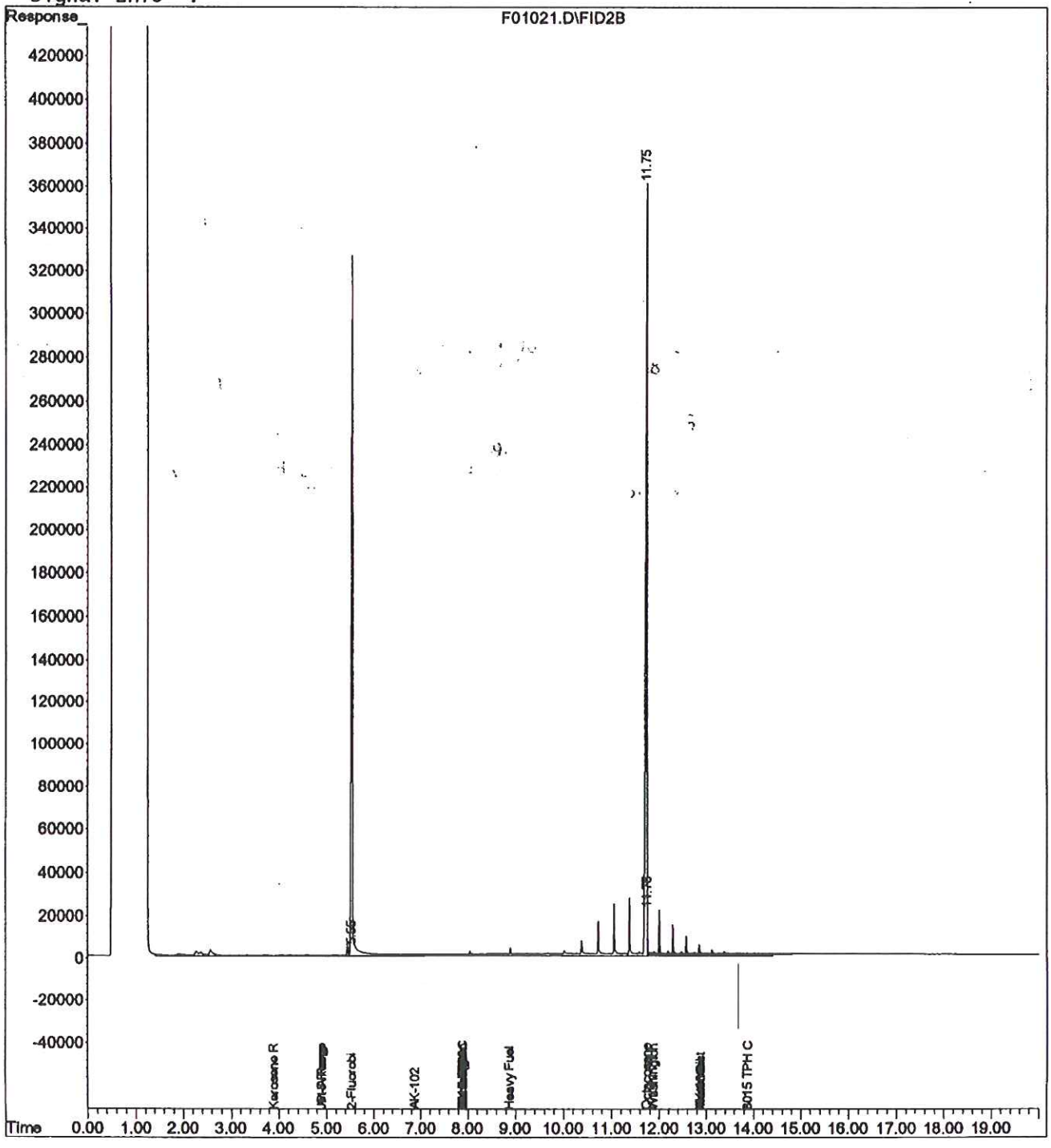


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\4\DATA\060105.SEC\F01021.D Vial: 67
Acq On : 1 Jun 2005 19:38 Operator: tmk
Sample : B5E0789-01 Inst : GC-1
Misc : 1X TPHDEX W SG,AK102/103, NWDX Multiplr: 1.00
IntFile : TPH.E
Quant Time: Jun 1 19:58 2005 Quant Results File: TRD1305B.RES

Quant Method : D:\HPCHEM\4\METHODS\TRD1305B.M (Chemstation Integrator)
Title : TPH-D Rear
Last Update : Tue May 10 13:52:58 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1305A.M

Volume Inj. :
Signal Phase :
Signal Info :

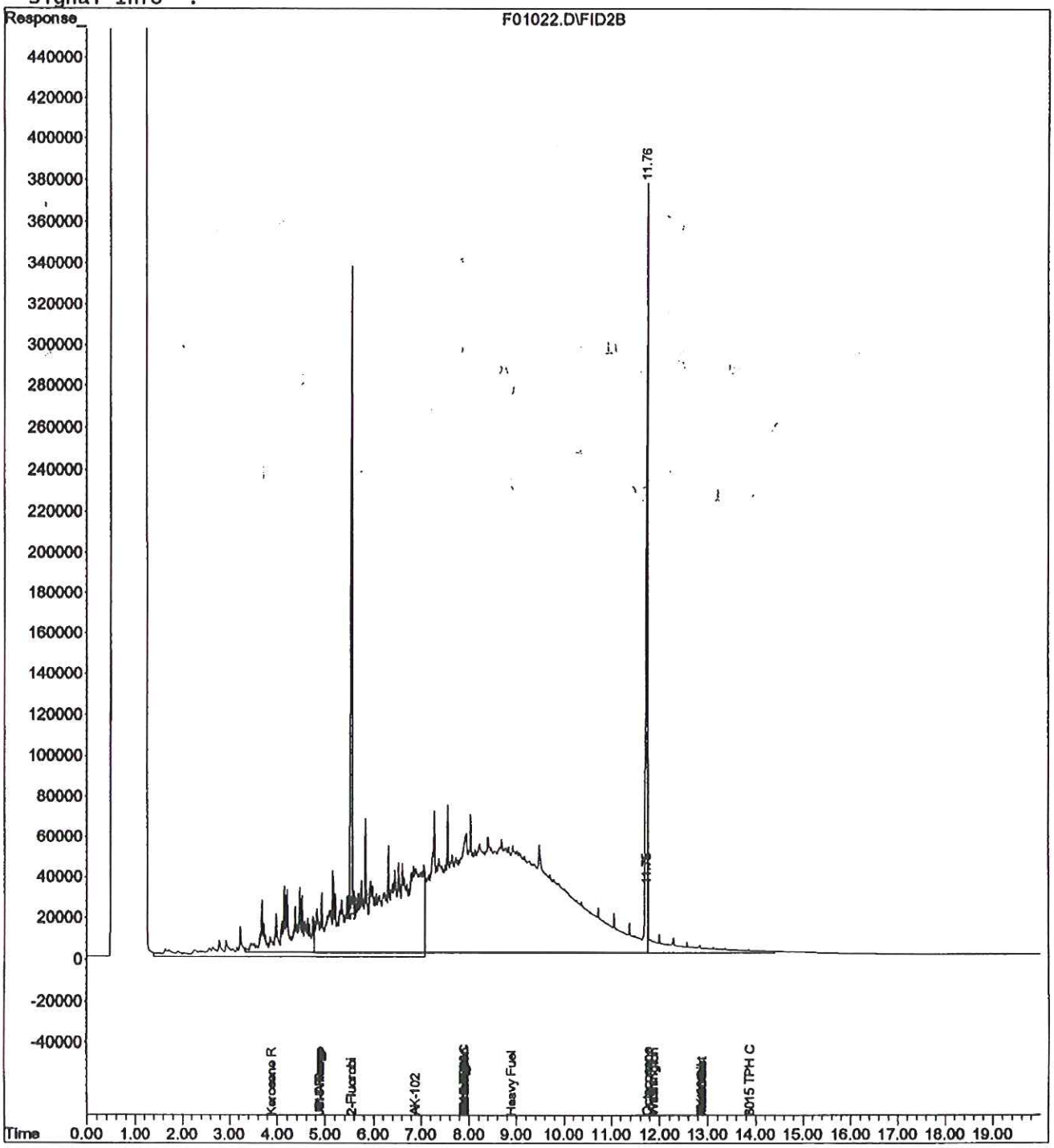


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\4\DATA\060105.SEC\F01022.D Vial: 68
Acq On : 1 Jun 2005 20:08 Operator: tmk
Sample : B5E0789-02 Inst : GC-1
Misc : 1X NWDX W SG Multiplr: 1.00
IntFile : TPH.E
Quant Time: Jun 1 20:28 2005 Quant Results File: TRD1305B.RES

Quant Method : D:\HPCHEM\4\METHODS\TRD1305B.M (Chemstation Integrator)
Title : TPH-D Rear
Last Update : Tue May 10 13:52:58 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1305A.M

Volume Inj. :
Signal Phase :
Signal Info :

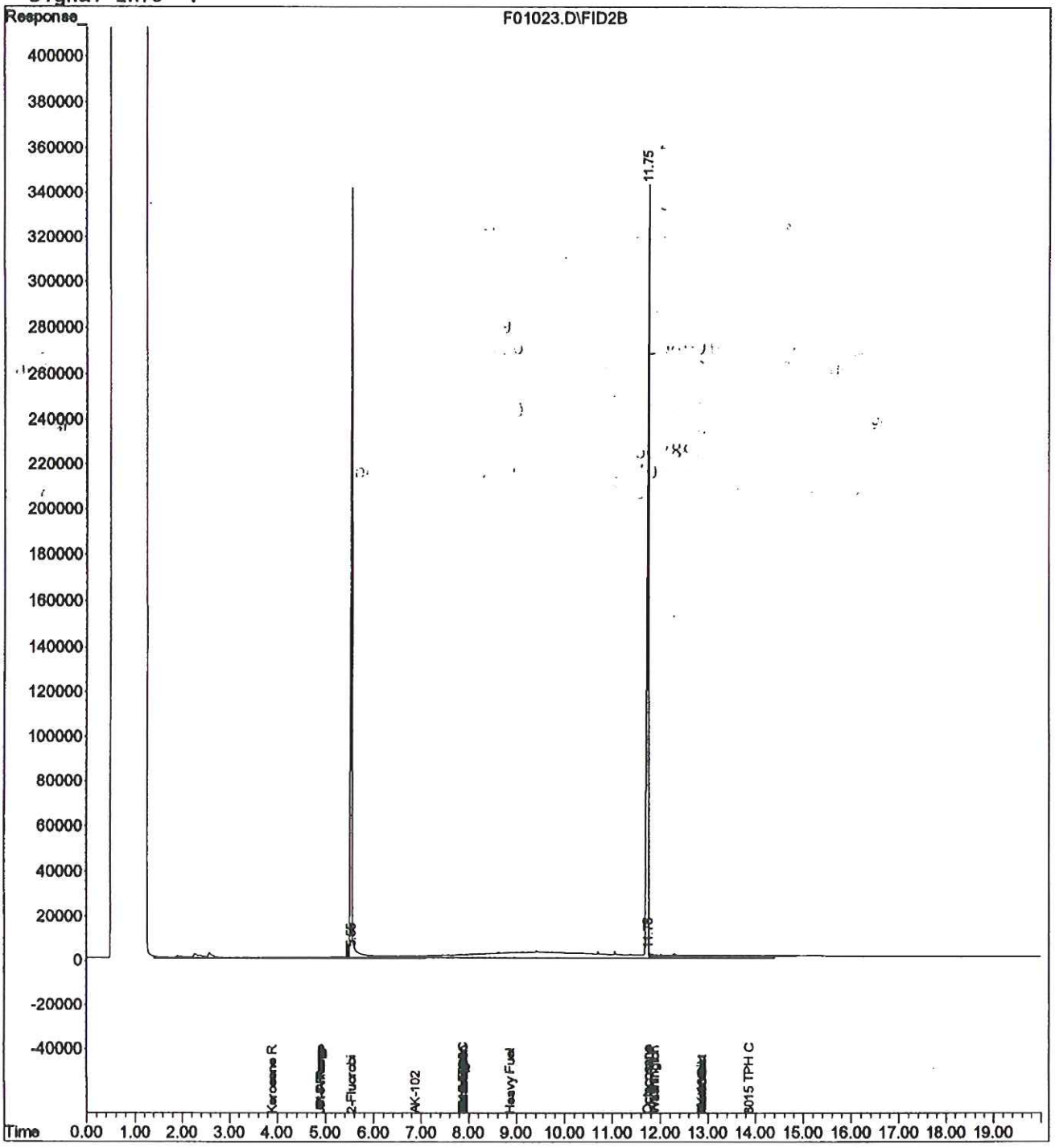


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\4\DATA\060105.SEC\F01023.D Vial: 69
Acq On : 1 Jun 2005 20:38 Operator: tmk
Sample : B5E0789-03 Inst : GC-1
Misc : 1X NWDX W SG Multiplr: 1.00
IntFile : TPH.E
Quant Time: Jun 1 20:58 2005 Quant Results File: TRD1305B.RES

Quant Method : D:\HPCHEM\4\METHODS\TRD1305B.M (Chemstation Integrator)
Title : TPH-D Rear
Last Update : Tue May 10 13:52:58 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1305A.M

Volume Inj. :
Signal Phase :
Signal Info :

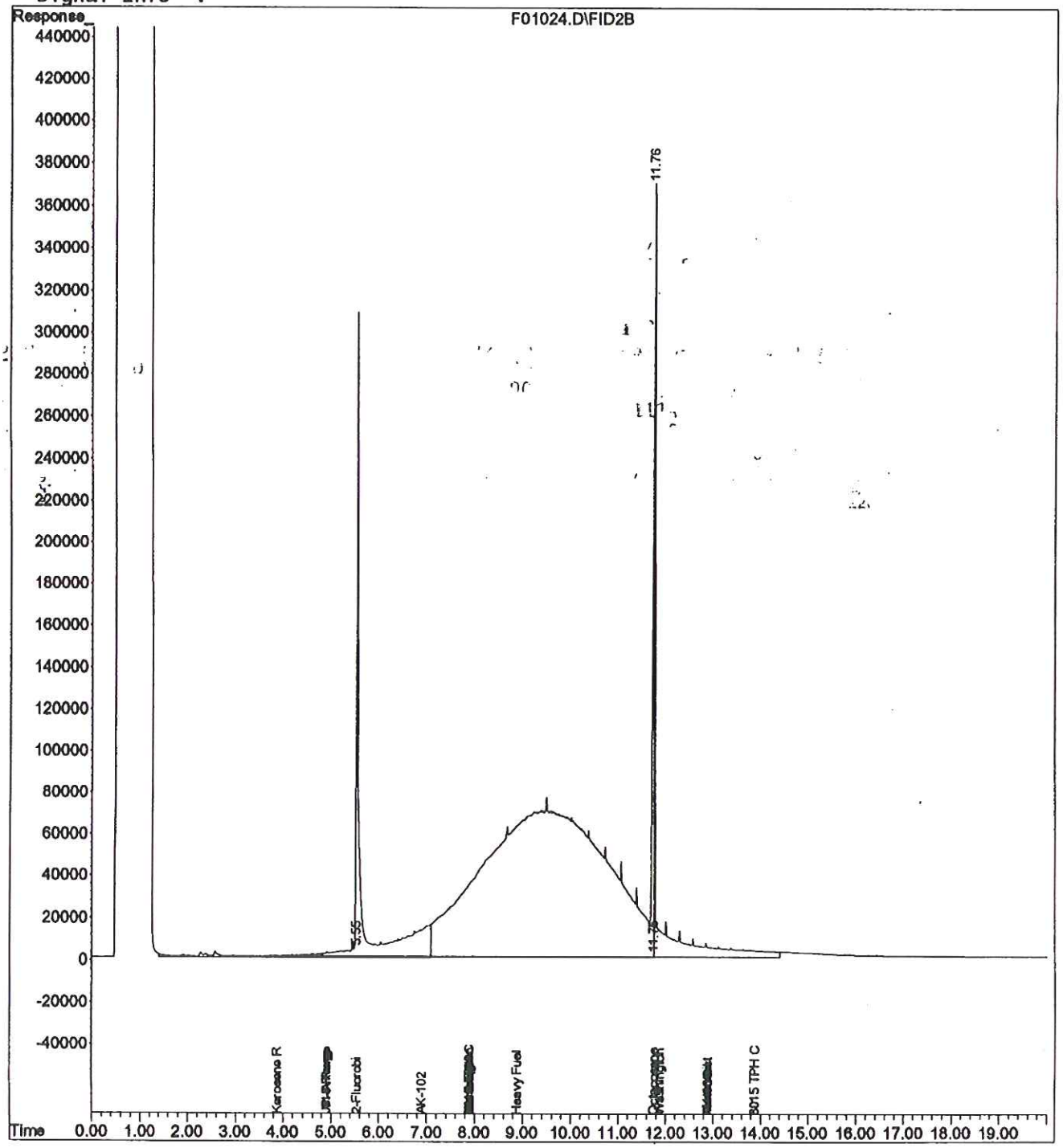


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\4\DATA\060105.SEC\F01024.D Vial: 70
Acq On : 1 Jun 2005 21:08 Operator: tmk
Sample : B5E0789-04 Inst : GC-1
Misc : 1X NWDX W SG Multiplr: 1.00
IntFile : TPH.E
Quant Time: Jun 1 21:28 2005 Quant Results File: TRD1305B.RES

Quant Method : D:\HPCHEM\4\METHODS\TRD1305B.M (Chemstation Integrator)
Title : TPH-D Rear
Last Update : Tue May 10 13:52:58 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1305A.M

Volume Inj. :
Signal Phase :
Signal Info :

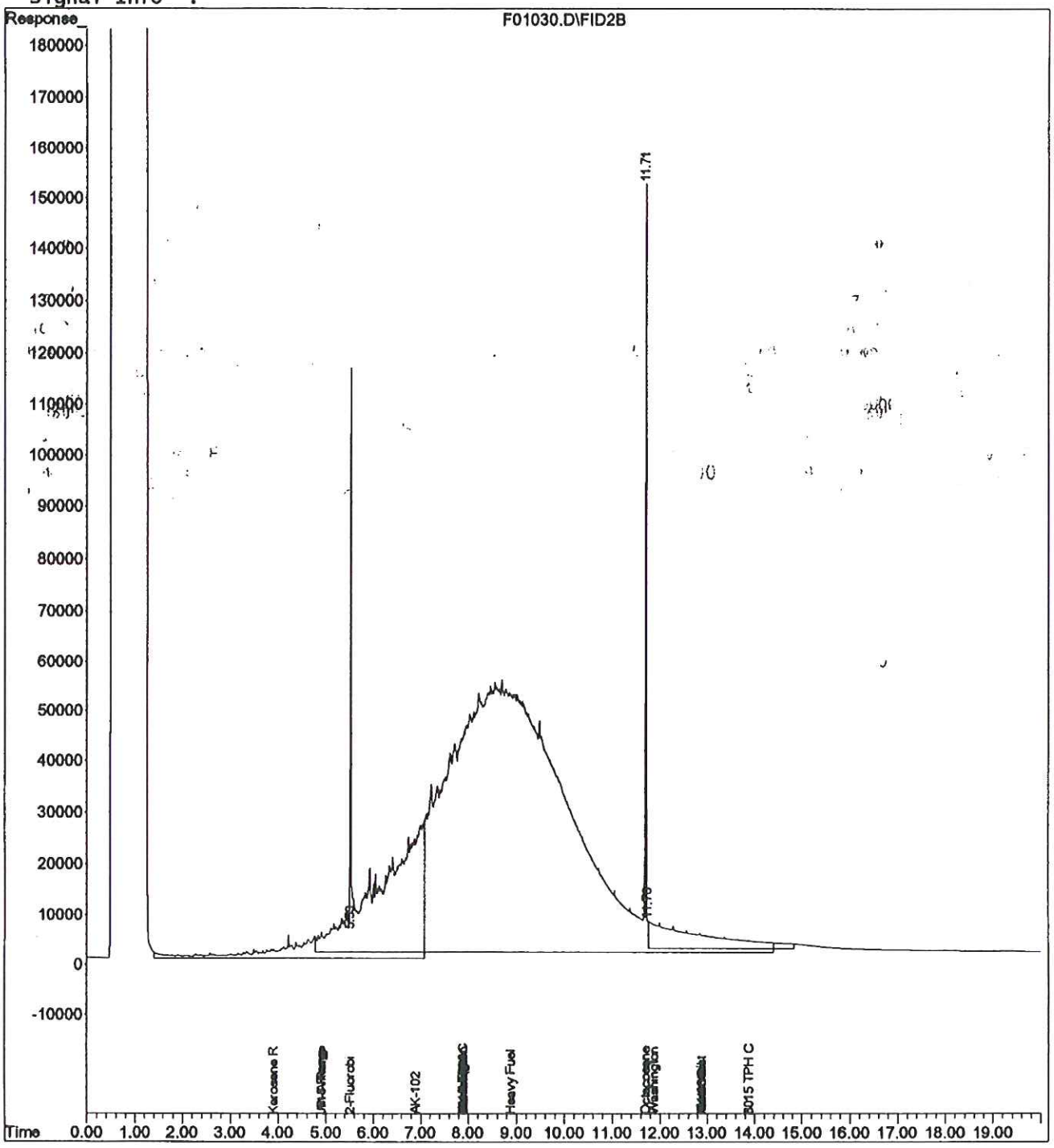


Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\4\DATA\060105.SEC\F01030.D Vial: 76
Acq On : 2 Jun 2005 00:07 Operator: tmk
Sample : B5E0789-05 Inst : GC-1
Misc : 5X NWDX W SG RS1 Multiplr: 1.00
IntFile : TPH.E
Quant Time: Jun 2 11:32 2005 Quant Results File: TRD1305B.RES

Quant Method : D:\HPCHEM\4\METHODS\TRD1305B.M (Chemstation Integrator)
Title : TPH-D Rear
Last Update : Tue May 10 13:52:58 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1305A.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\4\DATA\060105.SEC\F01026.D Vial: 72
Acq On : 1 Jun 2005 22:07 Operator: tmk
Sample : B5E0789-06 Inst : GC-1
Misc : 1X NWDX W SG Multiplr: 1.00
IntFile : TPH.E
Quant Time: Jun 1 22:28 2005 Quant Results File: TRD1305B.RES

Quant Method : D:\HPCHEM\4\METHODS\TRD1305B.M (Chemstation Integrator)
Title : TPH-D Rear
Last Update : Tue May 10 13:52:58 2005
Response via : Multiple Level Calibration
DataAcq Meth : TFD1305A.M

Volume Inj. :
Signal Phase :
Signal Info :