MONITORING
PURGING
DISPOSING
SAMPLING

MPDS SERVICES, INCORPORATED

STID 1120
JE
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September 11, 1997

Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, California 94502

RE: **Unocal Service Station #1871**
96 MacArthur Boulevard
Oakland, California 94610

Per the request of the Tosco Marketing Company Project Professional, Ms. Tina R. Berry, enclosed please find our report (MPDS-UN1871-15) dated August 25, 1997, for the above referenced site.

Should you have any questions regarding the reporting of data, please feel free to call our office at (510) 602-5120. Any other questions may be directed to the Project Professional at (510) 277-2321.

Sincerely,

MPDS Services, Inc.

Jarrel F. Crider

/jfc

Enclosure

cc: Ms. Tina R. Berry

2401 Stanwell Drive, Suite 400, Concord, CA 94520
TEL: (510) 602-5120 FAX: (510) 689-1918

MONITORING
PURGING
DISPOSING
SAMPLING

MPDS SERVICES, INCORPORATED

MPDS-UN1871-15
August 25, 1997

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

Attention: Ms. Tina R. Berry

RE: Semi-Annual Data Report
Unocal Service Station #1871
96 MacArthur Boulevard
Oakland, California

Dear Ms. Berry:

This data report presents the results of the most recent monitoring and sampling of the monitoring wells at the referenced site by MPDS Services, Inc.

RECENT FIELD ACTIVITIES

The monitoring wells that were monitored and sampled are indicated in Table 1. Prior to sampling, the wells were checked for depth to water and the presence of free product or sheen. The monitoring data and the ground water elevations are summarized in Table 1. The ground water flow direction during the most recent semi-annual period is shown on the attached Figure 1.

Ground water samples were collected on July 29, 1997. Prior to sampling, the wells were each purged of between 4.5 and 30 gallons of water. During purging operations, the field parameters pH, temperature, and electrical conductivity were recorded on the purging/sampling data sheets which are attached to this report. Once the field parameters were observed to stabilize, and where possible, a minimum of approximately three casing volumes had been removed from each well, samples were then collected using a clean Teflon bailer. The samples were decanted into clean VOA vials and/or one-liter amber bottles, as appropriate, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory. MPDS Services, Inc. transported the purged ground water to the Tosco Refinery located in Rodeo, California, for treatment and discharge to San Pablo Bay under NPDES permit.

ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documentation. The analytical results of the ground water samples collected to date are summarized in Tables 2 and 3. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene detected in the ground water samples collected this semi-annual period are shown on the attached Figure 2. Copies of the laboratory analytical results and the Chain of Custody documentation are attached to this report.

2401 Stanwell Drive, Suite 400, Concord, CA 94520
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LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Care Services Agency.

If you have any questions regarding this report, please do not hesitate to call Mr. Nubar Srabian at (510) 602-5120.

Sincerely,

MPDS Services, Inc.

Armond A. Balaian
Staff Engineer

Hagop Kevork, P.E.
Senior Staff Engineer

REGISTERED PROFESSIONAL ENGINEER
HAGOP KEVORK
No. C 55734
Exp. 12/31/00
CIVIL
STATE OF CALIFORNIA

License No. C 55734
Exp. Date December 31, 2000

/aab

Attachments: Tables 1, 2 & 3
Location Map
Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation
Purging/Sampling Data Sheets

cc: Mr. Sarkis A. Soghomonian, Kaprealian Engineering, Inc.

Table 1

Summary of Monitoring Data

Well #	Ground Water Elevation (feet)	Depth to Water (feet)♦	Total Well Depth (feet)♦	Product Thickness (feet)	Sheen	Water Purged (gallons)
			(Monitored and Sampled on July 29, 1997)			
MW-1	71.57	14.67	24.10	0	No	20
MW-2	71.38	10.28	24.70	0	No	30
MW-3	70.56	11.99	23.68	0	No	23
MW-4	71.18	10.86	19.55	0	No	4.5
MW-5	70.22	11.58	20.01	0	No	4.5
			(Monitored and Sampled on January 28, 1997)			
MW-1	74.99	11.25	24.13	0	Yes	18.5
MW-2	73.96	7.70	24.73	0	No	33.5
MW-3	73.05	9.50	23.70	0	No	28
MW-4	74.10	7.94	19.57	0	No	6
MW-5	74.04	7.76	19.99	0	No	6.5
			(Monitored and Sampled on October 24, 1996)			
MW-1	71.39	14.85	24.18	0	Yes	18.5
MW-2	70.88	10.78	24.74	0	No	27.5
MW-3	69.90	12.65	23.70	0	No	22
MW-4	70.90	11.14	19.57	0	No	6
MW-5	70.40	11.40	20.00	0	No	4.5
			(Monitored and Sampled on July 24, 1996)			
MW-1	72.09	14.15	24.10	0	No	26
MW-2	71.64	10.02	24.70	0	No	25
MW-3	70.38	12.17	23.68	0	No	30
MW-4	71.57	10.47	19.56	0	No	6.5
MW-5	71.00	10.80	20.00	0	No	6.5

Table 1

Summary of Monitoring Data

Well #	Well Casing Elevation (feet)*
MW-1	86.24
MW-2	81.66
MW-3	82.55
MW-4	82.04
MW-5	81.80

♦ The depth to water level and total well depth measurements were taken from the top of the well casings.

* The top of casing elevations were re-surveyed by Kier & Wright in May, 1996, per City of Oakland Benchmark No. 2310, a cut square in concrete curb at mid point of return at the northeast corner of El Dorado and Fairmont Streets (elevation = 77.53 feet MSL). These well casing elevations are used beginning with the April 18, 1996 monitoring event.

Table 2

Summary of Laboratory Analyses
Water

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes	MTBE
MW-1	11/3/92	260,000	2,300	4,600	3,700	17,000	--
	1/25/93	120,000	2,100	4,600	4,900	22,000	--
	4/29/93	100,000	850	2,000	4,300	19,000	--
	7/16/93	29,000	590	560	980	4,200	--
	10/19/93	67,000	1,400	2,600	2,900	5,000	--
	1/20/94	92,000	1,200	3,000	3,400	17,000	--
	4/13/94	51,000	1,000	2,600	3,200	15,000	--
	7/13/94	35,000	550	150	1,400	5,700	--
	10/10/94	52,000	1,000	810	3,300	12,000	--
	1/10/95	810	16	18	59	250	--
	4/17/95	48,000	880	530	2,500	11,000	--
	7/24/95	48,000	1,500	420	2,700	9,700	--
	10/23/95	47,000	780	210	2,100	11,000	270
	1/18/96	30,000	1,500	500	3,500	13,000	2,400
	4/18/96	66,000	2,700	2,200	3,100	13,000	57,000
	7/24/96	5,600	2,100	ND	160	160	24,000
	10/24/96	110,000	7,500	8,000	3,300	14,000	58,000
	1/28/97	94,000	7,700	19,000	3,100	15,000	120,000
	7/29/97	ND	ND	ND	ND	ND	70,000
MW-2	11/3/92	140	2.2	ND	ND	2.0	--
	1/25/93	2,100	56	1.1	90	140	--
	4/29/93	1,500	290	ND	33	11	--
	7/16/93	510*	17	0.60	3.2	2.5	--
	10/19/93	670	24	1.1	7.7	23	--
	1/20/94	820	97	ND	12	ND	--
	4/13/94	550	71	ND	5.1	1.3	--
	7/13/94	2,000	490	ND	17	13	--
	10/10/94	2,300	340	ND	25	ND	--
	1/10/95	850	3.8	ND	8.5	1.3	--
	4/17/95	1,300	4.7	ND	8.3	1.2	--
	7/24/95	960	20	ND	4.2	6.2	--
	10/23/95	ND	ND	ND	ND	ND	19
	1/18/96	900	300	86	7.6	18	4,300
	4/18/96	18,000	3,600	680	890	4,100	19,000
	7/24/96	100,000	13,000	21,000	2,700	16,000	120,000
	10/24/96	800	110	17	11	20	20,000
	1/28/97	45,000	2,400	2,900	2,000	7,600	29,000
	7/29/97	ND	1.2	0.72	0.63	0.62	17,000
MW-3	11/3/92	2,100	120	15	38	200	--
	1/25/93	2,300	80	1	55	52	-
	4/29/93	4,500	1,700	ND	200	140	--

Table 2

Summary of Laboratory Analyses
Water

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes	MTBE
MW-3	7/16/93	4,000*	1,100	28	52	70	--
(Cont.)	10/19/93	3,800	42	ND	50	56	--
	1/20/94	4,200	11	ND	21	15	--
	4/13/94	4,200	210	ND	36	53	--
	7/13/94	1,800**	16	16	ND	21	--
	10/10/94	4,300	11	ND	12	ND	--
	1/10/95	310	4.6	ND	3.5	2.1	--
	4/17/95	7,800	ND	4.6	300	450	--
	7/24/95	3,200	170	ND	22	16	--
	10/23/95	3,900	55	ND	19	11	4,500
	1/18/96	2,200	270	33	26	18	5,500
	4/18/96	6,000	1,800	ND	100	230	48,000
	7/24/96	ND	2,500	ND	ND	ND	71,000
	10/24/96	3,800	660	ND	15	ND	65,000
	1/28/97	4,400	250	13	87	47	54,000
	7/29/97	ND	3,500	ND	220	ND	75,000
MW-4	4/18/96	ND	630	ND	ND	ND	18,000
	7/24/96	ND	ND	ND	ND	5.2	3,900
	10/24/96	ND	ND	ND	ND	ND	6,300
	1/28/97	1,200	490	ND	17	6.8	16,000
	7/29/97	50	1.5	0.61	0.73	0.78	15,000
MW-5	4/18/96	31,000	5,500	1,400	1,700	8,100	66,000
	7/24/96	32,000	6,400	ND	1,600	6,100	120,000
	10/24/96	17,000	6,900	ND	970	130	84,000
	1/28/97	19,000	6,100	62	82	310	160,000
	7/29/97	ND	ND	ND	ND	ND	71,000

* Primarily due to the presence of discrete peaks not indicative of gasoline.

** Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

-- Indicates analysis was not performed.

ND = Non-detectable.

Results are in micrograms per liter (µg/L), unless otherwise indicated.

Table 2

Summary of Laboratory Analyses
Water

Note: The detection limit for results reported as ND by Sequoia Analytical Laboratory is equal to the stated detection limit times the dilution factor indicated on the laboratory analytical sheets.

Prior to August 1, 1995, the total purgeable petroleum hydrocarbon (TPH as gasoline) quantification range used by Sequoia Analytical Laboratory was C4 - C12. Since August 1, 1995, the quantification range used by Sequoia Analytical Laboratory is C6 - C12.

Laboratory analyses data prior to October 19, 1993, were provided by GeoStrategies, Inc.

Table 3

Summary of Laboratory Analyses
Water

Well #	Date	TPH as Diesel	TOG (mg/L)	VOC	SVOC
MW-4	4/18/96	110*	ND	ND	--
	7/24/96	ND	ND	ND	ND
	10/24/96	ND	ND	ND	ND★
	1/28/97	210**	ND	ND	ND★★
	7/29/97	ND	ND	ND	ND

* Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to contain diesel.

** Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

★ Bis (2-ethylhexyl) phthalate was detected at a concentration of 14 µg/L.

★★ Naphthalene was detected at a concentration of 17 µg/L.

-- Indicates analysis was not performed.

Volatile Organic Compounds (VOC) by EPA method 8010.

Semi-Volatile Organic Compounds (SVOC) by EPA method 8270.

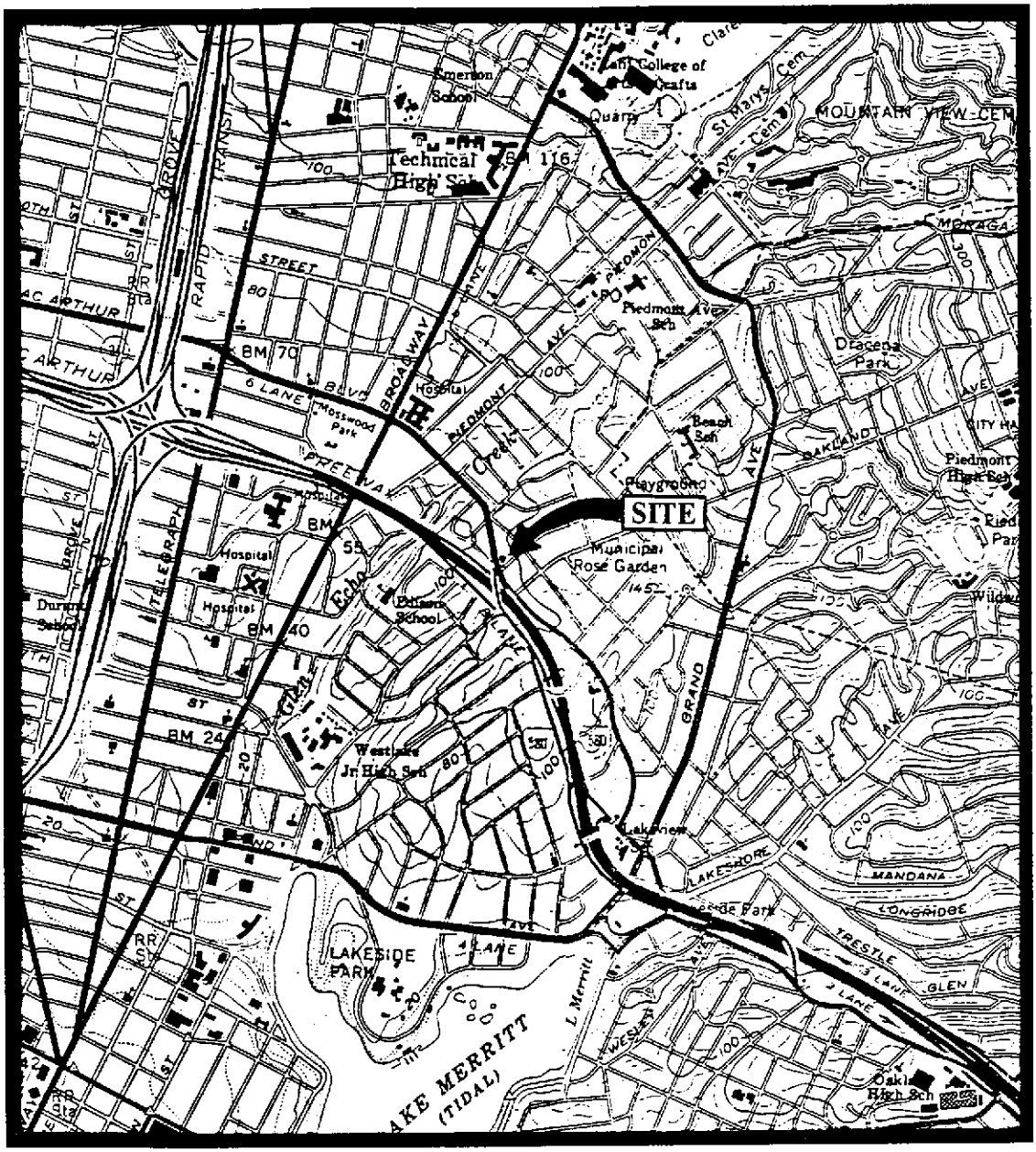
TOG = Total Oil & Grease.

mg/L = milligrams per liter.

ND = Non-detectable.

Results are in micrograms per liter (µg/L), unless otherwise indicated.

Note: The detection limit for results reported as ND by Sequoia Analytical Laboratory is equal to the stated detection limit times the dilution factor indicated on the laboratory analytical sheets.

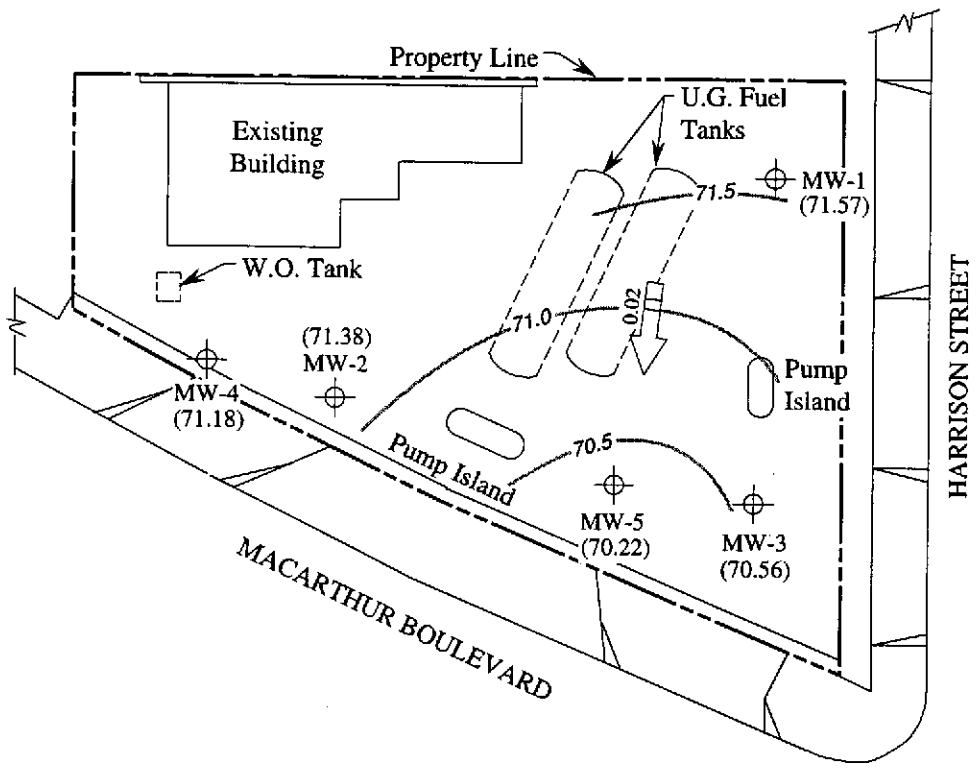


Base modified from 7.5 minute U.S.G.S.
Oakland East and West Quadrangles
(both photorevised 1980)

0 2000 4000

Approx. scale feet

mpds SERVICES, INCORPORATED	**UNOCAL SERVICE STATION # 1871** **96 MACARTHUR BOULEVARD** **OAKLAND, CALIFORNIA**	**LOCATION MAP**



LEGEND

- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
- #.## Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

0 30 60

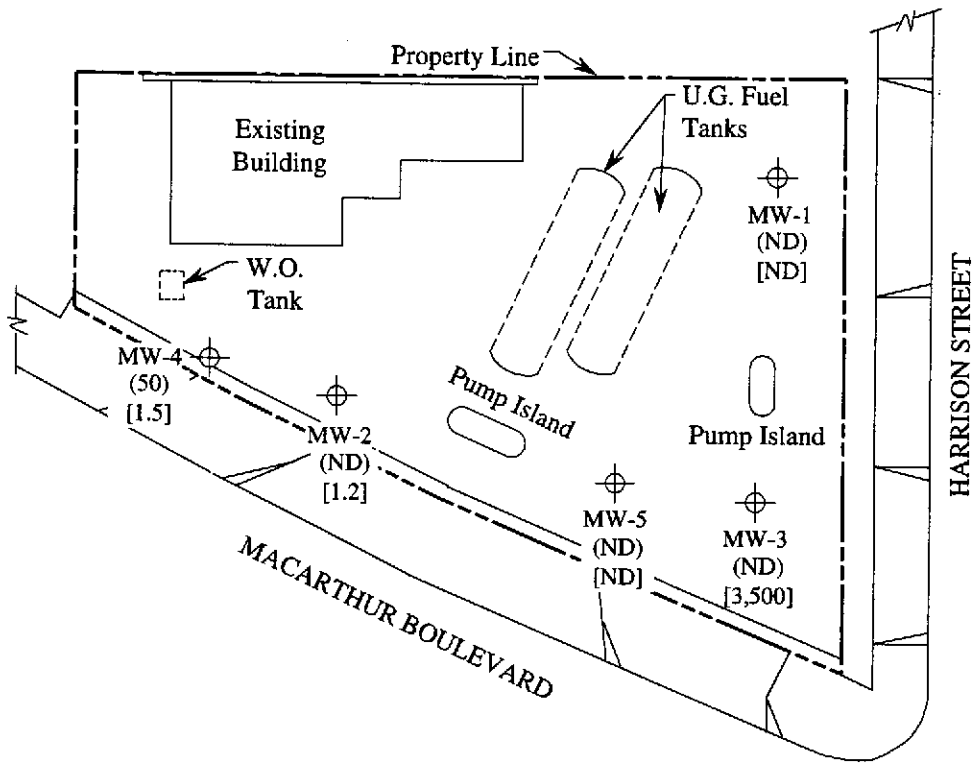
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE JULY 29, 1997 MONITORING EVENT

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

FIGURE
1



LEGEND

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in µg/L
- [ ] Concentration of benzene in µg/L
- ND Non-detectable

0 30 60

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON JULY 29, 1997

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

FIGURE
2

Sequoia Analytical

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

MPDS Services	Client Project ID:	Tosco #1871, 96 MacArthur Oakland	Sampled:	Jul 29, 1997
2401 Stanwell Dr., Ste. 300	Matrix Descript:	Water	Received:	Jul 29, 1997
Concord, CA 94520	Analysis Method:	EPA 5030/8015 Mod./8020	Reported:	Aug 13, 1997
Attention: Jarrel Crider	First Sample #:	707-1537		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Sample Number	Sample Description	Purgeable Hydrocarbons µg/L	Benzene µg/L	Toluene µg/L	Ethyl Benzene µg/L	Total Xylenes µg/L
707-1537	MW-1	ND	ND	ND	ND	ND
707-1538	MW-2	ND	1.2	0.72	0.63	0.62
707-1539	MW-3	ND	3,500	ND	220	ND
707-1540	MW-4	50	1.5	0.61	0.73	0.78
707-1541	MW-5	ND	ND	ND	ND	ND

Detection Limits:	**50**	**0.50**	**0.50**	**0.50**	**0.50**

Total Purgeable Petroleum Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as ND were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

7071537.MPD <1>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

MPDS Services	Client Project ID:	Tosco #1871, 96 MacArthur Oakland	Sampled:	Jul 29, 1997
2401 Stanwell Dr., Ste. 300	Matrix Descript:	Water	Received:	Jul 29, 1997
Concord, CA 94520	Analysis Method:	EPA 5030/8015 Mod./8020	Reported:	Aug 13, 1997
Attention: Jarrel Crider	First Sample #:	707-1537		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Sample Number	Sample Description	Chromatogram Pattern	DL Mult. Factor	Date Analyzed	Instrument ID	Surrogate Recovery, % QC Limits: 70-130
707-1537	MW-1	--	400	08/04/97	HP-5	90
707-1538	MW-2	--	1.0	08/02/97	HP-5	76
707-1539	MW-3	--	1.0	08/04/97	HP-5	90
707-1540	MW-4	Gasoline	1.0	08/02/97	HP-5	81
707-1541	MW-5	--	400	08/04/97	HP-5	94

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

Sequoia Analytical

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

MPDS Services	Client Project ID:	Tosco #1871, 96 MacArthur Oakland	Sampled:	Jul 29, 1997
2401 Stanwell Dr., Ste. 300	Sample Descript:	Water	Received:	Jul 29, 1997
Concord, CA 94520	Analysis for:	MTBE (Modified EPA 8020)		
Attention: Jarrel Crider	First Sample #:	707-1537	Analyzed:	Jul 29, 1997
			Reported:	Aug 13, 1997

LABORATORY ANALYSIS FOR: MTBE (Modified EPA 8020)

Sample Number	Sample Description	Detection Limit µg/L	Sample Result µg/L
707-1537	MW-1	1,000	70,000
707-1538	MW-2	250	17,000
707-1539	MW-3	5.0	75,000
707-1540	MW-4	250	15,000
707-1541	MW-5	1,000	71,000

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

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

Sequoia Analytical

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

MPDS Services	Client Project ID:	Tosco #1871, 96 MacArthur Oakland	Sampled:	Jul 29, 1997
2401 Stanwell Dr., Ste. 300	Sample Matrix:	Water	Received:	Jul 29, 1997
Concord, CA 94520	Analysis Method:	EPA 3510/8015 Mod.	Reported:	Aug 13, 1997
Attention: Jarrel Crider	First Sample #:	707-1540		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 707-1540 MW-4
Extractable Hydrocarbons	50	N.D.
Chromatogram Pattern:		--

Quality Control Data

Report Limit Multiplication Factor:	1.7
Date Extracted:	8/1/97
Date Analyzed:	8/7/97
Instrument Identification:	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

Signature on File

Alan B. Kemp
Project Manager

Sequoia Analytical

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

MPDS Services	Client Project ID:	Tosco #1871, 96 MacArthur Oakland	Sampled:	Jul 29, 1997
2401 Stanwell Dr., Ste. 300	Matrix Descript:	Water	Received:	Jul 29, 1997
Concord, CA 94520	Analysis Method:	SM 5520 B&F (Gravimetric)	Extracted:	Aug 7, 1997
Attention: Jarrel Crider	First Sample #:	707-1540	Analyzed:	Aug 7, 1997
			Reported:	Aug 13, 1997

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)	Detection Limit Multiplication Factor
707-1540	MW-4	N.D.	1.0

Detection Limits:	**5.0**

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

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

7071537.MPD <5>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

MPDS Services	Client Project ID:	Tosco #1871, 96 MacArthur Oakland	Sampled:	Jul 29, 1997
2401 Stanwell Dr., Ste. 300	Sample Descript:	Water, MW-4	Received:	Jul 29, 1997
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Aug 7, 1997
Attention: Jarrel Crider	Lab Number:	707-1540	Reported:	Aug 13, 1997

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	2.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	2.0	N.D.
2-Chloroethylvinyl ether	2.0	N.D.
Chloroform	1.0	N.D.
Chloromethane	2.0	N.D.
Dibromochloromethane	1.0	N.D.
1,3-Dichlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	1.0	N.D.
1,2-Dichlorobenzene	1.0	N.D.
1,1-Dichloroethane	1.0	N.D.
1,2-Dichloroethane	1.0	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	1.0	N.D.
cis-1,3-Dichloropropene	1.0	N.D.
trans-1,3-Dichloropropene	1.0	N.D.
Methylene chloride	10	N.D.
1,1,2,2-Tetrachloroethane	1.0	N.D.
Tetrachloroethene	1.0	N.D.
1,1,1-Trichloroethane	1.0	N.D.
1,1,2-Trichloroethane	1.0	N.D.
Trichloroethene	1.0	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

Sequoia Analytical

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

MPDS Services	Client Project ID:	Tosco #1871, 96 MacArthur Oakland	Sampled:	Jul 29, 1997
2401 Stanwell Dr., Ste. 300	Sample Descript:	Water, MW-4	Received:	Jul 29, 1997
Concord, CA 94520	Analysis Method:	EPA 8270	Extracted:	Aug 1, 1997
Attention: Jarrel Crider	Lab Number:	707-1540	Analyzed:	Aug 4, 1997
			Reported:	Aug 13, 1997

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthene	5.0	N.D.
Acenaphthylene	5.0	N.D.
Aniline	5.0	N.D.
Anthracene	5.0	N.D.
Benzidine	10	N.D.
Benzoic Acid	5.0	N.D.
Benzo(a)anthracene	5.0	N.D.
Benzo(b)fluoranthene	5.0	N.D.
Benzo(k)fluoranthene	5.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(a)pyrene	5.0	N.D.
Benzyl alcohol	5.0	N.D.
Bis(2-chloroethoxy)methane	5.0	N.D.
Bis(2-chloroethyl)ether	5.0	N.D.
Bis(2-chloroisopropyl)ether	5.0	N.D.
Bis(2-ethylhexyl)phthalate	10	N.D.
4-Bromophenyl phenyl ether	5.0	N.D.
Butyl benzyl phthalate	5.0	N.D.
4-Chloroaniline	5.0	N.D.
2-Chloronaphthalene	5.0	N.D.
4-Chloro-3-methylphenol	5.0	N.D.
2-Chlorophenol	5.0	N.D.
4-Chlorophenyl phenyl ether	5.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Dibenzofuran	5.0	N.D.
Di-N-butyl phthalate	10	N.D.
1,3-Dichlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	5.0	N.D.
1,2-Dichlorobenzene	5.0	N.D.
3,3-Dichlorobenzidine	10	N.D.
2,4-Dichlorophenol	5.0	N.D.
Diethyl phthalate	5.0	N.D.
2,4-Dimethylphenol	5.0	N.D.
Dimethyl phthalate	5.0	N.D.
4,6-Dinitro-2-methylphenol	10	N.D.
2,4-Dinitrophenol	10	N.D.
2,4-Dinitrotoluene	5.0	N.D.
2,6-Dinitrotoluene	5.0	N.D.
Di-N-octyl phthalate	5.0	N.D.

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MPDS Services	Client Project ID:	Tosco #1871, 96 MacArthur Oakland	Sampled:	Jul 29, 1997
2401 Stanwell Dr., Ste. 300	Sample Descript:	Water, MW-4	Received:	Jul 29, 1997
Concord, CA 94520	Analysis Method:	EPA 8270	Extracted:	Aug 1, 1997
Attention: Jarrel Crider	Lab Number:	707-1540	Analyzed:	Aug 4, 1997
			Reported:	Aug 13, 1997

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
Fluoranthene	5.0	N.D.
Fluorene	5.0	N.D.
Hexachlorobenzene	5.0	N.D.
Hexachlorobutadiene	5.0	N.D.
Hexachlorocyclopentadiene	5.0	N.D.
Hexachloroethane	5.0	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Isophorone	5.0	N.D.
2-Methylnaphthalene	5.0	N.D.
2-Methylphenol	5.0	N.D.
4-Methylphenol	5.0	N.D.
Naphthalene	5.0	N.D.
2-Nitroaniline	10	N.D.
3-Nitroaniline	10	N.D.
4-Nitroaniline	10	N.D.
Nitrobenzene	5.0	N.D.
2-Nitrophenol	5.0	N.D.
4-Nitrophenol	10	N.D.
N-Nitrosodimethylamine	5.0	N.D.
N-Nitrosodiphenylamine	5.0	N.D.
N-Nitroso-di-N-propylamine	5.0	N.D.
Pentachlorophenol	10	N.D.
Phenanthrene	5.0	N.D.
Phenol	5.0	N.D.
Pyrene	5.0	N.D.
1,2,4-Trichlorobenzene	5.0	N.D.
2,4,5-Trichlorophenol	10	N.D.
2,4,6-Trichlorophenol	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

7071537.MPD <8>

Sequoia Analytical

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MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Jarrel Crider

Client Project ID: Tosco #1871, 96 MacArthur Oakland
Matrix: Liquid
QC Sample Group: 7071537-541

Reported: Aug 13, 1997

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	Oil & Grease
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M	EPA 5520
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater	K. Grubb	M. Kosovskiy
MS/MSD Batch#:	7071405	7071405	7071405	7071405	BLK080197	BLK080797
Date Prepared:	8/4/97	8/4/97	8/4/97	8/4/97	8/1/97	8/7/97
Date Analyzed:	8/4/97	8/4/97	8/4/97	8/4/97	8/6/97	8/7/97
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B	Manual
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 mg/L	100 mg/L
Matrix Spike % Recovery:	85	85	85	88	73	92
Matrix Spike Duplicate % Recovery:	95	95	95	98	60	92
Relative % Difference:	11	11	11	11	0.0	0.0
LCS Batch#:	5LCS080497	5LCS080497	5LCS080497	5LCS080497	LCS080197	LCS080797
Date Prepared:	8/4/97	8/4/97	8/4/97	8/4/97	8/1/97	8/7/97
Date Analyzed:	8/4/97	8/4/97	8/4/97	8/4/97	8/6/97	8/7/97
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B	Manual
LCS % Recovery:	95	95	95	97	43	79
% Recovery Control Limits:	60-140	60-140	60-140	60-140	60-140	60-140

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
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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MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Jarrel Crider

Client Project ID: Tosco #1871, 96 MacArthur Oakland
Matrix: Liquid
QC Sample Group: 7071537-541

Reported: Aug 13, 1997

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater
MS/MSD Batch#:	7080004	7080004	7080004	7080004
Date Prepared:	8/2/97	8/2/97	8/2/97	8/2/97
Date Analyzed:	8/2/97	8/2/97	8/2/97	8/2/97
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	100	100	95	102
Matrix Spike Duplicate % Recovery:	95	100	100	103
Relative % Difference:	5.1	0.0	5.1	1.7
LCS Batch#:	5LCS080297	5LCS080297	5LCS080297	5LCS080297
Date Prepared:	8/2/97	8/2/97	8/2/97	8/2/97
Date Analyzed:	8/2/97	8/2/97	8/2/97	8/2/97
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	100	100	95	102
% Recovery Control Limits:	60-140	60-140	60-140	60-140

SEQUOIA ANALYTICAL, #1271

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MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Jarrel Crider

Client Project ID: Tosco #1871, 96 MacArthur Oakland
Matrix: Liquid
QC Sample Group: 7071537-541

Reported: Aug 13, 1997

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K. Nill	K. Nill	K. Nill
MS/MSD Batch#:	7071590	7071590	7071590
Date Prepared:	8/7/97	8/7/97	8/7/97
Date Analyzed:	8/7/97	8/7/97	8/7/97
Instrument I.D.#:	HP-7	HP-7	HP-7
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L
Matrix Spike % Recovery:	92	95	87
Matrix Spike Duplicate % Recovery:	97	100	93
Relative % Difference:	5.3	5.1	6.7
LCS Batch#:	7LCS080797	7LCS080797	7LCS080797
Date Prepared:	8/7/97	8/7/97	8/7/97
Date Analyzed:	8/7/97	8/7/97	8/7/97
Instrument I.D.#:	HP-7	HP-7	HP-7
LCS % Recovery:	110	110	99
% Recovery Control Limits:	60-140	60-140	60-140

SEQUOIA ANALYTICAL, #1271

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Concord, CA 94520
Attention: Jarrel Crider

Client Project ID: Tosco #1871, 96 MacArthur Oakland
Matrix: Liquid
QC Sample Group: 7071537-541

Reported: Aug 13, 1997

QUALITY CONTROL DATA REPORT

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenol
Prep. Method:	EPA 3510	EPA 3510	EPA 3510	EPA 3510	EPA 3510	EPA 3510
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	E. Manual	E. Manual	E. Manual	E. Manual	E. Manual	E. Manual
MS/MSD Batch#:	9707D96-03	9707D96-03	9707D96-03	9707D96-03	9707D96-03	9707D96-03
Date Prepared:	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97
Date Analyzed:	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97
Instrument I.D.#:	F-4	F-4	F-4	F-4	F-4	F-4
Conc. Spiked:	200 µg/L	200 µg/L	200 µg/L	200 µg/L	200 µg/L	200 µg/L
Matrix Spike % Recovery:	39	83	70	65	81	67
Matrix Spike Duplicate % Recovery:	39	81	89	62	78	65
Relative % Difference:	1.3	1.8	1.4	4.8	3.8	3.1
RPD Limit:	0-30	0-30	0-30	0-30	0-30	0-30
LCS Batch#:	LCS080197	LCS080197	LCS080197	LCS080197	LCS080197	LCS080197
Date Prepared:	8/1/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97
Date Analyzed:	8/4/97	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97
Instrument I.D.#:	H-5	F-4	F-4	F-4	F-4	F-4
LCS % Recovery:	48	80	76	85	87	76
% Recovery Control Limits:	2-132 47-107	42-112 59-97	42-100 54-93	53-107 55-114	43-107 60-95	42-107 54-100

SEQUOIA ANALYTICAL, #1271

Signature on File

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7071537.MPD <12>

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MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Jarrel Crider

Client Project ID: Tosco #1871, 96 MacArthur Oakland
Matrix: Liquid
QC Sample Group: 7071537-541

Reported: Aug 13, 1997

QUALITY CONTROL DATA REPORT

ANALYTE	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Prep. Method:	EPA 3510	EPA 3510	EPA 3510	EPA 3510	EPA 3510
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	E. Manual	E. Manual	E. Manual	E. Manual	E. Manual
MS/MSD Batch#:	9707D96-03	9707D96-03	9707D96-03	9707D96-03	9707D96-03
Date Prepared:	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97
Date Analyzed:	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97
Instrument I.D.#:	F-4	F-4	F-4	F-4	F-4
Conc. Spiked:	200 µg/L	200 µg/L	200 µg/L	200 µg/L	200 µg/L
Matrix Spike % Recovery:	69	31	68	83	88
Matrix Spike Duplicate % Recovery:	66	28	64	78	89
Relative % Difference:	5.2	8.5	6.1	6.9	0.6
RPD Limit:	0-30	0-30	0-30	0-30	0-30
LCS Batch#:	LCS080197	LCS080197	LCS080197	LCS080197	LCS080197
Date Prepared:	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97
Date Analyzed:	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97
Instrument I.D.#:	F-4	F-4	F-4	F-4	F-4
LCS % Recovery:	83	40	79	89	73
% Recovery Control Limits:	43-107 51-96	2-118 21-114	32-114 45-100	17-146 22-117	32-125 50-114

SEQUOIA ANALYTICAL, #1271

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CHAIN OF CUSTODY

SAMPLER	TOSCO S/S #	CITY	ANALYSES REQUESTED	TURN AROUND TIME:
JOE AJEMIAN	1871	Oakland		Regular
WITNESSING AGENCY	ADDRESS: 96 MacArthur			REMARKS

SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG, BTEX MTBE	TPHD	TOG	8010	8270				REMARKS
MW-1	7-29-97	2:30 p.m	✓	✓		2 (VOA)	wells	✓					7071537	A		MTBE. 5ppb
MW-2	"	1:08 p.m	✓	✓		"	"	✓					7071538			
MW-3	"	11:35 A.m	✓	✓		"	"	✓					7071539			
MW-4	"	12:10 p.m	✓	✓		4 (VOA) 3 Amber	"	✓	✓	✓	✓	✓	7071540	A	G	
MW-5	"	1:50 p.m	✓	✓		2 (VOA)	"	✓					7071541	A	B	

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME
[signature]	7-29-97		
(SIGNATURE)	4:00 p.m	(SIGNATURE)	7-29-97
(SIGNATURE)	1330 7-30	(SIGNATURE)	1330 7-30
(SIGNATURE)	7-30	(SIGNATURE)	7/30/97 1510
(SIGNATURE)	7-30-97	(SIGNATURE)	

THE FOLLOWING MUST BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:

1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? _____
2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? _____
3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? _____
4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? _____

SIGNATURE: [signature] TITLE: 7/29/97 DATE: ANALYST

Note: All water containers to be sampled for TPHG/BTEX, 8010 & 8240 are preserved with HCL. All water containers to be sampled for Lead or Metals are preserved with HN03. All other containers are unpreserved.

MPDS Services Inc.
2401 Stanwell Drive
Concord, California 94520

Tel: (510) 602-5120
Fax: (510) 689-1918

PURGING/SAMPLING DATA SHEET

SAMPLING LOCATION: #1871 - Oakland 96 Macarthur

DATE & TIME SAMPLED: 7-29-97 2:30 A.M. (P.M.)

FIELD TECHNICIAN: Joe

PURGE METHOD: Pump

DATE(S) PURGED: 7-29-97

WELL NUMBER: mw-1

WATER LEVEL-**INITIAL**: 14.67

SAMPLING METHOD: Bail

WATER LEVEL-**FINAL**: 15.12

CONTAINERS: ✓

WELL DEPTH: 21.10

PRESERVATIVES: ✓

WELL CASING VOLUME: 10.613

†CASING DIAMETER: 4

TIME	GALLONS PURGED	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µmhos/cmx100) or µS/cm	pH
2:00	0	70.7	6.89	7.57
	7	71.2	7.15	7.19
	14	71.2	7.96	7.07
2:20	20	71.3	7.58	7.02

† Conversion Factors:

Well Diameter	Factor
2"	0.17
3"	0.37
4"	0.65
4.5"	0.82
6"	1.46
8"	2.60
12"	5.87

S = Siemens = mhos

Stabilization Criteria:
Temperature = ± 1 °F
Conductivity = ± 10% of total
pH = ± 0.2

/P&S

MPDS Services Inc.
2401 Stanwell Drive
Concord, California 94520

Tel: (510) 602-5120
Fax: (510) 689-1918

PURGING/SAMPLING DATA SHEET

SAMPLING LOCATION: #1871 - Oakland
96 MacArthur

DATE & TIME SAMPLED 7-29-97 1:08 A.M. (P.M.)

FIELD TECHNICIAN Joe

PURGE METHOD Pump

DATE(S) PURGED 7-29-97

WELL NUMBER MW-2

WATER LEVEL-**INITIAL** 10.28

SAMPLING METHOD Bail

WATER LEVEL-**FINAL** 11.68

CONTAINERS 2

WELL DEPTH 24.70

PRESERVATIVES ✓

WELL CASING VOLUME 9.37

†CASING DIAMETER 4"

TIME	GALLONS PURGED	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µmhos/cmx100) or µS/cm	pH
12:30	0	70.5	8.12	7.72
	10	70.6	7.96	7.51
	20	70.6	7.90	7.38
12:50	30	70.5	7.88	7.27

† Conversion Factors:

Well Diameter	Factor
2"	0.17
3"	0.37
4"	0.65
4.5"	0.82
6"	1.46
8"	2.60
12"	5.87

S = Siemens = mhos

Stabilization Criteria:
Temperature = ± 1 °F
Conductivity = ± 10% of total
pH = ± 0.2

/P&S

MPDS Services Inc.
2401 Stanwell Drive
Concord, California 94520

Tel: (510) 602-5120
Fax: (510) 689-1918

PURGING/SAMPLING DATA SHEET

SAMPLING LOCATION: #1871 Oakland
96 MacArthur

DATE & TIME SAMPLED: 7-29-97 11:35 (A.M.) P.M.

FIELD TECHNICIAN: Joe

PURGE METHOD: Pump

DATE(S) PURGED: 7-29-97

WELL NUMBER: MW-3

WATER LEVEL-**INITIAL**: 11.94

SAMPLING METHOD: Bail

WATER LEVEL-**FINAL**: 12.55

CONTAINERS: 2

WELL DEPTH: 23.63

PRESERVATIVES: ✓

WELL CASING VOLUME: (4") 7.60

†CASING DIAMETER: 4"

TIME	GALLONS PURGED	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µmhos/cmx1000 or µS/cm	pH
11:00	0	71.4	2.18	7.51
	8	72.1	1.98	7.41
	16	71.8	1.95	7.30
11:20	23	72.0	1.96	7.33

† Conversion Factors:

Well Diameter	Factor
2"	0.17
3"	0.37
4"	0.65
4.5"	0.82
6"	1.46
8"	2.60
12"	5.87

S = Siemens = mhos

Stabilization Criteria:
Temperature = ± 1 °F
Conductivity = ± 10% of total
pH = ± 0.2

/P&S

MPDS Services Inc.
2401 Stanwell Drive
Concord, California 94520

Tel: (510) 602-5120
Fax: (510) 689-1918

PURGING/SAMPLING DATA SHEET

SAMPLING LOCATION: #1871 - Oakland
96 MacArthur

DATE & TIME SAMPLED 7-29-97 12:10 A.M. (P.M.)

FIELD TECHNICIAN Joe

PURGE METHOD Bail

DATE(S) PURGED 7.29.97

WELL NUMBER MW-4

WATER LEVEL-**INITIAL** 10.86

SAMPLING METHOD Bail

WATER LEVEL-**FINAL** 11.12

CONTAINERS 7

WELL DEPTH 19.55

PRESERVATIVES ✓

WELL CASING VOLUME 1.47

†CASING DIAMETER 2"

TIME	GALLONS PURGED	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µmhos/cmx100) or µS/cm	pH
11:50	0	68.0	5.16	7.88
	1.5	68.1	5.19	7.20
	3	68.2	5.22	7.10
12:00	4.5	68.3	5.20	7.04

† Conversion Factors:

Well Diameter	Factor
2"	0.17
3"	0.37
4"	0.65
4.5"	0.82
6"	1.46
8"	2.60
12"	5.87

S = Siemens = mhos

Stabilization Criteria:
Temperature = ± 1 °F
Conductivity = ± 10% of total
pH = ± 0.2

/P&S

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PURGING/SAMPLING DATA SHEET

SAMPLING LOCATION: # 1871 – Oakland
96 MacArthur

DATE & TIME SAMPLED 7-29-97 1:50 A.M. P.M.

FIELD TECHNICIAN Joe

PURGE METHOD Bail

DATE(S) PURGED 7-29-97

WELL NUMBER MW-5

WATER LEVEL-**INITIAL** 11.58

SAMPLING METHOD Bail

WATER LEVEL-**FINAL** 12.96

CONTAINERS 2

WELL DEPTH 20.01

PRESERVATIVES ✓

WELL CASING VOLUME 1.43

†CASING DIAMETER 2"

TIME	GALLONS PURGED	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µmhos/cmx1000 or µS/cm	pH
1:30	0	67.5	1.82	7.86
	1.5	67.8	1.85	7.54
	3	67.6	1.90	7.40
1:40	4.5	67.7	1.91	7.29

† Conversion Factors:

Well Diameter	Factor
2"	0.17
3"	0.37
4"	0.65
4.5"	0.82
6"	1.46
8"	2.60
12"	5.87

S = Siemens = mhos

Stabilization Criteria:
Temperature = ± 1 °F
Conductivity = ± 10% of total
pH = ± 0.2

/P&S