

R455



# GETTLER-RYAN INC.

## TRANSMITTAL

November 27, 2002

G-R #180068

TO: Mr. David B. De Witt  
Phillips 66 Company  
2000 Crow Canyon Place, Suite 400  
San Ramon, California 94583

Alameda County  
DEC 18 2002  
Environmental Health  
CC:

Mr. David Vossler  
Gettler-Ryan Inc.  
Petaluma, California

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

RE: **Tosco (Former Unocal)  
Service Station #1871  
96 MacArthur Boulevard  
Oakland, California**

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	August 23, 2002	Groundwater Monitoring and Sampling Report Third Quarter - Event of July 11, 2002

### COMMENTS:

This report is being sent to you for your review/comment, prior to being distributed on your behalf. If no comments are received by **December 12, 2002**, this report will be distributed to the following:

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

Enclosure

trans/1871-DBD



# GETTLER-RYAN INC.

November 18, 2002  
G-R Job #180068

Mr. David B. De Witt  
Phillips 66 Company  
2000 Crow Canyon Place, Suite 400  
San Ramon, California 94583

**RE: Fourth Quarter Event of October 15, 2002**  
Groundwater Monitoring & Sampling Report  
Tosco (Former Unocal) Service Station #1871  
96 MacArthur Boulevard  
Oakland, California

Dear Mr. De Witt:

This report documents the most recent groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R) at the referenced site. All field work was conducted in accordance with G-R Standard Operating Procedure - Groundwater Sampling (attached).

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 and submitted to a state certified laboratory for analyses. The field data sheets for this event are attached. Analytical results are presented in the table(s) listed below. 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

Robert C. Mallory  
Registered Geologist No. 7285

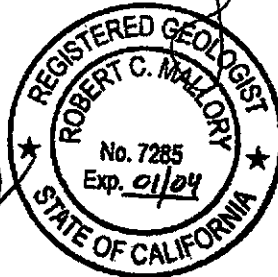
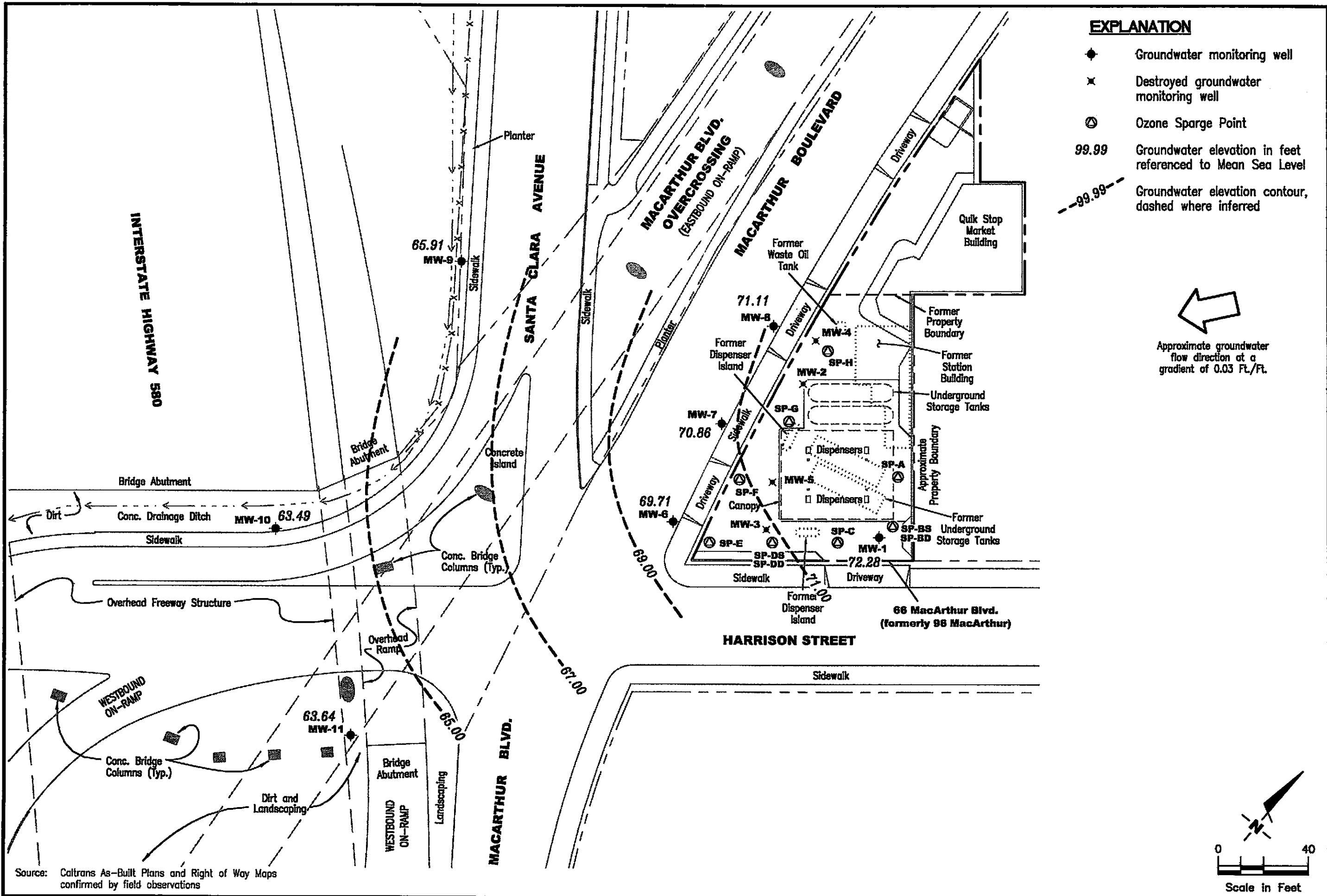


Figure 1: Potentiometric Map  
Figure 2: Concentration Map  
Table 1: Groundwater Monitoring Data and Analytical Results  
Table 2: Field Measurements  
Table 3: Groundwater Analytical Results - Oxygenate Compounds  
Table 4: Groundwater Analytical Results  
Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and Laboratory Analytical Reports



**EXPLANATION**

- ◆ Groundwater monitoring well
- ✕ Destroyed groundwater monitoring well
- ⊙ Ozone Sparge Point
- 99.99 Groundwater elevation in feet referenced to Mean Sea Level
- - - 99.99 - - - Groundwater elevation contour, dashed where inferred

←  
Approximate groundwater flow direction at a gradient of 0.03 Ft./Ft.

Source: Caltrans As-Built Plans and Right of Way Maps confirmed by field observations

FIGURE 1

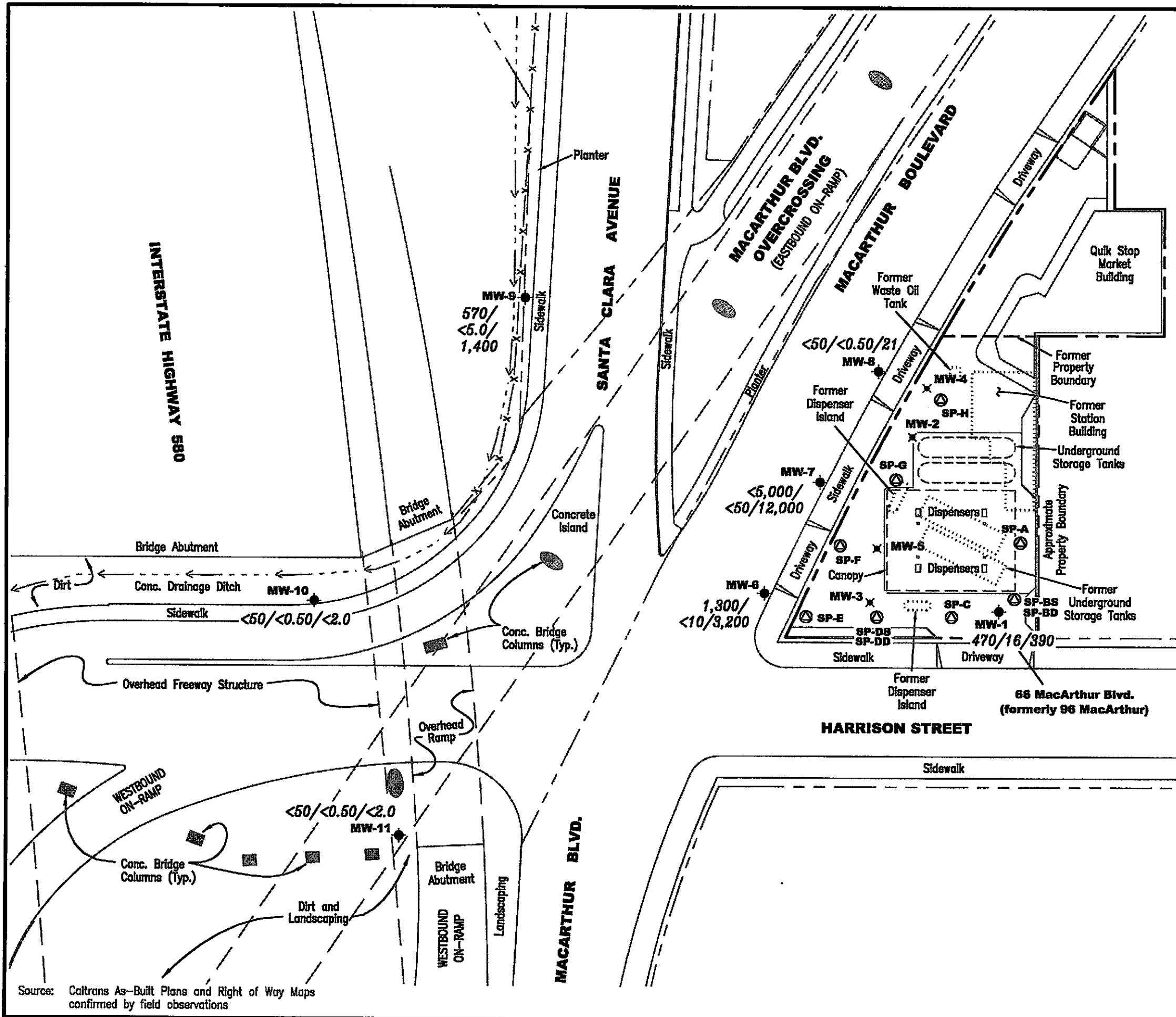
**POTENTIOMETRIC MAP**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

DATE: October 15, 2002  
 REVISION DATE

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

PROJECT NUMBER: 180068  
 REVIEWED BY: [Signature]  
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**EXPLANATION**

- ◆ Groundwater monitoring well
  - ✕ Destroyed groundwater monitoring well
  - ⊙ Ozone Sparge Point
  - A/B/C Total Petroleum Hydrocarbons (TPH) as Gasoline/Benzene/MTBE concentrations in ppb
- Note:* Analyses by EPA Method 8260

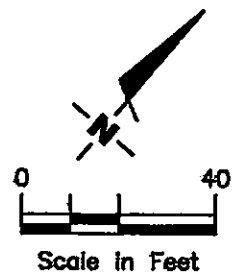
FIGURE 2

**CONCENTRATION MAP**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

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

PROJECT NUMBER: 180068  
 FILE NAME: P:\ENVIRO\TOSCO\1871\002-1871.DWG | Layout Tab: Contd  
 REVIEWED BY: [Signature]  
 DATE: October 15, 2002  
 REVISED DATE: [Blank]

Source: Caltrans As-Built Plans and Right of Way Maps confirmed by field observations



**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs.)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-1	11/03/92	--	9.5-24.5	--	260,000	2,300	4,600	3,700	17,000	--
	01/25/93	--		--	120,000	2,100	4,600	4,900	22,000	--
81.18	04/29/93	13.71		67.47	100,000	850	2,000	4,300	19,000	--
	07/16/93	14.51		66.67	29,000	590	560	980	4,200	--
	10/19/93	15.20		65.98	67,000	1,400	2,600	2,900	5,000	--
	01/20/94	15.17		66.01	92,000	1,200	3,000	3,400	17,000	--
	04/13/94	14.44		66.74	51,000	1,000	2,600	3,200	15,000	--
	07/13/94	14.88		66.30	35,000	550	150	1,400	5,700	--
	10/10/94	15.55		65.63	52,000	1,000	810	3,300	12,000	--
	01/10/95	12.44		68.74	810	16	18	59	250	--
	04/17/95	12.68		68.50	48,000	880	530	2,500	11,000	--
	07/24/95	13.97		67.21	48,000	1,500	420	2,700	9,700	--
	10/23/95	14.85		66.33	47,000	780	210	2,100	11,000	270
	01/18/96	14.21		66.97	30,000	1,500	500	3,500	13,000	2,400
86.24	04/18/96	13.40		72.84	66,000	2,700	2,200	3,100	13,000	57,000
	07/24/96	14.15		72.09	5,600	2,100	ND	160	160	24,000
	10/24/96	14.85		71.39	110,000	7,500	8,000	3,300	14,000	58,000
	01/28/97	11.25		74.99	94,000	7,700	19,000	3,100	15,000	120,000
	07/29/97	14.67		71.57	ND	ND	ND	ND	ND	70,000
	01/14/98	12.27		73.97	85,000	6,100	10,000	3,000	17,000	110,000
	07/01/98	14.32		71.92	110,000	8,700	12,000	2,700	15,000	110,000
	06/18/99	13.93		72.31	49,000	6,900	6,500	380	12,000	72,000/47,000 <sup>4</sup>
	01/21/00	15.05		71.19	63,700 <sup>5</sup>	5,520	2,000	2,640	13,100	57,100
	07/10/00	13.97		72.27	67,800 <sup>5</sup>	9,910	4,120	3,330	16,100	67,400/54,000 <sup>4</sup>
	01/04/01	14.92		71.32	63,900 <sup>5</sup>	6,270	784	2,670	12,900	--/38,100 <sup>4</sup>
	07/16/01	14.32		71.92	66,000 <sup>5</sup>	7,100	330	2,300	9,800	36,000/41,000 <sup>4</sup>
86.99	♦ 01/31/02	13.54		73.45	42,000 <sup>5</sup>	5,800	1,800	2,000	8,200	26,000/26,000 <sup>4</sup>
	04/11/02	13.64		73.35	58,000	2,900	1,200	1,800	10,000	19,000
	07/11/02 <sup>8</sup>	13.96		73.03	5,900	330	<10	230	600	3,400
	10/15/02 <sup>8</sup>	14.71		72.28	470	16	<2.5	14	16	390

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
Tosco (Former Unocal) Service Station #1871  
96 MacArthur Boulevard  
Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs.)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
MW-2	11/03/92	--	--	--	140	2.2	ND	ND	2.0	--	
	01/25/93	--	--	--	2,100	56	1.1	90	140	--	
76.61	04/29/93	9.73		66.88	1,500	290	ND	33	11	--	
	07/16/93	10.17		66.44	510 <sup>1</sup>	17	0.60	3.2	2.5	--	
	10/19/93	11.18		65.43	670	24	1.1	7.7	23	--	
	01/20/94	11.12		65.49	820	97	ND	12	ND	--	
	04/13/94	10.12		66.49	550	71	ND	5.1	1.3	--	
	07/13/94	10.86		65.75	2,000	490	ND	17	13	--	
	10/10/94	11.48		65.13	2,300	340	ND	25	ND	--	
	01/10/95	8.71		67.90	850	3.8	ND	8.5	1.3	--	
	04/17/95	8.90		67.71	1,300	4.7	ND	8.3	1.2	--	
	07/24/95	9.94		66.67	960	20	ND	4.2	6.2	--	
	10/23/95	10.70		65.91	ND	ND	ND	ND	ND	19	
	01/18/96	10.11		66.50	900	300	86	7.6	18	4,300	
	81.66	04/18/96	9.27		72.39	18,000	3,600	680	890	4,100	19,000
		07/24/96	10.02		71.64	100,000	13,000	21,000	2,700	16,000	120,000
10/24/96		10.78		70.88	800	110	17	11	20	20,000	
01/28/97		7.70		73.96	45,000	2,400	2,900	2,000	7,600	29,000	
07/29/97		10.28		71.38	ND	1.2	0.72	0.63	0.62	17,000	
01/14/98		8.63		73.03	14,000	1,000	150	790	3,300	23,000	
07/01/98	9.53		72.13	2,700	100	ND <sup>3</sup>	180	78	7,100		
DESTROYED											
MW-3	11/03/92	--	--	--	2,100	120	15	38	200	--	
	01/25/93	--	--	--	2,300	80	1	55	52	-	
77.48	04/29/93	11.37		66.11	4,500	1,700	ND	200	140	--	
	07/16/93	12.09		65.39	4,000 <sup>1</sup>	1,100	28	52	70	--	
	10/19/93	12.69		64.79	3,800	42	ND	50	56	--	
	01/20/94	12.65		64.83	4,200	11	ND	21	15	--	
	04/13/94	12.02		65.46	4,200	210	ND	36	53	--	
	07/13/94	12.46		65.02	1,800 <sup>2</sup>	16	16	ND	21	--	

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 Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs.)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-3	10/10/94	12.98	--	64.50	4,300	11	ND	12	ND	--
(cont)	01/10/95	10.42		67.06	310	4.6	ND	3.5	2.1	--
	04/17/95	10.42		67.06	7,800	ND	4.6	300	450	--
	07/24/95	11.76		65.72	3,200	170	ND	22	16	--
	10/23/95	12.50		64.98	3,900	55	ND	19	11	4,500
	01/18/96	11.79		65.69	2,200	270	33	26	18	5,500
82.55	04/18/96	11.30		71.25	6,000	1,800	ND	100	230	48,000
	07/24/96	12.17		70.38	ND	2,500	ND	ND	ND	71,000
	10/24/96	12.65		69.90	3,800	660	ND	15	ND	65,000
	01/28/97	9.50		73.05	4,400	250	13	87	47	54,000
	07/29/97	11.99		70.56	ND	3,500	ND	220	ND	75,000
	01/14/98	10.30		72.25	ND <sup>3</sup>	430	ND <sup>3</sup>	100	380	37,000
	07/01/98	11.70		70.85	ND <sup>3</sup>	430	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	45,000
	DESTROYED									
<b>MW-4</b>										
82.04	04/18/96	9.83	--	72.21	ND	630	ND	ND	ND	18,000
	07/24/96	10.47		71.57	ND	ND	ND	ND	5.2	3,900
	10/24/96	11.14		70.90	ND	ND	ND	ND	ND	6,300
	01/28/97	7.94		74.10	1,200	490	ND	17	6.8	16,000
	07/29/97	10.86		71.18	50	1.5	0.61	0.73	0.78	15,000
	01/14/98	8.73		73.31	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	5,200
	07/01/98	10.51		71.53	ND	ND	ND	ND	ND	640
	DESTROYED									
<b>MW-5</b>										
81.80	04/18/96	9.65	--	72.15	31,000	5,500	1,400	1,700	8,100	66,000
	07/24/96	10.80		71.00	32,000	6,400	ND	1,600	6,100	120,000
	10/24/96	11.40		70.40	17,000	6,900	ND	970	130	84,000
	01/28/97	7.76		74.04	19,000	6,100	62	82	310	160,000

**Table 1**  
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Tosco (Former Unocal) Service Station #1871  
96 MacArthur Boulevard  
Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs.)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-5	07/29/97	11.58	--	70.22	ND	ND	ND	ND	ND	71,000
(cont)	01/14/98	9.08		72.72	ND <sup>3</sup>	3,600	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	80,000
	07/01/98	11.25		70.55	6,400	2,100	21	120	330	61,000
	DESTROYED									
<b>MW-6</b>										
78.91	06/18/99	9.30	5.0-25.0	69.61	2,100	21	29	ND <sup>3</sup>	47	97,000/71,000 <sup>4</sup>
	01/21/00	9.37		69.54	1,880 <sup>5</sup>	143	31.2	106	196	41,200/48,800 <sup>4</sup>
	07/10/00	8.94		69.97	5,710 <sup>5</sup>	869	209	301	1,430	22,200/19,500 <sup>4</sup>
	01/04/01	9.21		69.70	ND	ND	ND	ND	ND	--/9,510 <sup>4</sup>
	07/16/01	9.42		69.49	4,800 <sup>5</sup>	200	21	150	440	29,000/34,000 <sup>4</sup>
	01/31/02	8.50		70.41	12,000 <sup>7</sup>	250	92	500	1,500	26,000/31,000 <sup>4</sup>
79.67	04/11/02	9.08		70.59	3,600	42	32	39	280	120,000
	07/11/02 <sup>8</sup>	9.70		69.97	12,000 <sup>9</sup>	<100	<100	<100	<200	15,000
	10/15/02 <sup>8</sup>	9.96		69.71	1,300 <sup>9</sup>	<10	<10	<10	<20	3,200
<b>MW-7</b>										
79.92	06/18/99	8.70	5.0-25.0	71.22	ND	ND	ND	ND	ND	16,000/13,000 <sup>4</sup>
	01/21/00	9.30		70.62	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	12,300/18,200 <sup>4</sup>
	07/10/00	8.72		71.20	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	ND <sup>3</sup>	16,900/13,800 <sup>4</sup>
	01/04/01	9.17		70.75	ND	ND	ND	ND	0.719	--/37.3 <sup>4</sup>
	07/16/01	9.02		70.90	ND	ND	ND	ND	ND	7,200/4,700 <sup>4</sup>
	01/31/02	7.91		72.01	<50	<0.50	<0.50	<0.50	<0.50	8,900/9,900 <sup>4</sup>
80.67	04/11/02	INACCESSIBLE - CAR PARKED OVER WELL			--	--	--	--	--	--
	07/11/02	INACCESSIBLE - TRUCK PARKED OVER WELL			--	--	--	--	--	--
	10/15/02 <sup>8</sup>	9.81		70.86	<5,000 <sup>9</sup>	<50	<50	<50	<100	12,000



**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.L. (ft. bgs.)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
<b>MW-8</b>										
80.96	06/18/99	9.10	5.0-25.0	71.86	ND	ND	ND	ND	ND	290/160 <sup>4</sup>
	01/21/00	10.00		70.96	ND	ND	ND	ND	1.09	224/221 <sup>4</sup>
	07/10/00	7.94		73.02	ND	ND	ND	ND	ND	234/223 <sup>4</sup>
	01/04/01	9.76		71.20	3,790 <sup>5</sup>	141	8.92	128	375	--/34,200 <sup>4</sup>
	07/16/01	9.15		71.81	ND	ND	ND	ND	ND	66/70 <sup>4</sup>
	01/31/02	7.99		72.97	5,900 <sup>7</sup>	86	<10	630	390	670/700 <sup>4</sup>
81.71	04/11/02	9.00		72.71	250	2.0	<0.50	38	2.2	410
	07/11/02 <sup>8</sup>	9.60		72.11	110 <sup>9</sup>	<0.50	<0.50	<0.50	<1.0	120
	10/15/02 <sup>8</sup>	10.60		71.11	<50	<0.50	<0.50	<0.50	<1.0	21
<b>MW-9</b>										
82.07	01/31/02 <sup>6</sup>	14.72	--	67.35	<50	<0.50	<0.50	<0.50	<0.50	680/910 <sup>4</sup>
	04/11/02	14.85		67.22	<50	<0.50	<0.50	<0.50	<0.50	620
	07/11/02 <sup>8</sup>	15.39		66.68	580 <sup>9</sup>	<5.0	<5.0	<5.0	<10	580
	10/15/02 <sup>8</sup>	16.16		65.91	570 <sup>9</sup>	<5.0	<5.0	<5.0	<10	1,400
<b>MW-10</b>										
74.98	01/31/02 <sup>6</sup>	8.02	--	66.96	<50	<0.50	<0.50	<0.50	<0.50	<5.0/1.2 <sup>4</sup>
	04/11/02	7.60		67.38	<50	<0.50	<0.50	<0.50	<0.50	<2.5
	07/11/02 <sup>8</sup>	8.91		66.07	<50	<0.50	<0.50	<0.50	<1.0	1.1
	10/15/02 <sup>8</sup>	11.49		63.49	<50	<0.50	<0.50	<0.50	<1.0	<2.0
<b>MW-11</b>										
77.31	01/31/02 <sup>6</sup>	11.71	--	65.60	<50	<0.50	<0.50	<0.50	<0.50	<5.0/<1.0 <sup>4</sup>
	04/11/02	11.95		65.36	<50	<0.50	<0.50	<0.50	<0.50	<2.5
	07/11/02 <sup>8</sup>	12.79		64.52	<50	<0.50	<0.50	<0.50	<1.0	<0.50
	10/15/02 <sup>8</sup>	13.67		63.64	<50	<0.50	<0.50	<0.50	<1.0	<2.0

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs.)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
<b>Trip Blank</b>										
TB-LB	01/14/98	--	--	--	ND	ND	ND	ND	ND	ND
	07/01/98	--	--	--	ND	ND	ND	ND	ND	ND
	06/18/99	--	--	--	ND	ND	ND	ND	ND	ND
	01/21/00	--	--	--	ND	ND	ND	ND	ND	14.6
	07/10/00	--	--	--	ND	ND	ND	ND	ND	ND
	01/04/01	--	--	--	ND	ND	ND	ND	ND	ND
	07/16/01	--	--	--	ND	ND	ND	ND	ND	ND
	01/31/02	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<5.0
	04/11/02	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5
QA	07/11/02 <sup>R</sup>	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50
	10/15/02 <sup>R</sup>	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<2.0

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

**EXPLANATIONS:**

Groundwater monitoring data and laboratory analytical results prior to January 14, 1998, were compiled from reports prepared by MPDS Services, Inc.

TOC = Top of Casing (ft.) = Feet	TPH-G = Total Petroleum Hydrocarbons as Gasoline B = Benzene	(ppb) = Parts per billion ND = Not Detected
DTW = Depth to Water	T = Toluene	-- = Not Measured/Not Analyzed
S. I. = Screen Interval	E = Ethylbenzene	QA = Quality Assurance
(ft. bgs.) = Feet Below Ground Surface	X = Xylenes	
GWE = Groundwater Elevation	MTBE = Methyl tertiary butyl ether	
(msl) = Mean sea level		

\* TOC elevation were surveyed by Virgil Chaves Land Surveying on January 15, 2002. Elevations were based on a USGS bronze disc located near the north end of the curb return at the northwest corner of 38th Street and Broadway, Oakland, California, (Benchmark = 85.41 feet NGVD 29). TOC 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 Street. (Elevation = 77.53 feet msl).

◆ Well elevation has been adjusted up 0.75 feet based on Virgil Chavez Land Survey dated March 5, 2002.

- 1 Laboratory report indicates the presence of discrete peaks not indicative of gasoline.
- 2 Laboratory report indicates the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.
- 3 Detection limit raised. Refer to analytical reports.
- 4 MTBE by EPA Method 8260.
- 5 Laboratory report indicates gasoline C6-C12.
- 6 Well development performed.
- 7 Laboratory report indicates weathered gasoline C6-C12.
- 8 TPH-G, BTEX and MTBE by EPA Method 8260.
- 9 Laboratory report indicates hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.

**Table 2**  
**Field Measurements**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

WELL ID	DATE	POST FIRST CASING VOLUME PURGE		POST SECOND CASING VOLUME PURGE		POST THIRD CASING VOLUME PURGE	
		D.O. (mg/L)	ORP (mV)	D.O. (mg/L)	ORP (mV)	D.O. (mg/L)	ORP (mV)
MW-1	07/11/02	5.0	122	3.1	118	2.9	116
	10/15/02	6.65	132	5.76	147	5.35	152
MW-6	07/11/02	0.7	-17	3.4	13	2.4	12
	10/15/02	7.92	114	6.38	111	5.94	129
MW-7	10/15/02	3.88	121	3.90	156	4.04	152
MW-8	07/11/02	1.1	26	1.6	10	2.4	13
	10/15/02	4.65	218	4.53	241	4.57	231
MW-9	07/11/02	1.1	10	1.0	11	1.2	15
	10/15/02	2.95	154	2.89	161	3.08	166
MW-10	07/11/02	1.1	36	1.0	31	1.2	24
	10/15/02	6.80	158	6.70	161	6.73	148
MW-11	07/11/02	1.8	419	1.4	400	1.1	391
	10/15/02	4.39	98	4.20	110	4.27	96

## Table 2

### Field Measurements

Tosco (Former Unocal) Service Station #1871

96 MacArthur Boulevard

Oakland, California

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#### EXPLANATIONS:

D.O. = Dissolved Oxygen

(mg/L) = Milligrams per liter

ORP = Oxidation Reduction Potential

(mV) = Millivolts

**Table 3**  
**Groundwater Analytical Results - Oxygenate Compounds**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

WELL ID	DATE	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	EDB (ppb)	1,2-DCA (ppb)
MW-1	06/18/99	ND <sup>1</sup>	ND <sup>1</sup>	47,000	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>
	07/10/00	--	--	54,000	--	--	--	--	--
	01/04/01	--	--	38,100	--	--	--	--	--
	07/16/01	ND <sup>1</sup>	ND <sup>1</sup>	41,000	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>
	01/31/02	--	--	26,000	--	--	--	--	--
	07/11/02	--	--	3,400	--	--	--	--	--
	10/15/02	--	--	390	--	--	--	--	--
MW-6	06/18/99	ND <sup>1</sup>	ND <sup>1</sup>	71,000	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>
	01/21/00	--	--	48,800	--	--	--	--	--
	07/10/00	--	--	19,500	--	--	--	--	--
	01/04/01	--	--	9,510	--	--	--	--	--
	07/16/01	ND <sup>1</sup>	ND <sup>1</sup>	34,000	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>
	01/31/02	--	--	31,000	--	--	--	--	--
	07/11/02	<5,000	<1,000	15,000	<200	<100	<100	<100	<100
	10/15/02	--	--	3,200	--	--	--	--	--
MW-7	06/18/99	ND <sup>1</sup>	ND <sup>1</sup>	13,000	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>
	01/21/00	--	--	18,200	--	--	--	--	--
	07/10/00	--	--	13,800	--	--	--	--	--
	01/04/01	--	--	37.3	--	--	--	--	--
	07/16/01	ND <sup>1</sup>	ND <sup>1</sup>	4,700	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>
	01/31/02	--	--	9,900	--	--	--	--	--
	07/11/02	INACCESSIBLE - TRUCK PARKED OVER WELL				--	--	--	--
	10/15/02	--	--	12,000	--	--	--	--	--
MW-8	06/18/99	ND <sup>1</sup>	ND <sup>1</sup>	160	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>
	01/21/00	--	--	221	--	--	--	--	--
	07/10/00	--	--	223	--	--	--	--	--

**Table 3**  
**Groundwater Analytical Results - Oxygenate Compounds**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

WELL ID	DATE	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	EDB (ppb)	1,2-DCA (ppb)
MW-8	01/04/01	--	--	34,200	--	--	--	--	--
(cont)	07/16/01	ND	ND	70	ND	ND	ND	ND	ND
	01/31/02	--	--	700	--	--	--	--	--
	07/11/02	--	--	120	--	--	--	--	--
	10/15/02	--	--	21	--	--	--	--	--
MW-9	01/31/02	<3,600	<140	910	<7.1	<7.1	<7.1	<7.1	<7.1
	07/11/02	--	--	580	--	--	--	--	--
	10/15/02	--	--	1,400	--	--	--	--	--
MW-10	01/31/02	<500	<20	1.2	<1.0	<1.0	<1.0	<1.0	<1.0
	07/11/02	--	--	1.1	--	--	--	--	--
	10/15/02	--	--	<2.0	--	--	--	--	--
MW-11	01/31/02	<500	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	07/11/02	--	--	<0.50	--	--	--	--	--
	10/15/02	--	--	<2.0	--	--	--	--	--

**Table 3**  
**Groundwater Analytical Results - Oxygenate Compounds**  
Tosco (Former Unocal) Service Station #1871  
96 MacArthur Boulevard  
Oakland, California

**EXPLANATIONS:**

TBA = Tertiary butyl alcohol  
MTBE = Methyl tertiary butyl ether  
DIPE = Di-isopropyl ether  
ETBE = Ethyl tertiary butyl ether  
TAME = Tertiary amyl methyl ether  
EDB = 1,2-Dibromoethane  
1,2-DCA = 1,2-Dichloroethane  
(ppb) = Parts per billion  
-- = Not Analyzed  
ND = Not Detected

<sup>1</sup> Detection limit raised. Refer to analytical reports.

**ANALYTICAL METHOD:**

EPA Method 8260 for Oxygenate Compounds



**Table 4**  
**Groundwater Analytical Results**  
 Tosco (Former Unocal) Service Station #1871  
 96 MacArthur Boulevard  
 Oakland, California

WELL ID	DATE	TPH-D (ppb)	TOG (ppb)	HVOC (ppb)	SVOC (ppb)
MW-1	06/18/99	--	--	ND	--
MW-4	04/18/96	110 <sup>1</sup>	ND	ND	--
	07/24/96	ND	ND	ND	ND
	10/24/96	ND	ND	ND	ND <sup>2</sup>
	01/28/97	210 <sup>3</sup>	ND	ND	ND <sup>4</sup>
	07/29/97	ND	ND	ND	ND
	01/14/98	ND	ND	ND	ND
	07/01/98	ND	ND	ND	ND
	DESTROYED				
MW-6	06/18/99	--	--	ND	--
MW-7	06/18/99	--	--	ND	--
MW-8	06/18/99	--	--	ND	ND <sup>5</sup>

**EXPLANATIONS:**

Groundwater analytical results prior to January 14, 1998, were compiled from reports prepared by MPDS Services, Inc.

TPH-D = Total Petroleum Hydrocarbons as Diesel

TOG = Total Oil and Grease

HVOC = Halogenated Volatile Organic Compounds by EPA Method 8010

SVOC = Semi-Volatile Organic Compounds by EPA Method 8270

(ppb) = Parts per billion

-- = Not Analyzed

ND = Not Detected

<sup>1</sup> Laboratory report indicates the hydrocarbons detected did not appear to contain diesel.

<sup>2</sup> Bis (2-ethylhexyl) phthalate was detected at a concentration of 14 ppb.

<sup>3</sup> Laboratory report indicates the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

<sup>4</sup> Naphthalene was detected at a concentration of 17 ppb.

<sup>5</sup> All SVOCs were ND except for Bis(2-ethylhexyl)phthalate at 11 ppb.

All EPA Method 8010 and 8270 constituents were ND, unless noted.

## 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 an interface probe. Product thickness, if present, is measured to the nearest 0.01 foot and is noted in the field notes. In addition, all depth to water level measurements are collected with a static water level indicator and are also recorded in the field notes, prior to purging and sampling any wells.

After water levels are collected and prior to sampling, temperature, pH and electrical conductivity are measured. If purging is to occur, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, suction, Grundfos), or disposable bailers. The measurements are taken 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 and is labeled as QA. 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 Phillips 66 Company, the purge water and decontamination water generated during sampling activities is transported to Phillips 66 - San Francisco Refinery, located in Rodeo, California.



# GETTLER - RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility #: Tosco #1871 Job Number: 180068  
 Site Address: 96 Macarthur Event Date: 10-15-02 (inclusive)  
 City: Oakland, CA Sampler: Joe

Well ID: MW-1 Well Condition: OK  
 Well Diameter: 2 1/4 in.  
 Total Depth: 24.08 ft.  
 Depth to Water: 14.71 ft.  
 $9.37 \times VF \ 0.66 = 6.18 \times 3 \text{ (case volume)} = \text{Estimated Purge Volume: } 18.5 \text{ gal.}$

Volume Factor (VF)	3/4" = 0.02	1" = 0.04	2" = 0.17	3" = 0.38
	4" = 0.66	5" = 1.02	6" = 1.50	12" = 5.80

**Purge Equipment:**  
 Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Suction Pump  \_\_\_\_\_  
 Grundfos \_\_\_\_\_  
 Other: \_\_\_\_\_

**Sampling Equipment:**  
 Disposable Bailer  \_\_\_\_\_  
 Pressure Bailer \_\_\_\_\_  
 Discrete Bailer \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Bailed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: 0 ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbent Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ gal  
 Amt Removed from Well: \_\_\_\_\_ gal  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 0910 Weather Conditions: clear  
 Sample Time/Date: 0945 110-15-02 Water Color: clear Odor: yes  
 Purging Flow Rate: 1.5 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ gal.

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (umhos/cm) <sup>160</sup>	Temperature (C/F)	D.O. (mg/L)	ORP (mV)
<u>0918</u>	<u>6</u>	<u>7.27</u>	<u>2.28</u>	<u>70.2</u>	<u>6.65</u>	<u>132</u>
<u>0922</u>	<u>8</u>	<u>7.20</u>	<u>2.38</u>	<u>71.0</u>	<u>5.76</u>	<u>147</u>
<u>0926</u>	<u>18.5</u>	<u>7.17</u>	<u>2.41</u>	<u>71.8</u>	<u>5.35</u>	<u>152</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-1</u>	<u>3 x vial</u>	<u>YES</u>	<u>HCL</u>	<u>STL Pleasanton</u>	<u>TPH-G/BTEX/MTBE(8260)</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Size: \_\_\_\_\_



# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility #: Tosco #1871 Job Number: 180068  
 Site Address: 96 Macarthur Event Date: 10-15-02 (inclusive)  
 City: Oakland, CA Sampler: Joe

Well ID: MW-6 Well Condition: OK  
 Well Diameter: (2) 14 in.  
 Total Depth: 24.73 ft.  
 Depth to Water: 9.96 ft.  
14.77 xVF 0.17 = 2.51 x3 (case volume) = Estimated Purge Volume: 8 gal.

Volume	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
Factor (VF)	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

Purge Equipment:  
 Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Suction Pump \_\_\_\_\_  
 Grundfos \_\_\_\_\_  
 Other: \_\_\_\_\_

Sampling Equipment:  
 Disposable Bailer   
 Pressure Bailer \_\_\_\_\_  
 Discrete Bailer \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Bailed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: 0 ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbent Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ gal  
 Amt Removed from Well: \_\_\_\_\_ gal  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 0645 Weather Conditions: clear  
 Sample Time/Date: 0727 10-15-02 Water Color: clear Odor: yes  
 Purging Flow Rate: 1 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ gal.

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (umhos/cm) <sup>x1000</sup>	Temperature (C/F)	D.O. (mg/L)	ORP (mV)
<u>0654</u>	<u>3</u>	<u>7.19</u>	<u>1.91</u>	<u>73.6</u>	<u>7.92</u>	<u>114</u>
<u>0656</u>	<u>5</u>	<u>7.27</u>	<u>2.04</u>	<u>73.0</u>	<u>6.38</u>	<u>111</u>
<u>0659</u>	<u>8</u>	<u>7.36</u>	<u>1.96</u>	<u>72.7</u>	<u>5.94</u>	<u>129</u>
_____	_____	_____	_____	_____	_____	_____

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-6</u>	<u>3 x voa vial</u>	<u>YES</u>	<u>HCL</u>	<u>STL Pleasanton</u>	<u>TPH-G/BTEX/MTBE(8260)</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Size: \_\_\_\_\_



# GETTLER - RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility #: Tosco #1871 Job Number: 180068  
 Site Address: 96 Macarthur Event Date: 10-15-02 (inclusive)  
 City: Oakland, CA Sampler: Joc

Well ID: MW-7 Well Condition: o/c  
 Well Diameter: 21.4 in.  
 Total Depth: 24.50 ft.  
 Depth to Water: 9.81 ft.  
 $14.69 \times VF \ 0.17 = 2.50 \times 3 \text{ (case volume)} = \text{Estimated Purge Volume: } \underline{8} \text{ gal.}$

Volume	3/4" = 0.02	1" = 0.04	2" = 0.17	3" = 0.38
Factor (VF)	4" = 0.66	5" = 1.02	6" = 1.50	12" = 5.80

Purge Equipment:  
 Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Suction Pump ✓ \_\_\_\_\_  
 Grundfos \_\_\_\_\_  
 Other: \_\_\_\_\_

Sampling Equipment:  
 Disposable Bailer ✓ \_\_\_\_\_  
 Pressure Bailer \_\_\_\_\_  
 Discrete Bailer \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Bailed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: 0 ft  
 Visual Confirmation/Description:  
 Skimmer / Absorbent Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ gal  
 Amt Removed from Well: \_\_\_\_\_ gal  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 0826 Weather Conditions: Clear  
 Sample Time/Date: 0858 10-15-02 Water Color: Clear Odor: None  
 Purging Flow Rate: 1 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ gal.

Time (2400 hr.)	Volume (gal.)	pH	Conductivity $\times 10^2$ ( $\mu$ mhos/cm)	Temperature (C/E)	D.O. (mg/L)	ORP (mV)
<u>0832</u>	<u>2.5</u>	<u>7.42</u>	<u>5.77</u>	<u>73.8</u>	<u>3.88</u>	<u>121</u>
<u>0835</u>	<u>5.5</u>	<u>7.36</u>	<u>5.63</u>	<u>73.5</u>	<u>3.90</u>	<u>156</u>
<u>0837</u>	<u>8</u>	<u>7.30</u>	<u>5.70</u>	<u>73.4</u>	<u>4.04</u>	<u>152</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-7</u>	<u>5 x vial</u>	<u>YES</u>	<u>HCL</u>	<u>STL Pleasanton</u>	<u>TPH-G/BTEX/MTBE(8260)</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Size: \_\_\_\_\_



# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility #: Tosco #1871 Job Number: 180068  
 Site Address: 96 Macarthur Event Date: 10-15-02 (inclusive)  
 City: Oakland, CA Sampler: Joe

Well ID: MW-8  
 Well Diameter: (2) 1 4 in.  
 Total Depth: 24.81 ft.  
 Depth to Water: 10.60 ft.

Well Condition: OK

Volume	3/4" = 0.02	1" = 0.04	2" = 0.17	3" = 0.38
Factor (VF)	4" = 0.66	5" = 1.02	6" = 1.50	12" = 5.80

14.21 x VF 0.17 = 242 x3 (case volume) = Estimated Purge Volume: 7.5 gal.

Purge Equipment:  
 Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Suction Pump   
 Grundfos \_\_\_\_\_  
 Other: \_\_\_\_\_

Sampling Equipment:  
 Disposable Bailer   
 Pressure Bailer \_\_\_\_\_  
 Discrete Bailer \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Bailed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: 0 ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbant Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ gal  
 Amt Removed from Well: \_\_\_\_\_ gal  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 0738 Weather Conditions: clear  
 Sample Time/Date: 0815 / 10-15-02 Water Color: clear Odor: none  
 Purging Flow Rate: 1 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ gal.

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (umhos/cm)	Temperature (C/F)	D.O. (mg/L)	ORP (mV)
<u>0749</u>	<u>2.5</u>	<u>7.80</u>	<u>5.97</u>	<u>73.0</u>	<u>4.65</u>	<u>218</u>
<u>0752</u>	<u>5</u>	<u>7.51</u>	<u>5.26</u>	<u>73.2</u>	<u>4.53</u>	<u>241</u>
<u>0755</u>	<u>7.5</u>	<u>7.52</u>	<u>5.21</u>	<u>73.1</u>	<u>4.57</u>	<u>231</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-8</u>	<u>3 x vva vial</u>	<u>YES</u>	<u>HCL</u>	<u>STL Pleasanton</u>	<u>TPH-G/BTEX/MTBE(8260)</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Size: \_\_\_\_\_



# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility #: Tosco #1871 Job Number: 180068  
 Site Address: 96 Macarthur Event Date: 10-15-02 (inclusive)  
 City: Oakland, CA Sampler: Joe

Well ID: MW-9 Well Condition: O.K.  
 Well Diameter: 214 in.  
 Total Depth: 19.91 ft.  
 Depth to Water: 16.16 ft.  
 Volume Factor (VF):  $3/4" = 0.02$   $1" = 0.04$   $2" = 0.17$   $3" = 0.38$   
 $4" = 0.66$   $5" = 1.02$   $6" = 1.50$   $12" = 5.80$   
 $3.75 \times VF = 0.17 = 0.64 \times 3$  (case volume) = Estimated Purge Volume: 2 gal.

Purge Equipment:  
 Disposable Bailer   
 Stainless Steel Bailer \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Suction Pump \_\_\_\_\_  
 Grundfos \_\_\_\_\_  
 Other: \_\_\_\_\_

Sampling Equipment:  
 Disposable Bailer   
 Pressure Bailer \_\_\_\_\_  
 Discrete Bailer \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Bailed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: 0 ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbant Sock (circle one)  
 Amt Removed from Skimmer: ~~\_\_\_\_\_~~ gal  
 Amt Removed from Well: \_\_\_\_\_ gal  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 1128 Weather Conditions: clear  
 Sample Time/Date: 1152 10-15-02 Water Color: clear Odor: none  
 Purging Flow Rate: 0.5 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ gal.

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (umhos/cm)	Temperature (C/F)	D.O. (mg/L)	ORP (mV)
1134	0.5	7.10	6.38	67.2	2.95	154
1136	1	7.11	6.33	67.1	2.89	161
1138	2	7.14	6.25	69.9	3.08	166

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-9	3 x voa vial	YES	HCL	STL Pleasanton	TPH-G/BTEX/MTBE(8260)

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

Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Size: \_\_\_\_\_



# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility #: Tosco #1871 Job Number: 180068  
 Site Address: 96 Macarthur Event Date: 10-15-02 (inclusive)  
 City: Oakland, CA Sampler: Joe

Well ID: MW-10 Well Condition: O.K.  
 Well Diameter: 3.14 in.  
 Total Depth: 19.98 ft.  
 Depth to Water: 11.49 ft.  
 $8.49 \times VF \ 0.17 = 1.44 \times 3 \text{ (case volume)} = \text{Estimated Purge Volume: } 4 \text{ gal.}$

Volume	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
Factor (VF)	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

**Purge Equipment:**  
 Disposable Bailer   
 Stainless Steel Bailer   
 Stack Pump   
 Suction Pump   
 Grundfos   
 Other:

**Sampling Equipment:**  
 Disposable Bailer   
 Pressure Bailer   
 Discrete Bailer   
 Other:

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Bailed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: 0 ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbant Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ gal  
 Amt Removed from Well: \_\_\_\_\_ gal  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 1000 Weather Conditions: clear  
 Sample Time/Date: 1030 10-15-02 Water Color: clear Odor: none  
 Purging Flow Rate: 0.5 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water?  If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ gal.

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (umhos/cm) $\times 10^2$	Temperature (°F)	D.O. (mg/L)	ORP (mV)
<u>1005</u>	<u>1.5</u>	<u>7.50</u>	<u>9.10</u>	<u>68.1</u>	<u>6.80</u>	<u>158</u>
<u>1009</u>	<u>3</u>	<u>7.57</u>	<u>8.14</u>	<u>68.0</u>	<u>6.70</u>	<u>161</u>
<u>1012</u>	<u>4.5</u>	<u>7.63</u>	<u>9.09</u>	<u>67.8</u>	<u>6.73</u>	<u>148</u>
_____	_____	_____	_____	_____	_____	_____

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-10</u>	<u>3 x voa vial</u>	<u>YES</u>	<u>HCL</u>	<u>STL Pleasanton</u>	<u>TPH-G/BTEX/MTBE(8260)</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Size: \_\_\_\_\_





# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility #: Tosco #1871 Job Number: 180068  
 Site Address: 96 Macarthur Event Date: 10-15-02 (inclusive)  
 City: Oakland, CA Sampler: Joe

Well ID: MW-11 Well Condition: OK  
 Well Diameter: 2 1/4 in.  
 Total Depth: 30.08 ft.  
 Depth to Water: 13.67 ft.  
 Volume Factor (VF) table:  

3/4" = 0.02	1" = 0.04	2" = 0.17	3" = 0.38
4" = 0.66	5" = 1.02	6" = 1.50	12" = 5.80

 $16.41 \times VF_{0.17} = 2.79 \times 3 = \text{Estimated Purge Volume: } 8.5 \text{ gal.}$

Purge Equipment:  
 Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Suction Pump \_\_\_\_\_  
 Grundfos \_\_\_\_\_  
 Other: \_\_\_\_\_

Sampling Equipment:  
 Disposable Bailer   
 Pressure Bailer \_\_\_\_\_  
 Discrete Bailer \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Bailed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: 0 ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbant Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ gal  
 Amt Removed from Well: \_\_\_\_\_ gal  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 1045 Weather Conditions: Clear  
 Sample Time/Date: 1115 110-15-02 Water Color: clear Odor: none  
 Purging Flow Rate: 1 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ gal.

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (umhos/cm) $\times 10^2$	Temperature (CE)	D.O. (mg/L)	ORP (mV)
1053	3	7.19	7.44	73.1	4.39	98
1055	5.5	7.18	5.86	73.2	4.20	110
1058	8.5	7.15	5.90	73.5	4.27	96

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-11	3 x vva vial	YES	HCL	STL Pleasanton	TPH-G/BTEX/MTBE(8260)

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

Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug:  Size: 2"

2002-10-0351

69568 Gettler-Ryan Inc., Chain-of-Cust

Tosco Corp./  
Phillips 66 Co.  
2000 Crow Canyon Place  
Suite 400  
San Ramon, CA 94583

Facility Number #1871  
Facility Address 96 MACARTHUR, OAKLAND, CA  
Global ID T0600101493 Project 180068.80  
Client Contact MR. DAVID B. DEWITT  
Phone (925) 277-2384

Laboratory Name STL Pleasanton  
Consultant GETTLER-RYAN, INC. DEANNA L. HARDING  
Address 6747 SIERRA CT., SUITE J, DUBLIN CA 94568  
Phone (925) 551-7555 Fax (925) 551-7899  
Samples Collected by JOE AJEMIAN

SAMPLE ID	Number of Containers Matrix	S = Soil A = Air W = Water C = Chloroform		Sample Preservation	Date/Time (2400 Hrs)	TPH-GAS/BTEX/MTBE EPA 8015/8021B	TPH-DIESEL EPA 8015	TPH-DIESEL w/Silica gel EPA 8015	TPH-GAS EPA 8015	TPH-GAS/BTEX/MTBE EPA 8260	OXYGENATES EPA 8260	METHANOL EPA 8015	TOTAL OIL & GREASE EPA 3520	METALS Cd, Cr, Pb, Zn, Ni	NITRATE/SULFATE/ALKALINITY EPA 300 SERIES	HVOC'S (8010) EPA 8021B	VOC'S (8240) EPA 8260	SVOC'S EPA 8270					Remarks		
QA	1	W	HCL		10-15-02																				
MW-1	3	/	/		0945					✓															
MW-6	3	/	/		0727					✓															
MW-7	3	/	/		0858					✓															
MW-8	3	/	/		0815					✓															
MW-9	3	/	/		1152					✓															
MW-10	3	/	/		1030					✓															
MW-11	3	/	/		1115					✓															

- OXYGENATES 8:  
1 - MTBE  
2 - TBA  
3 - TAME  
4 - DIPE  
5 - ETBE  
6 - 1,2-OCA  
7 - EDB  
8 - ETHANOL

Relinquished By (Signature) <i>[Signature]</i>	Organization	Date/Time 10-15-02	Received By (Signature)	Organization	Date/Time	Iced <input checked="" type="checkbox"/> Y/N	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 72 Hrs. 5 Days 10 Days <u>As Contracted</u>
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Iced Y/N	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) <i>[Signature]</i>	Organization	Date/Time 10-16-02	Iced <input checked="" type="checkbox"/> Y/N 1440	

Submission#: 2002-10-0351

October 30, 2002

SEVERN

TRENT

LABORATORY

**Gettler Ryan**

6747 Sierra Court Suite J  
Dublin, CA 94568

Attn.: Deanna Harding

Project#: 180068.80

Project: Tosco #1871

Site: 96 Macarthur  
Oakland, CA

STL San Francisco  
1220 Quarry Ln  
Pleasanton CA 94566

Tel.: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP#:2496

RECEIVED

OCT 30 2002

GETTLER RYAN INC.  
GENERAL CONTRACTORS

Dear Ms. Harding,

Attached is our report for your samples received on 10/16/2002 14:40

This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after 11/30/2002 unless you have requested otherwise.

We appreciate the opportunity to be of service to you. If you have any questions, please call me at (925) 484-1919.

You can also contact me via email. My email address is: [tgranicher@chromalab.com](mailto:tgranicher@chromalab.com)

Sincerely,



Tod Granicher  
Project Manager

Submission #: 2002-10-0351

Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding  
6747 Sierra Court Suite J  
Dublin, CA 94568

Phone: (925) 551-7444 Fax: (925) 551-7899

Project: 180068.80  
Tosco #1871

Received: 10/16/2002 14:40

Site: 96 Macarthur  
Oakland, CA

**SEVERN**

**TRENT**

**LABORATORY**

STL San Francisco  
1220 Quarry Lane  
Pleasanton, CA 94566

Tel: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP# 2496

### Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
QA	10/15/2002	Water	1
MW-1	10/15/2002 09:45	Water	2
MW-6	10/15/2002 07:27	Water	3
MW-7	10/15/2002 08:58	Water	4
MW-8	10/15/2002 08:15	Water	5
MW-9	10/15/2002 11:52	Water	6
MW-10	10/15/2002 10:30	Water	7
MW-11	10/15/2002 11:15	Water	8



Submission #: 2002-10-0351

Gas/BTEX Fuel Oxygenates by 8260B

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Tosco #1871

Received: 10/16/2002 14:40

Site: 96 Macarthur  
Oakland, CA

**SEVERN**  
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Pleasanton, CA 94566

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Fax: (925) 484-1096  
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www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260FAB  
Sample ID: MW-1 Lab ID: 2002-10-0351 - 2  
Sampled: 10/15/2002 09:45 Extracted: 10/22/2002 18:57  
Matrix: Water QC Batch#: 2002/10/22-01.27  
Analysis Flag: o ( See Legend and Note Section )

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	470	250	ug/L	5.00	10/22/2002 18:57	
Benzene	16	2.5	ug/L	5.00	10/22/2002 18:57	
Toluene	ND	2.5	ug/L	5.00	10/22/2002 18:57	
Ethylbenzene	14	2.5	ug/L	5.00	10/22/2002 18:57	
Total xylenes	16	5.0	ug/L	5.00	10/22/2002 18:57	
Methyl tert-butyl ether (MTBE)	390	10	ug/L	5.00	10/22/2002 18:57	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	117.6	76-114	%	5.00	10/22/2002 18:57	sh
Toluene-d8	93.4	88-110	%	5.00	10/22/2002 18:57	

## Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding  
 6747 Sierra Court Suite J  
 Dublin, CA 94568  
 Phone: (925) 551-7444 Fax: (925) 551-7899

Project: 180068.80  
 Tosco #1871

Received: 10/16/2002 14:40

Site: 96 Macarthur  
 Oakland, CA

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 1220 Quarry Lane  
 Pleasanton, CA 94566

Tel: (925) 484-1919  
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 www.stl-inc.com  
 www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260FAB  
 Sample ID: MW-6 Lab ID: 2002-10-0351 - 3  
 Sampled: 10/15/2002 07:27 Extracted: 10/22/2002 18:40  
 Matrix: Water QC Batch#: 2002/10/22-01.27  
 Analysis Flag: o ( See Legend and Note Section )

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	1300	1000	ug/L	20.00	10/22/2002 18:40	g
Benzene	ND	10	ug/L	20.00	10/22/2002 18:40	
Toluene	ND	10	ug/L	20.00	10/22/2002 18:40	
Ethylbenzene	ND	10	ug/L	20.00	10/22/2002 18:40	
Total xylenes	ND	20	ug/L	20.00	10/22/2002 18:40	
Methyl tert-butyl ether (MTBE)	3200	40	ug/L	20.00	10/22/2002 18:40	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	115.8	76-114	%	20.00	10/22/2002 18:40	sh
Toluene-d8	96.8	88-110	%	20.00	10/22/2002 18:40	

Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding  
 6747 Sierra Court Suite J  
 Dublin, CA 94568  
 Phone: (925) 551-7444 Fax: (925) 551-7899

Project: 180068.80  
 Tosco #1871

Received: 10/16/2002 14:40

Site: 96 Macarthur  
 Oakland, CA



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 1220 Quarry Lane  
 Pleasanton, CA 94566

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 Fax: (925) 484-1096  
 www.stl-inc.com  
 www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260FAB  
 Sample ID: MW-7 Lab ID: 2002-10-0351 - 4  
 Sampled: 10/15/2002 08:58 Extracted: 10/22/2002 18:13  
 Matrix: Water QC Batch#: 2002/10/22-01.27  
 Analysis Flag: o ( See Legend and Note Section )

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	5000	ug/L	100.00	10/22/2002 18:13	g
Benzene	ND	50	ug/L	100.00	10/22/2002 18:13	
Toluene	ND	50	ug/L	100.00	10/22/2002 18:13	
Ethylbenzene	ND	50	ug/L	100.00	10/22/2002 18:13	
Total xylenes	ND	100	ug/L	100.00	10/22/2002 18:13	
Methyl tert-butyl ether (MTBE)	12000	200	ug/L	100.00	10/22/2002 18:13	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	116.6	76-114	%	100.00	10/22/2002 18:13	sh
Toluene-d8	97.5	88-110	%	100.00	10/22/2002 18:13	



Submission #: 2002-10-0351

Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding  
6747 Sierra Court Suite J  
Dublin, CA 94568  
Phone: (925) 551-7444 Fax: (925) 551-7899

Project: 180068.80  
Tosco #1871

Received: 10/16/2002 14:40

Site: 96 Macarthur  
Oakland, CA

**SEVERN**  
**TRENT**  
**LABORATORY**

STL San Francisco  
1220 Quarry Lane  
Pleasanton, CA 94566

Tel: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260FAB  
Sample ID: MW-8 Lab ID: 2002-10-0351 - 5  
Sampled: 10/15/2002 08:15 Extracted: 10/22/2002 17:50  
Matrix: Water QC Batch#: 2002/10/22-01.27

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	10/22/2002 17:50	
Benzene	ND	0.50	ug/L	1.00	10/22/2002 17:50	
Toluene	ND	0.50	ug/L	1.00	10/22/2002 17:50	
Ethylbenzene	ND	0.50	ug/L	1.00	10/22/2002 17:50	
Total xylenes	ND	1.0	ug/L	1.00	10/22/2002 17:50	
Methyl tert-butyl ether (MTBE)	21	2.0	ug/L	1.00	10/22/2002 17:50	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	115.9	76-114	%	1.00	10/22/2002 17:50	sh
Toluene-d8	94.4	88-110	%	1.00	10/22/2002 17:50	

Submission #: 2002-10-0351

Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding  
6747 Sierra Court Suite J  
Dublin, CA 94568  
Phone: (925) 551-7444 Fax: (925) 551-7899

Project: 180068.80  
Tosco #1871

Received: 10/16/2002 14:40

Site: 96 Macarthur  
Oakland, CA

**SEVERN**  
**TRENT**  
**LABORATORY**

STL San Francisco  
1220 Quarry Lane  
Pleasanton, CA 94566

Tel: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260FAB  
Sample ID: MW-9 Lab ID: 2002-10-0351 - 6  
Sampled: 10/15/2002 11:52 Extracted: 10/22/2002 17:28  
Matrix: Water QC Batch#: 2002/10/22-01.27  
Analysis Flag: o ( See Legend and Note Section )

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	570	500	ug/L	10.00	10/22/2002 17:28	g
Benzene	ND	5.0	ug/L	10.00	10/22/2002 17:28	
Toluene	ND	5.0	ug/L	10.00	10/22/2002 17:28	
Ethylbenzene	ND	5.0	ug/L	10.00	10/22/2002 17:28	
Total xylenes	ND	10	ug/L	10.00	10/22/2002 17:28	
Methyl tert-butyl ether (MTBE)	1400	20	ug/L	10.00	10/22/2002 17:28	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	117.9	76-114	%	10.00	10/22/2002 17:28	sh
Toluene-d8	97.0	88-110	%	10.00	10/22/2002 17:28	

## Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding  
6747 Sierra Court Suite J  
Dublin, CA 94568

Phone: (925) 551-7444 Fax: (925) 551-7899

Project: 180068.80  
Tosco #1871

Received: 10/16/2002 14:40

Site: 96 Macarthur  
Oakland, CASTL San Francisco  
1220 Quarry Lane  
Pleasanton, CA 94566Tel: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B	Test(s): 8260FAB
Sample ID: MW-10	Lab ID: 2002-10-0351 - 7
Sampled: 10/15/2002 10:30	Extracted: 10/22/2002 17:05
Matrix: Water	QC Batch#: 2002/10/22-01.27

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	10/22/2002 17:05	
Benzene	ND	0.50	ug/L	1.00	10/22/2002 17:05	
Toluene	ND	0.50	ug/L	1.00	10/22/2002 17:05	
Ethylbenzene	ND	0.50	ug/L	1.00	10/22/2002 17:05	
Total xylenes	ND	1.0	ug/L	1.00	10/22/2002 17:05	
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L	1.00	10/22/2002 17:05	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	109.4	76-114	%	1.00	10/22/2002 17:05	
Toluene-d8	95.3	88-110	%	1.00	10/22/2002 17:05	

## Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding  
 6747 Sierra Court Suite J  
 Dublin, CA 94568  
 Phone: (925) 551-7444 Fax: (925) 551-7899

Project: 180068.80  
 Tosco #1871

Received: 10/16/2002 14:40

Site: 96 Macarthur  
 Oakland, CA

SEVERN

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LABORATORY

STL San Francisco  
 1220 Quarry Lane  
 Pleasanton, CA 94566

Tel: (925) 484-1919  
 Fax: (925) 484-1096  
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CA DHS ELAP# 2496

Prep(s): 5030B

Test(s): 8260FAB

Sample ID: MW-11

Lab ID: 2002-10-0351 - 8

Sampled: 10/15/2002 11:15

Extracted: 10/22/2002 15:58

Matrix: Water

QC Batch#: 2002/10/22-01.27

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	10/22/2002 15:58	
Benzene	ND	0.50	ug/L	1.00	10/22/2002 15:58	
Toluene	ND	0.50	ug/L	1.00	10/22/2002 15:58	
Ethylbenzene	ND	0.50	ug/L	1.00	10/22/2002 15:58	
Total xylenes	ND	1.0	ug/L	1.00	10/22/2002 15:58	
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L	1.00	10/22/2002 15:58	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	104.8	76-114	%	1.00	10/22/2002 15:58	
Toluene-d8	96.4	88-110	%	1.00	10/22/2002 15:58	

Gas/BTEX Fuel Oxygenates by 8260B

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CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5030B

Method Blank

MB: 2002/10/21-01.27-008

Water

Test(s): 8260FAB

QC Batch # 2002/10/21-01.27

Date Extracted: 10/21/2002 11:00

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	10/21/2002 11:00	
Benzene	ND	0.5	ug/L	10/21/2002 11:00	
Toluene	ND	0.5	ug/L	10/21/2002 11:00	
Ethylbenzene	ND	0.5	ug/L	10/21/2002 11:00	
Total xylenes	ND	1.0	ug/L	10/21/2002 11:00	
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L	10/21/2002 11:00	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	98.8	76-114	%	10/21/2002 11:00	
Toluene-d8	102.0	88-110	%	10/21/2002 11:00	

Submission #: 2002-10-0351

Gas/BTEX Fuel Oxygenates by 8260B

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Tosco #1871

Received: 10/16/2002 14:40

Site: 96 Macarthur  
Oakland, CA

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**LABORATORY**

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1220 Quarry Lane  
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CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5030B

Method Blank

MB: 2002/10/22-01.27-015

Water

Test(s): 8260FAB

QC Batch # 2002/10/22-01.27

Date Extracted: 10/22/2002 14:34

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	10/22/2002 11:34	
Benzene	ND	0.5	ug/L	10/22/2002 11:34	
Toluene	ND	0.5	ug/L	10/22/2002 11:34	
Ethylbenzene	ND	0.5	ug/L	10/22/2002 11:34	
Total xylenes	ND	1.0	ug/L	10/22/2002 11:34	
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L	10/22/2002 11:34	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	112.8	76-114	%	10/22/2002 11:34	
Toluene-d8	94.0	88-110	%	10/22/2002 11:34	

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CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260B

**Laboratory Control Spike**

**Water**

**QC Batch # 2002/10/21-01.27**

LCS 2002/10/21-01.27-004  
 LCSD 2002/10/21-01.27-005

Extracted: 10/21/2002  
 Extracted: 10/21/2002

Analyzed: 10/21/2002 10:09  
 Analyzed: 10/21/2002 10:38

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Methyl tert-butyl ether (MTBE)	24.4	22.4	25.0	97.6	89.6	8.5	65-165	20		
Benzene	23.8	23.1	25.0	95.2	92.4	3.0	69-129	20		
Toluene	24.2	23.6	25.0	96.8	94.4	2.5	70-130	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	518	506	500	103.6	101.2		76-114			
Toluene-d8	501	498	500	100.2	99.6		88-110			

Submission #: 2002-10-0351

Gas/BTEX Fuel Oxygenates by 8260B

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Received: 10/16/2002 14:40

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Pleasanton, CA 94566

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CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260B

**Laboratory Control Spike**

**Water**

**QC Batch # 2002/10/22-01.27**

LCS 2002/10/22-01.27-011

Extracted: 10/22/2002

Analyzed: 10/22/2002 13:49

LCSD 2002/10/22-01.27-012

Extracted: 10/22/2002

Analyzed: 10/22/2002 14:11

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Methyl tert-butyl ether (MTBE)	24.1	25.9	25.0	96.4	103.6	7.2	65-165	20		
Benzene	22.1	22.7	25.0	88.4	90.8	2.7	69-129	20		
Toluene	23.2	24.0	25.0	92.8	96.0	3.4	70-130	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	519	538	500	103.8	107.6		76-114			
Toluene-d8	474	485	500	94.8	97.0		88-110			



Submission #: 2002-10-0351

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CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260FAB

**Matrix Spike ( MS / MSD )**

**Water**

**QC Batch # 2002/10/22-01.27**

MW-11 >> MS

Lab ID: 2002-10-0351 - 008

MS: 2002/10/22-01.27-017

Extracted: 10/22/2002

Analyzed: 10/22/2002 16:21

Dilution: 1.00

MSD: 2002/10/22-01.27-018

Extracted: 10/22/2002

Analyzed: 10/22/2002 16:43

Dilution: 1.00

Compound	Conc. ug/L			Spk.Level ug/L	Recovery			Limits %		Flags	
	MS	MSD	Sample		MS	MSD	RPD	Rec.	RPD	MS	MSD
Benzene	19.5	22.1	ND	25.0	78.0	88.4	12.5	69-129	20		
Toluene	20.3	23.1	ND	25.0	81.2	92.4	12.9	70-130	20		
Methyl tert-butyl ether	22.6	25.8	ND	25.0	90.4	103.2	13.2	65-165	20		
<b>Surrogate(s)</b>											
1,2-Dichloroethane-d4	539	548		500	107.9	109.6		76-114			
Toluene-d8	482	472		500	96.5	94.5		88-110			

Submission #: 2002-10-0351

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CA DHS ELAP# 2496

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### Legend and Notes

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#### Analysis Flag

o

Reporting limits were raised due to high level of analyte present in the sample.

#### Result Flag

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

sh

Surrogate recovery was higher than QC limit due to matrix interference.