GETTLER-RYAN INC.

TRANSMITTAL

Run confirmation on MTBE w/8260

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

DATE: July 17, 1998
G-R #: 180047

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

RE: Tosco (Unocal) SS #6034
4700 First Street
Livermore, California

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	June 30, 1998	Groundwater Monitoring and Sampling Report Semi-Annual 1998 - April 2, 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 semi-annual basis. If you have questions please contact the Tosco Project Manager, Ms. Tina R. Berry at (925) 277-2321.

Enclosure

cc: Mr. Doug Lee, Gettler-Ryan Inc., Dublin, CA

agency/6034trb.qmt

GETTLER-RYAN INC.

June 30, 1998
G-R Job #180047

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

RE: Semi-Annual 1998 Groundwater Monitoring & Sampling Report
Tosco (Unocal) Service Station #6034
4700 First Street
Livermore, California

Dear Ms. Berry:

This report documents the semi-annual groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On April 2, 1998, field personnel monitored seven wells (MW-1 through MW-7) and sampled two wells (MW-2 and MW-4) at the above referenced site. One well MW-6 was dry.

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 Tables 1 and 2. Dissolved Oxygen Concentrations are summarized in Table 3. A Concentration Map is included as Figure 2. The chain of custody document and laboratory analytical reports are also attached.

Sincerely,

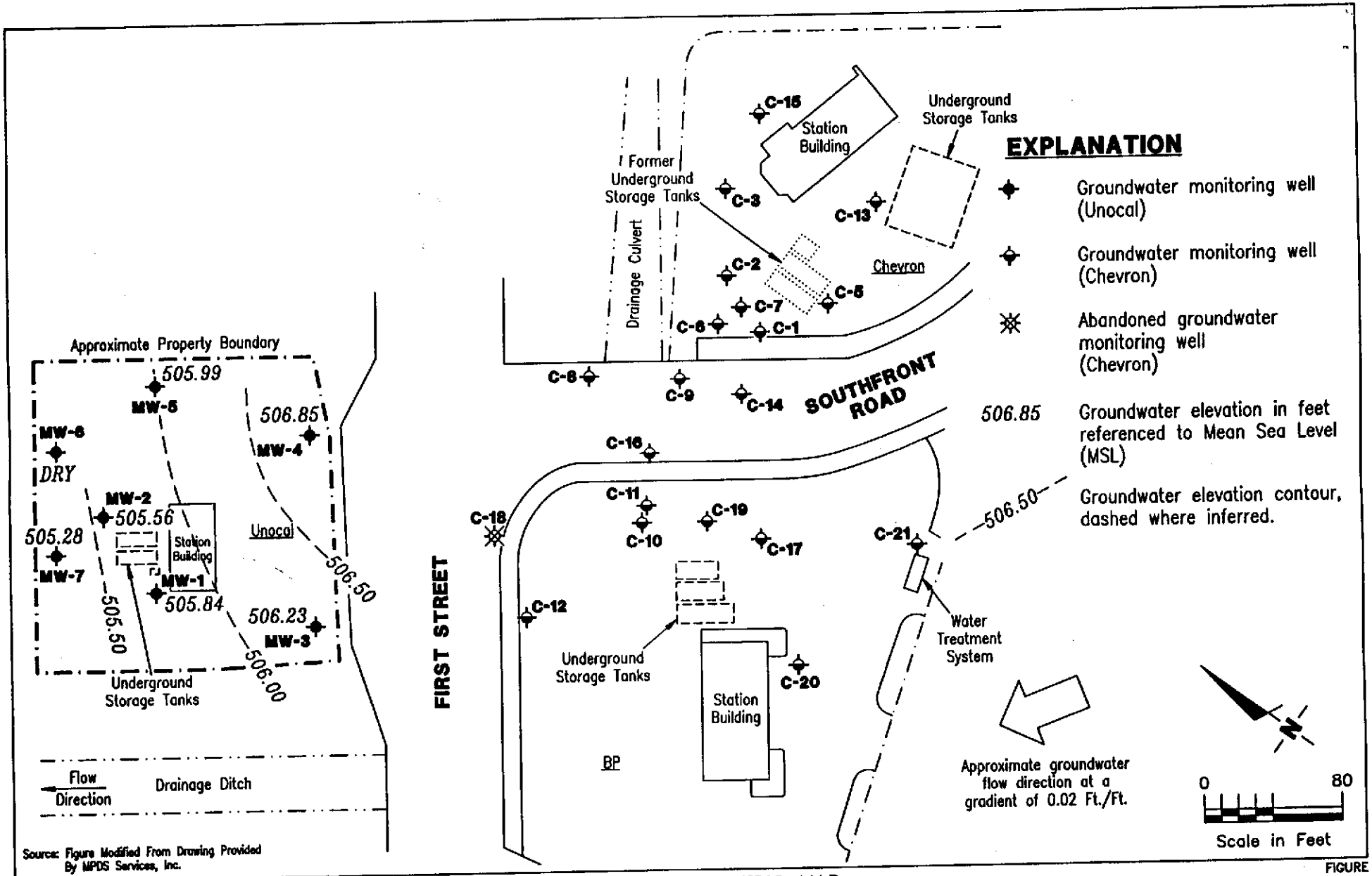
Deanna L. Harding
Project Coordinator

Stephen J. Carter
Senior Geologist, R.G. No. 5577

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

Figure 1: Potentiometric Map
Figure 2: Concentration Map
Table 1: Groundwater Monitoring Data and Analytical Results
Table 2: Groundwater Analytical Results
Table 3: Dissolved Oxygen Concentrations
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets
Chain of Custody Document and Laboratory Analytical Reports

6034.qml



FIGURE

Gettler - Ryan Inc.

6747 Sierra Ct., Suite J
Dublin, CA 94568
(510) 551-7555

POTENTIOMETRIC MAP
Tosco (Unocal) Service Station No. 6034
4700 First Street
Livermore, California

1

JOB NUMBER
180047

REVIEWED BY

DATE
April 2, 1998

REVISED DATE

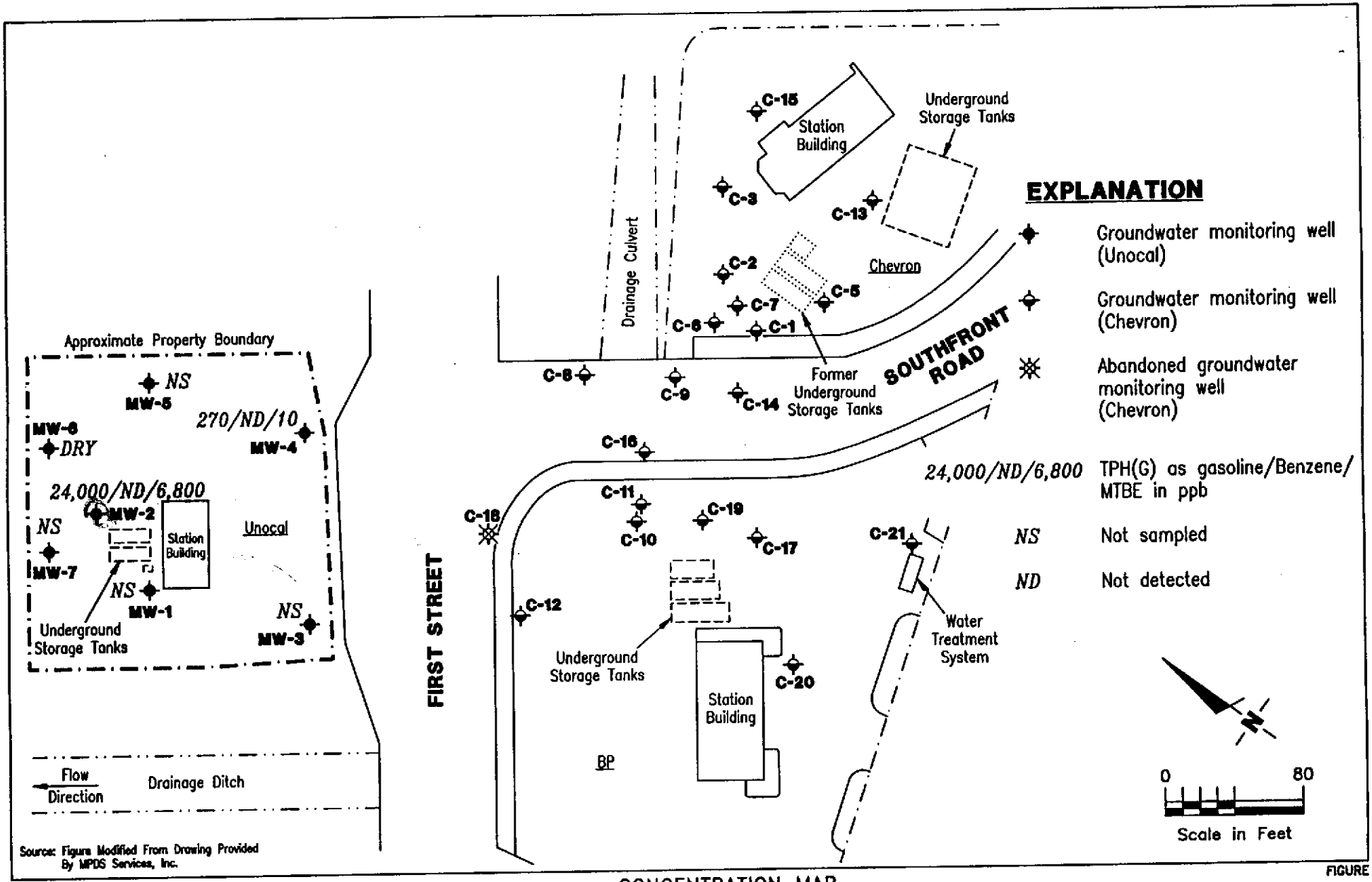


FIGURE 2

Gettler - Ryan Inc.

6747 Sierra Ct., Suite J
Dublin, CA 94568
(510) 551-7555

CONCENTRATION MAP
Tosco (Unocal) Service Station No. 6034
4700 First Street
Livermore, California

JOB NUMBER 180047

REVIEWED BY

DATE April 2, 1998

REVISED DATE

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #6034

4700 First Street

Livermore, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G)	B	T	E	X	MTBE
				<--------		ppb			-------->
MW-1	11/18/89			ND	ND	ND	ND	ND	--
	03/08/90			ND	ND	ND	ND	ND	--
	06/05/90			ND	ND	ND	ND	ND	--
	09/07/90			ND	ND	1.2	ND	ND	--
	12/24/90			ND	ND	ND	ND	0.40	--
	04/10/91			ND	ND	ND	ND	ND	--
	07/10/91			ND	ND	ND	ND	ND	--
	04/21/94			ND	ND	ND	ND	ND	--
	07/21/94			SAMPLED ANNUALLY		--	--	--	--
	04/17/95			ND	ND	ND	ND	ND	--
	04/17/96			ND	ND	ND	ND	ND	ND
520.64	07/16/96	14.57	506.07	--	--	--	--	--	--
	10/16/96	14.50	506.14	--	--	--	--	--	--
	04/08/97	15.05	505.59	SAMPLING DISCONTINUED		--	--	--	--
	04/02/98	**14.80**	**505.84**	--	--	--	--	--	--
MW-2	11/18/89			53,000	540	500	130	22,000	--
	03/08/90			26,000	230	410	1,300	2,100	--
	06/05/90			31,000	250	460	950	9,200	--
	09/07/90			ND	ND	1.5	ND	ND	--
	12/24/90			32,000	440	340	460	13,000	--
	04/10/91			22,000	170	190	490	6,200	--
	07/10/91			14,000	70	160	570	5,400	--
	10/14/91			11,000	79	130	660	4,700	--
	01/14/92			5,600	36	120	450	2,600	--
	04/06/92			760	6.3	2.1	ND	130	--
	07/07/92			44,000	160	1,100	1,000	17,000	--
	10/16/92			290	2.3	ND	5.1	15	--
	01/14/93			19,000	75	430	900	8,400	--
	04/22/93			49,000	150	1,000	3,000	18,000	--
	07/20/93			25,000	68	94	1,000	6,200	--
	10/20/93			12,000	27	10	100	3,000	--
	01/20/94			20,000	ND	ND	270	3,300	--
	04/21/94			27,000	85	65	880	5,300	--
	07/21/94			31,000	58	29	940	6,200	--

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #6034

4700 First Street

Livermore, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G)	B	T	E	X	MTBE
				<		ppb			>
MW-7	07/21/94			ND	ND	ND	ND	ND	--
(cont)	10/19/94			ND	ND	0.87	ND	0.61	--
	01/18/95			ND	ND	ND	ND	ND	--
	04/17/95			ND	ND	ND	ND	ND	--
	07/18/95			ND	ND	ND	ND	ND	--
	10/17/95			ND	ND	ND	ND	ND	3.5
	01/17/96			SAMPLED ANNUALLY[2]		--	--	--	--
	04/17/96			ND	ND	ND	ND	ND	ND
518.83	07/16/96	13.22	505.61	--	--	--	--	--	--
	10/16/96	13.58	505.25	--	--	--	--	--	--
	04/08/97	13.73	505.10	SAMPLING DISCONTINUED		--	--	--	--
	04/02/98	**13.55**	**505.28**	--	--	--	--	--	--
Trip Blank									
TB-LB	**04/02/98**	--	--	ND	ND	ND	ND	ND	ND

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility # UNOCAL SS#6034 Job#: 180047

Address: 4700 FIRST STREET Date: 4-2-98

City: LIVERMORE, CA Sampler: STEVE BALIAN

Well ID MW-2 Well Condition: O.K

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

Total Depth 25.63 ft.

Depth to Water 14.26 ft.

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

11.37 X VF 0.17 = 1.93 X 3 (case volume) = Estimated Purge Volume: 5.80 (gal.)

Purge Equipment: Disposable Bailer / Bailer / Stack / (Suction) / Grundfos / Other: _____

Sampling Equipment: (Disposable Bailer) / Bailer / Pressure Bailer / Grab Sample / Other: _____

Starting Time: 10.48 Weather Conditions: CLOUD

Sampling Time: 11:05 Water Color: CLEAR Odor: —

Purging Flow Rate: 1.5 gpm. Sediment Description: _____

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

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
10:50	2	7.59	481	70.5	6.32	(BEFORE PURGE)	
10:52	4	7.54	483	70.4			
10:53	6	7.56	481	70.1			
					3.16	(AFTER PURGE)	

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-2	3-VOA's	Y	HCl	SEQ.	TPH-G/BTEX/MTBE

COMMENTS: ORC's IN THE WELL

9/97-fieldst.frm

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility # UNOCAL SS#6034 Job#: 180047

Address: 4700 FIRST STREET Date: 4-2-98

City: LIVERMORE, CA Sampler: STEVE BALIAN

Well ID MW-3 Well Condition: *

Well Diameter 2" in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): _____ (gal.)

Total Depth 25.43 ft.

Depth to Water 13.43 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: _____

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: _____

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

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

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES

COMMENTS: * THE WELL LID IS BROKEN

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility # UNOCAL SS#6034 Job#: 180047

Address: 4700 FIRST STREET Date: 4-2-98

City: LIVERMORE, CA Sampler: STEVE BALIAN

Well ID MW-5 Well Condition: O.K

Well Diameter 2" in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): _____ (gal.)

Total Depth 23.63 ft.

Depth to Water 14.28 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: CLOUD

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ 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)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES

COMMENTS: _____

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility # UNOCAL SS#6034 Job#: 180047

Address: 4700 FIRST STREET Date: 4-2-98

City: LIVERMORE, CA Sampler: STEVE BALIAN

Well ID MW-6 Well Condition: O.K

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

Total Depth 12.18 * ft.

Depth to Water DRY 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: CLOUD

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ 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)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES

COMMENTS: * HITTING THE ROOTS OF TREE

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility # UNOCAL SS#6034 Job#: 180047

Address: 4700 FIRST STREET Date: 4-2-98

City: LIVERMORE, CA Sampler: STEVE BALIAN

Well ID MW-7 Well Condition: O.K

Well Diameter 2" in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): _____ (gal.)

Total Depth 23.65 ft.

Depth to Water 13.55 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: CLOUD

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ 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)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES

COMMENTS: _____

TOSCO

Tosco Marketing Company
3000 Crow Canyon Pl., Ste. 400
San Ramon, California 94583

Facility Number UNOCAL SS#6034
Facility Address 4700 FIRST STREET, LIVERMORE, CA
Consultant Project Number 180047.85
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 9804942
Laboratory Release Number
Samples Collected by (Name) STEVE BALIAN
Collection Date 4-2-98
Signature STEVE BALIAN

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water 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 (8020)	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 (ICAP or AA)						DO NOT BILL TB-LB ANALYSIS Remarks
TB-LB		1	W	G		HCl	Y	X				30[illegible]51									
MW-2		3	"	"	11:05	"	"	X				30[illegible]52									
MW-4		3	"	"	10:35	"	"	X				30[illegible]53									

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
STEVE BALIAN	G-R Inc.	4-2-98 14:40			
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 4/2/98 1440

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	Client Project ID:	Unocal SS#6034, Livermore	Sampled: Apr 2, 1998
6747 Sierra Court, Suite J	Sample Matrix:	Water	Received: Apr 2, 1998
Dublin, CA 94568	Analysis Method:	EPA 5030/8015 Mod./8020	Reported: Apr 20, 1998
Attention: Deanna L. Harding	First Sample #:	804-0851	

QC Batch Number: GC041698 802009A | GC041698 802009A | GC041798 802004A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit µg/L	Sample I.D. 804-0851 TB-LB	Sample I.D. 804-0852 MW-2	Sample I.D. 804-0853 MW-4
Purgeable Hydrocarbons	50	N.D.	24,000	270
Benzene	0.50	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	1.2
Ethyl Benzene	0.50	N.D.	980	N.D
Total Xylenes	0.50	N.D.	5,200	4.5
MTBE	2.5	N.D.	6,800	10
Chromatogram Pattern:		--	-- Gasoline	Gasoline & Unidentified Hydrocarbons <C7

Quality Control Data

Report Limit Multiplication Factor:	1.0	100	2.0
Date Analyzed:	4/16/98	4/16/98	4/17/98
Instrument Identification:	HP9	HP9	HP4
Surrogate Recovery, %: (QC Limits = 70-130%)	97	102	100

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

8040851.GET <1>

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 L. Harding

Client Project ID: Unocal SS#6034, Livermore
Matrix: Liquid

QC Sample Group: 8040851-853

Reported: Apr 20, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	BTEX as TPH
QC Batch#:	GC041698	GC041698	GC041698	GC041698	GC041698
Analy. Method:	802009A	802009A	802009A	802009A	802009A
Prep. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Analyst:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
MS/MSD #:	A. Kemp	A. Kemp	A. Kemp	A. Kemp	A. Kemp
Sample Conc.:	8040912	8040912	8040912	8040912	8040912
Prepared Date:	N.D.	N.D.	N.D.	N.D.	N.D.
Analyzed Date:	4/16/98	4/16/98	4/16/98	4/16/98	4/16/98
Instrument I.D.#:	4/16/98	4/16/98	4/16/98	4/16/98	4/16/98
Conc. Spiked:	HP-9	HP-9	HP-9	HP-9	HP-9
	20 µg/L	20 µg/L	20 µg/L	60 µg/L	350 µg/L
Result:	20	21	21	64	350
MS % Recovery:	100	105	105	107	100
Dup. Result:	20	21	21	64	350
MSD % Recov.:	100	105	105	107	100
RPD:	0.0	0.0	0.0	0.0	0.0
RPD Limit:	0-20	0-20	0-20	0-20	0-50

LCS #:	9LCS041698	9LCS041698	9LCS041698	9LCS041698	9LCS041698
Prepared Date:	4/16/98	4/16/98	4/16/98	4/16/98	4/16/98
Analyzed Date:	4/16/98	4/16/98	4/16/98	4/16/98	4/16/98
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	350 µg/L
LCS Result:	18	19	19	59	320
LCS % Recov.:	90	95	95	98	91

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

8040851.GET <2>

Sequoia Analytical

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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 L. Harding

Client Project ID: Unocal SS#6034, Livermore
Matrix: Liquid
QC Sample Group: 8040851-853

Reported: Apr 20, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	BTEX as TPH
QC Batch#:	GC041798	GC041798	GC041798	GC041798	GC041798
	802004A	802004A	802004A	802004A	802004A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb
MS/MSD #:	8040962	8040962	8040962	8040962	8040962
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	4/17/98	4/17/98	4/17/98	4/17/98	4/17/98
Analyzed Date:	4/17/98	4/17/98	4/17/98	4/17/98	4/17/98
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	330 µg/L
Result:	18	18	19	57	360
MS % Recovery:	90	90	95	95	109
Dup. Result:	19	20	19	61	350
MSD % Recov.:	95	100	95	102	106
RPD:	5.4	11	0.0	6.8	2.8
RPD Limit:	0-20	0-20	0-20	0-20	0-50

LCS #:	4LCS041798	4LCS041798	4LCS041798	4LCS041798	4LCS041798
Prepared Date:	4/17/98	4/17/98	4/17/98	4/17/98	4/17/98
Analyzed Date:	4/17/98	4/17/98	4/17/98	4/17/98	4/17/98
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	330 µg/L
LCS Result:	20	21	20	64	370
LCS % Recov.:	100	105	100	107	112

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

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