



# GETTLER-RYAN INC.

September 11, 1998  
G-R Job #180022

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

RE: Third 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 July 8, 1998, field personnel 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. Dissolved Oxygen Concentrations are summarized in Table 2. 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. A Concentration Map is included as Figure 2. The chain of custody document and laboratory analytical reports are also attached.

Sincerely,

*Deanna L. Harding*  
Deanna L. Harding  
Project Coordinator

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

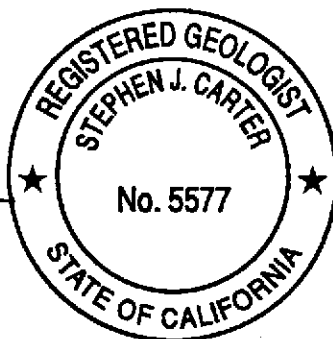


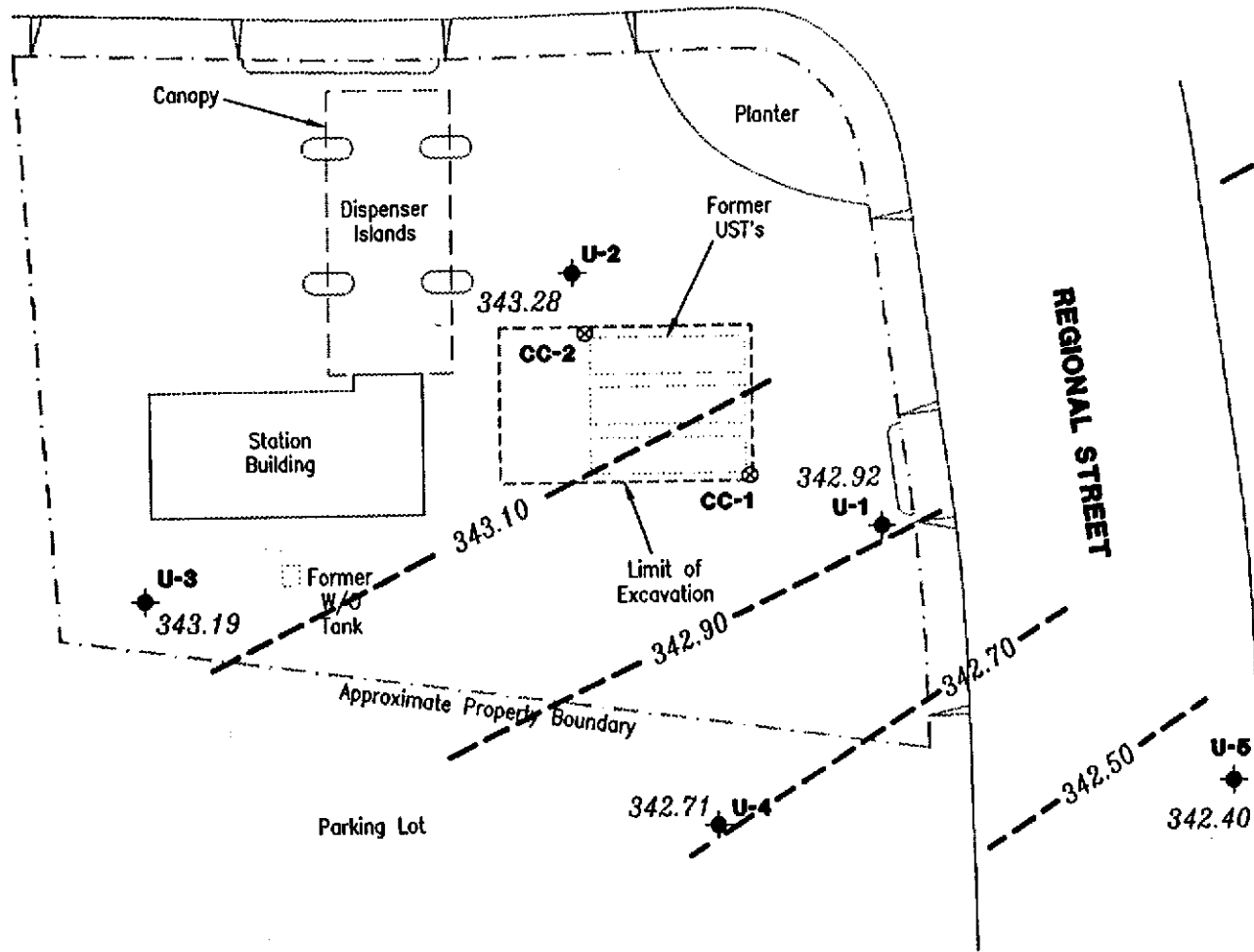
Figure 1: Potentiometric Map  
Figure 2: Concentration Map  
Table 1: Groundwater Monitoring Data and Analytical Results  
Table 2: Dissolved Oxygen Concentrations  
Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and Laboratory Analytical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

7176.qml

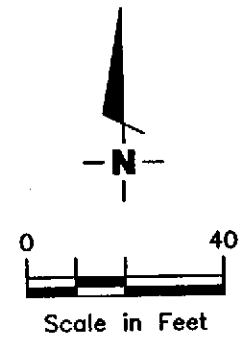
**AMADOR VALLEY BOULEVARD**

**EXPLANATION**

- ◆ Groundwater monitoring well
- ⊗ Conductor casing
- 99.99 Groundwater elevation in feet referenced to Mean Sea Level (MSL)
- Groundwater elevation contour, dashed where inferred.



Approximate groundwater flow direction at a gradient of 0.005 Ft./Ft.



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



**Gottler - Ryan Inc.**

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Dublin, CA 94568

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

DATE  
July 8, 1998

REVISED DATE

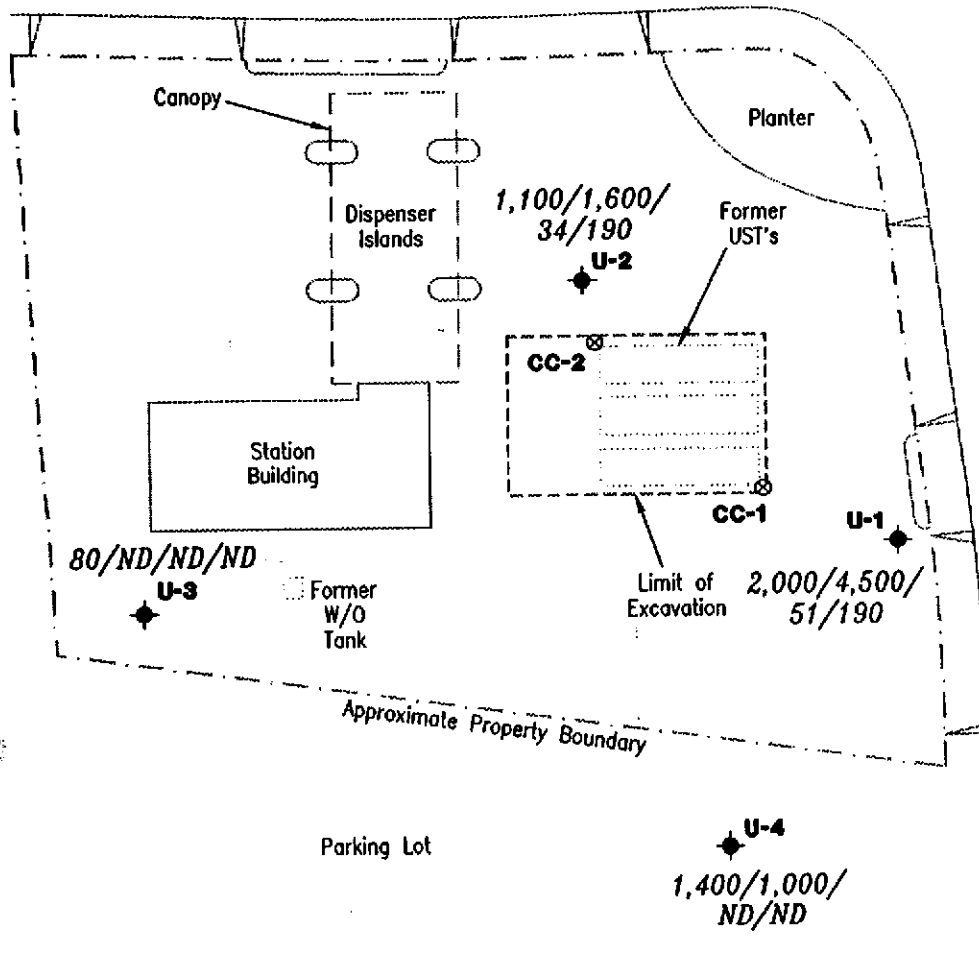
JOB NUMBER  
180022

REVIEWED BY

FIGURE

**1**

**AMADOR VALLEY BOULEVARD**



**EXPLANATION**

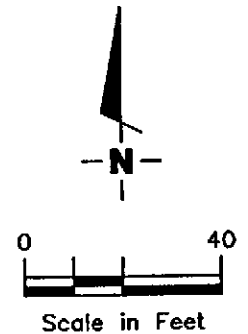
◆ Groundwater monitoring well

⊗ Conductor casing

A/B/C/D TPH(D) (Total Petroleum Hydrocarbons as Diesel) with silica gel/TPH(G) (Total Petroleum Hydrocarbons as Gasoline)/Benzene/MTBE concentrations in ppb

ND Not Detected

**REGIONAL STREET**



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



**Gottler - Ryan Inc.**

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Dublin, CA 94568

**CONCENTRATION MAP**

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

JOB NUMBER  
180022

REVIEWED BY

DATE  
July 8, 1998

REVISED DATE

FIGURE

**2**

**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----->						
<b>U-1</b>										
355.62	07/08/95	12.59	343.03	9,400 <sup>3</sup>	39,000	1,500	19	1,600	5,200	--
	10/12/95	15.38	340.24	4,200 <sup>5</sup>	33,000	1,400	ND	1,400	3,100	-- <sup>7</sup>
	01/11/96 <sup>1</sup>	16.33	339.29	8,200 <sup>5</sup>	8,300	690	11	680	1,500	-- <sup>8</sup>
	04/11/96 <sup>2</sup>	12.20	343.42	630 <sup>5</sup>	3,200	110	ND	180	290	790
	07/10/96	13.84	341.78	2,200 <sup>5</sup>	2,600	81	4.4	210	230	510
	10/30/96	15.85	339.77	560 <sup>5</sup>	2,200	67	19	140	150	360
	01/27/97	12.20	343.42	2,300 <sup>5</sup>	4,600	98	ND	360	290	150
	04/08/97	13.46	342.16	1,300 <sup>5</sup>	2,800	50	ND	220	140	ND
	07/17/97	15.30	340.32	460 <sup>6</sup>	2,300	30	4.5	140	94	190
	10/17/97	16.33	339.29	510 <sup>6</sup>	1,500	31	6.7	110	88	220
355.59	01/19/98	14.34	341.28	<sup>10</sup> 1,900/1,300 <sup>10</sup>	3,100	46	3.4	310	200	170
	NP 04/23/98	11.16	344.43	--/1,700 <sup>11</sup>	3,400	72	3.8	470	350	280
	NP 07/08/98	12.67	342.92	2,000 <sup>14</sup>	4,500	51	ND <sup>12</sup>	590	430	190
<b>U-2</b>										
356.59	07/08/95	12.68	343.91	4,700 <sup>3</sup>	17,000	430	ND	2,200	590	--
	10/12/95	16.01	340.58	3,600 <sup>5</sup>	24,000	310	60	1,900	190	-- <sup>7</sup>
	01/11/96 <sup>1</sup>	17.06	339.53	8,600 <sup>5</sup>	10,000	210	55	1,400	240	-- <sup>8</sup>
	04/11/96 <sup>2</sup>	12.75	343.84	1,900 <sup>5</sup>	7,700	130	27	1,100	110	340
	07/10/96	14.42	342.17	2,300 <sup>5</sup>	5,600	59	15	610	42	250
	10/30/96	16.82	339.77	1,800 <sup>5</sup>	7,700	67	35	1,000	54	260
	01/27/97	12.91	343.68	660 <sup>5</sup>	1,600	14	ND	130	7.0	100
	04/08/97	14.07	342.52	2,000 <sup>5</sup>	4,300	35	ND	400	16	ND
	07/17/97	15.96	340.63	1,300 <sup>6</sup>	6,200	17	22	410	ND	130
	10/17/97	17.03	339.56	1,400 <sup>6</sup>	7,100	71	26	520	50	ND
356.55	01/19/98	15.10	341.49	<sup>10</sup> 2,100/1,500 <sup>10</sup>	5,300	46	11	350	16	110
	NP 04/23/98	11.74	344.81	--/1,200 <sup>11</sup>	3,200	23	11	210	38	160
	NP 07/08/98	13.27	343.28	1,100 <sup>14</sup>	1,600	34	8.5	100	7.4	190

**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	→				MTBE
							T	E	X	ppb	
<b>U-3</b>											
358.13	07/08/95	14.58	343.55	710 <sup>3</sup>	1,100 <sup>4</sup>	0.57	2.1	1.7	2.4	--	
	10/12/95	17.60	340.53	470 <sup>6</sup>	560	ND	0.87	0.7	1.1	--	
	01/11/96 <sup>1</sup>	18.65	339.48	260 <sup>6</sup>	230	0.62	0.91	0.97	1.9	--	
	04/11/96	13.20	344.93	ND	68 <sup>9</sup>	ND	ND	ND	ND	ND	
	07/10/96	15.98	342.15	ND	ND	ND	ND	ND	ND	ND	
	10/30/96	18.24	339.89	ND	70	ND	ND	ND	ND	ND	
	01/27/97	14.41	343.72	ND	ND	ND	ND	ND	ND	ND	
	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 <sup>6</sup>	ND	ND	ND	ND	ND	ND	
	01/19/98	16.67	341.46	<sup>10</sup> 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	
	NP 07/08/98	14.90	343.19	80 <sup>15</sup>	ND	ND	ND	ND	ND	ND	
<b>MW-4</b>											
356.41	04/23/98	12.11	344.30	--/1,400 <sup>11</sup>	2,500	5.9	6.4	16	31	ND <sup>12</sup>	
	07/08/98	13.70	342.71	1,400 <sup>11</sup>	1,000 <sup>13</sup>	ND <sup>12</sup>	ND <sup>12</sup>	ND <sup>12</sup>	ND <sup>12</sup>	ND <sup>12</sup>	
<b>MW-5</b>											
355.03	04/23/98	11.15	343.88	--/100 <sup>11</sup>	120	0.53	0.90	1.0	3.8	13	
	07/08/98	12.63	342.40	170 <sup>10</sup>	ND	ND	ND	ND	ND	12	
<b>Trip Blank</b>											
TB-LB	01/19/98	--	--	--	ND	ND	ND	ND	ND	ND	
	04/23/98	--	--	--	ND	ND	ND	ND	ND	ND	
	07/08/98	--	--	--	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	TPH(G) = Total Petroleum Hydrocarbons as Gasoline	
DTW = Depth to Water	B = Benzene	ppb = Parts per billion
(ft.) = Feet	T = Toluene	ND = Not Detected
GWE = Groundwater Elevation	E = Ethylbenzene	-- = Not Measured/Not Analyzed
msl = Relative to mean sea level	X = Xylenes	NP = No purge
TPH(D) = Total Petroleum Hydrocarbons as Diesel	MTBE = Methyl tertiary butyl ether	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 the hydrocarbons detected appeared to be a diesel and non-diesel mixture.
- 6 Laboratory report indicates 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.
- 13 Laboratory report indicates unidentified hydrocarbons > C8.
- 14 Laboratory report indicates unidentified hydrocarbons < C14.
- 15 Laboratory report indicates discrete peaks.

**Table 2**  
**Dissolved Oxygen Concentrations**  
**Tosco (Unocal) Service Station #7176**  
**7850 Amador Valley Boulevard**  
**Dublin, California**

<b>Well ID</b>	<b>Date</b>	<b>Before Purging (mg/L)</b>	<b>After Purging (mg/L)</b>
<b>U-1</b>	01/11/96	--	3.41
	04/11/96	3.77	3.78
	07/10/96 <sup>1</sup>	1.22	--
	10/30/96 <sup>1</sup>	1.41	--
	01/27/97 <sup>1</sup>	1.34	--
	04/08/97 <sup>1</sup>	2.09	--
	07/17/97 <sup>1</sup>	2.00	--
	10/17/97 <sup>1</sup>	1.86	--
	01/19/98 <sup>1</sup>	2.91	--
	04/23/98 <sup>1</sup>	0.59	--
	07/08/98 <sup>1</sup>	1.10	--
<b>U-2</b>	01/11/96	--	3.99
	04/11/96	3.32	3.41
	07/10/96 <sup>1</sup>	1.01	--
	10/30/96 <sup>1</sup>	1.42	--
	01/27/97 <sup>1</sup>	1.29	--
	04/08/97 <sup>1</sup>	1.69	--
	07/17/97 <sup>1</sup>	2.08	--
	10/17/97 <sup>1</sup>	1.80	--
	01/19/98 <sup>1</sup>	2.95	--
	04/23/98 <sup>1</sup>	0.55	--
	07/08/98 <sup>1</sup>	1.36	--
<b>U-3</b>	01/11/96	--	5.05
	04/11/96	5.16	4.96
	07/10/96 <sup>1</sup>	3.44	--
	10/30/96 <sup>1</sup>	2.18	--
	01/27/97 <sup>1</sup>	2.61	--
	04/08/97 <sup>1</sup>	3.73	--
	07/17/97 <sup>1</sup>	2.65	--
	10/17/97 <sup>1</sup>	2.44	--
	01/19/98 <sup>1</sup>	6.51	--
	04/23/98 <sup>1</sup>	4.72	--
	07/08/98 <sup>1</sup>	4.35	--
<b>CC-1</b>	10/02/95	2.83	--

**EXPLANATIONS:**

Dissolved oxygen concentrations prior to January 19, 1998, were compiled from reports prepared by MPDS Services, Inc.

CC-1 = Conductor casing in the underground storage tank backfill

-- = Not Measured

mg/L = milligrams per liter

<sup>1</sup> 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: 1850 AMADOR VALLEY BLVD. Date: 7/8/98  
 City: DUBLIN, CA Sampler: HAIG KEVORK

Well ID: U-1 Well Condition: OK  
 Well Diameter: 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (product/water): Ø (Gallons)  
 Total Depth: 27.95 ft. Volume Factor (VF): 2" = 0.17, 3" = 0.38, 4" = 0.66, 6" = 1.50, 12" = 5.80  
 Depth to Water: 12.67 ft.

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

Purge Equipment: Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_  
N/A

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: 12:00 Weather Conditions: SUNNY  
 Sampling Time: 12:05 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 $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>NO PURGING</u>					<u>1.10</u>		

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-1</u>	<u>3 VOA 1 AMBER</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe TPH-D</u>

COMMENTS: SAMPLED WITHOUT PURGING. HAS ORC.

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/Facility: TOSCO/UNOCAL # 7176 Job#: 180022  
 Address: 1850 AMADOR VALLEY BLVD, Date: 7/8/98  
 City: DUBLIN, CA Sampler: HAIG KEVORK

Well ID: U-2 Well Condition: OK  
 Well Diameter: 2" ~~26.51~~ in. Hydrocarbon Thickness: Ø (feet) Amount Bailed: Ø (Gallons)  
 Total Depth: 26.51 ~~13.27~~ ft. Volume 2" = 0.17 3" = 0.38 4" = 0.66  
 Depth to Water: 13.27 ft. Factor (VF) 6" = 1.50 12" = 5.80

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

Purge Equipment: N/A  
 Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: 12:35 Weather Conditions: SUNNY  
 Sampling Time: 12:40 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 $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>NO PURGING</u>					<u>1.36</u>		

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-2</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>
	<u>1 AMBER</u>				<u>TPH-D</u>

COMMENTS: SAMPLED WITHOUT PURGING. HAS ORC.

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/Facility: TOSCO/UNOCAL #7176 Job#: 180022  
 Address: 1850 AMADOR VALLEY BLVD. Date: 7/8/98  
 City: DUBLIN, CA Sampler: HAIG KEVORK

Well ID: U-3 Well Condition: OK

Well Diameter: 2 in.  
 Total Depth: 28.58 ft.  
 Depth to Water: 14.90 ft.

Hydrocarbon Thickness:	(feet)	Amount Bailed (product/water):	(Gallons)
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: N/A  
 Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: 10:29 Weather Conditions: SUNNY  
 Sampling Time: 10:35 Water Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Purging Flow Rate: N/A gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? N/A If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>NO</u>	<u>PURGING</u>				<u>4.35</u>		

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-3</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>
	<u>1 AMBER</u>				<u>TPH-D</u>

COMMENTS: SAMPLED WITHOUT PURGING, HAS ORC.

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/Facility: TOSCO/UNOCAL # 4176 Job#: 180022  
 Address: 1850 AMADOR VALLEY BLVD, Date: 7/8/98  
 City: DUBLIN, CA Sampler: HAIG KEVORK

Well ID: MW-4 Well Condition: NEW  
 Well Diameter: 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (Gallons)  
 Total Depth: 25.50 ft. Volume Factor (VF) 2" = 0.17 3" = 0.38 4" = 0.66  
 Depth to Water: 13.70 ft. 6" = 1.50 12" = 5.80

11.80 x VF 0.17 = 2 X 3 (case volume) = Estimated Purge Volume: 6 (gal.)

Purge Equipment: Disposable Bailer Bailer Stack Suction Grundfos Other: \_\_\_\_\_  
 Sampling Equipment: Disposable Bailer Bailer Pressure Bailer Grab Sample Other: \_\_\_\_\_

Starting Time: 11:20 Weather Conditions: SUNNY  
 Sampling Time: 11:35 Water Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Purging Flow Rate: 2 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? NO If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>12:21</u>	<u>2</u>	<u>7.21</u>	<u>962</u>	<u>22.2</u>			
	<u>4</u>	<u>7.17</u>	<u>978</u>	<u>21.8</u>			
<u>12:24</u>	<u>6</u>	<u>7.13</u>	<u>986</u>	<u>21.9c°</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-4</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>
	<u>1 AMBER</u>				<u>TPH-D</u>

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/Facility: TOSCO/UNOCAL #M176 Job#: 180022  
 Address: 7850 AMADOR VALLEY BLD Date: 7/8/98  
 City: DUBLIN, CA Sampler: HAIG KEVORK

Well ID: MW-5 Well Condition: NEW  
 Well Diameter: 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (Gallons)  
 Total Depth: 25.00 ft. Volume Factor (VF) 2" = 0.17 3" = 0.38 4" = 0.66  
 Depth to Water: 12.63 ft. 6" = 1.50 12" = 5.80

12.37 x VF 0.17 = 2.1 X 3 (case volume) = Estimated Purge Volume: 6 (gal.)

Purge Equipment:  Disposable Bailer  Stack  Suction  Grundfos  Other: \_\_\_\_\_  
 Sampling Equipment:  Disposable Bailer  Bailer  Pressure Bailer  Grab Sample  Other: \_\_\_\_\_

Starting Time: 10:45 Weather Conditions: SUNNY  
 Sampling Time: 10:55 Water Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Purging Flow Rate: 2 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? NO If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>10:46</u>	<u>2</u>	<u>6.97</u>	<u>1468</u>	<u>21.9</u>			
	<u>4</u>	<u>6.89</u>	<u>1480</u>	<u>21.6</u>			
<u>10:48</u>	<u>6</u>	<u>6.91</u>	<u>1490</u>	<u>21.40</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-5</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCl</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>
	<u>1 AMBER</u>				<u>TPH-D</u>

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



TOSCO

Tosco Marketing Company  
3723 Cow Canyon Pl., Ste. 202  
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 9807180  
 Laboratory Release Number \_\_\_\_\_  
 Samples Collected by (Name) HAIG KEVORK  
 Collection Date 7/18/1998  
 Signature [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	Iodine (Yes or No)	Analyses To Be Performed										Remarks			
								TPH Gas + STEK W/M/T/E (8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Hydrocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8140)	Extractable Organics (8170)	Metals Cd, Cr, Pb, Zn, Ni (MCP or AA)						
CB-LB		1	W	G		HCl	YES	✓						8070722							
1-1		4	W	G	12:05	HCl (VOR)		✓	✓					8070723							w/silica gel
1-2		4	W	G	12:40			✓	✓					8070724							
1-3		4	W	G	10:35			✓	✓					8070725							
1W-4		4	W	G	11:35			✓	✓					8070726							
1W-5		4	W	G	10:55			✓	✓					8070727							

DO NOT BILL  
TB-LB ANALYSIS

Relinquished By (Signature) <u>[Signature]</u>	Organization <u>G-R Inc.</u>	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)  24 Hrs. 48 Hrs. 5 Days 10 Days [ ] As Contracted
	Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory Use (Signature) <u>[Signature]</u>		Date/Time <u>7/19 1998</u>	



# Sequoia Analytical

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 819 Striker Avenue, Suite 8  
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 FAX (707) 792-0342

Gettler-Ryan - Dublin  
 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 #: 807-0723

Sampled: Jul 8, 1998  
 Received: Jul 9, 1998  
 Reported: Jul 23, 1998

QC Batch Number: SP071498 SP071498 SP071498 SP071498 SP071498  
 8015EXB 8015EXB 8015EXB 8015EXB 8015EXB

## TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

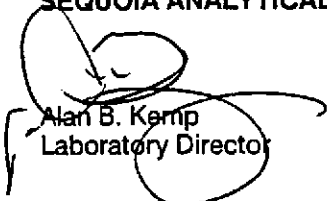
Analyte	Reporting Limit µg/L	Sample I.D. 807-0723 U-1	Sample I.D. 807-0724 U-2	Sample I.D. 807-0725 U-3	Sample I.D. 807-0726 MW-4	Sample I.D. 807-0727 MW-5
Extractable Hydrocarbons	50	2,000	1,100	80	1,400	170
Chromatogram Pattern:		Unidentified Hydrocarbons <C14	Unidentified Hydrocarbons <C14	Discrete Peaks	Diesel Unidentified Hydrocarbons <C14	Unidentified Hydrocarbons C9 - C24

### Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0
Date Extracted:	7/14/98	7/14/98	7/14/98	7/14/98	7/14/98
Date Analyzed:	7/15/98	7/15/98	7/15/98	7/15/98	7/15/98
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

  
 Alan B. Kemp  
 Laboratory Director



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Gettler-Ryan - Dublin  
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 #: 807-0722

Sampled: Jul 8, 1998  
Received: Jul 9, 1998  
Reported: Jul 23, 1998

QC Batch Number: GC072298 GC072298 GC072298 GC072298 GC072298 GC072298  
802005A 802004A 802004A 802004A 802004A 802004A

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit µg/L	Sample I.D. 807-0722 TB-LB	Sample I.D. 807-0723 U-1	Sample I.D. 807-0724 U-2	Sample I.D. 807-0725 U-3	Sample I.D. 807-0726 MW-4	Sample I.D. 807-0727 MW-5
Purgeable Hydrocarbons	50	N.D.	4,500	1,600	N.D.	1,000	N.D.
Benzene	0.50	N.D.	51	34	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	8.5	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	590	100	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	430	7.4	N.D.	N.D.	N.D.
MTBE	2.5	N.D.	190	190	N.D.	N.D.	12
Chromatogram Pattern:		--	Gasoline	Gasoline	--	Unidentified Hydrocarbons > C8	--

### Quality Control Data

Report Limit Multiplication Factor:	1.0	20	5.0	1.0	10	1.0
Date Analyzed:	7/22/98	7/22/98	7/22/98	7/22/98	7/22/98	7/22/98
Instrument Identification:	HP-5	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	92	120	130	113	113	113

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

  
Julianne Fegley  
Project Manager





# Sequoia Analytical

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Gettler-Ryan - Dublin  
6747 Sierra Court, Suite J  
Dublin, CA 94568  
Attention: Deanna Harding

Client Project ID: Unocal SS#7176, Dublin  
Matrix: Liquid

QC Sample Group: 8070722-727

Reported: Jul 23, 1998

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
QC Batch#:	GC072298 802005A	GC072298 802005A	GC072298 802005A	GC072298 802005A	SP071498 8015EXB
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 3510/3630
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater	K. Grubb
MS/MSD #:	8070752	8070752	8070752	8070752	BLK071498
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	110 µg/L
Prepared Date:	7/22/98	7/22/98	7/22/98	7/22/98	7/14/98
Analyzed Date:	7/22/98	7/22/98	7/22/98	7/22/98	7/15/98
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3A
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	500 µg/L
Result:	19	20	20	62	510
MS % Recovery:	95	100	100	103	80
Dup. Result:	19	20	20	63	430
MSD % Recov.:	95	100	100	105	64
RPD:	0.0	0.0	0.0	1.6	17
RPD Limit:	0-20	0-20	0-20	0-20	0-50

LCS #:	5LCS072298	5LCS072298	5LCS072298	5LCS072298	LCS071498
Prepared Date:	7/22/98	7/22/98	7/22/98	7/22/98	7/14/98
Analyzed Date:	7/22/98	7/22/98	7/22/98	7/22/98	7/15/98
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	500 µg/L
LCS Result:	18	19	19	60	360
LCS % Recov.:	90	95	95	100	72

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	60-140
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**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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp  
Laboratory Director



# Sequoia Analytical

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Gettler-Ryan - Dublin  
6747 Sierra Court, Suite J  
Dublin, CA 94568  
Attention: Deanna Harding

Client Project ID: Unocal SS#7176, Dublin  
Matrix: Liquid

QC Sample Group: 8070722-727

Reported: Jul 23, 1998

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC072298 802004A	GC072298 802004A	GC072298 802004A	GC072298 802004A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater
MS/MSD #:	8070725	8070725	8070725	8070725
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	7/22/98	7/22/98	7/22/98	7/22/98
Analyzed Date:	7/22/98	7/22/98	7/22/98	7/22/98
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	20	21	21	67
MS % Recovery:	100	105	105	112
Dup. Result:	20	21	22	68
MSD % Recov.:	100	105	110	113
RPD:	0.0	0.0	4.7	1.5
RPD Limit:	0-20	0-20	0-20	0-20

LCS #:	4LCS072298	4LCS072298	4LCS072298	4LCS072298
Prepared Date:	7/22/98	7/22/98	7/22/98	7/22/98
Analyzed Date:	7/22/98	7/22/98	7/22/98	7/22/98
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	18	19	19	61
LCS % Recov.:	90	95	95	102

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130
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**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

SEQUOIA ANALYTICAL, #1271

Julianne Regley  
Project Manager