Analyze for MtBE using 8260 on U-1
" PAHs " well U-1

SUPPLEMENTAL EVALUATION AND INVESTIGATION REPORT

Tosco (Union) 76 Service Station 7176
7850 Amador Valley Boulevard
Dublin, California

ERI Job 209203.R01
August 4, 1998

Prepared for

Tosco Marketing Company
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

ERI ENVIRONMENTAL RESOLUTIONS, INC.

ENVIRONMENTAL RESOLUTIONS, INC.

SUPPLEMENTAL EVALUATION AND INVESTIGATION REPORT

Tosco (Union) 76 Service Station 7176
7850 Amador Valley Boulevard
Dublin, California

Report prepared for

Tosco Marketing Company
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

by

Environmental Resolutions, Inc.

for Susan B. Shallenberger

Susan B. Shallenberger
Staff Geologist

Steve M. Zigan
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STATE OF CALIFORNIA

August 4, 1998

ERI Report 209203.R01

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SUPPLEMENTAL EVALUATION AND INVESTIGATION REPORT

Tosco (Union) 76 Service Station 7176
7850 Amador Valley Road
Dublin, California

for

Tosco Marketing Company

1.0 INTRODUCTION

At the request of Tosco Marketing Company (Tosco), Environmental Resolutions, Inc. (ERI) performed a supplemental environmental investigation in the vicinity of the subject site. ERI conducted the investigation to evaluate the lateral extent of petroleum hydrocarbons in soil and groundwater in the vicinity of the site.

Specifically, the work included:

- Drilling two off-site soil borings (B7 and B8) and constructing groundwater monitoring wells MW4 and MW5 in borings B7 and B8, respectively;
- Collecting soil samples from the borings to evaluate soil stratigraphy;
- Collecting and submitting soil samples for laboratory analyses for gasoline and diesel hydrocarbons and select hydrogeologic parameters;
- Evaluating the Second Quarter 1998 Groundwater Monitoring and Sampling Report (Gettler-Ryan, Inc. [GRI], July 15, 1998); and,
- Submitting a report summarizing findings and conclusions.

2.0 BACKGROUND

2.1 Site Description

The site is located on the southwestern corner of Amador Valley Boulevard and Regional Street in Dublin, California, as shown on the Site Vicinity Map (Plate 1). The locations of existing underground storage tanks (USTs), dispenser islands, other site features, and nearby properties are shown on the Generalized Site Plan (Plate 2). Properties in the vicinity of the site are occupied by commercial developments.

2.2 Previous Environmental Work

In November 1994, four underground storage tanks (UST's) and associated product lines and dispensers were replaced, one sand/water separator was decommissioned, and the used-oil tank was removed. Approximately 1,860 cubic yards of petroleum hydrocarbon-impacted soil and 5,000 gallons of impacted groundwater were removed from the site during UST replacement activities. In July 1995, three monitoring wells (U1 through U3) and six soil borings (B1 through B6) were drilled. Petroleum hydrocarbons were detected in soil samples collected from borings B1, B3, B5, B6, and U3, and in groundwater samples collected from borings B1, B3 through B6, and monitoring wells U1 through U3 (Enviros, Inc. [EI], June 20, 1996).

Tosco (and formerly, Unocal) has been performing ongoing quarterly groundwater monitoring and sampling since installation of monitoring wells U1 through U3 in 1995. Based upon groundwater monitoring and sampling data (GRI, July 15, 1998 [Appendix A]), dissolved gasoline and diesel range hydrocarbons have consistently been detected in groundwater samples collected from wells U1 and U2 since third quarter 1995. Groundwater typically flows southeasterly and occurs 12 to 15 feet below ground surface (ft bgs).

3.0 PRESENT INVESTIGATION

3.1 Scope of Work

ERI performed the field work in accordance with a work plan (EI, 1996) for the subject site that was approved by Ms. Eva Chu of Alameda County Department of Environmental Health during a telephone conversation on March 6, 1998 and a Site Safety Plan that was kept on site during field operations. ERI obtained an encroachment permit from the City of Dublin Public Works Department to construct a groundwater monitoring well within the city right-of-way and a permit to drill two soil borings and construct two groundwater monitoring wells from Alameda County Flood Control and Water Conservation District, Zone 7 (Zone 7) before beginning work (Appendix B). The well location for MW5 was changed from that specified in the June 1996 Work Plan due to difficulties in contacting property owners and obtaining license agreements with third parties.

3.2 Soil Borings

On April 15, 1998, ERI observed Woodward Drilling, Inc. (Woodward) of Rio Vista, California drill two off-site soil borings (B7 and B8). ERI's standard field protocol is attached (Appendix C). Drilling was performed under the guidance of ERI's geologist who collected soil samples at approximately 5-foot intervals from the borings during drilling.

ERI's geologist identified the soil samples collected from the borings using visual and manual methods, and classified the samples using the Unified Soil Classification System (Appendix D). Descriptions of the materials encountered are presented in the Logs of Borings (Appendix D).

Soil borings B7 and B8 were drilled to approximately 25 ft bgs. Cuttings generated during drilling were stockpiled on site and covered with plastic sheeting pending appropriate disposal or recycling.

3.3 Monitoring Well Construction, Development, Sampling, and Surveying

ERI observed Woodward construct groundwater monitoring wells MW4 and MW5 in borings B7 and B8, respectively. Mr. Wyman Hong of Zone 7 gave verbal authorization to proceed with grouting operations. Monitoring well construction details are shown on the Logs of Borings (Appendix D).

On April 23, 1998, GRI developed monitoring wells MW4 and MW5 and sampled wells U1 through MW5 in conjunction with the second quarter groundwater sampling and monitoring event.

ERI contracted Ron Archer Civil Engineering, Inc. of Pleasanton, California (a licensed surveyor) to survey the well locations (Plate 2) and the elevations of each well head relative to mean sea level.

3.4 Soil Sample Analyses

Selected soil samples collected from the borings were submitted under Chain of Custody Record to Sequoia Analytical Laboratories (Sequoia [California State Certification Number 1210]) in Redwood City, California. The Chain of Custody Records are included in Appendix E. ERI selected the soil samples just above static water level for analysis. Soil samples collected from the borings were analyzed for total purgeable petroleum hydrocarbons as gasoline (TPPHg), total extractable petroleum hydrocarbons as diesel (TEPHd), and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

Two soil samples collected from boring B7 and selected as most closely representative of the lithology, were submitted under Chain of Custody Record to PTS Laboratories, Inc. of Santa Fe Springs, California, for grain size and physical properties analyses. Analytical methods and results are included in Appendix E.

3.5 Groundwater Sample Analyses

Monitoring and sampling of existing on-site wells U1 through U3 and newly installed off-site wells MW4 and MW5 was performed by GRI on April 23, 1998. Second quarter 1998 groundwater monitoring and sampling data are provided in Appendix A.

4.0 RESULTS OF INVESTIGATION

4.1 Site Geology and Hydrogeology

Sediments encountered in the vicinity of the site consist of clayey silt, silty clay, and sandy gravel. Groundwater was encountered at approximately 20 ft bgs in borings B7 and B8 on April 15, 1998. Static groundwater was measured at approximately 11 to 13 ft bgs in wells U1 through MW5 and groundwater flow was towards the southeast at a hydraulic gradient of 0.006 (GRI, July 15, 1998).

4.2 Soil Conditions

Results of laboratory analyses of soil samples are summarized in Table 1. TPPHg, BTEX, and TEPHd were not detected at or above the laboratory method detection limits in soil samples collected from borings B7 and B8. Copies of laboratory reports for soil samples analyzed during this investigation are included in Appendix E.

4.3 Groundwater Conditions

Cumulative groundwater monitoring and sampling results are included in Appendix A. Dissolved petroleum hydrocarbons were not detected at or above laboratory method detection limits in the groundwater sample collected from well U3. TPPHg and TEPHd were detected in on-site wells U1 and U2 and newly installed off-site wells MW4 and MW5 ranging from 120 parts per billion (ppb) to 3,400 ppb TPPHg and 100 ppb to 1,700 ppb TEPHd.

MTBE was not detected at or above laboratory method detection limits in groundwater samples collected from wells U3 and MW4, but was detected in the remaining wells ranging from 13 ppb to 280 ppb.

5.0 STOCKPILE SAMPLING AND DISPOSAL

ERI collected one composite soil sample (four brass sleeves) from the drill-cutting stockpile. The composite sample was submitted under Chain of Custody Record to Sequoia and analyzed for TPPHg, BTEX, TEPHd, and total threshold limit concentration (TTLC) of lead. Soil stockpile analytical methods and results are included in Table 1. A copy of the laboratory report and Chain of Custody Record are included in Appendix E.

On April 28, 1998, Manley and Sons Trucking, Inc. of Sacramento, California transported approximately 1 ton of stockpiled soil to Forward Inc. Landfill in Manteca, California for disposal. Soil disposal documentation is included in Appendix F.

6.0 SUMMARY AND CONCLUSIONS

The data obtained during this investigation indicate the following:

- Sediments encountered in the soil borings consist of silty clay, clayey silt, and sandy gravel.
- Residual hydrocarbons were not detected at or above the laboratory method detection limits in soil samples collected from off-site soil borings B7 and B8.
- Groundwater was encountered at approximately 20 ft bgs on April 15, 1998 in borings B7 and B8. Static water levels in monitoring wells U1 through MW5 ranged from approximately 11 to 13 ft bgs and groundwater flow direction was towards the southeast at a hydraulic gradient of 0.006 (GRI, July 15, 1998).

- Dissolved petroleum hydrocarbons were not detected at or above laboratory method detection limits in the groundwater sample collected from well U3. TPPHg and TEPHd were detected in on-site wells U1 and U2 and newly installed off-site wells MW4 and MW5 ranging from 120 parts per billion (ppb) to 3,400 ppb TPPHg and 100 ppb to 1,700 ppb TEPHd. MTBE was not detected at or above laboratory method detection limits in groundwater samples collected from well U3 and MW4, but was detected in the remaining wells ranging from 13 ppb to 280 ppb.

7.0 LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental practice in California at the time this investigation was performed. This investigation was conducted solely for the purpose of evaluating environmental conditions of the soil and groundwater with respect to hydrocarbons. No soil engineering or geotechnical references are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. This report has been prepared solely for Tosco and any reliance on this report by third parties shall be at such party's sole risk.

8.0 REFERENCES

Enviros, Inc. June 2, 1996. Work Plan - Subsurface Investigation, Unocal Service Station 7176, 7850 Amador Valley Boulevard, Dublin, California. 96132.06.

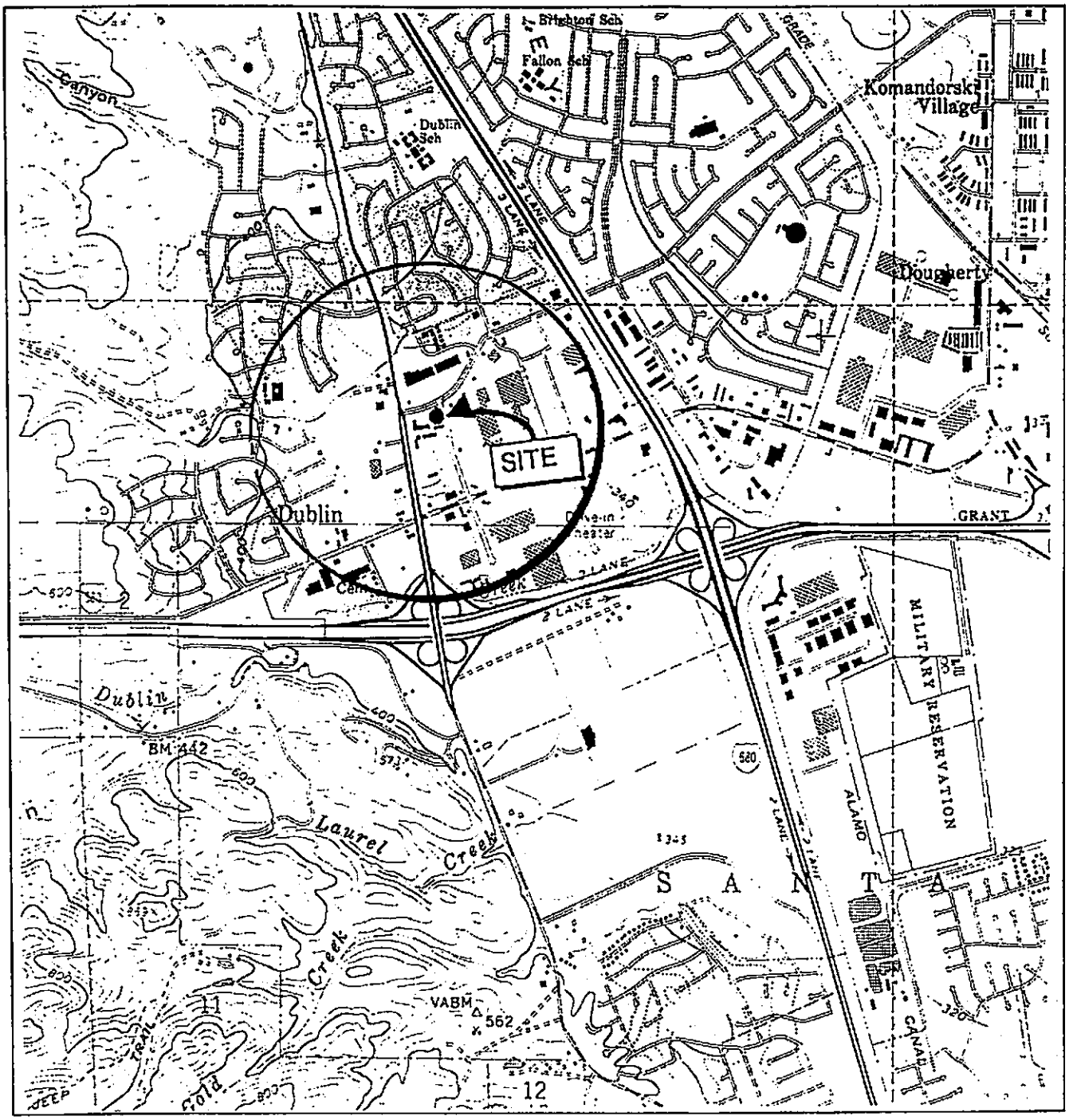
United States Geological Survey, 1980. Dublin, California 7.5-Minute Topographic Quadrangle Map.

TABLE 1
RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES
Tosco (Union) 76 Service Station 7176
7850 Amador Valley Boulevard
Dublin, California

Sample #	Depth	Date Sampled	TEPHd	TPPHg	B	T	E	X	TTLC Lead
S-10-B7	10	4/15/98	ND	ND	ND	ND	ND	ND	NA
S-10-B8	10	4/15/98	ND	ND	ND	ND	ND	ND	NA
SP-1-(1-4)	NA	4/15/98	6.8	0.45	ND	ND	ND	ND	6.1

Notes:
Soil results (S) in milligrams per kilogram (mg/kg)

S-10-B7	=	Soil sample-Depth-Boring number
ND	=	Not detected above limits stated in laboratory reports.
NA	=	Not applicable.
TPPHg	=	Total purgeable petroleum hydrocarbons as gasoline analyzed using modified EPA method 8015.
TEPHd	=	Total extractable petroleum hydrocarbons as diesel analyzed using modified EPA method 8015.
BTEX	=	Benzene, Toluene, Ethylbenzene, and Total Xylenes analyzed using EPA method 8020.
TTLC Lead	=	Total threshold limit concentration of lead analyzed using EPA method 6010.



20920001

EXPLANATION

N

Source: U.S.G.S. 7.5 minute topographic quadrangle map Dublin, California (Photorevised 1980)

APPROXIMATE SCALE

0 1/2 1

MILE

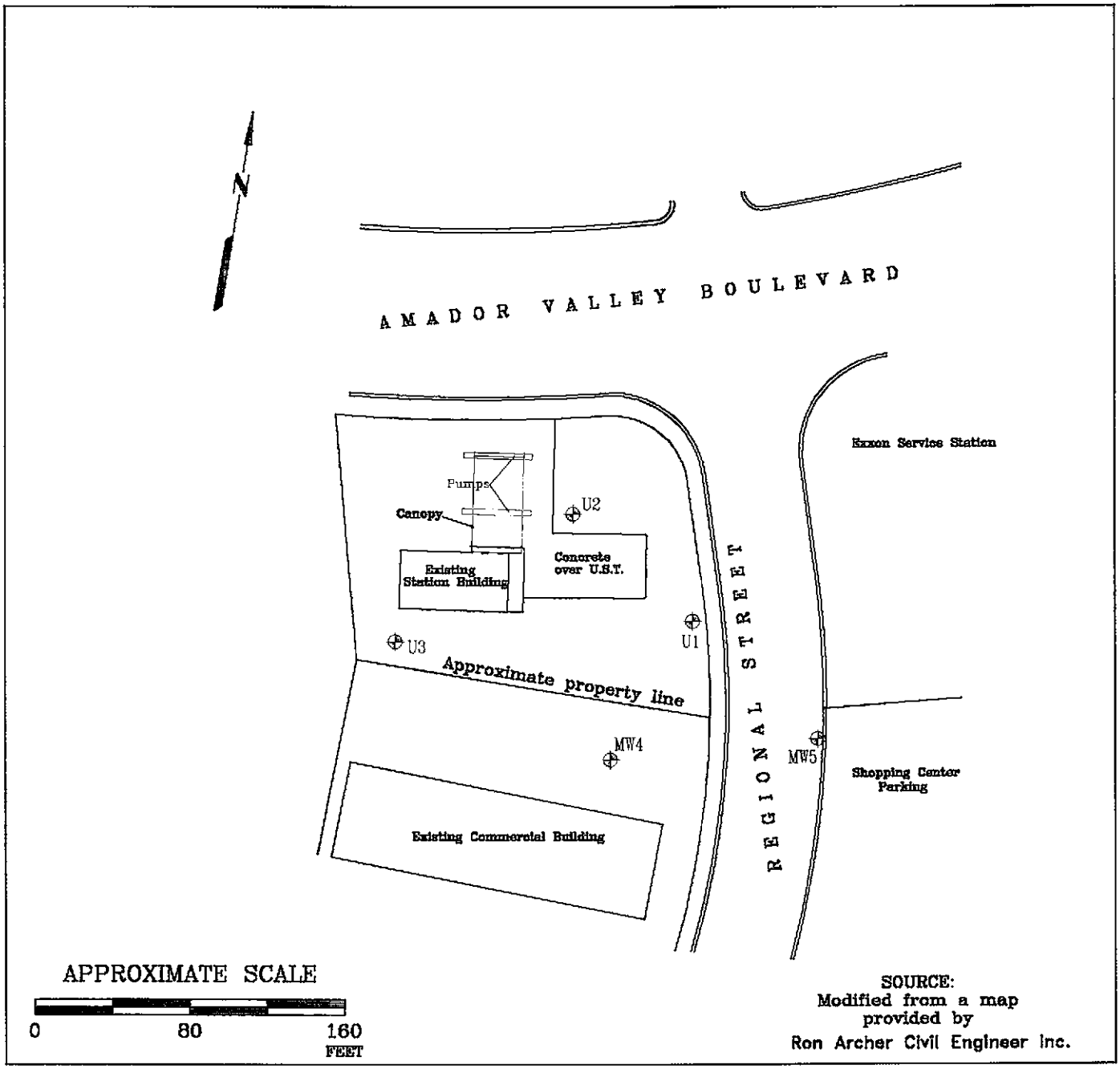
ERI ENVIRONMENTAL RESOLUTIONS, INC.

PROJECT ERI 2092

SITE VICINITY MAP

TOSCO (UNION) 76 SERVICE STATION 7176
7850 Amador Valley Boulevard
Dublin, California

PLATE 1



FN: 2092002A

EXPLANATION

MW5 — Groundwater Monitoring Well

U3 — Groundwater Monitoring Well

ERI ENVIRONMENTAL RESOLUTIONS, INC.

GENERALIZED SITE PLAN

TOSCO (UNION) 76 SERVICE STATION 7176
7805 Amador Valley Boulevard
Dublin, California

PROJECT NO. 2092

PLATE 2

June 26, 1998

APPENDIX A

SECOND QUARTER 1998
GROUNDWATER MONITORING
AND SAMPLING REPORT
(Gettler-Ryan Inc., July 15, 1998)

GETTLER-RYAN INC.

TRANSMITTAL

TO: Ms. Eva Chu
Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, California 94502

DATE: July 27, 1998
G-R #: 180022

FROM: Deanna L. Harding
Project Coordinator
Gettler-Ryan Inc.
6747 Sierra Court, Suite J
Dublin, California 94568

RE: Tosco(Unocal) SS #7176
7850 Amador Valley Blvd.
Dublin, California

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	July 15, 1998	Groundwater Monitoring and Sampling Report Second Quarter 1998 - April 23, 1998

COMMENTS:

At the request of Tosco Marketing Company, we are providing you a copy of the above referenced report. The site is monitored and sampled on a quarterly basis. If you have questions please contact the Tosco Project Manager, Ms. Tina R. Berry at (925) 277-2321.

Enclosure

cc: Mr. Keith Romstad, ERI, 74 Digital Drive, Suite 6, Novato, CA 94949

agency/7176trb.qmt

GETTLER-RYAN INC.

July 15, 1998
G-R Job #180022

Ms. Tina R. Berry
Tosco Marketing Company
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

RE: Second Quarter 1998 Groundwater Monitoring & Sampling Report
Tosco (Unocal) Service Station #7176
7850 Amador Valley Boulevard
Dublin, California

Dear Ms. Berry:

This report documents the quarterly groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On April 23, 1998, field personnel developed two new wells (MW-4 and MW-5), and monitored and sampled five wells (U-1, U-2, U-3, MW-4, and MW-5) at the above referenced site.

Static groundwater levels were measured and all wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in the wells. Static water level data and groundwater elevations are summarized in Table 1. A Potentiometric Map is included as Figure 1.

Groundwater samples were collected from the monitoring wells as specified by G-R Standard Operating Procedure - Groundwater Sampling (attached). The field data sheets are also attached. The samples were analyzed by Sequoia Analytical. Analytical results are summarized in Table 1 and Dissolved Oxygen Concentrations are summarized in Table 2. A Concentration Map is included as Figure 2. The chain of custody document and laboratory analytical reports are also attached.

Sincerely,

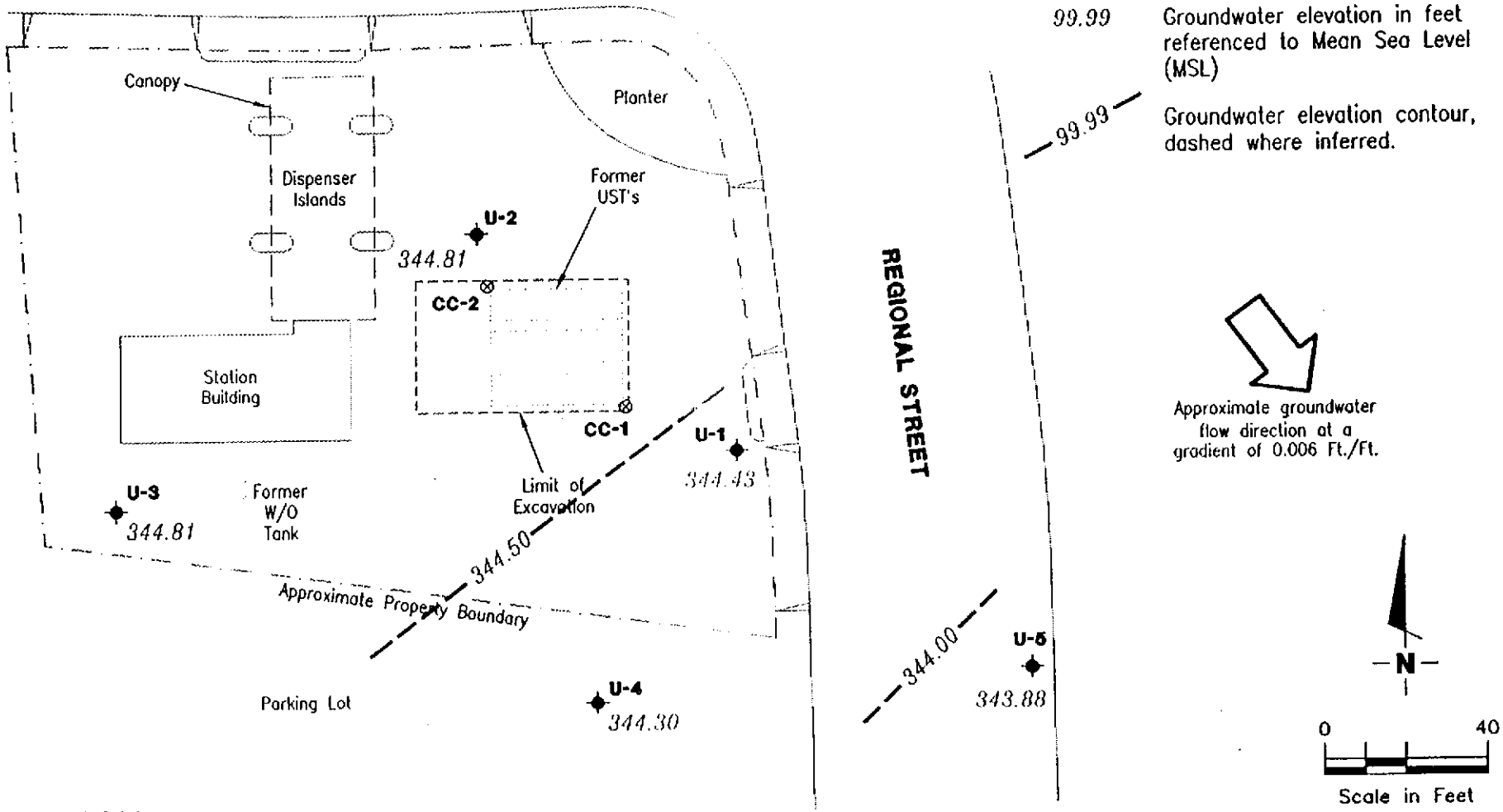
Deanna L. Harding
Project Coordinator

Ricky L. Fears
Registered Geologist, R.G. No. 6728

REGISTERED GEOLOGIST
RICKY L. FEARS
No. 6728
Exp. 8/31/98
STATE OF CALIFORNIA

Figure 1: Potentiometric Map
Figure 2: Concentration Map
Table 1: Groundwater Monitoring Data and Analytical Results
Table 2: Dissolved Oxygen Concentrations
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets
Chain of Custody Document and Laboratory Analytical Reports

7176.qml



Source: Figure Modified From Drawing Provided By MPDS Services, Inc.

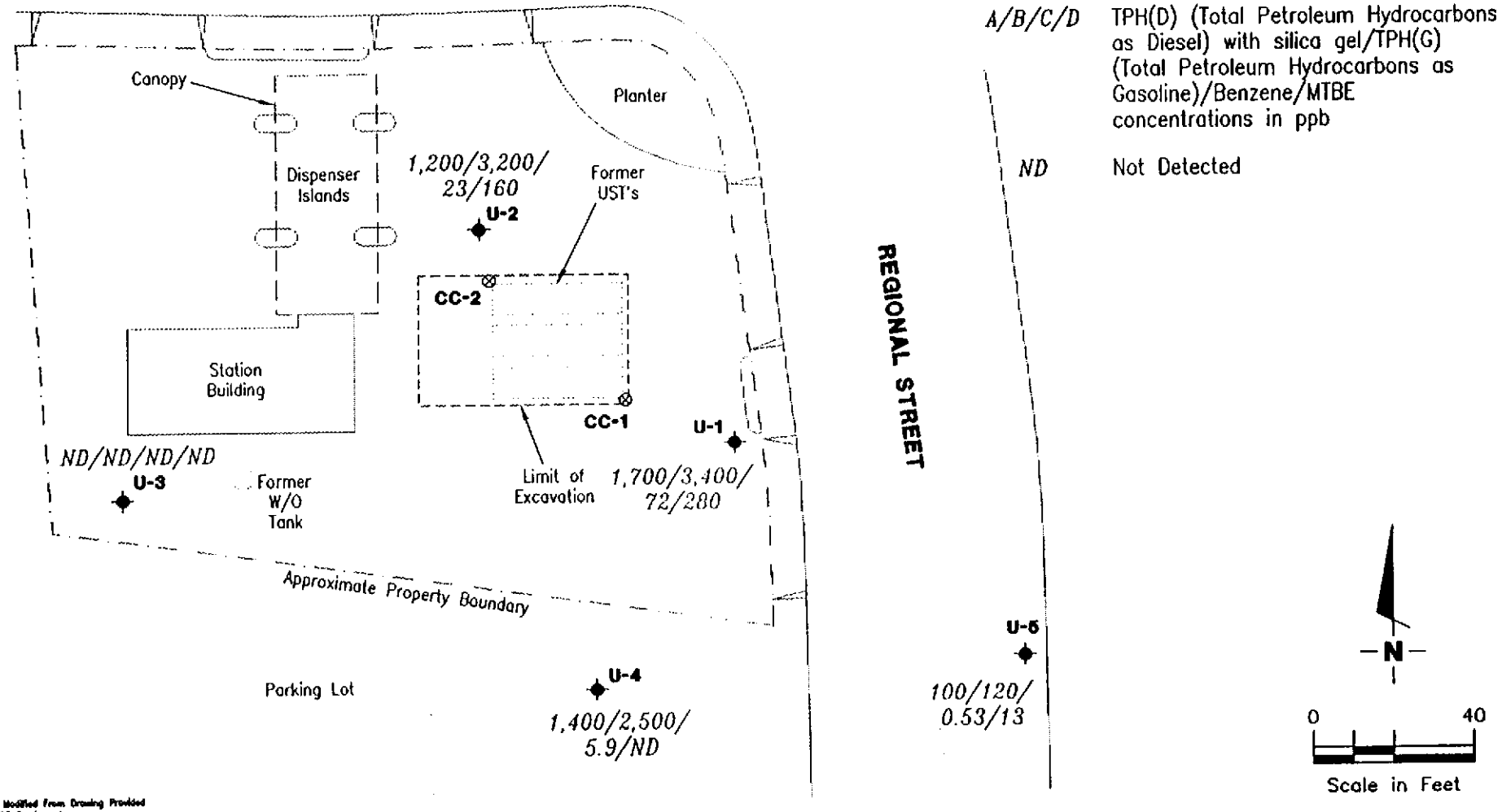
FIGURE 1

Gettler - Ryan Inc.

6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

POTENTIOMETRIC MAP
Tosco (Unocal) Service Station No. 7176
7850 Amador Valley Boulevard
Dublin, California

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
180022		April 23, 1998	



Source: Figure Modified From Drawing Provided By MPDS Services, Inc.

FIGURE

Gettler - Ryan Inc.

6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

CONCENTRATION MAP
Tosco (Unocal) Service Station No. 7176
7850 Amador Valley Boulevard
Dublin, California

2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
180022		April 23, 1998	

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #7176
7850 Amador Valley Boulevard
Dublin, California

Well ID/ TOC*		Date	DTW (ft.)	GWE (msl)	TPH(D)♦	TPH(G)	B	T	E	X	MTBE
					<		ppb				>
U-1		07/08/95			9,400[3]	39,000	1,500	19	1,600	5,200	–
		10/12/95			4,200[5]	33,000	1,400	ND	1,400	3,100	–[7]
		01/11/96[1]			8,200[5]	8,300	690	11	680	1,500	–[8]
		04/11/96[2]			630[5]	3,200	110	ND	180	290	790
		07/10/96			2,200[5]	2,600	81	4.4	210	230	510
355.62		10/30/96	15.85	339.77	560[5]	2,200	67	19	140	150	360
		01/27/97	12.20	343.42	2,300[5]	4,600	98	ND	360	290	150
		04/08/97	13.46	342.16	1,300[5]	2,800	50	ND	220	140	ND
		07/17/97	15.30	340.32	460[6]	2,300	30	4.5	140	94	190
		10/17/97	16.33	339.29	510[6]	1,500	31	6.7	110	88	220
		01/19/98	14.34	341.28	[10]1,900/1,300[10]	3,100	46	3.4	310	200	170
355.59	NP	04/23/98	11.16	344.43	–/1,700[11]	3,400	72	3.8	470	350	280
U-2		07/08/95			4,700[3]	17,000	430	ND	2,200	590	–
		10/12/95			3,600[5]	24,000	310	60	1,900	190	–[7]
		01/11/96[1]			8,600[5]	10,000	210	55	1,400	240	–[8]
		04/11/96[2]			1,900[5]	7,700	130	27	1,100	110	340
		07/10/96			2,300[5]	5,600	59	15	610	42	250
356.59		10/30/96	16.82	339.77	1,800[5]	7,700	67	35	1,000	54	260
		01/27/97	12.91	343.68	660[5]	1,600	14	ND	130	7.0	100
		04/08/97	14.07	342.52	2,000[5]	4,300	35	ND	400	16	ND
		07/17/97	15.96	340.63	1,300[6]	6,200	17	22	410	ND	130
		10/17/97	17.03	339.56	1,400[6]	7,100	71	26	520	50	ND
		01/19/98	15.10	341.49	[10]2,100/1,500[10]	5,300	46	11	350	16	110
356.55	NP	04/23/98	11.74	344.81	–/1,200[11]	3,200	23	11	210	38	160
U-3		07/08/95			710[3]	1,100[4]	0.57	2.1	1.7	2.4	–
		10/12/95			470[6]	560	ND	0.87	0.7	1.1	–
		01/11/96[1]			260[6]	230	0.62	0.91	0.97	1.9	–
		04/11/96			ND	68[9]	ND	ND	ND	ND	ND
		07/10/96			ND	ND	ND	ND	ND	ND	ND
358.13		10/30/96	18.24	339.89	ND	70	ND	ND	ND	ND	ND

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #7176

7850 Amador Valley Boulevard

Dublin, California

Well ID/ TOC*		Date	DTW (ft.)	GWE (msl)	TPH(D)♦	TPH(G)	B	T	E	X	MTBE
					<			ppb			>
U-3		01/27/97	14.41	343.72	ND	ND	ND	ND	ND	ND	ND
(cont)		04/08/97	15.73	342.40	ND	ND	ND	ND	ND	ND	ND
		07/17/97	17.54	340.59	ND	ND	ND	ND	ND	ND	ND
		10/17/97	18.64	339.49	63[6]	ND	ND	ND	ND	ND	ND
		01/19/98	16.67	341.46	[10]68/ND	ND	ND	ND	ND	ND	ND
358.09	NP	04/23/98	13.28	344.81	--/ND	ND	ND	ND	ND	ND	ND
MW-4											
356.41		04/23/98	12.11	344.30	--/1,400[11]	2,500	5.9	6.4	16	31	ND[12]
MW-5											
355.03		04/23/98	11.15	343.88	--/100[11]	120	0.53	0.90	1.0	3.8	13
Trip Blank											
TB-LB		01/19/98	--	--	--	ND	ND	ND	ND	ND	ND
		04/23/98	--	--	--	ND	ND	ND	ND	ND	ND

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #7176
7850 Amador Valley Boulevard
Dublin, California

EXPLANATIONS:

Groundwater monitoring data and laboratory analytical results prior to January 19, 1998, were compiled from reports prepared by MPDS Services, Inc.

TOC = Top of Casing elevation
DTW = Depth to Water
(ft.) = Feet
GWE = Groundwater Elevation
msl = Relative to mean sea level
TPH(D) = Total Petroleum Hydrocarbons as Diesel
TPH(G) = Total Petroleum Hydrocarbons as Gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
MTBE = Methyl tertiary butyl ether
ppb = Parts per billion
ND = Not Detected
-- = Not Measured/Not Analyzed
NP = No purge
PNA = Polynuclear Aromatic Hydrocarbons

* TOC elevations were surveyed relative to msl, per the Benchmark AM-STW1977 located at the easterly return at the most easterly corner of intersection at Amador Valley Boulevard and Starward Street (Elevation = 344.17 feet msl).

♦ Analytical results reported as follows: TPH(D)/TPH(D) with silica gel cleanup.

1 PNA compound naphthalene was detected in well U-1 at a concentration of 320 ppb, and at a concentration of 310 ppb in well U-2. All other PNA compounds were ND in both wells.

2 PNA compounds were ND.

3 Laboratory report indicates unidentified hydrocarbons C9-C26.

4 Laboratory report indicates gas and unidentified hydrocarbons >C12.

5 Laboratory report indicates that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

6 Laboratory report indicates that the hydrocarbons detected did not appear to be diesel.

7 Laboratory has potentially identified the presence of MTBE at reportable levels in the groundwater sample collected from this well.

8 Laboratory has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 ppb in the sample collected from this well.

9 Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.

10 Laboratory report indicates unidentified hydrocarbons C9-C24.

11 Laboratory report indicates diesel and unidentified hydrocarbons <C14.

12 Detection limit raised. Refer to analytical results.

Depth to water and groundwater elevation history will be updated in future reports.

Table 2

Dissolved Oxygen Concentrations

Tosco (Unocal) Service Station #7176
7850 Amador Valley Boulevard
Dublin, California

Well ID	Date	Before Purging (mg/L)	After Purging (mg/L)
U-1	01/11/96	–	3.41
	04/11/96	3.77	3.78
	07/10/96[1]	1.22	–
	10/30/96[1]	1.41	–
	01/27/97[1]	1.34	–
	04/08/97[1]	2.09	–
	07/17/97[1]	2.00	–
	10/17/97[1]	1.86	–
	01/19/98[1]	2.91	–
	04/23/98[1]	0.59	–
U-2	01/11/96	–	3.99
	04/11/96	3.32	3.41
	07/10/96[1]	1.01	–
	10/30/96[1]	1.42	–
	01/27/97[1]	1.29	–
	04/08/97[1]	1.69	–
	07/17/97[1]	2.08	–
	10/17/97[1]	1.80	–
	01/19/98[1]	2.95	–
	04/23/98[1]	0.55	–
U-3	01/11/96	–	5.05
	04/11/96	5.16	4.96
	07/10/96[1]	3.44	–
	10/30/96[1]	2.18	–
	01/27/97[1]	2.61	–
	04/08/97[1]	3.73	–
	07/17/97[1]	2.65	–
	10/17/97[1]	2.44	–
	01/19/98[1]	6.51	–
	04/23/98[1]	4.72	–
CC1	10/02/95	2.83	–

EXPLANATIONS:

– = Not Measured
mg/L = Milligrams per liter

[1] The wells were not purged on this date.

Note: Measurements were taken using a LaMotte DO4000 dissolved oxygen meter.

STANDARD OPERATING PROCEDURE - GROUNDWATER SAMPLING

Gettler-Ryan Inc. field personnel adhere to the following procedures for the collection and handling of groundwater samples prior to analysis by the analytical laboratory. Prior to sample collection, the type of analysis to be performed is determined. Loss prevention of volatile compounds is controlled and sample preservation for subsequent analysis is maintained.

Prior to sampling, the presence or absence of free-phase hydrocarbons is determined using a MMC flexi-dip interface probe. Product thickness, if present, is measured to the nearest 0.01 foot and is noted in the field notes. In addition, static water level measurements are collected with the interface probe and are also recorded in the field notes.

After water levels are collected and prior to sampling, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, suction, Grundfos), or polyvinyl chloride bailers. Temperature, pH and electrical conductivity are measured a minimum of three times during the purging. Purging continues until these parameters stabilize.

Groundwater samples are collected using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by analytical laboratories, are used when possible. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards. The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials. The water samples are placed in a cooler, maintained at 4°C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

The chain of custody document includes the job number, type of preservation, if any, analysis requested, sample identification, date and time collected, and the sample collector's name. The chain of custody is signed and dated (including time of transfer) by each person who receives or surrenders the samples, beginning with the field personnel and ending with the laboratory personnel.

A laboratory supplied trip blank accompanies each sampling set. For sampling sets greater than 20 samples, 5% trip blanks are included. The trip blank is analyzed for some or all of the same compounds as the groundwater samples.

As requested by Tosco Marketing Company, the purge water and decontamination water generated during sampling activities is transported to Tosco - San Francisco Area Refinery, located in Rodeo, California.

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility # TOSCO-UNOCAL #7176 Job#: 180022

Address: 7850 AMADOR VALLEY BLVD. Date: 4/23/98

City: DUBLIN, CA Sampler: HAIG KEVORK

Well ID U-1 Well Condition: GOOD

Well Diameter 2 in. Hydrocarbon Thickness: Ø in. Amount Bailed (product/water): _____ (gal.)

Total Depth 27.95 ft

Depth to Water 11.16 ft

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment:
- Disposable Bailer
- Bailer
- Stack
- Suction
- Grundfos
- Other: _____

Sampling Equipment:
- Disposable Bailer
- Bailer
- Pressure Bailer
- Grab Sample
- Other: _____

Starting Time: _____ Weather Conditions: CLOUDY

Sampling Time: 14:15 Water Color: _____ Odor: _____

Purging Flow Rate: N/A gpm Sediment Description: _____

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
					0.59		

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
U-1	3 VOA	YES	HCl	SEQUOIA	G/BTEX/MTBE
	1 AMBER				TPH-D w/SILICA GEL

COMMENTS: _____

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility # TOSCO-UNOCAL #7176 Job#: 180022

Address: 7850 AMADOR VALLEY BLVD, Date: 4/23/98

City: DUBLIN Sampler: HAIG KEVORK

Well ID U-2 Well Condition: GOOD

Well Diameter 2 in. Hydrocarbon Thickness: Ø in. Amount Bailed (product/water): _____ (gal.)

Total Depth 26.51 ft.

Depth to Water 11.74 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment:
- Disposable Bailer
- Bailer
- Stack
- Suction
- Grundfos
- Other: _____

Sampling Equipment:
- Disposable Bailer
- Bailer
- Pressure Bailer
- Grab Sample
- Other: _____

Starting Time: _____ Weather Conditions: CLOUDY

Sampling Time: 14:00 Water Color: _____ Odor: _____

Purging Flow Rate: N/A gpm Sediment Description: _____

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
					0.55		

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
U-2	3 VOA	YES	HCl	SEQUOIA	G/BTEX/MTBE
	1 AMBER				TPH-D W/SILICA GEL

COMMENTS: _____

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility # TOSCO-UNOCAL # 4176 Job#: 180022

Address: 4850 AMADOR VALLEY BLVD, Date: 4/23/98

City: DUBLIN Sampler: HAIG KEVORK

Well ID U-3 Well Condition: GOOD (ONE BOLT AND FLANGE IS MISSING)

Well Diameter 2 in. Hydrocarbon Thickness: Ø in. Amount Bailed (product/water): _____ (gal.)

Total Depth 28.58 ft.

Depth to Water 13.28 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment:
- Disposable Bailer
- Bailer
- Stack
- Suction
- Grundfos
- Other: _____

Sampling Equipment:
- Disposable Bailer
- Bailer
- Pressure Bailer
- Grab Sample
- Other: _____

Starting Time: _____ Weather Conditions: CLOUDY

Sampling Time: 13:45 Water Color: _____ Odor: _____

Purging Flow Rate: N/A gpm Sediment Description: _____

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
					4.72		

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
U-3	3 VOA	YES	HCl	SEQUOIA	G/BTEX/MTBE
	1 AMBER				TPH-D w/SILICA GEL

COMMENTS: _____

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/ Facility # TOSCO-UNOCAL #4176 Job#: 180022

Address: 4850 AMADOR VALLEY BLVD. Date: 4/23/98

City: DUBLIN Sampler: HAIG KEVORK

Well ID MW-4 Well Condition: NEW (ERI)

Well Diameter 2 in. Hydrocarbon Thickness: Ø in. Amount Bailed (product/water): _____ (gal.)

Total Depth 25.50 ft.

Depth to Water 12.11 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

13.39 x VF 0.17 = 2.28 X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer; Bailer; Stack; [Suction]; Grundfos; Other: _____

Sampling Equipment: [Disposable Bailer]; Bailer; Pressure Bailer; Grab Sample; Other: _____

Starting Time: _____ Weather Conditions: CLOUDY

Sampling Time: 15:08 Water Color: _____ Odor: _____

Purging Flow Rate: 3 gpm. Sediment Description: _____

Did well de-water? NO If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
14:26	0	7.30	1420	20.9			
14:27	2	7.16	1290	20.3			
14:29	5	7.13	1260	20.5			
14:31	8	7.11	1240	20.4			
14:34	12	7.09	1220	20.7			
14:36	16	7.07	1210	20.9			
14:42	22	7.06,	1190	20.8			
14:45	26	7.04	1180	21.0			
14:48	30	7.05	1190	21.1			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-4	3 VOA	YES	HCl	SEQUOIA	G/BTEX/MTBE
	1 AMBER				TPH-D W/ SILICA GEL

COMMENTS: THIS WELL WAS DEVELOPED

TOTAL PURGED 30 gallons (WELL WAS DEVELOPED).

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/ Facility #: Tosco / Unocal #7176 Job#: 180022.85

Address: 7850 Amador Valley Blvd Date: 6.23-9E

City: Dublin CA Sampler: F. Cline

Well ID: MW-5 Well Condition: Okay new lock

Well Diameter: 2" in. Hydrocarbon Thickness: C in. Amount Bailed (product/water): C (gal.)

Total Depth: ~~25.00~~ ft.

Depth to Water: 11.15 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.50	12" = 5.80

13.85 X VF 0.17 = 2.3 X 3 (case volume) = Estimated Purge Volume: 23 (gal.)

Purge Equipment: Disposable Bailer; ~~Bailer~~; Stack; Suction; Grundfos; Other: _____

Sampling Equipment: ~~Disposable Bailer~~; Bailer; Pressure Bailer; Grab Sample; Other: _____

Starting Time: 14:10 Weather Conditions: Cloudy

Sampling Time: 14:50 Water Color: Brown - clear Odor: None

Purging Flow Rate: 1.2 gpm. Sediment Description: Silty ⇒ None

Did well de-water? N/C If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L) (color/clarity)	ORP (mV)	Alkalinity (ppm)
1410	0	6.86	1998	20.C	clear/clear		Surge
1425	10	6.80	1898	20.2	Brown/Muddy		
1435	16	6.82	1872	20.3	Brown/Cloudy		
1433	22	6.79	1864	20.4	Brown/cloudy		
1442	28	6.77	1851	20.C	Brown/cloudy		
1445	34	6.79	1860	20.C	Cloudy clearing		
1459	40	6.78	1859	20.1	clearing clearing		

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-5	3x 40ml VOA	Y	HCL	SEG	~~GasBTXE MTBE~~
					~~MTBE~~
MW-5	1x liter	Y	None	SEG	Diesel

COMMENTS: New well in street. Developed using Surge & Purge. Then sampled.

TOSCO

Tosco Marketing Company
2000 Crow Canyon Pl., Ste. 400
San Ramon, California 94583

Facility Number: UNOCAL SS# 7176
Facility Address: 7850 Amador Valley Blvd. Dublin, CA
Consultant Project Number: 180022.85
Consultant Name: Gettler-Ryan Inc. (G-R Inc.)
Address: 6747 Sierra Court, Suite J, Dublin, CA 94568
Project Contact (Name): Deanna L. Harding
(Phone): 510-551-7555 (Fax Number): 510-551-7888

Contact (Name): MS. TINA BERRY
(Phone): (925) 277-2321
Laboratory Name: Sequoia Analytical
Laboratory Release Number:
Samples Collected by (Name): HAIG KEVORK & FRANK CLINE
Collection Date: 4/23/1998
Signature:

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: TPH Gas + BTEX w/MTBE (8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (TCLP or AA)						Remarks
TB-LB		1	W	G		HCl	YES	✓								8041737					DO NOT BILL TB-LB ANALYSIS
U-1		4	W		14:15			✓	✓							8041738					W/SILICA GEL
U-2		4	W		14:00			✓	✓							8041739					W/SILICA GEL
U-3		4	W		13:45			✓	✓							8041740					W/SILICA GEL
MW-4		4	W		15:08			✓	✓							8041741					W/SILICA GEL
MW-5		4	W	↓	14:50	↓	↓	✓	✓							8041742					W/SILICA GEL

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	G-R Inc.				
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time: 4/24/98 1230

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 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
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Deanna Harding

Client Project ID: Unocal SS# 7176, Dublin
Sample Matrix: Water
Analysis Method: EPA 3510/8015 Mod.
First Sample #: 804-1738

Sampled: Apr 23, 1998
Received: Apr 24, 1998
Reported: May 5, 1998

QC Batch Number: SP042798 | SP042798 | SP042798 | SP042798 | SP042798
8015EXA * | 8015EXA * | 8015EXA * | 8015EXA * | 8015EXA *

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS W/ SILICA GEL CLEAN-UP

Analyte	Reporting Limit µg/L	Sample I.D. 804-1738 U-1	Sample I.D. 804-1739 U-2	Sample I.D. 804-1740 U-3	Sample I.D. 804-1741 MW-4	Sample I.D. 804-1742 MW-5
Extractable Hydrocarbons	50	1,700	1,200	N.D.	1,400	100
Chromatogram Pattern:		Diesel & Unidentified Hydrocarbons <C14	Diesel & Unidentified Hydrocarbons <C14	--	Diesel & Unidentified Hydrocarbons <C14	Diesel & Unidentified Hydrocarbons <C14

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0
Date Extracted:	4/27/98	4/27/98	4/27/98	4/27/98	4/27/98
Date Analyzed:	4/30/98	4/30/98	4/30/98	4/30/98	4/30/98
Instrument Identification:	HP-3B	HP-3B	HP-3B	HP-3B	HP-3B

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

SEQUOIA ANALYTICAL, #1271

Mike Gregory
Project Manager

Please Note:
* Quality control for this extraction batch fell below lower limits. All results should be considered estimated.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 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
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Deanna Harding

Client Project ID: Unocal SS# 7176, Dublin
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 804-1737

Sampled: Apr 23, 1998
Received: Apr 24, 1998
Reported: May 5, 1998

QC Batch Number:	GC042898 802002A	GC042898 802002A	GC042898 802002A	GC042898 802002A	GC042898 802002A	GC042898 802002A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit µg/L	Sample I.D. 804-1737 TB-LB	Sample I.D. 804-1738 U-1	Sample I.D. 804-1739 U-2	Sample I.D. 804-1740 U-3	Sample I.D. 804-1741 MW-4	Sample I.D. 804-1742 MW-5
Purgeable Hydrocarbons	50	N.D.	3,400	3,200	N.D.	2,500	120
Benzene	0.50	N.D.	72	23	N.D.	5.9	0.53
Toluene	0.50	N.D.	3.8	11	N.D.	6.4	0.90
Ethyl Benzene	0.50	N.D.	470	210	N.D.	16	1.0
Total Xylenes	0.50	N.D.	350	38	N.D.	31	3.8
MTBE	2.5	N.D.	280	160	N.D.	N.D.	13
Chromatogram Pattern:		--	Gasoline	Gasoline	--	Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	5.0	10	1.0	10	1.0
Date Analyzed:	4/28/98	4/28/98	4/28/98	4/28/98	4/28/98	4/28/98
Instrument Identification:	HP-2	HP-2	HP-2	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	96	146 *	152 *	94	115	108

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

Mike Gregory
Project Manager

Please Note:
* Surrogate recoveries above control limit due to peak coelution.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 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
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Deanna Harding

Client Project ID: Unocal SS# 7176, Dublin
Matrix: Liquid
QC Sample Group: 8041737-742
Reported: May 5, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
QC Batch#:	GC042898	GC042898	GC042898	GC042898	SP042798
	802002A	802002A	802002A	802002A	8015EXA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 3510
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater	K. Grubb
MS/MSD #:	8041740	8041740	8041740	8041740	BLK042798A
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	4/28/98	4/28/98	4/28/98	4/28/98	4/27/98
Analyzed Date:	4/28/98	4/28/98	4/28/98	4/28/98	4/28/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	500 µg/L
Result:	19	19	18	59	270
MS % Recovery:	95	95	90	98	54
Dup. Result:	18	17	18	54	230
MSD % Recov.:	90	85	90	90	46
RPD:	5.4	11	0.0	8.8	16
RPD Limit:	0-20	0-20	0-20	0-20	0-50

LCS #:	2LCS042898	2LCS042898	2LCS042898	2LCS042898	LCS042798A
Prepared Date:	4/28/98	4/28/98	4/28/98	4/28/98	4/27/98
Analyzed Date:	4/28/98	4/28/98	4/28/98	4/28/98	4/28/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	500 µg/L
LCS Result:	19	20	19	61	210
LCS % Recov.:	95	100	95	102	42
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	60-140

SEQUOIA ANALYTICAL, #1271

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

APPENDIX B
ENCROACHMENT AND WELL CONSTRUCTION PERMITS

RECEIVED
MAR 18 1998
PUBLIC WORKS

CITY OF DUBLIN
PUBLIC WORKS DEPARTMENT
100 Civic Plaza
Dublin, California 94568
(510) 833-6630

PERMIT NO. 98-23

ENCROACHMENT PERMIT

PERMIT TO DO WORK IN ACCORDANCE WITH CITY OF DUBLIN MUNICIPAL CODE CHAPTER 7.04 AND ANY SPECIAL REQUIREMENTS SHOWN OR LISTED HEREIN.

Applicant/Permittee:		
Name: Environmental Resolutions, Inc	Permit Fee:	$ 10.00
Address: 74 Digital Dr #6	Plancheck Fee:	$
Novato, CA 94949	Resurfacing Surcharge:	$ 50.00
Telephone 415-382-9105	Inspection Fees:	$ 80.00
		$
		$
	Total Fees:	$ 140.00
	Bond: Surety: $ 2000 Cash:	$
	Total Paid: check # 1061	$ 140.00
	Receipt No. 1254	

PLEASE READ THIS PERMIT CAREFULLY. KEEP IT AT THE WORK SITE. TO ARRANGE FOR INSPECTION, PHONE 833-6630 AT LEAST 48 HOURS *BEFORE YOU START WORK.*

JOB LOCATION: 7850 Amador Valley Boulevard Work in or adjacent to Regional Street

DESCRIPTION OF WORK: (Attach 2 copies of plans. Attach additional pages if needed.)

Drill and install one monitering well on Regional Street (adjacent to 7232 Regional Street) near the curb.

Length of Excavation N/A l.f. **Width** _____ l.f. **Depth** _____ ft.

U. S. A. IDENTIFICATION NUMBER (if applicable) _____

ATTENTION IS DIRECTED TO THE GENERAL PROVISIONS PRINTED ON THE REVERSE SIDE OF THIS PERMIT AND TO THE FOLLOWING SPECIAL REQUIREMENTS:

1. **Permittee shall provide and keep current a certificate of Public Liability and Workers Compensation Insurance which names the City of Dublin and its employees and agents as additional insureds.**
2. **Worksites left in an unsafe condition will be secured by the City Maintenance Department and the cost charged to the permittee.**

Working hours 9:00 a.m. to 3:00 p.m. only. Driveway accesses may not be obstructed at any time without written permission of property owner. Comply with all environmental regulations including Clean Water Act.

Prosecution of Work: All work authorized by the permit shall be performed in a workmanlike, diligent, and expeditious manner, and must be complete to the satisfaction of the City Engineer.

Liability and Damages: The permittee shall be responsible for all liability imposed by law for personal injury or property damage which may arise out of the work permitted and done by permittee under this permit, or which may arise out of failure on the part of the permittee to perform his obligations under said permit in respect to maintenance and encroachment. The permittee shall protect and indemnify the City of Dublin, its officers and employees, and save them harmless in every way from all action by law for damage or injury to persons or property that may arise out of or be occasioned in any way because of his operations as provided in this permit.

Signature of Permittee:

By: _____

Date: 3-16-98

City Engineer

By: _____

Date of Issue: 3/20/98

Inspection Record (Note date, type of inspection, and comments.)

CITY OF DUBLIN GENERAL PROVISIONS

1. The permittee shall begin work as authorized under this permit within 90 days from the start of issuance, unless a different date is stated in the permit. If the work is not begun within 90 days of the time stated in the permit, the permit shall become void. The permit shall be valid for a term of one year from the date of issuance, or as otherwise stated on the permit unless discontinued by the use or removal of the encroachment for which the permit was issued. (City of Dublin Municipal Code Chapter 7.04)
2. This permit is issued only for that portion of work in the City of Dublin right-of-way.
3. The permittee shall notify Underground Service Alert (U.S.A.) at 800/227-2600 prior to excavation. All underground contractors must have U.S.A. inquiry identification number.
4. Permittee is hereby cautioned that unless otherwise noted herein, traffic signal detector loops, wiring, etc., and irrigation facilities shall not be disturbed. Request marking from City of Dublin Public Works Department at 833-6630.
5. All excavations shall conform to the requirements of the State of California Division of Industrial Safety.
6. Permittee shall furnish all safeguards for pedestrians and post warning signs in advance of work area for vehicular traffic and shall clear the roadway of any obstructions or debris at the end of each work day. All safety devices shall conform to the latest edition of the State of California "Manual of Warning Signs, Lights, and Devices for Use in Performance of Work Upon Highway."
7. No public road under the jurisdiction of the City of Dublin shall be closed to travel by the general public without special permission of the City Engineer in writing. No lane closures will be allowed between 6:00 a.m. and 9:00 a.m. or between 3:30 p.m. and 6:30 p.m. At other times, at least one lane of traffic shall be kept open to the general public.
8. The pavement shall be sawed 6" outside the edges of the trench excavation in order to leave a smooth contour of the pavement surface. Cutting with air tools or other devices leaving jagged edges shall not be permitted.
9. No more than 300 linear feet of continuous excavation shall be opened at one time.

   A. Excavate only that length of trench which can be backfilled the same day.
   B. Except for bedding or shading requirements by utilities, Class II Aggregate Base is the only acceptable backfill material.

10. Backfill shall be placed in accordance with the current "State of California Department of Transportation Standard Specification." The structural section of the upper ____ inches of the trench backfill within the paved areas shall be _____ inches A.C. on _____ inches A.B. on _____ inches A.S.B.
11. Metal plates of sufficient thickness for legal load traffic or temporary paving 1-1/2" minimum thickness shall be placed at the end of each work day. Sidewalk construction areas shall be left in a safe condition.
12. Material excavated from within the City road right-of-way under this permit shall be removed from within the right-of-way and disposed of in a legal manner.
13. The right-of-way shall be left clean and orderly to the satisfaction of the City Engineer or his representative. The permittee shall give particular attention to maintaining the project in a dust-free condition while performing the various items of work and during non-working periods, including weekends.
14. All work shall be done in accordance with the provisions of the Clean Water Act, which protects the storm drain system. No dirt, rock, debris, concrete, or other materials or fluids will be allowed to enter the storm drain system during the course of work on this permit.
15. Final asphalt concrete surfacing shall be placed within 5 days of completion of each 300 lineal feet of excavation. If the edges of the trench have ravelled prior to final surfacing, the edges shall be resawn.
16. Line and grade shall be left to the satisfaction of the City Engineer. All work shall conform to the current "State of California Department of Transportation Standard Specifications" and City requirements, and the City Inspector shall be notified at 833-6630 24 hours prior to pouring concrete.

   A. Line and grade shall conform to grade of existing curb.
   B. Line and grade shall conform to adjacent sidewalk.
   C. Line and grade shall conform to plans prepared by _____ attached hereto and made a part hereof.
   D. No concrete shall be poured until forms have been inspected and approved.
   E. Where concrete is to be removed, the edges are to be sawn at the nearest joint or score mark.

17. Where concrete is poured in a planter strip, score lines, construction joints, expansion joints, shall be continued across entire sidewalk area. Where curb, gutter, and sidewalk are poured monolithically, the "back edge" of the curb shall be scored.
18. The permittee will notify the proper utilities or persons that the location of an existing utility pole, fire hydrant, tree, or other encroachment at the site or within the traveled way is such that relocation is necessary for proper execution of the work and/or safety of the general public. Said relocation shall be made at no expense to the City of Dublin. In the event such encroachment is not removed, the permittee will be permitted to construct a blockout with dowelled bars in a location and in a manner satisfactory to the inspector. Upon completion of relocation of such encroachment, permittee shall complete construction of curb, gutter, and/or sidewalk within 30 days.
19. No culverts or storm drains are to be cut or disturbed. Direction of flow and capacity of existing surface water drainage facilities shall not be materially changed.
20. Access to public and private properties adjacent to the public road in which work is authorized shall not be denied by reason of such work. Special measures shall be taken to insure passage for emergency vehicles over and at the site of work at all times.
21. In the event that any future improvement of the road right-of-way necessitates the relocation of the encroachment for which this permit is issued, the permittee shall relocate same at his sole expense.
22. Priority shall be given to operations performed under contract let by the City of Dublin for certain work at this location. Coordination shall be effected through said Contractor and the Project Representative for the City.
23 Any existing facilities damaged or removed in the course of the work shall be replaced in kind or better, including ground and pavement surface, signs, striping, markers, curb, gutter, survey monuments, trees, and other vegetation, etc., to the satisfaction

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE, PLEASANTON, CALIFORNIA 94588-5127 PHONE (510) 484-2600 X235
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 7850 Amador Valley Boulevard Dublin, CA

California Coordinates Source MAPINFO ft. Accuracy ± 50 ft.
CCN 440,910 ft. CCE 1,585,560 ft.
APN

CLIENT
Name Tesco
Address 2300 Crow Canyon Place Phone 510-277-2321
City San Ramon Zip 94583

APPLICANT
Name Environmental Resolutions, Inc
Fax 415-382-1856
Address 74 Digital Dr. #6 Phone 415-382-9105
City Novato, CA Zip 94949

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE N/A

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. 710079

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 30 ft.
Surface Seal Depth 9 ft. Number 2
MW 3 MW
4 5

GEOTECHNICAL PROJECTS N/A
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 4-15-98
ESTIMATED COMPLETION DATE 4-15-98

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE _____ Date 3/11/98

FOR OFFICE USE

PERMIT NUMBER 98034
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C.) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION. See attached.

G. SPECIAL CONDITIONS

Approved Wyman Hong Date 18 Mar 98
Wyman Hong

101993

APPENDIX C
FIELD PROTOCOL

FIELD PROTOCOL

Site Safety Plan

Field work is performed by ERI personnel in accordance with a site safety plan developed for the site. This plan describes the basic safety requirements for the subsurface investigation and the drilling of soil borings at the work site. The site safety plan is applicable to personnel and subcontractors of ERI. Personnel at the site are informed of the contents of the site safety plan before work begins. A copy of the site safety plan is kept at the work site and is available for reference by appropriate parties during the work. The ERI geologist acts as the Site Safety Officer.

Soil Borings and Sampling

Prior to drilling of borings and construction of wells, ERI acquires necessary permits from the appropriate agency(ies). ERI also contacts Underground Service Alert (USA) and a private utility locator before drilling to help locate public utility lines at the site. ERI observes the driller hand-probe and hand-auger boring locations to a depth of approximately 5 ft bgs and a diameter greater than the soil boring diameter before drilling to reduce the risk of damaging underground structures.

Soil borings are drilled with a CME-55 (or similar) drill rig equipped with 8-inch diameter, hollow-stem augers. Auger flights and sampling equipment are steam-cleaned before use to minimize the possibility of crosshole contamination. The rinseate is containerized and stored on site. ERI will coordinate with Tosco for appropriate recycling or disposal of the rinseate.

Drilling is performed under the observation of a field geologist, and the earth materials in the borings are identified using visual and manual methods, and classified as drilling progresses using the Unified Soil Classification System. Soil borings are drilled to approximately 10 feet below the uppermost zone of saturation or 5 feet into any competent clay layer (aquitard) encountered beneath the water-bearing zone. If an aquitard is encountered, the boring is terminated and backfilled with bentonite before installing a groundwater monitoring well.

During drilling, soil samples are collected at 5-foot intervals, obvious changes in lithology, and just above the groundwater surface. Samples are collected with a California-modified, split-spoon sampler equipped with laboratory-cleaned brass sleeves. Samples are collected by advancing the auger to a point just above the sampling depth and driving the sampler into the soil. The sampler is driven 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows required to drive the sampler each successive 6-inch interval is counted and recorded to give an indication of soil consistency.

Soil samples are monitored with a photoionization detector (PID), which measures hydrocarbon concentrations in the ambient air or headspace above the soil sample. Field instruments such as the PID are useful for indicating relative levels of hydrocarbon vapors, but do not detect concentrations of hydrocarbons with the same precision as laboratory analyses. Soil samples selected for possible chemical analysis are sealed promptly with Teflon® tape, and plastic caps. The samples are labeled and placed in iced storage for transport to the laboratory. Chain of Custody Records are initiated by the geologist in the field, updated throughout handling of the samples, and sent with the samples to the laboratory. Copies of these records are in our report. Cuttings generated during drilling are placed on plastic sheeting and covered and left at the site. ERI coordinates with Tosco for the soil to either be treated on site or removed to an appropriate disposal facility.

Monitoring Well Construction

Monitoring wells are constructed in borings using thread-jointed, 2-inch inner diameter, Schedule 40 polyvinyl chloride (PVC) casing. No chemical cements, glues, or solvents are used in well construction. The screened portion of each well consists of factory-perforated casing with 0.010-inch wide slots. If unconfined aquifer conditions exist, the well screen is installed from the total depth of each well to approximately 10 feet above the uppermost water-bearing unit. If confined conditions exist, the uppermost water-bearing unit is screened exclusively. Unperforated casing is installed from the top of each screen to the ground surface. The annular space in the well is packed with number 2/12 sand to approximately 2 feet above the slotted interval. A bentonite plug is added above the sand pack to prevent cement from entering the well-pack. The remaining annulus is backfilled to grade with a slurry of portland cement.

The monitoring wells are protected with a traffic-rated, cast-aluminum utility box equipped with a metal skirt. The box has a watertight seal to protect against surface-water infiltration and must be opened with a special wrench. The design of this box discourages vandalism and reduces the possibility of accidental disturbance of the well.

APPENDIX D

UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY AND LOGS OF BORINGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel sand mixture, little or no fines
		GM	Silty gravels, gravel-sand-clay mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS	SILTS AND CLAYS LL<50	ML	Inorganic silts and very fine-grained sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	SILTS AND CLAYS LL>50	MH	Inorganic silts, micaceous or diatomaceous fine-grained sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

DEPTH THROUGH WHICH SAMPLER IS DRIVEN

RELATIVELY UNDISTURBED SAMPLE

MISSED SAMPLE

GROUNDWATER LEVEL OBSERVED FROM FIRST WET SOIL SAMPLE IN BORING

STATIC GROUNDWATER LEVEL

OVM — ORGANIC VAPOR METER READING IN PARTS PER MILLION

PID — PHOTO-IONIZATION DETECTOR READING IN PARTS PER MILLION

WELL DESIGN

SAND PACK

BENTONITE ANNULAR SEAL

NEAT CEMENT ANNULAR SEAL

BLANK PVC

MACHINE-SLOTTED PVC

S-10 — SAMPLE LOCATION

BLOW/FT. REPRESENTS THE NUMBER OF BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES TO DRIVE THE SAMPLER THROUGH THE LAST 12 INCHES OF AN 18-INCH PENETRATION.

DASHED LINES SEPARATING UNITS ON THE LOG REPRESENT APPROXIMATE BOUNDARIES ONLY. ACTUAL BOUNDARIES MAY BE GRADUAL. LOGS REPRESENT SUBSURFACE CONDITIONS AT THE BORING LOCATION AT THE TIME OF DRILLING ONLY.

ENVIRONMENTAL RESOLUTIONS, INC.

PROJECT 2092

UNIFIED SOIL CLASSIFICATION SYSTEM AND LOG OF BORINGS SYMBOL KEY

TOSCO (UNION) 76 SERVICE STATION 7176
7850 Amador Valley Road
Dublin, California

PLATE

Appendix

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2092 Boring: B7/MW4 Plate: APPENDIX
Site: Tosco (Union) 76 Service Station 7176 Date: 4/15/98
Drill Contractor: Woodward Drilling
Sample Method: Split Spoon Geologist: ROBERT H. ENKEBOLL
Drill Rig: Mobile B-57 Bore Hole Diameter: 8" Signature:
Location: 80 Feet Southwest of Well U1 Registration: R.G. 5034
30 Feet South of Southern Site Boundary Logged by: Sue Shallenberger

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						2" asphalt, 8" base	
					ML		
5	20	0				Clayey silt, some sand and gravel, very dark greyish brown, damp, subangular gravel to 1"	
					CL	Transitioning to silty clay, abundant discontinuous calcium veinlets, sand and gravel interfingered at 9 feet	
10	14	0					
		▽					
15	26	0					
					ML	Clayey silt, some gravel and sand, olive grey, moist, trace of sand, gravel rounded to subangular, up to 1" in size, sparse plant stems to 1 1/4", sand and gravel pocket 2" in diameter, fine-to coarse-grained sand. gravel to 1/4"	
		7 ▼					
20	20						
					CL	Silty clay, dark greyish brown, wet, sparse gravel	
					GP	Sandy gravel, dark greyish brown, wet, gravel to 1"	
25	25	2				Total depth at 25 feet Groundwater encountered at 20 feet	

Casing Diameter: 2" Slot Size: 0.010 , Sand Size: 2/12 , Grout: Portland Cement

FN: 2092B007

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2092 Boring: B8/MW5 Plate: APPENDIX
Site: Tosco (Union) 76 Service Station 7176 Date: 4/15/98
Drill Contractor: Woodward Drilling
Sample Method: Split Spoon Geologist: ROBERT H. ENKEBOLL
Drill Rig: Mobile B-57 Bore Hole Diameter: 8" Signature:
Location: 95 Feet East of Well MW4 Registration: R.G. 5034
85 Feet Southeast of Well U1 Logged by: Sue Shallenberger

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						3" asphalt, 14" baserock	
					CL	Silty clay, dark greyish brown, damp with sandy gravel at 4', gravel rounded to subangular, up to 1 1/2"	
5	15	0					
10	13	0				mottled brown and dark greyish brown, moist, with discontinuous calcium deposit veinlets, some rootlets, trace of sand, sparse gravel to 1/2"	
15	12	0					
					ML	Clayey silt, mottled brown and greenish grey, wet, some calcium veinlets, trace of sand	
20	9	2					
					CL	Clay, dark greyish brown, wet, some gravel to 1/2"	
25	22					Total depth at 25 feet Groundwater encountered at 20 feet	

Casing Diameter: 2" Slot Size: 0.010 Sand Size: 2/12 Grout: Portland Cement

FN 35025008

APPENDIX E
LABORATORY ANALYSIS REPORTS
AND CHAIN OF CUSTODY RECORDS

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 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
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

RECEIVED
JUN 02 1998

Environmental Resolutions
74 Digital Drive , Suite 6
Novato, CA 94949

Client Proj. ID: Unocal 7176, 209203T2
Lab Proj. ID: 9804B95

Sampled: 04/15/98
Received: 04/17/98
Analyzed: see below
Reported: 05/31/98

Attention: Glenn Matteucci

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9804B95-01				
Sample Desc : SOLID,SP-1-(1-4) Comp				
Lead by ICP	mg/Kg	04/28/98	5.0	6.1

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Environmental Resolutions	Client Proj. ID: Unocal 7176, 209203T2	Sampled: 04/15/98
74 Digital Drive , Suite 6	Sample Descript: SP-1-(1-4) Comp	Received: 04/17/98
Novato, CA 94949	Matrix: SOLID	
	Analysis Method: 8015Mod/8020	Analyzed: 04/28/98
Attention: Glenn Matteucci	Lab Number: 9804B95-01	Reported: 05/31/98

Total Purgeable Petroleum Hydrocarbons as Gas/BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**0.45**
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	98
4-Bromofluorobenzene	60	140	77

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Environmental Resolutions	Client Proj. ID: Unocal 7176, 209203T2	Sampled: 04/15/98
74 Digital Drive , Suite 6	Sample Descript: SP-1-(1-4) Comp	Received: 04/17/98
Novato, CA 94949	Matrix: SOLID	Extracted: 04/21/98
	Analysis Method: EPA 8015 Mod	Analyzed: 04/28/98
Attention: Glenn Matteucci	Lab Number: 9804B95-01	Reported: 05/31/98

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	6.8
Chromatogram Pattern:		Diesel

Surrogates	Control Limits %		% Recovery
o-Terphenyl	50	150	82

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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Environmental Resolutions
74 Digital Drive, Ste. 6
Novato, CA 94949
Attention: Glen Matteucci

Client Project ID: Unocal 3788, 227103T1

QC Sample Group: 9804B95

Reported: May 31, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Solid
Method:	EPA 6010
ANALYTE	Lead

QC Batch #: 32960

Sample No.: 701328593, 601

Sample Conc., mg/Kg:	120
Conc. Spiked, mg/Kg:	38
Matrix Spike, mg/Kg:	160
% Recovery:	113
Matrix Spike Duplicate, mg/Kg:	150
% Recovery:	82
Relative % Difference:	32
RPD Control Limits:	0-25

LCS Batch#: 701328585

Conc. Spiked, mg/Kg:	50
Recovery, mg/Kg:	49
LCS % Recovery:	98

Percent Recovery Control Limits:

MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Tod Granicher
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.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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Environmental Resolutions
74 Digital Drive, Ste. 6
Novato, CA 94949
Attention: Glen Matteucci

Client Project ID: Unocal 3788, 227103T1

QC Sample Group: 9804895

Reported: May 31, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Solid
Method:	EPA 8015M
ANALYTE	Diesel

QC Batch #: 32949

Sample No.: 701328171, 189

Sample Conc., mg/Kg:	N.D.
Conc. Spiked, mg/Kg:	33
Matrix Spike, mg/Kg:	29
% Recovery:	88
Matrix Spike Duplicate, mg/Kg:	29
% Recovery:	88
Relative % Difference:	0.0
RPD Control Limits:	0-25

LCS Batch#: 32949

Conc. Spiked, mg/Kg:	33
Recovery, mg/Kg:	31
LCS % Recovery:	94

Percent Recovery Control Limits:

MS/MSD	50-150
LCS	60-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Tod Granicher
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.

Sequoia Analytical

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Environmental Resolutions
74 Digital Drive, Ste. 6
Novato, CA 94949
Attention: Glen Matteucci

Client Project ID: Unocal 3788, 227103T1

QC Sample Group: 9804B95

Reported: May 31, 1998

QUALITY CONTROL DATA REPORT

Matrix: Solid
Method: EPA 8020

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	33024			
Sample No.:	701331746, 753			
Sample Conc., mg/Kg:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, mg/Kg:	0.10	0.10	0.10	0.30
Matrix Spike, mg/Kg:	0.097	0.098	0.092	0.30
% Recovery:	97	98	92	100
Matrix Spike Duplicate, mg/Kg:	0.099	0.10	0.094	0.31
% Recovery:	99	100	94	104
Relative % Difference:	2.0	2.0	2.2	3.9
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#: 701331761

Conc. Spiked, mg/Kg:	0.10	0.10	0.10	0.30
Recovery, mg/Kg:	0.095	0.095	0.090	0.30
LCS % Recovery:	95	95	90	100

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Tod Granicher
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.

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Environmental Resolutions
74 Digital Drive , Suite 6
Novato, CA 94949
Attention: Glenn Matteucci

Client Proj. ID: Unocal 7176, 209203T2

Lab Proj. ID: 9804B95

Received: 04/17/98

Reported: 05/31/98

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 8 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Richard Herling
Project Manager

UNOCAL 76

☐ 680 Chesapeake Drive • Redwood City, CA 94063 • (415) 364-9600
☐ 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600
☐ 1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600
☐ 18939 120th Ave., N.E., Suite 101 • Bothell, WA 98011 • (206) 481-9200
☐ 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: ENVIRONMENTAL RESOLUTIONS, INC	Project Name: 209203T2
Address: 74 DIGITAL DR, SUITE 6	UNOCAL Project Manager: TINA BERRY
City: NOVATO State: CA Zip Code: 94949	Release #:
Telephone: (415) 382-9105 FAX #(415) 382-1856	Site #: 7176
Report To: GLENN MATTEUCCI Sampler: SUE SHALLENBERGER	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 980495

COMPOSITE

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPPH 8015	TPHd 8015	BTEX 8020	TTLC LEAD 6010	Comments
1. SP-1-1	4/15/98 1245	SOIL	1	SLEEVE	1	X	X	X	X	
2. SP-1-2	1245		1			X	X	X	X	COMPOSITE
3. SP-1-3	1245		1			X	X	X	X	
4. SP-1-4	1245	SS	1	SS	↓	X	X	X	X	
5.										
6.										
7.										
8.										
9.										
10.										

Relinquished By: Sue Shallenberger	Date:	Time:	Received By:	Date: 4/16/98	Time: 1120
Relinquished By:	Date: 4/17/98	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date: 4-17-98	Time: 1842

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

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Environmental Resolutions
74 Digital Drive , Suite 6
Novato, CA 94949

Attention: Glenn Mattcucci

Client Proj. ID: Unocal 7176, 209203T2
Sample Descript: S-10-B7
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9804B99-01

Sampled: 04/15/98
Received: 04/17/98
Extracted: 04/27/98
Analyzed: 04/27/98
Reported: 05/31/98

Total Purgeable Petroleum Hydrocarbons as Gas/BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	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	105
4-Bromofluorobenzene	60	140	76

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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Environmental Resolutions	Client Proj. ID: Unocal 7176, 209203T2	Sampled: 04/15/98
74 Digital Drive , Suite 6	Sample Descript: S-10-B7	Received: 04/17/98
Novato, CA 94949	Matrix: SOLID	Extracted: 04/21/98
	Analysis Method: EPA 8015 Mod	Analyzed: 04/27/98
Attention: Glenn Mattcucci	Lab Number: 9804B99-01	Reported: 05/31/98

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
o-Terphenyl	50	150	81

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

SEQUOIA ANALYTICAL - ELAP #1210

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Environmental Resolutions	Client Proj. ID: Unocal 7176, 209203T2	Sampled: 04/15/98
74 Digital Drive , Suite 6	Sample Descript: S-10-B8	Received: 04/17/98
Novato, CA 94949	Matrix: SOLID	Extracted: 04/28/98
	Analysis Method: 8015Mod/8020	Analyzed: 04/28/98
Attention: Glenn Mattcucci	Lab Number: 9804B99-02	Reported: 05/31/98

Total Purgeable Petroleum Hydrocarbons as Gas/BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	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	104
4-Bromofluorobenzene	60	140	87

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

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Environmental Resolutions	Client Proj. ID: Unocal 7176, 209203T2	Sampled: 04/15/98
74 Digital Drive , Suite 6	Sample Descript: S-10-B8	Received: 04/17/98
Novato, CA 94949	Matrix: SOLID	Extracted: 04/21/98
	Analysis Method: EPA 8015 Mod	Analyzed: 04/27/98
Attention: Glenn Mattcucci	Lab Number: 9804B99-02	Reported: 05/31/98

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
o-Terphenyl	50	150	81

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

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Environmental Resolutions
74 Digital Drive, Ste. 6
Novato, CA 94949
Attention:

Client Project ID: Unocal 7176, 209203T2

QC Sample Group: 9804B99

Reported: May 31, 1998

QUALITY CONTROL DATA REPORT

Matrix: Solid
Method: EPA 8020

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	33024			
Sample No.:	701331746, 753			
Sample Conc., mg/Kg:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, mg/Kg:	0.10	0.10	0.10	0.30
Matrix Spike, mg/Kg:	0.097	0.098	0.092	0.30
% Recovery:	97	98	92	101
Matrix Spike Duplicate, mg/Kg:	0.099	0.100	0.094	0.31
% Recovery:	99	100	94	104
Relative % Difference:	2.0	2.0	2.2	2.9
RPD Control Limits:	0-25	0-25	0-25	0-25
LCS Batch#:	33024			
Conc. Spiked, mg/Kg:	0.10	0.10	0.10	0.30
Recovery, mg/Kg:	0.095	0.095	0.090	0.30
LCS % Recovery:	95	95	90	98

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Tod Granicher
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.

Sequoia Analytical

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Environmental Resolutions
74 Digital Drive, Ste. 6
Novato, CA 94949
Attention:

Client Project ID: Unocal 7176, 209203T2

QC Sample Group: 9804B99

Reported: May 31, 1998

QUALITY CONTROL DATA REPORT

Matrix: Solid
Method: EPA 8020

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	33065			
Sample No.:	701335358, 366			
Sample Conc., mg/Kg:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, mg/Kg:	0.10	0.10	0.10	0.30
Matrix Spike, mg/Kg:	0.11	0.097	0.097	0.30
% Recovery:	110	97	97	100
Matrix Spike Duplicate, mg/Kg:	0.11	0.097	0.098	0.30
% Recovery:	110	97	98	100
Relative % Difference:	0.0	0.0	1.0	0.0
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#: 33065

Conc. Spiked, mg/Kg:	0.10	0.10	0.10	0.30
Recovery, mg/Kg:	0.11	0.095	0.097	0.30
LCS % Recovery:	110	95	97	100

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

Please Note:
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SEQUOIA ANALYTICAL

Tod Granicher
Project Manager

Sequoia Analytical

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Environmental Resolutions
74 Digital Drive, Ste. 6
Novato, CA 94949
Attention:

Client Project ID: Unocal 7176, 209203T2

QC Sample Group: 9804B99

Reported: May 31, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Solid
Method:	EPA 8015M
ANALYTE	Diesel

QC Batch #: 32949

Sample No.: 701328171, 189

Sample Conc., mg/Kg:	N.D.
Conc. Spiked, mg/Kg:	33
Matrix Spike, mg/Kg:	29
% Recovery:	88
Matrix Spike Duplicate, mg/Kg:	29
% Recovery:	88
Relative % Difference:	0.0
RPD Control Limits:	0-25

LCS Batch#: 32949

Conc. Spiked, mg/Kg:	33
Recovery, mg/Kg:	31
LCS % Recovery:	93

Percent Recovery Control Limits:

MS/MSD	50-150
LCS	60-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Tod Granicher
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.

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Environmental Resolutions
74 Digital Drive , Suite 6
Novato, CA 94949
Attention: Glenn Mattcucci

Client Proj. ID: Unocal 7176, 209203T2
Lab Proj. ID: 9804B99

Received: 04/17/98
Reported: 05/31/98

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

Richard Herling
Project Manager

UNOCAL 76

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Company Name: ENVIRONMENTAL RESOLUTIONS, INC	Project Name: 209203T2
Address: 74 DIGITAL DR, SUITE 6	UNOCAL Project Manager: TINA BERRY
City: NOVATO State: CA Zip Code: 94949	Release #:
Telephone (415) 382-9105 FAX # (415) 382-1856	Site #: 7176
Report To: Sampler:	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 9804 B99

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPPH 8015	TPHd 8015	BTEX 8020	Comments
1. S-5-B7	4/15/98 855	SOIL	1	SLEEVE		HOLD	HOLD	HOLD	
2. S-10-B7	900		1		1				
3. S-15-B7	905		1			HOLD	HOLD	HOLD	
4. S-19-B7	910		1						
5. S-5-B8	1050		1			SS	SS	SS	
6. S-10-B8	1055		1		2				
7. S-15-B8	1100		1			HOLD	HOLD	HOLD	
8. S-20-B8	1105	SS	1	SS		SS	SS	SS	
9.									
10.									

Pink - Client

Yellow - Laboratory

White - Laboratory

Relinquished By: Sue Shallenberger	Date:	Time:	Received By:	Date: 4/17/98	Time: 1120
Relinquished By:	Date: 4/17/98	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date: 04-17-98	Time: 18:41

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:

PTS Laboratories, Inc.

Geotechnical Services

8100 Secura Way • Santa Fe Springs • CA 90670
Phone (562) 907-3607 • Fax (562) 907-3610

May 7, 1998

Mr. Glenn Matteucci
Environmental Resolutions
74 Digital Dr. Suite 6
Novato, CA 94949

Re: 2099203T2
PTS File: 28181

Dear Mr. Matteucci:

Enclosed are final data for samples submitted from your 2099203T2 Project. All analyses were performed by applicable ASTM, EPA or API. Samples will be retained for 30 days before disposal unless other arrangements are made.

We appreciate the opportunity to be of service and trust these data will prove beneficial in the development of this project. Please feel free to call myself or Larry Kunkel, District Manager, should you have any questions or require additional information.

Sincerely,

PTS Laboratories, Inc.

Rick Young
Project Manager

LK/vk

encl.

PHYSICAL PROPERTIES DATA

(METHODOLOGY: ASTM D2937, ASTM D2216, EPA 9045, API RP40, ASTM D5084, Walkley-Black)

PROJECT NAME: Unocal 7176
PROJECT NO: 2099203T2

									25.0 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENT. (1)	MOISTURE CONTENT (% wt)	SOIL pH	DENSITY BULK (g/cc)	DENSITY GRAIN (g/cc)	EFFECTIVE POROSITY, % Vb	TOTAL ORGANIC CONTENT mg/kg	NATIVE PERMEABILITY TO WATER (millidarcy)	NATIVE HYDRAULIC CONDUCTIVITY (cm/s)
S-20-B7	20.00	V	18.9	7.03	1.77	2.58	31.3	1100	0.620	6.07E-07
S-25-B7	25.00	V	20.2	6.86	1.66	2.58	35.5	480	0.945	9.35E-07

(1) Sample Orientation: H = Horizontal; V = Vertical

Vb = Bulk Volume, cc
Pv = Pore Volume, cc
ND = Not Detected

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422M/D4464M)

PROJECT NAME: Unocal 7176
PROJECT NO: 209203T2

Sample ID	Depth, ft.	Description USCS/ASTM (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
S-20-B7	20	Fine Sand	0.050	2.79	1.83	6.94	26.07	(2)	(2)	62.37
S-25-B7	25	Silt	0.028	0.00	0.00	0.04	15.84	70.80	13.32	84.12

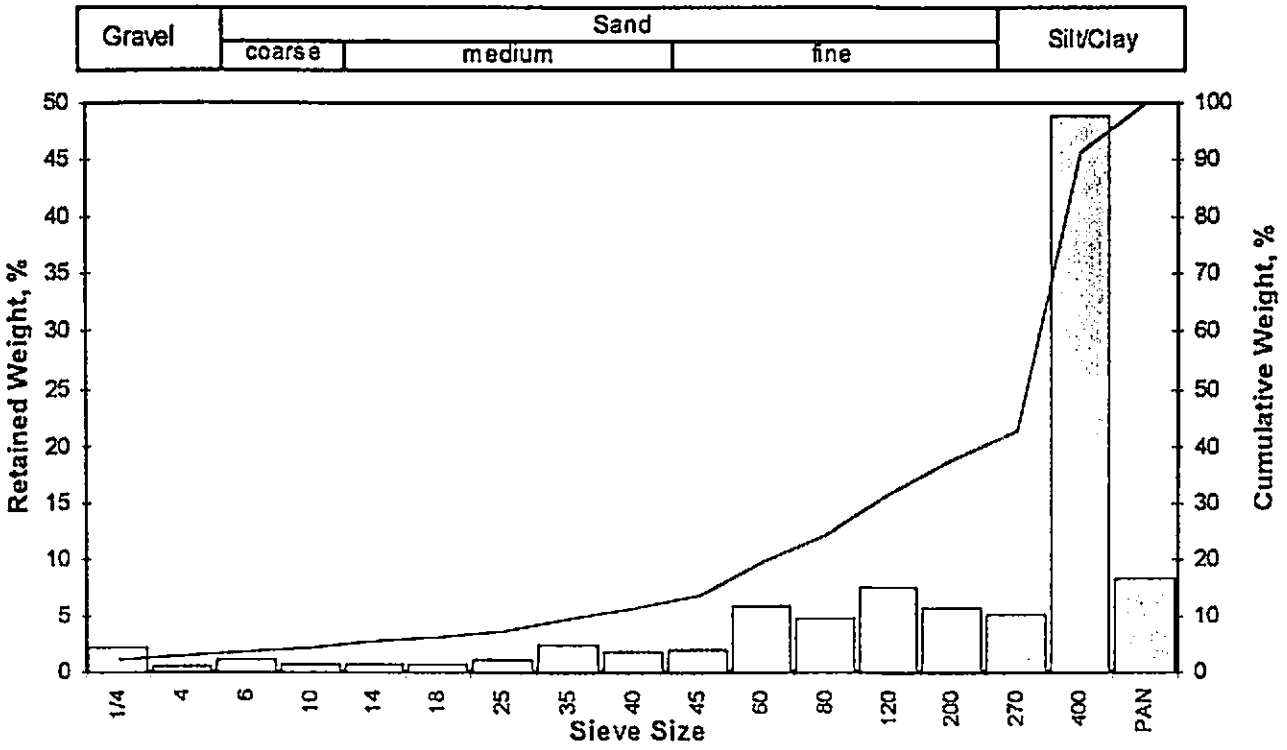
(2) Analysis performed using ASTM D422M; no individual quantitation for silt and clay size particles.

(1) based on Mean from Trask

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client:	Environmental Resolutions	**PTS File No:**	28181
Project:	UNOCAL7176	**Sample ID:**	S-20-B7
Project No:	209203T2	**Depth, ft:**	20



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	1.00	2.28	2.28
0.1873	4.757	-2.25	4	0.22	0.50	2.79
0.1324	3.364	-1.75	6	0.47	1.07	3.86
0.0787	2.000	-1.00	10	0.33	0.75	4.61
0.0557	1.414	-0.50	14	0.33	0.75	5.37
0.0394	1.000	0.00	18	0.32	0.73	6.10
0.0278	0.707	0.50	25	0.52	1.19	7.28
0.0197	0.500	1.00	35	1.05	2.40	9.68
0.0166	0.420	1.25	40	0.82	1.87	11.55
0.0139	0.354	1.50	45	0.89	2.03	13.58
0.0098	0.250	2.00	60	2.55	5.82	19.41
0.0070	0.177	2.50	80	2.12	4.84	24.25
0.0049	0.125	3.00	120	3.35	7.65	31.89
0.0029	0.074	3.75	200	2.51	5.73	37.63
0.0021	0.053	4.25	270	2.25	5.14	42.76
0.0015	0.037	4.75	400	21.43	48.93	91.69
			PAN	3.64	8.31	100.00
TOTALS				43.80	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-0.74	0.0659	1.673
10	1.04	0.0191	0.485
16	1.71	0.0121	0.306
25	2.55	0.0067	0.171
40	3.98	0.0025	0.063
50	4.32	0.0020	0.050
60	4.43	0.0018	0.047
75	4.58	0.0016	0.042
84	4.67	0.0015	0.039
90	4.73	0.0015	0.038
95	2.86	0.0054	0.138

Measure	Trask	Inman	Folk-Ward
Median, phi	4.32	4.32	4.32
Median, in.	0.0020	0.0020	0.0020
Median, mm	0.050	0.050	0.050
Mean, phi	3.23	3.19	3.57
Mean, in.	0.0042	0.0043	0.0033
Mean, mm	0.106	0.110	0.084
Sorting	0.495	1.482	1.286
Skewness	1.693	-0.766	-1.290
Kurtosis	0.144	0.215	0.727
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

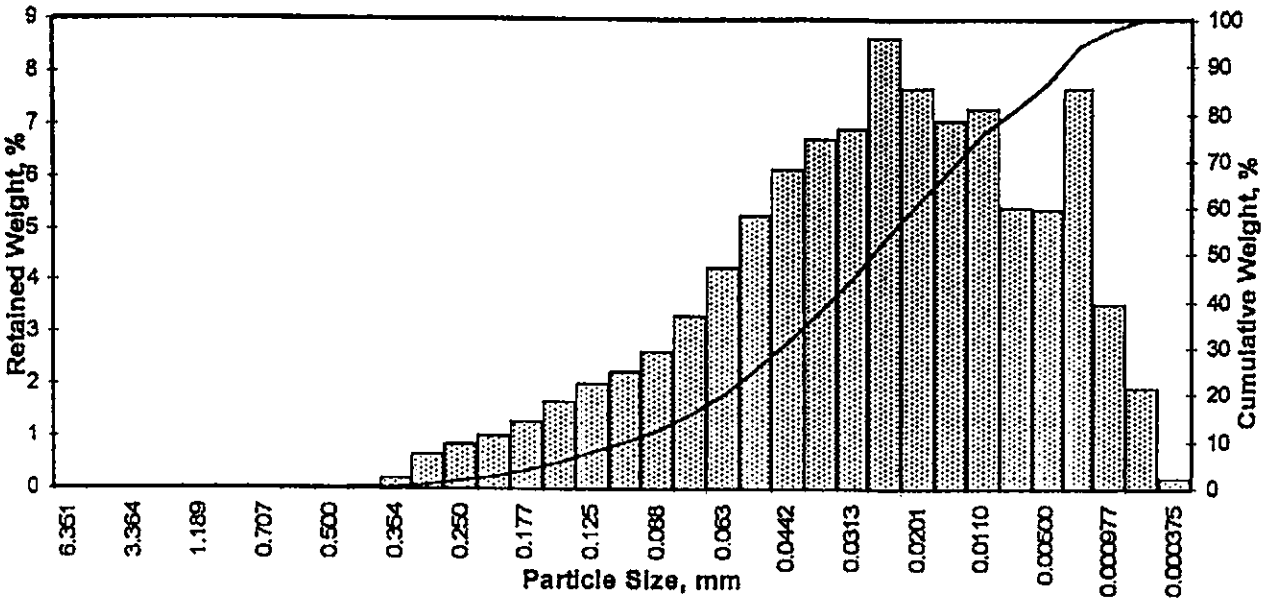
Description	Retained on Sieve #	Weight Percent
Gravel	4	2.79
Coarse Sand	10	1.83
Medium Sand	40	6.94
Fine Sand	200	26.07
Silt/Clay	<200	62.37
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Environmental Resolutions, Inc.	**PTS File No:**	28181
Project:	Unocal 7176	**Sample ID:**	S-25-B7
Project No:	209203T2	**Depth, ft:**	25.00

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of	U.S.	Sample Weight,	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.04	0.04	0.04
0.0139	0.354	1.50	45	0.19	0.19	0.23
0.0117	0.297	1.75	50	0.66	0.66	0.89
0.0098	0.250	2.00	60	0.84	0.84	1.73
0.0083	0.210	2.25	70	1.02	1.02	2.75
0.0070	0.177	2.50	80	1.28	1.28	4.03
0.0059	0.149	2.75	100	1.68	1.68	5.71
0.0049	0.125	3.00	120	1.99	1.99	7.70
0.0041	0.105	3.25	140	2.25	2.25	9.95
0.0035	0.088	3.50	170	2.62	2.62	12.57
0.0029	0.074	3.75	200	3.31	3.31	15.88
0.0025	0.063	4.00	230	4.25	4.25	20.13
0.0021	0.053	4.25	270	5.27	5.27	25.40
0.00174	0.0442	4.50	325	6.15	6.15	31.54
0.00146	0.0372	4.75	400	6.72	6.72	38.26
0.00123	0.0313	5.00	450	6.93	6.93	45.19
0.000986	0.0250	5.32	500	8.65	8.65	53.84
0.000790	0.0201	5.64	635	7.68	7.68	61.52
0.000615	0.0156	6.00		7.09	7.09	68.60
0.000435	0.0110	6.50		7.30	7.30	75.90
0.000308	0.00781	7.00		5.41	5.41	81.31
0.000197	0.00500	7.65		5.37	5.37	86.68
0.000077	0.00195	9.00		7.67	7.67	94.34
0.000038	0.000977	10.00		3.54	3.54	97.88
0.000019	0.000488	11.00		1.92	1.92	99.80
0.000015	0.000375	11.38		0.20	0.20	100.00
TOTALS				100.03	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	2.64	0.0063	0.160
10	3.25	0.0041	0.105
16	3.76	0.0029	0.074
25	4.23	0.0021	0.053
40	4.81	0.0014	0.036
50	5.18	0.0011	0.028
60	5.58	0.0008	0.021
75	6.44	0.0005	0.012
84	7.32	0.0002	0.006
90	8.23	0.0001	0.003
95	9.19	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	5.18	5.18	5.18
Median, in.	0.0011	0.0011	0.0011
Median, mm	0.028	0.028	0.028
Mean, phi	4.95	5.54	5.42
Mean, in.	0.0013	0.0008	0.0009
Mean, mm	0.032	0.021	0.023
Sorting	0.465	1.783	1.883
Skewness	0.897	0.203	0.214
Kurtosis	0.206	0.834	1.215
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.04
Fine Sand	200	15.84
Silt	>0.005 mm	70.80
Clay	<0.005 mm	13.32
	Total	100

Phone: (562) 907-3607 Fax (562) 907-3610

DATE 4/27/98 PTS FILE# 28181 **CHAIN OF CUSTODY RECORD** PAGE 1 OF 1

COMPANY
ENVIRONMENTAL RESOLUTIONS, INC 94949
ADDRESS
74 DIGITAL DR, SUITE 6, NOVATO, CA
PROJECT MANAGER
GLENN MATTEUCCI
PROJECT NAME PHONE NUMBER
UNOCAL 7176 (415) 382-9105
PROJECT NUMBER FAX NUMBER
209203T2 (415) 382-1856
SITE LOCATION
7850 AMADOR VALLEY BLVD, DUBLIN, CA
SAMPLER SIGNATURE
Sue Challenberger

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY, ~~API RP40~~ ASTM D2937	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YELD ASTM D425	CATION EXCHANGE CAPACITY EPA 9080	SOIL pH, EPA 9045	GRAIN SIZE: DRY; 400 MESH	GRAIN SIZE: SIEVE & LASER	GRAIN SIZE: LASER; 1 MICRON + SIEVE	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	PERMEABILITY V - ASTM D5084	NUMBER OF SAMPLES
S-20-B7	4/15/98	9:10	20		X	X		X				X			X		X		X	1
S-25-B7	4/15/98	9:30	25		X	X		X				X			X		X		X	1

P0#

SPECIAL HANDLING
24 HOURS 5 DAYS
72 HOURS NORMAL
OTHER

SAMPLE CONDITIONS
RECEIVED ON ICE YES/NO
SEALED YES/NO
OTHER YES/NO

COMMENTS

1. RELINQUISHED BY	2. RELINQUISHED BY	3. RELINQUISHED BY	4. RELINQUISHED BY
Sue Challenberger	RECD Q. L		
COMPANY ERI	COMPANY PTS Labs	COMPANY	COMPANY
DATE TIME	DATE 4/27/98 TIME 0913?	DATE TIME	DATE TIME

APPENDIX E

CUMULATIVE GROUNDWATER GROUNDWATER MONITORING AND SAMPLING DATA

(Gettler-Ryan Inc., July 16, 1998)

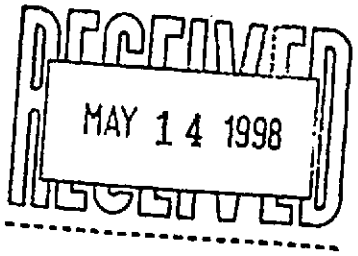
APPENDIX F

SOIL STOCKPILE DISPOSAL DOCUMENTATION

FORWARD
INCORPORATED

P.O. Box 6336
1145 W. Charter Way • Stockton, CA 92506
(209) 466-4482 • (800) 204-4242 • FAX (209) 466-1067

April 16, 1998



Environmental Resolutions
74 Digital Drive, Suite 6
Novato, CA 94949

Attn: Glenn Matteucci

Re: Approval No. 686322
Contaminated soil
Unocal 7176, 7850 Amador Valley Blvd

Dear Mr. Matteucci:

FORWARD INC. is pleased to inform you that the approximately 6 tons of Contaminated soil from the referenced site has been approved for acceptance at our Manteca, California Landfill as a Class 2 waste. This approval has been based on the information provided in the waste profile and associated materials submitted on behalf of Tosco Marketing Company (Generator). Acceptance of the waste is subject to regulatory requirements, and is also subject to the "Terms and Conditions" agreed to and signed by Generator in the waste profile.

Your approval number for this project will be 686322. This number should be used in all scheduling and correspondence with *FORWARD, INC.* regarding this waste profile.

This profile shall remain in effect until December 31, 1998, or until any significant changes in the waste stream occur. At that time, *FORWARD, INC.* will re-evaluate the profile, and current analytical data and requirements will be reviewed.

Please schedule all waste shipments with the Landfill (209-982-4298) at least 24 hours in advance. The landfills hours of operation are Monday through Friday 6:00 am to 4:30 pm for soil, 6:00 am to 3:00 pm for all other waste types.

Thank you for the opportunity to be of service. Should you have any questions, please do not hesitate to contact me or our Customer Service at (800) 204-4242.

Sincerely,

FORWARD, INC.

Brad J. Bonner
Sales Manager

BJB/sr

F:\FORWARD\MERGE FORMS\ACCEPT.DOC

Invoice Statement

Invoice: 7051
05/11/98

TOSCO MARKETING
Attn: TINA BERRY
P.O. BOX 5155
2000 CROW CANYON PL, STE 400
SAN RAMON, CA 94583

Job: UNOCAL # 7176
7850 AMADOR VLLEY BLVD
DUBLIN, CA

Date	Truck #	Tag #	Job Description	Quantity	Unit	Rate	Amount
04/28/98	M-97	67802	TRANSPORT SOIL TO FORWARD LANDFILL MANIFEST # 78014 (.94) TONS MINUMUM LOAD - CLEAN UP	1.00	BID	[redacted]	[redacted]
					Total Due:		[redacted]

Terms: Payment due by 20th of following month (Section 7108.6 of the California Business & Professions code) A service charge of 1 1/2% per month (18% per annum) will be charged on past due accounts. Debtor (Contractor) agrees to pay reasonable attorney fees and court costs in case of suit to collect.