GeoStrategies

January 24, 1997

Mr. Dave DeWitt
Unocal Corporation
P.O. Box 5155
San Ramon, California 94583

Subject: **Waste Oil Tank Removal and Product Line Replacement Report for Unocal Station #5235, 3220 Lakeshore Avenue, Oakland, California.**

Mr. DeWitt:

At the request of Unocal Corporation (Unocal), GeoStrategies (GSI) conducted a soil investigation during waste oil tank and product line replacement at Unocal Station No. 5325 located at the subject site. The purpose was to evaluate whether the soil near the former waste-oil underground storage tank (UST) and beneath the former product lines has been impacted by hydrocarbons. The scope of work included: observing removal of the former waste oil UST; collecting and analyzing soil samples from the waste oil UST excavation, former product line trenches, and soil stockpiles; and preparing a report documenting the work.

SITE DESCRIPTION

The subject site is a service station located at the intersection of Lakeshore and Park Avenues (Figure 1). Station facilities consist of a station building, three product dispenser islands, and two gasoline and one waste oil USTs. Pertinent site features are shown on Figure 2.

FIELD WORK

Field work performed by GSI personnel was conducted in accordance with the GSI Field Methods and Procedures (attached), and the Site Safety Plan dated November 14, 1996. Soil samples collected during this investigation were delivered under chain-of-custody to Sequoia Analytical in Redwood City or Walnut Creek (ELAP #1210 or #1271, respectively). Analytical methods and results are summarized in Table 1. Copies of the laboratory analytical reports and chain-of-custody record are attached.

On November 15, 1996, GSI personnel were present at the site to observe the excavation and removal of a waste oil UST and product lines, and to collect soil samples from the UST

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excavation and product line trenches. UST removal and product line replacement was performed by Balch Petroleum Contractors and Builders Inc. (BPCBI). Mr. Leroy Griffin of the City of Oakland Fire Department and Mr. Barney Chan of the Alameda County Health Care Services Agency (ACHCSA) were present at the site to observe waste oil UST removal and sample collection.

Waste Oil UST Removal and Sampling

On November 15, 1996, the 550-gallon steel waste oil UST was uncovered and removed by BPCBI. Upon removal, the UST was visually inspected for evidence of failure. Holes were not observed in the UST. The UST was disposed of by Dexanna.

The waste oil UST excavation was approximately 8 feet deep upon removal of the tank. The waste oil UST was situated adjacent to the southeastern edge of the gasoline UST pit (figure 2), in the area which was overexcavated to approximately 12 feet below ground surface (bgs) and backfilled with pea gravel during the 1990 UST replacement. The waste oil UST excavation could not be deepened due to pea gravel caving in from the adjacent gasoline UST pit, therefore, a sample could not be collected from native soil directly beneath the waste oil UST. Instead, a sample (WOT-8.0) was collected from native soil of the southeastern wall of the waste oil UST pit at a depth of approximately 8 feet bgs at the request of the ACHCSA. The soil sample location is shown on Figure 2. Native soil in the vicinity of the waste oil UST pit consisted of yellowish brown clay. Soil in the vicinity of sample WOT-8.0 did not exhibit discoloration or hydrocarbon odor. Groundwater was not encountered in the waste oil UST excavation.

Sample WOT-8.0 contained 1.5 parts per million (ppm) of unidentified hydrocarbons in the C9-C24 range reported as total petroleum hydrocarbons as diesel (TPHd) and 78 ppm total oil and grease (TOG). Total petroleum hydrocarbons as gasoline (TPHg), benzene, methyl t-butyl ether (MTBE), halogenated volatile organics (HVOs), or semivolatile organics (SVOs) were not detected in this sample.

Product Line Removal, Soil Overexcavation and Sampling

Approximately 110 feet of the former 2-inch diameter fiberglass product lines were removed by BPCBI. Locations of the product line trenches are shown on Figure 2. Soil in the product line vicinity consisted of brown to gray clay. Soil near the service islands exhibited discoloration and hydrocarbon odor. Six soil samples (PL1-3.5 through PL6-3.5) were collected from native soil at the base of the product line trenches (Figure 2). These samples were collected at a depth of approximately 3.5 feet bgs.

Soil from the trenches adjacent to the northernmost and middle service islands that was discolored or had volatile organic compounds was overexcavated to the depth of approximately 5 feet bgs. Three additional samples (PL4-5.0 through PL6-5.0) were collected from the base of these overexcavated areas at a depth of approximately 5 feet bgs (Figure 2). A total of approximately 25 cubic yards of soil and backfill material were removed from the product line trenches and overexcavated areas.

The soil samples collected from the former product line trenches adjacent to the service islands (at locations PL1 and PL4 through PL6) contained TPHg at concentrations ranging from 49 to 800 ppm, benzene at concentrations ranging from 0.18 to 3.6 ppm, and MTBE at concentrations ranging from 1.7 to 23 ppm. The soil samples collected from the former product line trench adjacent to the station building (at locations PL2 and PL3) did not contain TPHg, benzene or MTBE.

Stockpile Sampling

The soil generated during site investigation and reconstruction activities was stockpiled onsite, placed on and covered with plastic sheeting pending disposal. Three separate soil stockpiles were generated during this phase of the site work.

On November 15, 1996, four soil samples (SP-A,B,C,D-Comp) were collected from arbitrary locations on the stockpile containing approximately 25 cubic yards of soil and backfill material excavated from the former product line trenches.

On November 25, 1996, four samples [SP-1(A-D)] were collected from arbitrary locations on the stockpile containing approximately 75 cubic yards of soil excavated from the new product line trenches.

On December 13, 1996, four samples [SP2-(A,B,C,D)Comp] were collected from arbitrary locations on the stockpile containing approximately 100 yards of soil removed during site grading.

SOIL DISPOSAL

Manley & Sons Trucking, Inc. transported soil from the site on November 19 (14 tons), November 27 (147 tons), and December 16, 1996 (115 tons). The soil was hauled to the Forward, Inc. landfill. Disposal confirmation forms are attached.

If you should have any questions please call us in Dublin at (510) 551-8777.

Sincerely,
GeoStrategies

Barbara Sieminski
Project Geologist

Stephen J. Carter
Senior Geologist
R.G. 5577

REGISTERED GEOLOGIST
STEPHEN J. CARTER
No. 5577
STATE OF CALIFORNIA

Attachments: Table 1. Analytical Results
Figure 1. Vicinity Map
Figure 2. Soil Concentration Map
GSI Field Methods and Procedures
Disposal Confirmation Forms
Laboratory Analytical Reports and Chain-of-Custody Records

Table 1. Analytical Results - Unocal Service Station #5325, 3220 Lakeshore, Oakland, California.

Sample Name	Depth (ft)	Date	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	TPHd	TOG	HVOs	SVOs	Cadmium	Chromium	Nickel	Lead	Zinc
			<--------					ppm									-------->
WOT-8.0	8.0	11/15/96	<1.0[1]	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	1.5[2]	78	ND[3]	ND[4]	<0.50	31	43	9.9	48
PL1-3.5	3.5	11/15/96	19	0.0061	0.018	0.20	0.32	0.79	—	—	—	—	—	—	—	—	—
PL2-3.5	3.5	11/15/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	—	—	—	—	—	—	—	—	—
PL3-3.5	3.5	11/15/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	—	—	—	—	—	—	—	—	—
PL4-3.5	3.5	11/15/96	800	1.8	9.0	12	64	23	—	—	—	—	—	—	—	—	—
PL4-5.0	5.0	11/15/96	220	3.6	17	5.3	29	1.7	—	—	—	—	—	—	—	—	—
PL5-3.5	3.5	11/15/96	49	0.20	0.30	0.71	3.6	0.66	—	—	—	—	—	—	—	—	—
PL5-5.0	5.0	11/15/96	450	2.3	16	9.2	51	3.7	—	—	—	—	—	—	—	—	—
PL6-3.5	3.5	11/15/96	72	0.18	0.83	1.2	7.9	0.63	—	—	—	—	—	—	—	—	—
PL6-5.0	5.0	11/15/96	270	0.86	10	6.0	39	2.3	—	—	—	—	—	—	—	—	—
SP-A,B,C,D-Comp		11/15/96	270	0.99	9.5	4.0	23	—	—	—	—	—	—	—	—	13	—
SP-1(A-D)		11/25/96	2.0[5]	0.0082	0.0098	0.025	0.026	—	—	—	—	—	—	—	—	16	—
SP2-(A,B,C,D)Comp		12/13/96	5.5[6]	0.011	0.015	0.0088	0.084	—	—	—	—	—	—	—	—	32	—

EXPLANATION:

TPHg = Total Petroleum Hydrocarbons as gasoline
MTBE = Methyl t-Butyl Ether
TPHd = Total Petroleum Hydrocarbons as diesel
TOG = Total Oil and Grease
HVOs = Halogenated Volatile Organics
SVOs = Semivolatile Organics
ppm = Parts per million
ND = Not detected
— = Not analyzed/not applicable

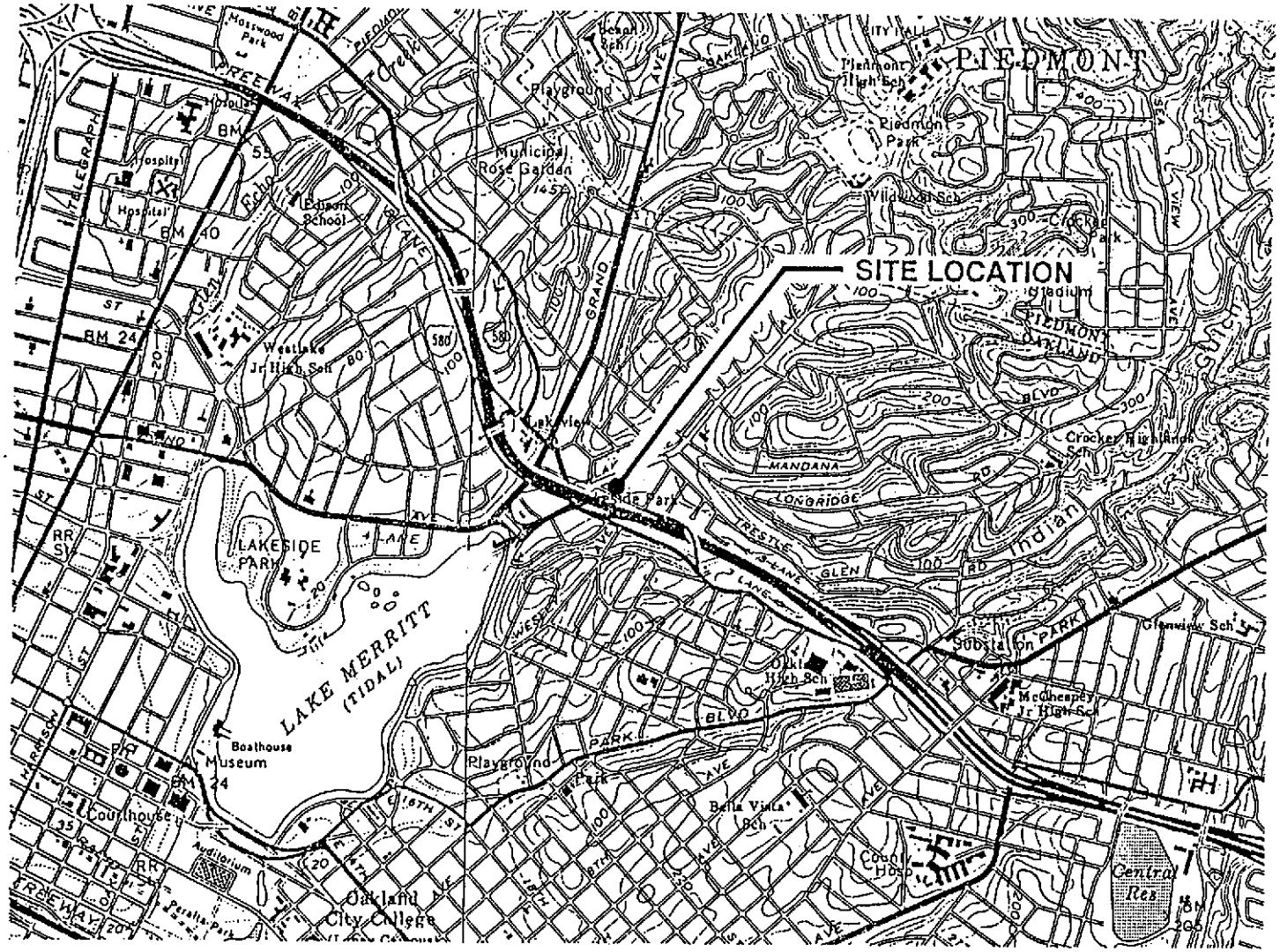
[1] = Results shown as <x were reported by laboratory as not detected above the stated detection limit.
[2] = Unidentified hydrocarbons C9-C24.
[3] = None detected at detection limits of 25, 50, or 250 ppm.
[4] = None detected at detection limits of 250 or 500 ppm.
[5] = Unidentified hydrocarbons >C8.
[6] = Unidentified hydrocarbons C6-C12.

ANALYTICAL METHODS:

TPHg, BTEX, MTBE = EPA Method 8015Mod/8020
TPHd = EPA Method 8015
TOG = Standard Method 5520E&F
HVOS = EPA Method 8010
SVOs = EPA Method 8270
Metals = EPA Method 6010

ANALYTICAL LABORATORY:

Sequoia Analytical (ELAP #1210 or #1271)



Base Map: USGS Topographic Map

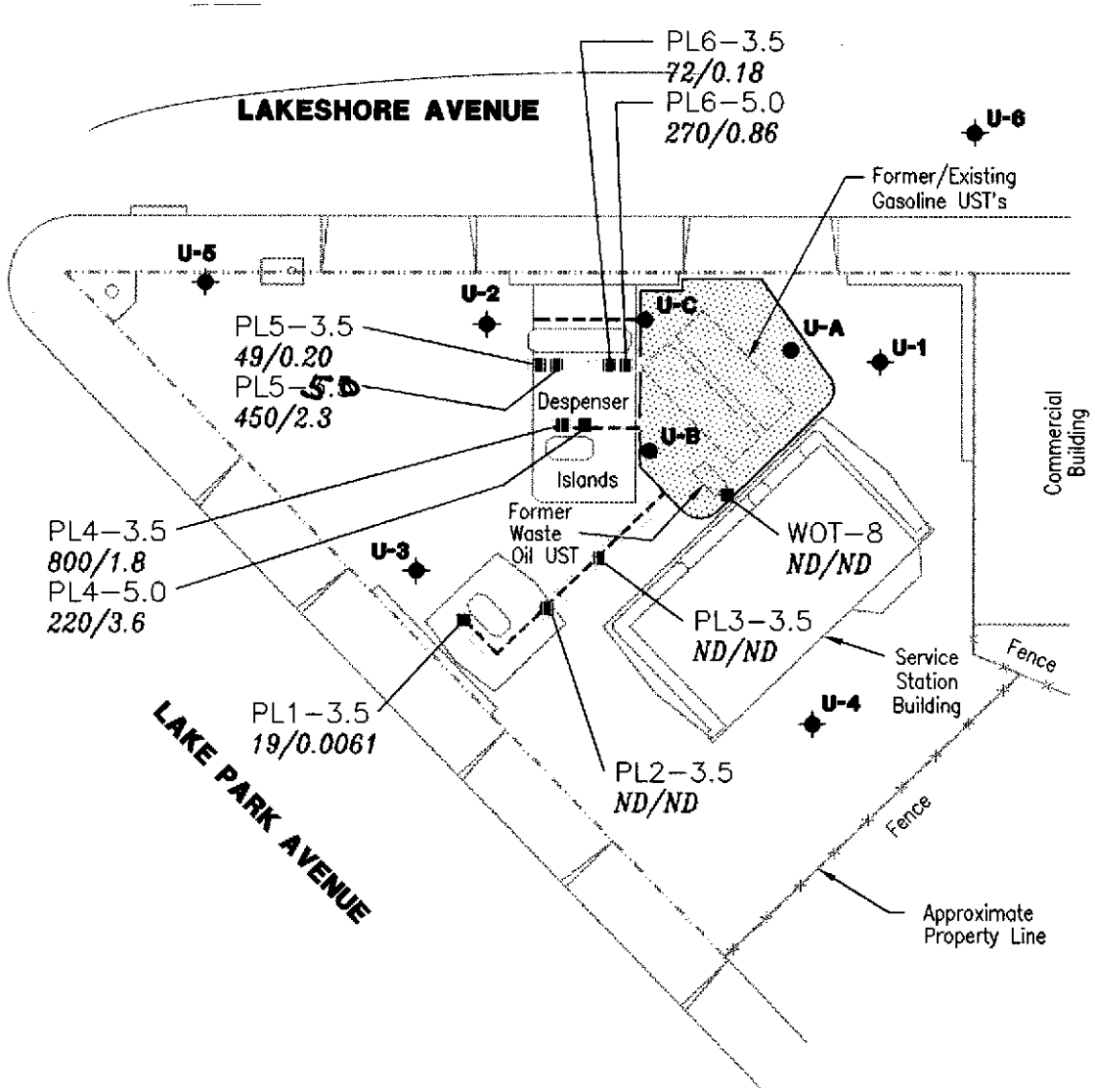
Approximate Scale: 1" = 2000'

GeoStrategies Inc.

Vicinity Map
UNOCAL Service Station #5325
3220 Lakeshore Avenue
Oakland, California

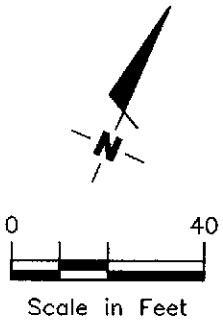
PLATE 1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE
7814		6/90	



EXPLANATION

- ✦ Ground–water monitoring well
- ● Soil boring
- ■ Soil sample
- *99/9.9* TPH–G (Total Petroleum Hydrocarbons calculated as Gasoline)/Benzene concentrations in ppm
- *ND* Not Detected (See laboratory reports for detection limits)
- ----- Former product line trench (1990)
- Limit of 1990 excavation
- Former product line trench (1996)



GeoStrategies Inc.

SOIL CONCENTRATION MAP
UNOCAL Service Station NO. 5325
3220 Lakeshore Avenue
Oakland, California

FIGURE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
4814.07		December, 1996	

GSI FIELD METHODS AND PROCEDURES

Site Safety Plan

Field work performed by GeoStrategies (GSI) is conducted in accordance with GSI's Health and Safety Plan and the Site Safety Plan. GSI personnel and subcontractors who perform work at the site are briefed on these plans contents prior to initiating site work. The GSI geologist or engineer at the site when the work is performed acts as the Site Safety Officer. GSI utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

Collection of Soil Samples from Excavations

Soil is collected from excavations and brought to the surface with the bucket of the excavator. Loose soil is removed with a spatula or putty knife to expose a clean soil face, and then the sample collected with a hand-driven soil sampling device or a wooden mallet driving a 2-inch-diameter, clean brass or stainless steel liner into the soil. After the sample liner is filled and removed, it is covered on both ends with teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the soil samples to the analytical laboratory.

Field Screening of Soil Samples

A PID is used to perform head-space analysis in the field for the presence of organic vapors from the soil sample. This test procedure involves removing some soil from one of the sample tubes not retained for chemical analysis and immediately covering the end of the tube with a plastic cap. The PID probe is inserted into the headspace inside the tube through a hole in the plastic cap. Head-space screening results are recorded on the boring log. Head-space screening procedures are performed and results recorded as reconnaissance data. GSI does not consider field screening techniques to be verification of the presence or absence of hydrocarbons.

Stockpile Sampling

Stockpile samples consist of four individual sample liners collected from each 100 cubic yards (yd^3) of stockpiled soil material. Four arbitrary points on the stockpiled material are chosen, and discrete soil sample is collected at each of these points. Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless steel or brass tube into the stockpiled material with a wooden mallet or hand driven soil sampling device. The sample tubes are then covered on both ends with teflon sheeting or aluminum foil, capped, labeled, placed in the cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Stockpiled soils are covered with plastic sheeting after completion of sampling.

DISPOSAL CONFIRMATION

Consultant:	GEO STRATEGIES
Contact:	GREG GURSS
Phone/Fax:	(916) 631-1314 FAX (916) 631-1317
Client:	UNOCAL 76 - DAVE DEWITT
Station #/Wic #:	STATION #: 5325
Site Address:	3220 LAKESHORE AVE.
City/State:	OAKLAND, CA
Estimated YD/Ton:	100 YARDS
Actual YD/Ton:	114.91 TONS
Disposal Facility:	FORWARD LANDFILL
Disposal Date:	DECEMBER 16, 1996
Contact:	CORRINA MATTHEWS
Phone #:	(209) 982-4298
Hauler:	MANLEY & SONS TRUCKING, INC.
Contact:	TIM A. MANLEY
Phone #:	(916) 381-6864
Fax #:	(916) 381-1573

Date & Time Faxed

5488

ADDITIONAL SOIL REMOVED FROM SITE

DISPOSAL CONFIRMATION

Consultant:	GEO STRATEGIES
Contact:	GREG GURSS
Phone/Fax:	(916) 631-1314 FAX (916) 631-1317
Client:	UNOCAL 76 - DAVE DEWITT
Station #/Wic #:	STATION #: 5325
Site Address:	3220 LAKESHORE AVE.
City/State:	OAKLAND, CA
Estimated YD/Ton:	100 YARDS
Actual YD/Ton:	13.68/146.78 TONS
Disposal Facility:	FORWARD LANDFILL
Disposal Date:	NOVEMBER 19 & 27, 1996
Contact:	CORRINA MATTHEWS
Phone #:	(209) 982-4298
Hauler:	MANLEY & SONS TRUCKING, INC.
Contact:	TIM A. MANLEY
Phone #:	(916) 381-6864
Fax #:	(916) 381-1573

Date & Time Faxed

5445

TONAGE HAS NOT BEEN CONFIRMED BY LANDFILL

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235

Lab Proj. ID: 9611B92

Sampled: 11/15/96
Received: 11/18/96
Analyzed: see below

Reported: 11/27/96

LABORATORY ANALYSIS

Lab No: 9611B92-10
Sample Desc : **SOLID,WOT-8.0**

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Cadmium	mg/Kg	11/26/96	0.50	N.D.
Chromium	**mg/Kg**	**11/26/96**	**0.50**	**31**
Lead	**mg/Kg**	**11/26/96**	**5.0**	**9.9**
Nickel	**mg/Kg**	**11/26/96**	**2.5**	**43**
TRPH (SM 5520 E&F)	**mg/Kg**	**11/26/96**	**50**	**78**
Zinc	**mg/Kg**	**11/26/96**	**0.50**	**48**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: PL1-3.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9611B92-01

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/20/96
Analyzed: 11/20/96
Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	19
Methyl t-Butyl Ether	0.025	0.79
Benzene	0.0050	0.0061
Toluene	0.0050	0.018
Ethyl Benzene	0.0050	0.20
Xylenes (Total)	0.0050	0.32
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	164 Q

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: PL2-3.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9611B92-02

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/20/96
Analyzed: 11/20/96
Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	87

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: PL3-3.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9611B92-03

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/20/96
Analyzed: 11/20/96
Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	85

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: PL4-3.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9611B92-04

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/20/96
Analyzed: 11/20/96
Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	200	800
Methyl t-Butyl Ether	5.0	23
Benzene	1.0	1.8
Toluene	1.0	9.0
Ethyl Benzene	1.0	12
Xylenes (Total)	1.0	64
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	106

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: PL4-5.0
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9611B92-05

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/20/96
Analyzed: 11/21/96
Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**20**	**220**
Methyl t-Butyl Ether	**0.50**	**1.7**
Benzene	**0.10**	**3.6**
Toluene	**0.10**	**17**
Ethyl Benzene	**0.10**	**5.3**
Xylenes (Total)	**0.10**	**29**
Chromatogram Pattern:		**Gas**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	108

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies	Client Proj. ID: Unocal 4814.07, 5235	Sampled: 11/15/96
6747 Sierra Court Suite G	Sample Descript: PL5-3.5	Received: 11/18/96
Dublin, CA 94568	Matrix: SOLID	Extracted: 11/20/96
	Analysis Method: 8015Mod/8020	Analyzed: 11/21/96
Attention: Barbara Sieminski	Lab Number: 9611B92-06	Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**20**	**49**
Methyl t-Butyl Ether	**0.50**	**0.66**
Benzene	**0.10**	**0.20**
Toluene	**0.10**	**0.30**
Ethyl Benzene	**0.10**	**0.71**
Xylenes (Total)	**0.10**	**3.6**
Chromatogram Pattern:		**Gas**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	77

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: PL5-5.0
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9611B92-07

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/20/96
Analyzed: 11/20/96
Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	100	450
Methyl t-Butyl Ether	2.5	3.7
Benzene	0.50	2.3
Toluene	0.50	16
Ethyl Benzene	0.50	9.2
Xylenes (Total)	0.50	51
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	103

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: PL6-3.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9611B92-08

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/20/96
Analyzed: 11/21/96
Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	20	72
Methyl t-Butyl Ether	0.50	0.63
Benzene	0.10	0.18
Toluene	0.10	0.83
Ethyl Benzene	0.10	1.2
Xylenes (Total)	0.10	7.9
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	84

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: PL6-5.0
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9611B92-09

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/20/96
Analyzed: 11/20/96
Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**50**	**270**
Methyl t-Butyl Ether	**1.2**	**2.3**
Benzene	**0.25**	**0.86**
Toluene	**0.25**	**10**
Ethyl Benzene	**0.25**	**6.0**
Xylenes (Total)	**0.25**	**39**
Chromatogram Pattern:		**Gas**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	105

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

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680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: WOT-8.0
Matrix: SOLID
Analysis Method: EPA 8010
Lab Number: 9611B92-10

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/22/96
Analyzed: 11/24/96
Reported: 11/27/96

QC Batch Number: GC1122968010EXA
Instrument ID: GCHP09

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Bromodichloromethane	25	N.D.
Bromoform	25	N.D.
Bromomethane	50	N.D.
Carbon Tetrachloride	25	N.D.
Chlorobenzene	25	N.D.
Chloroethane	50	N.D.
2-Chloroethylvinyl ether	50	N.D.
Chloroform	25	N.D.
Chloromethane	50	N.D.
Dibromochloromethane	25	N.D.
1,2-Dichlorobenzene	25	N.D.
1,3-Dichlorobenzene	25	N.D.
1,4-Dichlorobenzene	25	N.D.
1,1-Dichloroethane	25	N.D.
1,2-Dichloroethane	25	N.D.
1,1-Dichloroethene	25	N.D.
cis-1,2-Dichloroethene	25	N.D.
trans-1,2-Dichloroethene	25	N.D.
1,2-Dichloropropane	25	N.D.
cis-1,3-Dichloropropene	25	N.D.
trans-1,3-Dichloropropene	25	N.D.
Methylene chloride	250	N.D.
1,1,2,2-Tetrachloroethane	25	N.D.
Tetrachloroethene	25	N.D.
1,1,1-Trichloroethane	25	N.D.
1,1,2-Trichloroethane	25	N.D.
Trichloroethene	25	N.D.
Trichlorofluoromethane	25	N.D.
Vinyl chloride	50	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	60	130	94

Analytes reported as N.D. were not present above the stated limit of detection.

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404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: WOT-8.0
Matrix: SOLID
Analysis Method: EPA 8270
Lab Number: 9611B92-10

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/21/96
Analyzed: 11/25/96
Reported: 11/27/96

QC Batch Number: MS1121968270EXA
Instrument ID: H5

Semivolatile Organics (EPA 8270)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Acenaphthene	250	N.D.
Acenaphthylene	250	N.D.
Anthracene	250	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	250	N.D.
Benzo(b)fluoranthene	250	N.D.
Benzo(k)fluoranthene	250	N.D.
Benzo(g,h,i)perylene	250	N.D.
Benzo(a)pyrene	250	N.D.
Benzyl alcohol	250	N.D.
Bis(2-chloroethoxy)methane	250	N.D.
Bis(2-chloroethyl)ether	250	N.D.
Bis(2-chloroisopropyl)ether	250	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	250	N.D.
Butyl benzyl phthalate	250	N.D.
4-Chloroaniline	500	N.D.
2-Chloronaphthalene	250	N.D.
4-Chloro-3-methylphenol	250	N.D.
2-Chlorophenol	250	N.D.
4-Chlorophenyl phenyl ether	250	N.D.
Chrysene	250	N.D.
Dibenzo(a,h)anthracene	250	N.D.
Dibenzofuran	250	N.D.
Di-n-butyl phthalate	500	N.D.
1,2-Dichlorobenzene	250	N.D.
1,3-Dichlorobenzene	250	N.D.
1,4-Dichlorobenzene	250	N.D.
3,3-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	250	N.D.
Diethyl phthalate	250	N.D.
2,4-Dimethylphenol	250	N.D.
Dimethyl phthalate	250	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.
2,4-Dinitrotoluene	250	N.D.
2,6-Dinitrotoluene	250	N.D.

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404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: WOT-8.0
Matrix: SOLID
Analysis Method: EPA 8270
Lab Number: 9611B92-10

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/21/96
Analyzed: 11/25/96
Reported: 11/27/96

QC Batch Number: MS1121968270EXA
Instrument ID: H5

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Di-n-octyl phthalate	250	N.D.
Fluoranthene	250	N.D.
Fluorene	250	N.D.
Hexachlorobenzene	250	N.D.
Hexachlorobutadiene	250	N.D.
Hexachlorocyclopentadiene	500	N.D.
Hexachloroethane	250	N.D.
Indeno(1,2,3-cd)pyrene	250	N.D.
Isophorone	250	N.D.
2-Methylnaphthalene	250	N.D.
2-Methylphenol	250	N.D.
4-Methylphenol	250	N.D.
Naphthalene	250	N.D.
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
4-Nitroaniline	500	N.D.
Nitrobenzene	250	N.D.
2-Nitrophenol	250	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	250	N.D.
N-Nitroso-di-n-propylamine	250	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	250	N.D.
Phenol	250	N.D.
Pyrene	250	N.D.
1,2,4-Trichlorobenzene	250	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	250	N.D.

Surrogates	Control Limits %		% Recovery
2-Fluorophenol	25	121	61
Phenol-d5	24	113	68
Nitrobenzene-d5	23	120	64
2-Fluorobiphenyl	30	115	60
2,4,6-Tribromophenol	19	122	43
p-Terphenyl-d14	18	137	79

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

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680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies	Client Proj. ID: Unocal 4814.07, 5235	Sampled: 11/15/96
6747 Sierra Court Suite G	Sample Descript: WOT-8.0	Received: 11/18/96
Dublin, CA 94568	Matrix: SOLID	Extracted: 11/20/96
	Analysis Method: 8015Mod/8020	Analyzed: 11/21/96
Attention: Barbara Sieminski	Lab Number: 9611B92-10	Reported: 11/27/96

QC Batch Number: GC112096BTEXEXB
Instrument ID: GCHP07

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	81

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

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404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235
Sample Descript: WOT-8.0
Matrix: SOLID
Analysis Method: EPA 8015 Mod
Lab Number: 9611B92-10

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/21/96
Analyzed: 11/23/96
Reported: 11/27/96

QC Batch Number: GC1121960HBPEXB
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	1.5
Chromatogram Pattern: **Unidentified HC**		C9-C24

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	106

Analytes reported as N.D. were not present above the stated limit of detection.

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Project Manager

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404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568
Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07, 5235

Lab Proj. ID: 9611B92

Received: 11/18/96

Reported: 11/27/96

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 24 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

#Q - Surrogate coelution was confirmed.

SEQUOIA ANALYTICAL

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Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies	Client Project ID:	Unocal 4814.07, 5235	
6747 Sierra Court, Ste J	Matrix:	Solid	
Dublin, CA 94568			
Attention: Barbara Sieminski	Work Order #:	9611B92 -01-10	Reported: Dec 4, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC112096BTEXEXB	GC112096BTEXEXB	GC112096BTEXEXB	GC112096BTEXEXB
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Heider	J. Heider	J. Heider	J. Heider
MS/MSD #:	961185702	961185702	961185702	961185702
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/20/96	11/20/96	11/20/96	11/20/96
Analyzed Date:	11/20/96	11/20/96	11/20/96	11/20/96
Instrument I.D.#:	GCHP06	GCHP06	GCHP06	GCHP06
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg
Result:	0.19	0.19	0.19	0.57
MS % Recovery:	95	95	95	95
Dup. Result:	0.18	0.19	0.19	0.54
MSD % Recov.:	90	95	95	90
RPD:	5.4	0.0	0.0	5.4
RPD Limit:	0-25	0-25	0-25	0-25
LCS #:	BLK112096	BLK112096	BLK112096	BLK112096
Prepared Date:	11/20/96	11/20/96	11/20/96	11/20/96
Analyzed Date:	11/20/96	11/20/96	11/20/96	11/20/96
Instrument I.D.#:	GCHP06	GCHP06	GCHP06	GCHP06
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg
LCS Result:	0.20	0.20	0.20	0.62
LCS % Recov.:	100	100	100	103

MS/MSD LCS Control Limits					
	71-133	72-128	72-130	71-120	L
	55-145	47-149	47-155	56-140	S

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Unocal 4814.07, 5235
Matrix: Solid
Work Order #: 9611B92-10
Reported: Dec 4, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine
QC Batch#:	MS1121968270EXA	MS1121968270EXA	MS1121968270EXA	MS1121968270EXA
Analy. Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Prep. Method:	EPA 3550	EPA 3550	EPA 3550	EPA 3550
Analyst:	B. Pitamah	B. Pitamah	B. Pitamah	B. Pitamah
MS/MSD #:	961197401	961197401	961197401	961197401
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/21/96	11/21/96	11/21/96	11/21/96
Analyzed Date:	11/22/96	11/22/96	11/22/96	11/22/96
Instrument I.D.#:	F4	F4	F4	F4
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
Result:	1900	1800	1200	2000
MS % Recovery:	58	54	36	61
Dup. Result:	1900	1800	1200	2000
MSD % Recov.:	58	54	36	61
RPD:	0.0	0.0	0.0	0.0
RPD Limit:	0-30	0-30	0-30	0-30
LCS #:	BLK112196	BLK112196	BLK112196	BLK112196
Prepared Date:	11/21/96	11/21/96	11/21/96	11/21/96
Analyzed Date:	11/22/96	11/22/96	11/22/96	11/22/96
Instrument I.D.#:	F4	F4	F4	F4
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
LCS Result:	2100	2200	1700	2400
LCS % Recov.:	64	64	52	73
MS/MSD Control Limits	26-90	25-102	28-104	41-126
LCS Control Limits	26-90	25-102	28-104	41-126

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Unocal 4814.07, 5235
Matrix: Solid
Work Order #: 9611B92-10
Reported: Dec 4, 1996

QUALITY CONTROL DATA REPORT

Analyte:	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenol	Acenaphthene	4-Nitrophenol
QC Batch#:	MS1121968270EXA	MS1121968270EXA	MS1121968270EXA	MS1121968270EXA
Analy. Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Prep. Method:	EPA 3550	EPA 3550	EPA 3550	EPA 3550
Analyst:	B. Pitamah	B. Pitamah	B. Pitamah	B. Pitamah
MS/MSD #:	961197401	961197401	961197401	961197401
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/21/96	11/21/96	11/21/96	11/21/96
Analyzed Date:	11/22/96	11/22/96	11/22/96	11/22/96
Instrument I.D.#:	F4	F4	F4	F4
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
Result:	1600	1600	2000	2100
MS % Recovery:	48	48	61	64
Dup. Result:	1600	1700	2000	2100
MSD % Recov.:	48	52	61	64
RPD:	0.0	6.1	0.0	0.0
RPD Limit:	0-30	0-30	0-30	0-30
LCS #:	BLK112196	BLK112196	BLK112196	BLK112196
Prepared Date:	11/21/96	11/21/96	11/21/96	11/21/96
Analyzed Date:	11/22/96	11/22/96	11/22/96	11/22/96
Instrument I.D.#:	F4	F4	F4	F4
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
LCS Result:	2100	2100	2200	2100
LCS % Recov.:	64	64	67	64
MS/MSD Control Limits	38-107	26-103	31-137	11-114
LCS Control Limits	38-107	26-103	31-137	11-114

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Please Note:
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** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies	Client Project ID:	Unocal 4814.07, 5235	
6747 Sierra Court, Ste J	Matrix:	Solid	
Dublin, CA 94568			
Attention: Barbara Sieminski	Work Order #:	9611B92-10	Reported: Dec 4, 1996

QUALITY CONTROL DATA REPORT

Analyte:	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
QC Batch#:	MS1121968270EXA	MS1121968270EXA	MS1121968270EXA
Analy. Method:	EPA 8270	EPA 8270	EPA 8270
Prep. Method:	EPA 3550	EPA 3550	EPA 3550
Analyst:	B. Pitamah	B. Pitamah	B. Pitamah
MS/MSD #:	961197401	961197401	961197401
Sample Conc.:	N.D.	N.D.	N.D.
Prepared Date:	11/21/96	11/21/96	11/21/96
Analyzed Date:	11/22/96	11/22/96	11/22/96
Instrument I.D.#:	F4	F4	F4
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
Result:	2100	1200	1700
MS % Recovery:	64	36	52
Dup. Result:	2200	1200	1700
MSD % Recov.:	64	36	52
RPD:	1.0	1.7	0.0
RPD Limit:	0-30	0-30	0-30
LCS #:	BLK112196	BLK112196	BLK112196
Prepared Date:	11/21/96	11/21/96	11/21/96
Analyzed Date:	11/22/96	11/22/96	11/22/96
Instrument I.D.#:	F4	F4	F4
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
LCS Result:	2400	1400	2900
LCS % Recov.:	73	42	88
MS/MSD	28-89	17-109	35-142
LCS	28-89	17-109	35-142
Control Limits			

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Unocal 4814.07, 5235
Matrix: Solid
Work Order #: 9611B92-10
Reported: Dec 4, 1996

QUALITY CONTROL DATA REPORT

Analyte:	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-Benzene
QC Batch#:	GC1122968010EXA	GC1122968010EXA	GC1122968010EXA
Analy. Method:	EPA 8010	EPA 8010	EPA 8010
Prep. Method:	EPA 5030	EPA 5030	EPA 5030
Analyst:	B. Ali	B. Ali	B. Ali
MS/MSD #:	9611C9402	9611C9402	9611C9402
Sample Conc.:	N.D.	N.D.	N.D.
Prepared Date:	11/22/96	11/22/96	11/22/96
Analyzed Date:	11/26/96	11/26/96	11/26/96
Instrument I.D.#:	GCHP09	GCHP09	GCHP09
Conc. Spiked:	25 µg/Kg	25 µg/Kg	25 µg/Kg
Result:	18	21	18
MS % Recovery:	72	84	72
Dup. Result:	17	23	17
MSD % Recov.:	68	92	68
RPD:	5.7	9.1	5.7
RPD Limit:	0-25	0-25	0-25
LCS #:	BLK112296	BLK112296	BLK112296
Prepared Date:	11/22/96	11/22/96	11/22/96
Analyzed Date:	11/24/96	11/24/96	11/24/96
Instrument I.D.#:	GCHP09	GCHP09	GCHP09
Conc. Spiked:	25 µg/Kg	25 µg/Kg	25 µg/Kg
LCS Result:	20	25	20
LCS % Recov.:	80	100	80
MS/MSD	60-140	60-140	60-140
LCS	65-135	70-130	70-130
Control Limits			

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

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Gettler Ryan/Geostrategies	Client Project ID:	Unocal 4814.07, 5235	
6747 Sierra Court, Ste J	Matrix:	Solid	
Dublin, CA 94568			
Attention: Barbara Sieminski	Work Order #:	9611B92-10	Reported: Dec 4, 1996

QUALITY CONTROL DATA REPORT

Analyte:	TRPH	Diesel
QC Batch#:	OP1120965520EXA	GC1121960HBPEXB
Analy. Method:	SM 5520EF	EPA 8015M
Prep. Method:	EPA 3550	EPA 3550
Analyst:	J. Aquino	J. Minkel
MS/MSD #:	961186901	9611C6705
Sample Conc.:	190	N.D.
Prepared Date:	11/20/96	11/21/96
Analyzed Date:	11/21/96	11/23/96
Instrument I.D.#:	Manual	GCHP5A
Conc. Spiked:	500 mg/Kg	25 mg/Kg
Result:	630	26
MS % Recovery:	88	104
Dup. Result:	540	28
MSD % Recov.:	70	112
RPD:	15	7.4
RPD Limit:	0-30	0-50

LCS #:	BLK112596	BLK112196
Prepared Date:	11/25/96	11/21/96
Analyzed Date:	11/26/96	11/23/96
Instrument I.D.#:	Manual	GCHP5B
Conc. Spiked:	500 mg/Kg	25 mg/Kg
LCS Result:	370	25
LCS % Recov.:	74	100

MS/MSD	60-140	50-150
LCS	70-130	60-140
Control Limits		

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Unocal 4814.07, 5235
Matrix: Solid
Work Order #: 9611B92-10
Reported: Dec 4, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Beryllium	Cadmium	Chromium	Nickel
QC Batch#:	ME1125966010MDE	ME1125966010MDE	ME1125966010MDE	ME1125966010MDE
Analy. Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Prep. Method:	EPA 3050	EPA 3050	EPA 3050	EPA 3050
Analyst:	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser
MS/MSD #:	961197401	961197401	961197401	961197401
Sample Conc.:	N.D.	4.1	41	44
Prepared Date:	11/25/96	11/25/96	11/25/96	11/25/96
Analyzed Date:	11/26/96	11/26/96	11/26/96	11/26/96
Instrument I.D.#:	MTJA2	MTJA2	MTJA2	MTJA2
Conc. Spiked:	100 mg/Kg	100 mg/Kg	100 mg/Kg	100 mg/Kg
Result:	92	92	130	140
MS % Recovery:	92	88	89	96
Dup. Result:	95	98	140	140
MSD % Recov.:	95	94	99	96
RPD:	3.2	6.3	7.4	0.0
RPD Limit:	0-20	0-20	0-20	0-20
LCS #:	BLK112596	BLK112596	BLK112596	BLK112596
Prepared Date:	11/25/96	11/25/96	11/25/96	11/25/96
Analyzed Date:	11/26/96	11/26/96	11/26/96	11/26/96
Instrument I.D.#:	MTJA2	MTJA2	MTJA2	MTJA2
Conc. Spiked:	100 mg/Kg	100 mg/Kg	100 mg/Kg	100 mg/Kg
LCS Result:	93	94	94	97
LCS % Recov.:	93	94	94	97
MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

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☐ East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200
☐ 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Consultant Company: GeoStrategies	Project Name: 4814.07
Address: 6747 Sierra Ct, Ste J	UNOCAL Project Manager: Dave DeWitt
City: Dublin State: CA Zip Code: 94568	AFE #: 87690368
Telephone: (510) 551-7888 FAX #: (510) 551-8777	Site #, City, State: 5235 94582
Report To: Barbara Sieminski Sampler: B. Sieminski	QC Data: ☑ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Turnaround Time: ☑ 10 Work Days ☐ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

CODE: ☐ Misc. ☐ Detect. ☑ Eval. ☐ Remed. ☐ Demol. ☐ Closure

☐ Drinking Water ☐ Waste Water ☐ Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPHgas/BTEX/MTBE	TPH diesel	O&G SM 5520 E&F	EPA 8010	EPA 8270	Metals (Cd, Cr, Ni, Pb, Zn)				Comments
1. PL1-3.5	11/15/96	Soil	1	2" brass tube	1	X									
2. PL2-3.5	11/15/96		1		2	X									
3. PL3-3.5	11/15/96		1		3	X									
4. PL4-3.5	11/15/96		1		4	X									
5. PL4-5.0	11/15/96		1		5	X									
6. PL5-3.5	11/15/96		1		6	X									
7. PL5-5.0	11/15/96		1		7	X									
8. PL6-3.5	11/15/96		1		8	X									
9. PL6-5.0	11/15/96		1		9	X									
10. WOT-8.0	11/15/96		1		10	X	X	X	X	X	X				

Relinquished By: Barbara Sieminski	Date: 11/18/96	Time: 1018	Received By: S. Wright
Relinquished By: S. Wright	Date: 11/18/96	Time: 1230	Received By:
Relinquished By:	Date:	Time:	Received By Lab: S. Ram Date: 11-18-96 Time: 1237

Were Samples Received in Good Condition? ☐ Yes ☐ No Samples on Ice? ☐ Yes ☐ No Method of Shipment _____ Page __ of __

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? ☑ Yes ☐ No If no, what analyses are still needed? _____

2) Was the report issued within the requested turnaround time? ☐ Yes ☑ No If no, what was the turnaround time? 12

Approved by: Barbara Sieminski Signature: B. Sieminski Company: GeoStrategies Date: 12/06/96

Pink - Client
Yellow - Laboratory
White - Laboratory

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Client Proj. ID: Unocal 4814.07/ 5235 GETTLER-RYAN INC
Lab Proj. ID: 9611B20
GENERAL CONTRACTORS

Sampled: 11/15/96
Received: 11/18/96
Analyzed: see below

Attention: Barbara Sieminski

Reported: 11/22/96

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9611B20-01				
Sample Desc : **SOLID,SP-A,B,C,D - Comp**				
Lead	**mg/Kg**	**11/22/96**	**5.0**	**13**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07/ 5235
Sample Descript: SP-A,B,C,D - Comp
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9611B20-01

Sampled: 11/15/96
Received: 11/18/96
Extracted: 11/20/96
Analyzed: 11/22/96
Reported: 11/22/96

QC Batch Number: GC112096BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	20	270
Benzene	0.10	0.99
Toluene	0.10	9.5
Ethyl Benzene	0.10	4.0
Xylenes (Total)	0.10	23
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	164 Q

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568
Attention: Barbara Sieminski

Client Proj. ID: Unocal 4814.07/ 5235
Lab Proj. ID: 9611B20

Received: 11/18/96
Reported: 11/22/96

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 6 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Sequoia Analytical

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6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Unocal 4814.07 / 5235
Matrix: Solid
Work Order #: 9611B20 -01
Reported: Nov 25, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC112096BTEXEXA	GC112096BTEXEXA	GC112096BTEXEXA	GC112096BTEXEXA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	A. Porter	A. Porter	A. Porter	A. Porter
MS/MSD #:	961116813	961116813	961116813	961116813
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/20/96	11/20/96	11/20/96	11/20/96
Analyzed Date:	11/20/96	11/20/96	11/20/96	11/20/96
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg
Result:	0.14	0.15	0.15	0.45
MS % Recovery:	70	75	75	75
Dup. Result:	0.14	0.15	0.15	0.45
MSD % Recov.:	70	75	75	75
RPD:	0.0	0.0	0.0	0.0
RPD Limit:	0-25	0-25	0-25	0-25
LCS #:	BLK112096	BLK112096	BLK112096	BLK112096
Prepared Date:	11/20/96	11/20/96	11/20/96	11/20/96
Analyzed Date:	11/20/96	11/20/96	11/20/96	11/20/96
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg
LCS Result:	0.16	0.16	0.16	0.49
LCS % Recov.:	80	80	80	82
MS/MSD	60-140	60-140	60-140	60-140
LCS Control Limits	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Unocal 4814.07 / 5235
Matrix: Solid
Work Order #: 9611B20-01
Reported: Nov 25, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Beryllium	Cadmium	Chromium	Nickel
QC Batch#:	ME1121966010MDF	ME1121966010MDF	ME1121966010MDF	ME1121966010MDF
Analy. Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Prep. Method:	EPA 3050	EPA 3050	EPA 3050	EPA 3050
Analyst:	R. Butler	R. Butler	R. Butler	R. Butler
MS/MSD #:	961186001	961186001	961186001	961186001
Sample Conc.:	N.D.	N.D.	42	48
Prepared Date:	11/21/96	11/21/96	11/21/96	1/0/00
Analyzed Date:	11/21/96	11/21/96	11/21/96	11/21/96
Instrument I.D.#:	MTJA2	MTJA2	MTJA2	MTJA2
Conc. Spiked:	100 mg/Kg	100 mg/Kg	100 mg/Kg	100 mg/Kg
Result:	96	99	140	140
MS % Recovery:	96	99	98	92
Dup. Result:	97	100	140	150
MSD % Recov.:	97	100	98	102
RPD:	1.0	1.0	0.0	6.9
RPD Limit:	0-20	0-20	0-20	0-20
LCS #:	BLK112196	BLK112196	BLK112196	BLK112196
Prepared Date:	11/21/96	11/21/96	11/21/96	11/21/96
Analyzed Date:	11/21/96	11/21/96	11/21/96	11/21/96
Instrument I.D.#:	MTJA2	MTJA2	MTJA2	MTJA2
Conc. Spiked:	100 mg/Kg	100 mg/Kg	100 mg/Kg	100 mg/Kg
LCS Result:	100	100	110	110
LCS % Recov.:	100	100	110	110
MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

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☐ 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Consultant Company: GeoStrategies	Project Name: 4814.07
Address: 6747 Sierra Ct, Ste J, Dublin	UNOCAL Project Manager: Dave DeWitt
City: Dublin State: CA Zip Code: 94568	AFE #: 87690368
Telephone: (510) 551-7888 FAX #: (510) 551-8777	Site #, City, State: 5235
Report To: Barbara Sieminski Sampler: B. Sieminski	QC Data: ☑ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Turnaround Time: ☐ 10 Work Days ☑ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

CODE: ☐ Misc. ☐ Detect. ☑ Eval. ☐ Remed. ☐ Demol. ☐ Closure

☐ Drinking Water ☐ Waste Water ☐ Other

Analyses Requested: 9061/8020

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPH gas/BTEX	Total Lead	Comments
1. SP-A (Composite)	11/15/96	Soil	1	2" brass tube	1	X	X	
2. SP-B	11/15/96	"	1	"	2	X	X	
3. SP-C	11/15/96	"	1	"	3	X	X	
4. SP-D	11/15/96	"	1	"	4	X	X	
5.								
6.								
7.								
8.								
9.								
10.								

Relinquished By: Barbara Sieminski	Date: 11/18/96	Time: 10:18	Received By: S. Wright	Date: 11/18/96	Time: 10:18
Relinquished By: S. Wright	Date: 11/18/96	Time: 1238	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date: 11-18-96	Time: 1237

Were Samples Received in Good Condition? ☐ Yes ☐ No Samples on Ice? ☐ Yes ☐ No Method of Shipment _____ Page __ of __

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? ☑ Yes ☐ No If no, what analyses are still needed? _____

2) Was the report issued within the requested turnaround time? ☑ Yes ☐ No If no, what was the turnaround time? _____

Approved by: Barbara Sieminska Signature: B. Sieminski Company: GeoStrategies Date: 12/06/96

White - Laboratory Yellow - Laboratory Pink - Client

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

GeoStrategies, Inc.
6747 Sierra Court, Ste. G
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Unocal #4814.08
Sample Matrix: Soil
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 611-1921

Sampled: Nov 25, 1996
Received: Nov 26, 1996
Reported: Dec 5, 1996

QC Batch Number: SP120496
8020EXA

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 611-1921 SP-1 (A-D)
Purgeable Hydrocarbons	1.0	2.0
Benzene	0.0050	0.0082
Toluene	0.0050	0.0098
Ethyl Benzene	0.0050	0.025
Total Xylenes	0.0050	0.026
Chromatogram Pattern:		Gasoline & Unidentified Hydrocarbons >C8

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Analyzed:	12/4/96
Instrument Identification:	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	107

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Jim Bava
Project Manager

Sequoia Analytical

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404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
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GeoStrategies, Inc.
6747 Sierra Court, Ste. G
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Unocal #4814.08
Sample Descript: Soil
Analysis for: Lead
First Sample #: 611-1921

Sampled: Nov 25, 1996
Received: Nov 26, 1996
Digested: Dec 2, 1996
Analyzed: Dec 2, 1996
Reported: Dec 5, 1996

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg	QC Batch Number	Instrument ID
611-1921	SP-1 (A-D)	2.5	16	ME1202966010MDA	MV-1

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

Jim Bava
Project Manager

Sequoia Analytical

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GeoStrategies, Inc.
6747 Sierra Court, Ste. G
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Unocal #4814.08
Matrix: Solid
QC Sample Group: 6111921
Reported: Dec 6, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Lead
QC Batch#:	SP120496	SP120496	SP120496	SP120496	ME120296
Analy. Method:	8020EXA	8020EXA	8020EXA	8020EXA	6010MDA
Prep. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 7420
Analyst:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 3050
MS/MSD #:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb	K. Anderson
Sample Conc.:	6111851	6111851	6111851	6111851	6111850
Prepared Date:	N.D.	N.D.	N.D.	N.D.	22 mg/kg
Analyzed Date:	12/4/96	12/4/96	12/4/96	12/4/96	12/2/96
Instrument I.D.#:	12/4/96	12/4/96	12/4/96	12/4/96	12/2/96
Conc. Spiked:	HP-5	HP-5	HP-5	HP-5	MV-1
	0.40 mg/kg	0.40 mg/kg	0.40 mg/kg	1.2 mg/kg	50 mg/kg
Result:	0.34	0.33	0.36	1.0	62
MS % Recovery:	85	83	90	83	80
Dup. Result:	0.34	0.33	0.36	1.0	65
MSD % Recov.:	85	83	90	83	86
RPD:	0.0	0.0	0.0	0.0	4.7
RPD Limit:	0-25	0-25	0-25	0-25	0-20

LCS #:	5LCS120496	5LCS120496	5LCS120496	5LCS120496	LCS120296
Prepared Date:	12/4/96	12/4/96	12/4/96	12/4/96	12/2/96
Analyzed Date:	12/4/96	12/4/96	12/4/96	12/4/96	12/2/96
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	MV-1
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	50 mg/kg
LCS Result:	19	18	19	55	43
LCS % Recov.:	95	90	95	92	86
MS/MSD LCS Control Limits	60-140	60-140	60-140	60-140	80-120

SEQUOIA ANALYTICAL, #1271

Jim Bava
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.
** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

UNOCAL 76

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☐ East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200
☐ 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Consultant Company: GeoStrategies	Project Name: 4814.08
Address: 6747 Sierra Ct, Ste J, Dublin	UNOCAL Project Manager: Dave DeWitt
City: Dublin State: CA Zip Code: 94568	AFE #: 87690636 8
Telephone: (510)551-7888 FAX #: (510)551-8777	Site #, City, State: 5235
Report To: Barbara Sieminski Sampler: B. Sieminski	QC Data: ☑ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Turnaround Time: ☐ 10 Work Days ☑ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

CODE: ☐ Misc. ☐ Detect. ☑ Eval. ☐ Remed. ☐ Demol. ☐ Closure

☐ Drinking Water ☐ Waste Water ☐ Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPH gas/BTEX	Total lead	Comments
1. SP1-A	11/25/96	Soil	1	2" tube		X	X	6111921
2. SP1-B	11/25/96	Soil	1	2" tube		X	X	A
3. SP1-C	11/25/96	Soil	1	2" tube		X	X	B
4. SP1-D	11/25/96	Soil	1	2" tube		X	X	C
5.								D
6.								
7.								
8.								
9.								
10.								

Pink - Client

Yellow - Laboratory

White - Laboratory

Relinquished By: Barbara Sieminski	Date:	Time:	Received By: Melissa Brewer	Date: 11/26/96	Time: 7:55 am
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date: 11/26/96	Time: 0900

Were Samples Received in Good Condition? ☑ Yes ☐ No Samples on Ice? ☑ Yes ☐ No Method of Shipment _____ Page __ of __

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? ☑ Yes ☐ No If no, what analyses are still needed? _____

2) Was the report issued within the requested turnaround time? ☑ Yes ☐ No If no, what was the turnaround time? _____

Approved by: Barbara Sieminski Signature: B. Sieminski Company: GeoStrategies Date: 12/11/96

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

RECEIVED

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Greg Gurss

Client Proj. ID: Unocal 4814.08, #5235

Lab Proj. ID: 9612964

GETTLER-RYAN INC.
GENERAL CONTRACTORS

Sampled: 12/13/96
Received: 12/16/96
Analyzed: see below
Reported: 12/20/96

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9612964-01				
Sample Desc : SOLID,SP2-(A,B,C,D) Comp				
Lead	mg/Kg	12/18/96	10	32

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies	Client Proj. ID: Unocal 4814.08, #5235	Sampled: 12/13/96
6747 Sierra Court Suite G	Sample Descript: SP2-(A,B,C,D) Comp	Received: 12/16/96
Dublin, CA 94568	Matrix: SOLID	Extracted: 12/18/96
	Analysis Method: 8015Mod/8020	Analyzed: 12/19/96
Attention: Greg Gurss	Lab Number: 9612964-01	Reported: 12/20/96

QC Batch Number: GC121896BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**5.5**
Benzene	**0.0050**	**0.011**
Toluene	**0.0050**	**0.015**
Ethyl Benzene	**0.0050**	**0.0088**
Xylenes (Total)	**0.0050**	**0.084**
Chromatogram Pattern:		
Unidentified HC		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	106

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568
Attention: Greg Gurss

Client Proj. ID: Unocal 4814.08, #5235
Lab Proj. ID: 9612964

Received: 12/16/96
Reported: 12/20/96

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 6 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Greg Gurss

Client Project ID: Unocal 4814.08,#5235
Matrix: Solid
Work Order #: 9612964-01
Reported: Dec 29, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Beryllium	Cadmium	Chromium	Nickel
QC Batch#:	ME1217966010MDE	ME1217966010MDE	ME1217966010MDE	ME1217966010MDE
Analy. Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Prep. Method:	EPA 3050	EPA 3050	EPA 3050	EPA 3050
Analyst:	R. Butler	R. Butler	R. Butler	R. Butler
MS/MSD #:	961297901	961297901	961297901	961297901
Sample Conc.:	N.D.	N.D.	51	56
Prepared Date:	12/17/96	12/17/96	12/17/96	12/17/96
Analyzed Date:	12/18/96	12/18/96	12/18/96	12/18/96
Instrument I.D.#:	MTJA2	MTJA2	MTJA2	MTJA2
Conc. Spiked:	100 mg/Kg	100 mg/Kg	100 mg/Kg	100 mg/Kg
Result:	94	94	130	140
MS % Recovery:	94	94	79	84
Dup. Result:	91	91	140	150
MSD % Recov.:	91	91	89	94
RPD:	3.2	3.2	7.4	6.9
RPD Limit:	0-20	0-20	0-20	0-20
LCS #:	BLK121796BS	BLK121796BS	BLK121796BS	BLK121796BS
Prepared Date:	12/17/96	12/17/96	12/17/96	12/17/96
Analyzed Date:	12/18/96	12/18/96	12/18/96	12/18/96
Instrument I.D.#:	MTJA2	MTJA2	MTJA2	MTJA2
Conc. Spiked:	100 mg/Kg	100 mg/Kg	100 mg/Kg	100 mg/Kg
LCS Result:	100	100	100	100
LCS % Recov.:	100	100	100	100
MS/MSD LCS Control Limits	80-120	80-120	80-120	80-120

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

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☐ East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200
☐ 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: GeoStrategies	Project Name: 4814.08
Address: 6747 Sierra Ct, Ste J	UNOCAL Project Manager: Dave DeWitt
City: Dublin State: CA Zip Code: 94568	Release #: 87690636 8
Telephone: (916) 631-1300 FAX #: (916) 631-1317	Site #: 5235
Report To: Greg Gurss Sampler: B. Sieminski	QC Data: ☑ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Turnaround Time: ☐ 10 Work Days ☑ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

CODE: ☐ Misc. ☑ Detect. ☐ Eval. ☐ Remed. ☐ Demol. ☐ Closure

☐ Drinking Water ☐ Waste Water ☐ Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPH gas/BTEX Total Lead	9612964	Comments
1. SP2-A	12/13/96	Soil	1	2" tube	1 A	X X		
2. SP2-B	12/13/96	Soil	1	2" tube	B	X X		
3. SP2-C	12/13/96	Soil	1	2" tube	C	X X		
4. SP2-D	12/13/96	Soil	1	2" tube	D	X X		
5.								
6.								
7.								
8.								
9.								
10.								

Relinquished By: Barbara Sieminski	Date: 12/16/96	Time: 11:03	Received By: [signature]	Date: 12/16/96	Time: 11:03
Relinquished By: [signature]	Date: 12/16/96	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: [signature]	Date: 12-16-96	Time: 17:12

Were Samples Received in Good Condition? ☐ Yes ☐ No Samples on Ice? ☐ Yes ☐ No Method of Shipment _____ Page __ of __

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? ☐ Yes ☐ No If no, what analyses are still needed? _____

2) Was the report issued within the requested turnaround time? ☐ Yes ☐ No If no, what was the turnaround time? _____

Approved by: _____ Signature: _____ Company: _____ Date: _____

Pink - Client

Yellow - Laboratory

White - Laboratory