

# El Dorado Environmental, Inc.

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(916) 626-3898  
Fax (916) 626-3899

May 23, 1996

Mr. Terrence A. Fox  
Environmental Specialist  
Ultramar Inc.  
525 West Third Street  
Hanford, California 93230

Subject: **First Quarter 1996 Ground Water Monitoring Report**  
Beacon Station #604, 1619 West First Street, Livermore, California

Dear Mr. Fox:

El Dorado Environmental, Inc. (EDE) has prepared this report to document the results of quarterly ground water monitoring conducted on March 21, 1996 at the subject site (Figure 1). Field work, conducted by Doulos Environmental (Doulos), included measurements of depth to ground water, subjective analysis of ground water in wells for the presence or absence of free petroleum product, well purging, and collection of ground water samples. Doulos reports that all field activities were conducted in accordance with field procedures described in Attachment A.

## **GROUND WATER CONDITIONS**

Prior to well purging, Doulos measured the depth to ground water in each well at the site. Ground water elevation data collected at the site since June 1993 are compiled in Table 1. Copies of Doulos' field data sheets are contained in Attachment B. Current depth to ground water measurements indicate a direction of ground water flow toward the northwest (Figure 2) at a gradient of approximately 0.02 foot per foot. Ground water elevation beneath the site has increased an average of 11.48 feet since the previous monitoring event.

## GROUND WATER SAMPLING AND ANALYSIS

Ground water samples were collected from five monitoring wells at the site. Each sample collected was analyzed for concentrations of dissolved:

- benzene, toluene, ethylbenzene, and total xylenes (BTEX), by EPA method 602
- total petroleum hydrocarbons as gasoline (TPHg), by modified EPA method 8015

Analytical results since June 1993 are compiled in Table 2; copies of certified analytical reports for ground water samples collected during the current monitoring event are contained in Attachment C. Dissolved benzene concentrations decreased in the ground water samples collected from monitoring wells MW-1, MW-5, and MW-7 compared to the most recent sampling event. Benzene concentrations increased in the sample collected from monitoring well MW-6. The benzene concentration remained unchanged in the sample collected from monitoring well MW-2. Figure 3 illustrates the current interpreted distribution of dissolved benzene in ground water underlying the site.

A copy of this quarterly monitoring report should be submitted to:

Ms. Eva Chu  
Department of Environmental Health  
Alameda County Health Care Services  
80 Swan Way, Room 20  
Oakland, California 94612

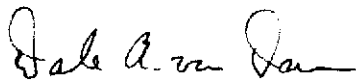
Mr. Cecil Fox  
California Regional Water Quality Control  
Board, San Francisco Bay Region  
2101 Webster Street, Room 500  
Oakland, California 94612

The interpretations and/or conclusions contained in this report represent our professional opinions. These opinions are based on currently available information. Other than this, no warranty is implied nor intended. This report has been prepared solely for the use of Ultramar Inc. Any reliance upon or use of this report by third parties will be at such parties' sole risk.

If you have any comments or questions, please contact the undersigned at (916) 626-3898.

Regards,

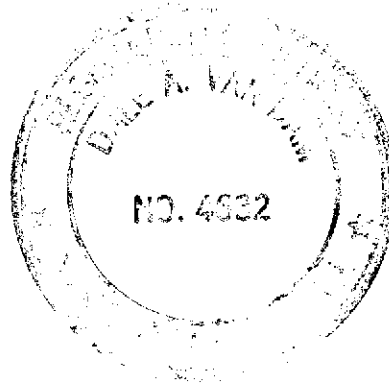
**EL DORADO ENVIRONMENTAL, INC.**



Dale A. van Dam, R.G.  
Hydrogeologist

DAvD/davd

Attachments



**FIGURES:**

FIGURE 1 ..... SITE LOCATION MAP

FIGURE 2 ..... GROUND WATER CONTOUR MAP  
MARCH 21, 1996

FIGURE 3 ..... DISSOLVED BENZENE DISTRIBUTION MAP  
MARCH 21, 1996

**TABLES:**

TABLE 1 ..... GROUND WATER ELEVATION DATA

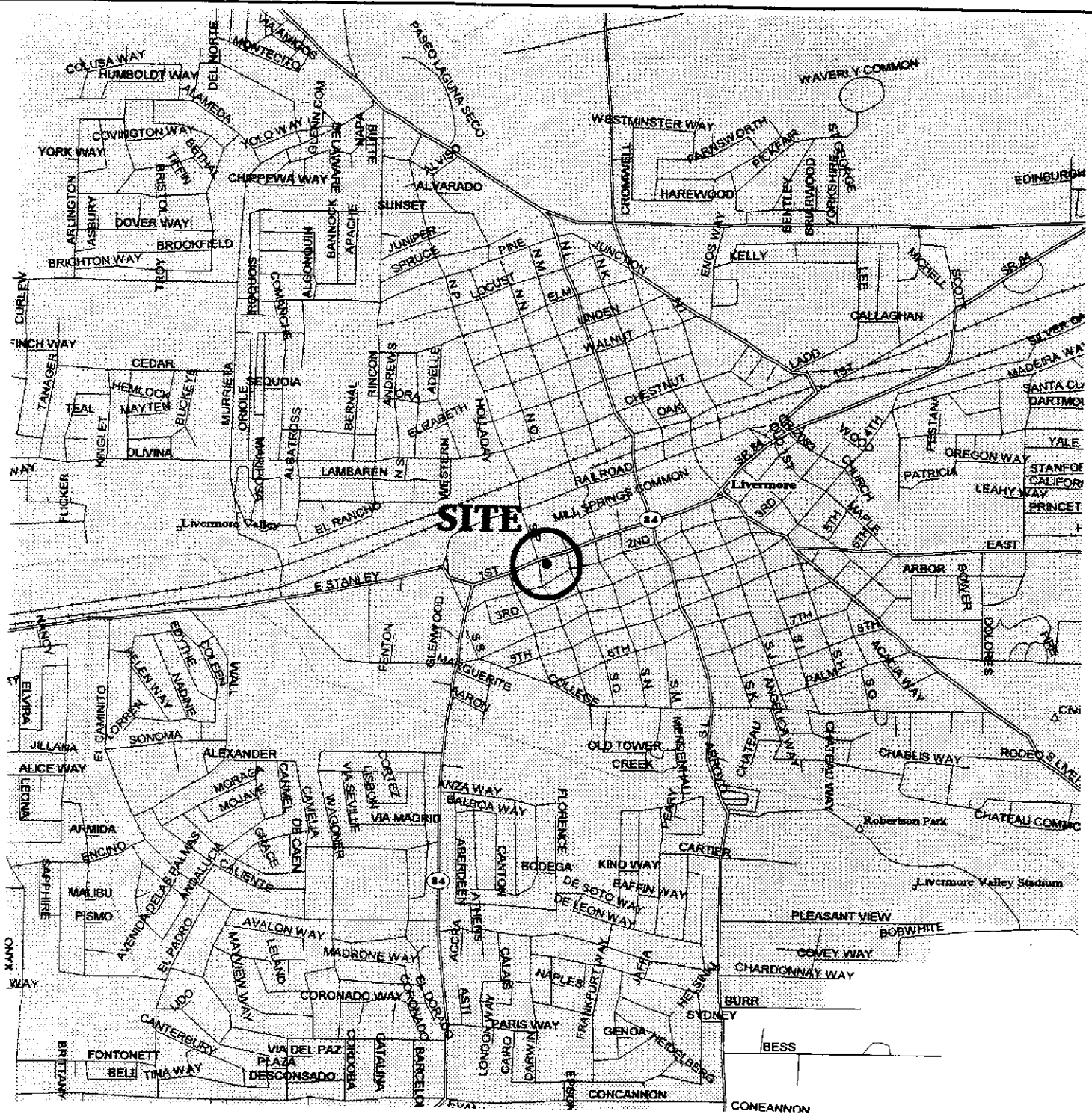
TABLE 2 ..... GROUND WATER ANALYTICAL RESULTS

**ATTACHMENTS:**

A ..... ULTRAMAR FIELD PROCEDURES

B ..... DOULOS ENVIRONMENTAL  
FIELD DATA SHEETS

C ..... LABORATORY REPORT AND  
CHAIN-OF-CUSTODY FORM



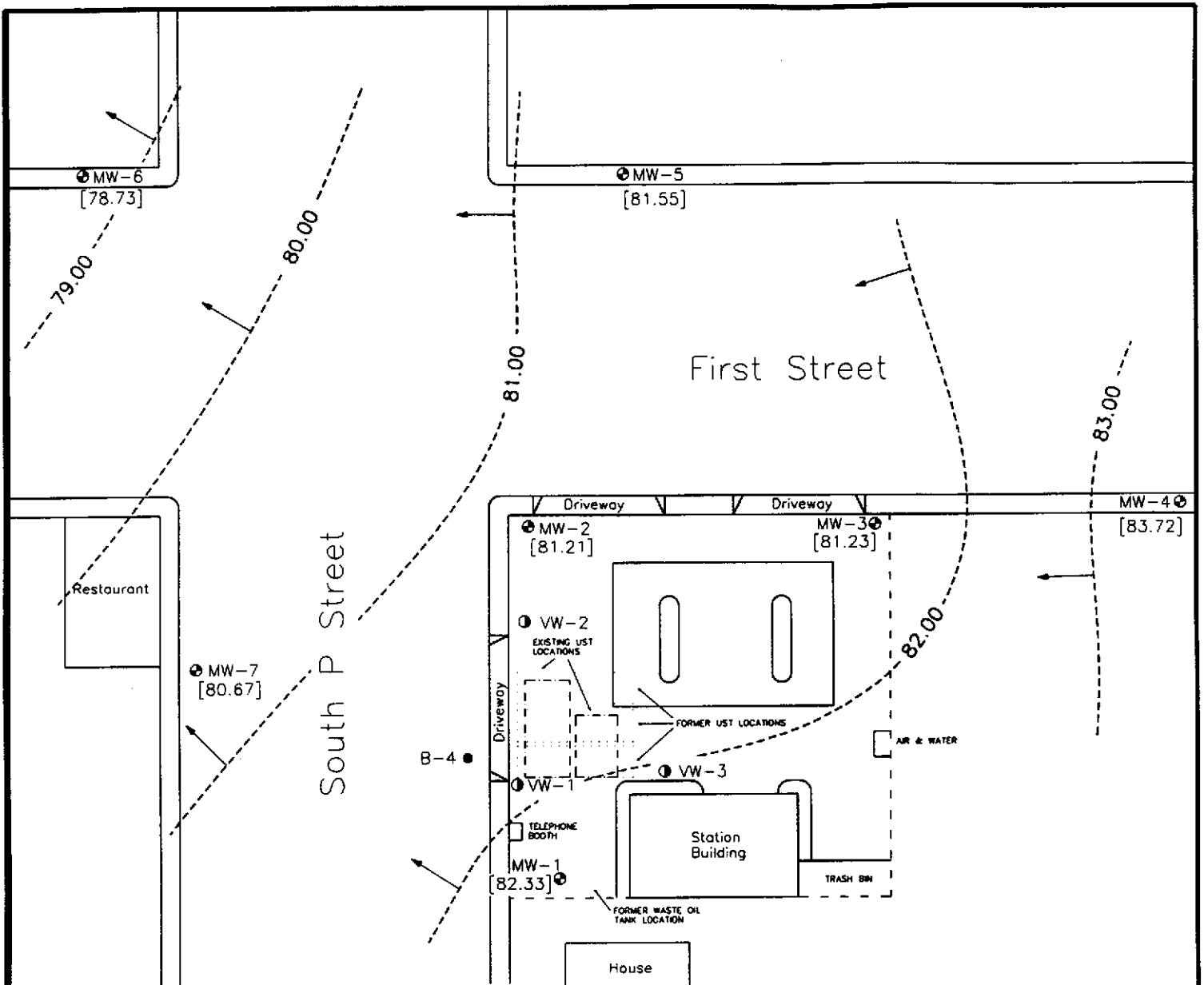
**SITE LOCATION MAP** **FIGURE 1**

BEACON STATION #604  
 1619 WEST FIRST STREET  
 LIVERMORE, CALIFORNIA

PROJECT NUMBER:  
 U013.01  
 DRAWN BY:  
 D.A.V.O.  
 CHECKED BY:  
 Dvd

SOURCE: STREET ATLAS U.S.A., DELORME MAPPING, 1994

EL DORADO ENVIRONMENTAL, INC.



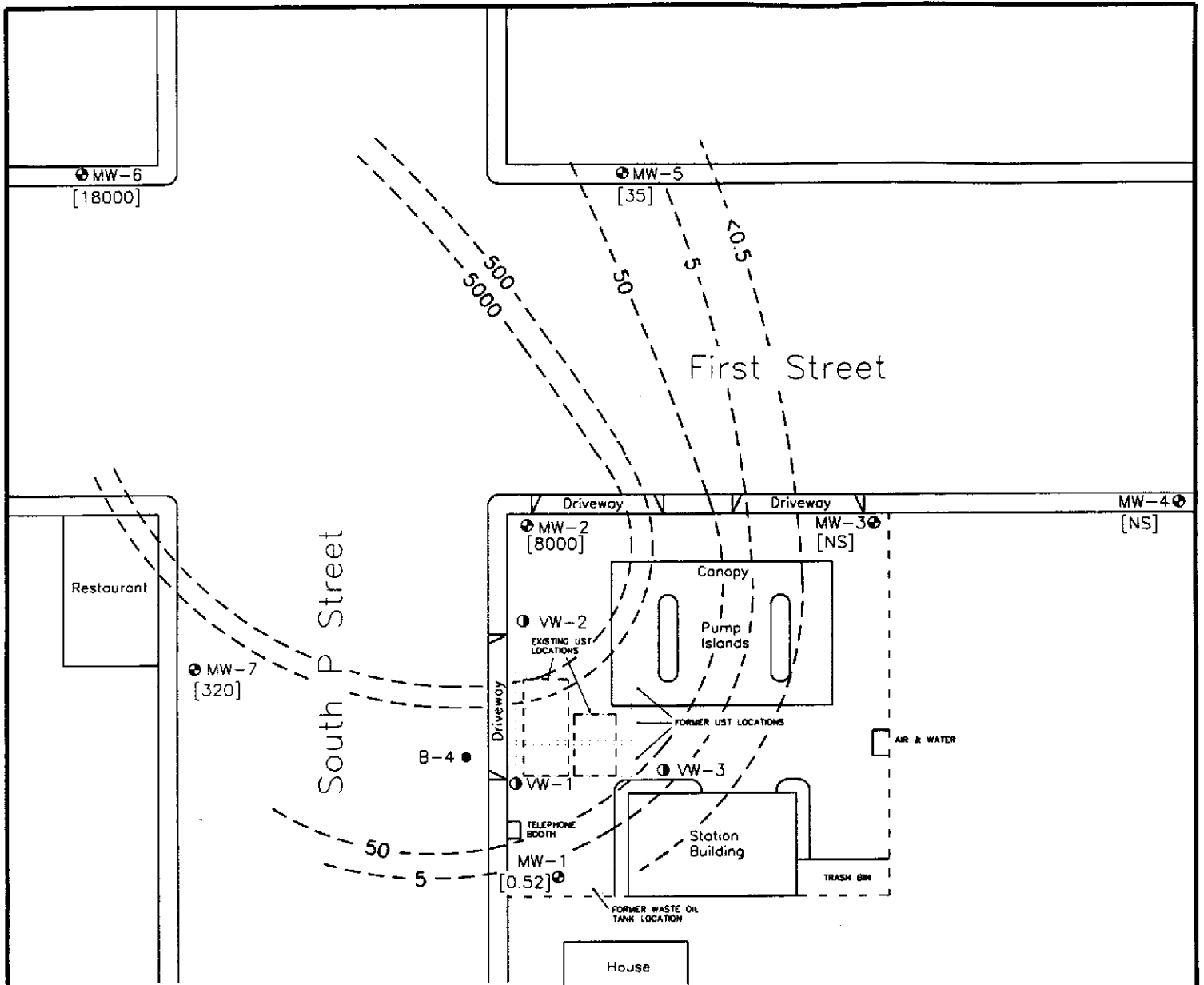
### EXPLANATION

- SB-4 ● Soil Boring Location and Number
- VW-3 ● Vadose Well Location and Number
- MW-5 ● Monitoring Well Location and Number
- [80.67] Ground Water Elevation in Feet
- 80.00- Line of Equal Elevation of Ground Water Measured in Feet
- ↗ Inferred Direction of Ground Water Flow



SOURCE: FIGURE MODIFIED FROM DRAWING PROVIDED BY ACTON\*MICKELSON\*ENVIRONMENTAL, INC.

GROUND WATER CONTOUR MAP, MARCH 21, 1996	FIGURE 2
BEACON STATION #604 1619 WEST FIRST STREET LIVERMORE, CALIFORNIA	PROJECT NUMBER: U013.01
EL DORADO ENVIRONMENTAL, INC.	DRAWN BY: D.A.v.D.
	CHECKED BY: D.v.D.



EXPLANATION

- SB-4 ● Soil Boring Location and Number
- VW-3 ● Vadose Well Location and Number
- MW-5 ⊕ Monitoring Well Location and Number
- [35] Benzene Concentration in Micrograms/Liter
- [NS] Monitoring Well Not Sampled
- - - 50 - - - Benzene Isoconcentration Line in Micrograms per Liter



DISSOLVED BENZENE DISTRIBUTION MAP, MARCH 21, 1996	FIGURE 3
BEACON STATION #604 1619 WEST FIRST STREET LIVERMORE, CALIFORNIA	PROJECT NUMBER: U013.01
	DRAWN BY: D.A.v.D.
EL DORADO ENVIRONMENTAL, INC.	CHECKED BY: D.V.

SOURCE: FIGURE MODIFIED FROM DRAWING PROVIDED BY ACTON\*MICKELSON\*ENVIRONMENTAL, INC.

**TABLE 1  
GROUND WATER ELEVATION DATA**

**Beacon Station #604  
1619 West First Street, Livermore, California**

Monitoring Well	Top of Riser (feet)	Depth to Top/Bottom of Screened Interval (feet)	Monitoring Date	Depth to Water (feet)	Ground Water Elevation (feet)	Physical Observation
MW-1	100.00	34/54	06/01/93	37.50	62.50	No Product
			06/22/93	38.46	61.54	No Product
			10/06/93	42.22	57.78	No Product
			01/13/94	34.52	65.48	No Product
			03/30/94	31.93	68.07	No Product
			04/25/94	33.49	66.51	No Product
			08/12/94	41.03	58.97	No Product
			12/14/94	38.63	61.37	No Product
			02/10/95	30.80	69.20	No Product
			06/15/95	25.46	74.54	No Product
			09/26/95	31.05	68.95	No Product
			12/15/95	28.11	71.89	No Product
03/21/96	17.67	82.33	No Product			
MW-2	98.68	34/54	06/01/93	38.02	60.66	No Product
			06/22/93	39.07	59.61	No Product
			10/06/93	43.72	54.96	No Product
			01/13/94	35.85	62.83	No Product
			03/30/94	32.82	65.86	No Product
			04/25/94	34.76	63.92	No Product
			08/12/94	44.33	54.35	No Product
			12/14/94	40.00	58.68	No Product
			02/10/95	32.16	66.52	No Product
			06/15/95	25.93	72.75	No Product
			09/26/95	32.42	66.26	No Product
			12/15/95	29.41	69.27	No Product
03/21/96	17.47	81.21	No Product			

See notes at end of table



**TABLE 1  
GROUND WATER ELEVATION DATA**

**Beacon Station #604  
1619 West First Street, Livermore, California**

Monitoring Well	Top of Riser (feet)	Depth to Top/Bottom of Screened Interval (feet)	Monitoring Date	Depth to Water (feet)	Ground Water Elevation (feet)	Physical Observation
MW-3	97.08	33/53	06/01/93	36.18	60.90	No Product
			06/22/93	37.11	59.97	No Product
			10/06/93	41.15	55.93	No Product
			01/13/94	33.95	63.13	No Product
			03/30/94	30.97	66.11	No Product
			04/25/94	32.46	64.62	No Product
			08/12/94	41.72	55.36	No Product
			12/14/94	37.62	59.46	No Product
			02/10/95	29.96	67.12	No Product
			06/15/95	23.66	73.42	No Product
			09/26/95	29.62	67.46	No Product
			12/15/95	27.10	69.98	No Product
			03/21/96	15.85	81.23	No Product
MW-4	99.35	27/47	03/30/94	31.56	67.79	No Product
			04/25/94	32.73	66.62	No Product
			08/12/94	41.61	57.74	No Product
			12/14/94	38.11	61.24	No Product
			02/10/95	30.50	68.85	No Product
			06/15/95	23.63	75.72	No Product
			09/26/95	29.70	69.65	No Product
			12/15/95	27.56	71.79	No Product
03/21/96	15.63	83.72	No Product			
MW-5	98.37	27/47	03/30/94	32.07	66.30	No Product
			04/25/94	33.65	64.72	No Product
			08/12/94	42.73	55.64	No Product
			12/14/94	38.89	59.48	No Product
			02/10/95	31.44	66.93	No Product
			06/15/95	24.99	73.38	No Product
			09/26/95	30.20	68.17	No Product
			12/15/95	28.56	69.81	No Product
03/21/96	16.82	81.55	No Product			

See notes at end of table

**TABLE 1  
GROUND WATER ELEVATION DATA**

**Beacon Station #604  
1619 West First Street, Livermore, California**

Monitoring Well	Top of Riser (feet)	Depth to Top/Bottom of Screened Interval (feet)	Monitoring Date	Depth to Water (feet)	Ground Water Elevation (feet)	Physical Observation
MW-6	97.62	28/48	03/30/94	33.38	64.24	No Product
			04/25/94	35.49	62.13	No Product
			08/12/94	45.14	52.48	No Product
			12/14/94	40.99	56.63	No Product
			02/10/95	33.34	64.28	No Product
			06/15/95	26.88	70.74	No Product
			09/26/95	33.55	64.07	No Product
			12/15/95	30.32	67.30	No Product
			03/21/96	18.89	78.73	No Product
MW-7	98.03	27/47	03/30/94	31.98	66.05	No Product
			04/25/94	33.56	64.47	No Product
			08/12/94	43.35	54.68	No Product
			12/14/94	39.34	58.69	No Product
			02/10/95	32.11	65.92	No Product
			06/15/95	25.51	72.52	No Product
			09/26/95	31.43	66.60	No Product
			12/15/95	28.97	69.06	No Product
			03/21/96	17.36	80.67	No Product

Note: Monitoring well casing elevations were surveyed relative to an arbitrary bench mark at the top of the casing of monitoring well MW-1 with an assumed elevation of 100.00 feet.

**TABLE 2  
GROUND WATER ANALYTICAL RESULTS**

**Beacon Station #604  
1619 West First Street, Livermore, California  
Concentrations in micrograms per Liter**

Monitoring Well	Monitoring Date	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-1	06/01/93	2200	400	< 50	4900	27000
	06/22/93	8000	10000	260	10000	87000
	10/06/93	4700	6500	740	5300	40000
	01/13/94	1300	950	110	850	9400
	04/25/94	1500	1800	290	1700	11000
	08/12/94	550	330	260	1400	11000
	12/14/94	1000	1200	320	1500	11000
	02/10/95	1200	1500	280	1500	9300
	06/15/95	5.6	< 0.50	< 0.50	< 0.50	140
	09/26/95	140	< 0.50	< 0.50	43	410
	12/15/95	250	< 1.3	< 1.3	87	740
	03/21/96	0.52	< 0.50	< 0.50	0.51	< 50
MW-2	06/01/93	20000	21000	3300	18000	170000
	06/22/93	19000	22000	3500	18000	160000
	10/06/93	17000	17000	3000	15000	110000
	01/13/94	20000	19000	2300	14000	93000
	04/25/94	9600	7300	840	7800	41000
	08/12/94	11000	11000	2300	11000	59000
	12/14/94	13000	13000	2200	12000	63000
	02/10/95	12000	12000	2200	11000	63000
	06/15/95	11000	12000	1900	11000	61000
	09/26/95	9400	11000	2300	12000	61000
	12/15/95	8000	8300	2200	12000	48000
	03/21/96	8000	7700	2400	12000	48000

See notes at end of table

**TABLE 2  
GROUND WATER ANALYTICAL RESULTS**

**Beacon Station #604  
1619 West First Street, Livermore, California  
Concentrations in micrograms per Liter**

Monitoring Well	Monitoring Date	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-3	06/01/93	4.6	<0.50	<0.50	1.9	270
	06/22/93	8.2	<0.50	<0.50	0.72	160
	10/06/93	57	110	24	120	740
	01/13/94	2.6	0.67	0.78	4.2	83
	04/25/94	0.75	3.2	0.50	3.6	60
	08/12/94	7.3	14	2.6	13	310
	12/14/94	<0.50	<0.50	<0.50	<0.50	75
	02/10/95	1.4	<0.50	<0.50	1.8	96
	06/15/95	<0.50	<0.50	<0.50	<0.50	<50
	09/26/95	<0.50	<0.50	<0.50	<0.50	<50
	12/15/95	<0.50	<0.50	<0.50	<0.50	<50
	03/21/96	NS	NS	NS	NS	NS
MW-4	03/30/94	4.2	15	2.5	26	120
	04/25/94	<0.50	1.8	<0.50	2.1	65
	08/12/94	<0.50	<0.50	<0.50	<0.50	<50
	12/14/94	<0.50	<0.50	<0.50	<0.50	<50
	02/10/95	<0.50	<0.50	<0.50	<0.50	<50
	06/15/95	<0.50	<0.50	<0.50	<0.50	<50
	09/26/95	<0.50	<0.50	<0.50	<0.50	<50
	12/15/95	<0.50	<0.50	<0.50	<0.50	<50
	03/21/96	NS	NS	NS	NS	NS
	MW-5	03/30/94	1300	20	<13	160
04/25/94		1100	41	130	740	6500
08/12/94		420	2.9	41	98	4000
12/14/94		660	<2.5	33	13	4800
02/10/95		490	<13	23	19	5200
06/15/95		<0.50	<0.50	<0.50	<0.50	460
09/26/95		61	<0.50	3.1	<0.50	1400
12/15/95		77	1.5	10	1.5	2100
03/21/96		35	2.0	2.0	18.00	930

See notes at end of table

**TABLE 2**  
**GROUND WATER ANALYTICAL RESULTS**

**Beacon Station #604**  
**1619 West First Street, Livermore, California**  
**Concentrations in micrograms per Liter**

Monitoring Well	Monitoring Date	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-6	03/30/94	21000	8600	1700	12000	63000
	04/25/94	22000	12000	2300	16000	77000
	08/12/94	12000	8100	2200	16000	65000
	12/14/94	18000	9500	2200	14000	65000
	02/10/95	21000	8400	2000	14000	63000
	06/15/95	20000	11000	2100	15000	75000
	09/26/95	15000	9600	1700	12000	62000
	12/15/95	15000	9000	2300	15000	61000
	03/21/96	18000	9800	2400	16000	65000
MW-7	03/30/94	7200	2400	1600	11000	43000
	04/25/94	3900	1000	940	6900	30000
	08/12/94	3800	1400	1300	7500	30000
	12/14/94	3600	1200	900	6400	31000
	02/10/95	4000	900	890	5100	27000
	06/15/95	920	680	740	4100	17000
	09/26/95	200	150	170	810	7000
	12/15/95	350	170	540	1900	11000
	03/21/96	320	100	730	2500	12000
NS = Well Not Sampled on This Date.						

**ATTACHMENT A**  
**ULTRAMAR FIELD PROCEDURES**

## ATTACHMENT A - ULTRAMAR FIELD PROCEDURES

The following section describes procedures used by field personnel in the performance of ground water sampling at Ultramar Inc. sites.

### Ground Water Level and Total Depth Determination

A water level indicator is lowered down the well and a measurement of the depth to water from an established reference point on the casing is taken. The indicator probe is used to sound the bottom of the well and a measurement of the total depth of the well is taken. Both the water level and total depth measurements are taken to the nearest 0.01-foot.

### Visual Analysis of Ground Water

Prior to purging and sampling ground water monitoring wells, a water sample is collected from each well for subjective analysis. The visual analysis involves gently lowering a clean, disposable, polyethylene bailer to approximately one-half the bailer length past the water table interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating product or the appearance of a petroleum product sheen. If measurable free product is noted in the bailer, a water/product interface probe is used to determine the thickness of the free product to the nearest 0.01-foot. The thickness of free product is determined by subtracting the depth to product from the depth to water.

### Monitoring Well Purging and Sampling

Monitoring wells are purged by removing approximately four casing volumes of water from the well using a clean disposable bailer or electrical submersible purge pump. Purge volumes are calculated prior to purging. During purging, the temperature, pH, and electric conductivity of the purge water are monitored. The well is considered to be sufficiently purged when: The four casing volumes have been removed; the temperature, pH, and conductivity values have stabilized to within 10% of the initial readings; and the ground water being removed is relatively free of suspended solids. After purging, ground water levels are allowed to stabilize to within 80% of the initial water level reading. A water sample is then collected from each well with a clean, disposable polyethylene bailer. If the well is bailed or pumped dry prior to removing the minimum volume of water, the ground water is allowed to recharge. If the well has recharged to within 80% of the initial depth to water reading within two hours, the well will continue to be purged until the minimum volume of water has been removed. If the well has not recharged to at least 80% of the initial depth to water reading within two hours, the well is considered to contain formational water and a ground water sample is collected. Ground water removed from the well is stored in 55-gallon drums at the site and labeled pending disposal.

In wells where free product is detected, the wells will be bailed to remove the free product. An estimate of the volume of product and water well be recorded. If the free product thickness is reduced to the point where a measurable thickness is no longer present in the well, a ground water sample will be collected. If free product persists throughout the purging process, a final free product thickness measurement will be taken and a ground water sample will not be collected.

Ground water samples are stored in 40-milliliter vials so that air passage through the sample is minimized (to prevent volatilization of the sample). The vial is tilted and filled slowly until an upward convex meniscus forms over the mouth of the vial. The Teflon™ side of the septum (in cap) is then placed against the meniscus, and the cap is screwed on tightly. The sample is then inverted and the bottle is tapped lightly to check for air bubbles. If an air bubble is present in the vial, the cap is removed and more sample is transferred from the bailer. The vial is then resealed and rechecked for air bubbles. The sample is then appropriately labeled and stored on ice from the time of collection through the time of delivery to the laboratory. The Chain-of-Custody form is completed to ensure sample integrity. Ground water samples are transported to a state-certified laboratory and analyzed within the U.S. Environmental Protection Agency-specified hold times for the specified analytes.

**ATTACHMENT B**

**DOULOS ENVIRONMENTAL FIELD DATA SHEETS**



**DOULOS ENVIRONMENTAL COMPANY  
GROUNDWATER/LIQUID LEVEL DATA  
(measurements in feet)**

Project Address: Beacon #604, 1619 West First Street

Date: 3-21-96

Livermore, CA

Project No.: 94-604-01

Recorded by:

Hal Hansen

Well No	Time	Well Elev. TOC	Depth to Gr. Water	Measured Total Depth	Gr. Water Elevation	Depth to Product	Product Thickness	Comments
MW-1	1230		17.67	54.10				Petroleum odor noted
MW-2	1251		17.47	53.72				Petroleum odor noted
MW-3	1254		15.85	52.50				no odor noted
MW-4	1238		15.63	46.63				no odor noted
MW-5	1241		16.82	46.30				no odor noted
MW-6	1248		18.89	47.50				Petroleum odor noted
MW-7	1244		17.36	46.59				no odor noted

Notes:

Client: Ultramar

Sampling Date: 3-21-96

Site: Beacon #604

Project No.: 95-604-01

1619 West First Street

Well Designation: MW-1

Livermore, CA

Is setup of traffic control devices required?  NO YES time: \_\_\_\_\_ hours  
 Is there standing water in well box?  NO YES Above TOC Below TOC  
 Is top of casing cut level? NO  YES If no, see remarks  
 Is well cap sealed and locked? NO  YES If no, see remarks  
 Height of well casing riser (in inches): 5  
 Well cover type: 8" UV \_\_\_\_\_ 12" UV \_\_\_\_\_ 12" EMCO \_\_\_\_\_ 8" BK \_\_\_\_\_  
 12" BK \_\_\_\_\_ 12" DWP \_\_\_\_\_ 12" CNI  36" CNI \_\_\_\_\_ Other \_\_\_\_\_  
 General condition of wellhead assembly: Excellent Good Fair Poor

Purging Equipment: \_\_\_\_\_ 2" disposable bailer \_\_\_\_\_ Submersible pump  
 \_\_\_\_\_ 2" PVC bailer \_\_\_\_\_ Dedicated bailer  
 \_\_\_\_\_ 4" PVC bailer  Centrifugal pump

Sampled with: Disposable bailer:  Teflon bailer: \_\_\_\_\_

Well Diameter: 2" \_\_\_\_\_ 4"  6" \_\_\_\_\_ 8" \_\_\_\_\_

Purge Vol. Multiplier: 0.16 0.65 1.47 2.61 gal/ft.  
Initial Measurement Recharge Measurement  
 Time: 1130 Time: 159 Calculated purge: 94.7 gal  
 Depth of well: 54.10 Depth to water: 20.84 Actual purge: 94.7 "  
 Depth to water: 17.67

Start purge: 103 Sampling time: 200

Time	Temp.	E.C.	pH	Turbidity	Volume
115	69.2	1237	737	—	1
130	68.3	1202	730	—	2
145	68.0	1148	704	—	3
156	59.2	1116	710	—	4

Sample appearance: clear Lock: Dolphin

Equipment replaced: (Check all that apply) Note condition of replaced item  
 2" Locking Cap: \_\_\_\_\_ Lock #3753: \_\_\_\_\_ 7/32 Allenhead: \_\_\_\_\_  
 4" Locking Cap: \_\_\_\_\_ Lock-Dolphin: \_\_\_\_\_ 9/16 Bolt: \_\_\_\_\_  
 6" Locking Cap: \_\_\_\_\_ Pinned Allenhead (DWP): \_\_\_\_\_

Remarks: \_\_\_\_\_

Signature: Nal Kharu

Client: Ultramar

Sampling Date: 3-21-96

Site: Beacon #604

Project No.: 95-604-01

1619 West First Street

Well Designation: MW-2

Livermore, CA

Is setup of traffic control devices required?  NO YES time: \_\_\_\_\_ hours  
 Is there standing water in well box?  NO YES Above TOC Below TOC  
 Is top of casing cut level? NO  YES If no, see remarks  
 Is well cap sealed and locked? NO  YES If no, see remarks  
 Height of well casing riser (in inches): 4  
 Well cover type: 8" UV \_\_\_\_\_ 12" UV \_\_\_\_\_ 12" EMCO \_\_\_\_\_ 8" BK \_\_\_\_\_  
 12" BK \_\_\_\_\_ 12" DWP \_\_\_\_\_ 12" CNI  36" CNI \_\_\_\_\_ Other \_\_\_\_\_  
 General condition of wellhead assembly: Excellent  Good Fair Poor

Purging Equipment: \_\_\_\_\_ 2" disposable bailer \_\_\_\_\_ Submersible pump  
 \_\_\_\_\_ 2" PVC bailer \_\_\_\_\_ Dedicated bailer  
 \_\_\_\_\_ 4" PVC bailer  Centrifugal pump

Sampled with: Disposable bailer:  Teflon bailer: \_\_\_\_\_

Well Diameter: 2" \_\_\_\_\_ 4"  6" \_\_\_\_\_ 8" \_\_\_\_\_

Purge Vol. Multiplier: 0.16 0.65 1.47 2.61 gal/ft.  
Initial Measurement Recharge Measurement  
 Time: 125 Time: 329 Calculated purge: 94.3 gal  
 Depth of well: 53.72 Depth to water: 2036 Actual purge: 94.3 gal  
 Depth to water: 17.47

Start purge: 244 Sampling time: 330

Time	Temp.	E.C.	pH	Turbidity	Volume
<u>254</u>	<u>731</u>	<u>1330</u>	<u>730</u>	<u>—</u>	<u>1</u>
<u>303</u>	<u>721</u>	<u>1302</u>	<u>704</u>	<u>—</u>	<u>2</u>
<u>314</u>	<u>710</u>	<u>1298</u>	<u>701</u>	<u>—</u>	<u>3</u>
<u>328</u>	<u>706</u>	<u>1282</u>	<u>693</u>	<u>—</u>	<u>4</u>

Sample appearance: clear Lock: 1.6 lb

Equipment replaced: (Check all that apply) Note condition of replaced item  
 2" Locking Cap: \_\_\_\_\_ Lock #3753: \_\_\_\_\_ 7/32 Allenhead: \_\_\_\_\_  
 4" Locking Cap: \_\_\_\_\_ Lock-Dolphin: \_\_\_\_\_ 9/16 Bolt: \_\_\_\_\_  
 6" Locking Cap: \_\_\_\_\_ Pinned Allenhead (DWP): \_\_\_\_\_

Remarks: \_\_\_\_\_

Signature: Neil Hansen

Client: Ultramar

Sampling Date: 3-21-96

Site: Beacon #604

Project No.: 95-604-01

1619 West First Street

Well Designation: MW-5

Livermore, CA

Is setup of traffic control devices required?  NO  YES time: \_\_\_\_\_ hours  
 Is there standing water in well box? NO  YES Above TOC  Below TOC  
 Is top of casing cut level? NO  YES If no, see remarks  
 Is well cap sealed and locked? NO  YES If no, see remarks  
 Height of well casing riser (in inches): 7  
 Well cover type: 8" UV  12" UV \_\_\_\_\_ 12" EMCO \_\_\_\_\_ 8" BK \_\_\_\_\_  
 12" BK \_\_\_\_\_ 12" DWP \_\_\_\_\_ 12" CNI \_\_\_\_\_ 36" CNI \_\_\_\_\_ Other \_\_\_\_\_  
 General condition of wellhead assembly: Excellent  Good  Fair  Poor

Purging Equipment: \_\_\_\_\_ 2" disposable bailer \_\_\_\_\_ Submersible pump  
 \_\_\_\_\_ 2" PVC bailer \_\_\_\_\_ Dedicated bailer  
 \_\_\_\_\_ 4" PVC bailer  Centrifugal pump

Sampled with: Disposable bailer:  Teflon bailer: \_\_\_\_\_

Well Diameter: 2"  4" \_\_\_\_\_ 6" \_\_\_\_\_ 8" \_\_\_\_\_

Purge Vol. Multiplier: 0.16 0.65 1.47 2.61 gal/ft.

Initial Measurement

Recharge Measurement

Time: 12:41

Time: 2:11

Calculated purge: 18.9 gal

Depth of well: 4630

Depth to water: 1794

Actual purge: 18.9 gal

Depth to water: 1682

Start purge: 204

Sampling time: 212

Time	Temp.	E.C.	pH	Turbidity	Volume
205	69.4	1052	737	—	1
206	69.1	1184	721	—	2
207	68.2	1131	702	—	3
209	68.3	1102	718	—	4

Sample appearance: clear

Lock: dr p h

Equipment replaced: (Check all that apply) Note condition of replaced item

2" Locking Cap: \_\_\_\_\_ Lock #3753: \_\_\_\_\_ 7/32 Allenhead: \_\_\_\_\_

4" Locking Cap: \_\_\_\_\_ Lock-Dolphin: \_\_\_\_\_ 9/16 Bolt: \_\_\_\_\_

6" Locking Cap: \_\_\_\_\_ Pinned Allenhead (DWP): \_\_\_\_\_

Remarks: \_\_\_\_\_

Signature: Walter

Client: Ultramar Sampling Date: 3-21-96  
 Site: Beacon #604 Project No.: 95-604-01  
1619 West First Street Well Designation: MW-6  
Livermore, CA

Is setup of traffic control devices required?  NO YES time: \_\_\_\_\_ hours  
 Is there standing water in well box? NO  YES Above TOC  Below TOC  
 Is top of casing cut level? NO  YES If no, see remarks  
 Is well cap sealed and locked? NO  YES If no, see remarks  
 Height of well casing riser (in inches): 4  
 Well cover type: 8" UV 4 12" UV \_\_\_\_\_ 12" EMCO \_\_\_\_\_ 8" BK \_\_\_\_\_  
 12" BK \_\_\_\_\_ 12" DWP \_\_\_\_\_ 12" CNI \_\_\_\_\_ 36" CNI \_\_\_\_\_ other \_\_\_\_\_  
 General condition of wellhead assembly: Excellent  Good Fair Poor

Purging Equipment: \_\_\_\_\_ 2" disposable bailer \_\_\_\_\_ Submersible pump  
 \_\_\_\_\_ 2" PVC bailer \_\_\_\_\_ Dedicated bailer  
 \_\_\_\_\_ 4" PVC bailer  Centrifugal pump

Sampled with: Disposable bailer:  Teflon bailer: \_\_\_\_\_

Well Diameter: 2"  4" \_\_\_\_\_ 6" \_\_\_\_\_ 8" \_\_\_\_\_

Purge Vol. Multiplier: 0.16 0.65 1.47 2.61 gal/ft.  
Initial Measurement Recharge Measurement  
 Time: 1246 Time: 223 Calculated purge: 18.3 gal  
 Depth of well: 47.50 Depth to water: 10.64 Actual purge: 16.9 "  
 Depth to water: 18.89

Start purge: 216 Sampling time: 224

Time	Temp.	E.C.	pH	Turbidity	Volume
217	71.2	1037	7.34	—	1
218	70.4	1004	7.17	—	2
219	69.3	982	6.99	—	3
220	68.5	951	6.84	—	4

Sample appearance: clear Lock: dolphin

Equipment replaced: (Check all that apply) Note condition of replaced item  
 2" Locking Cap: \_\_\_\_\_ Lock #3753: \_\_\_\_\_ 7/32 Allenhead: \_\_\_\_\_  
 4" Locking Cap: \_\_\_\_\_ Lock-Dolphin: \_\_\_\_\_ 9/16 Bolt: \_\_\_\_\_  
 6" Locking Cap: \_\_\_\_\_ Pinned Allenhead (DWP): \_\_\_\_\_

Remarks: \_\_\_\_\_

Signature: Neil Blum

Client: Ultramar Sampling Date: 3-21-96  
 Site: Beacon #604 Project No.: 95-604-01  
1619 West First Street Well Designation: MW-7  
Livermore, CA

Is setup of traffic control devices required?  NO YES time: \_\_\_\_\_ hours  
 Is there standing water in well box?  NO YES Above TOC Below TOC  
 Is top of casing cut level? NO  YES If no, see remarks  
 Is well cap sealed and locked? NO  YES If no, see remarks  
 Height of well casing riser (in inches): 10  
 Well cover type: 8" UV  12" UV \_\_\_\_\_ 12" EMCO \_\_\_\_\_ 8" BK \_\_\_\_\_  
 12" BK \_\_\_\_\_ 12" DWP \_\_\_\_\_ 12" CNI \_\_\_\_\_ 36" CNI \_\_\_\_\_ Other \_\_\_\_\_  
 General condition of wellhead assembly: Excellent  Good Fair Poor

Purging Equipment: \_\_\_\_\_ 2" disposable bailer \_\_\_\_\_ Submersible pump  
 \_\_\_\_\_ 2" PVC bailer \_\_\_\_\_ Dedicated bailer  
 \_\_\_\_\_ 4" PVC bailer  Centrifugal pump

Sampled with: Disposable bailer:  Teflon bailer: \_\_\_\_\_

Well Diameter: 2"  4" \_\_\_\_\_ 6" \_\_\_\_\_ 8" \_\_\_\_\_

Purge Vol. Multiplier: 0.16 0.65 1.47 2.61 gal/ft.

Initial Measurement Recharge Measurement  
 Time: 12:44 Time: 2:39 Calculated purge: 18.7  
 Depth of well: 46.59 Depth to water: 18.51 Actual purge: 18.7  
 Depth to water: 17.36

Start purge: 2:28 Sampling time: 2:40

Time	Temp.	E.C.	pH	Turbidity	Volume
	73.4	1561	7.31	—	1
	72.1	1492	7.26	—	2
	70.0	1454	7.10	—	3
	69.1	1472	7.04	—	4

Sample appearance: clear Lock: defective

Equipment replaced: (Check all that apply) Note condition of replaced item  
 2" Locking Cap: \_\_\_\_\_ Lock #3753: \_\_\_\_\_ 7/32 Allenhead: \_\_\_\_\_  
 4" Locking Cap: \_\_\_\_\_ Lock-Dolphin: \_\_\_\_\_ 9/16 Bolt: \_\_\_\_\_  
 6" Locking Cap: \_\_\_\_\_ Pinned Allenhead (DWP): \_\_\_\_\_

Remarks: \_\_\_\_\_

Signature: Karl Hansen

**ATTACHMENT C**

**LABORATORY REPORT AND  
CHAIN-OF-CUSTODY FORM**

# **WEST LABORATORY**

April 4, 1996  
Sample Log 14324

Dale van Dam  
El Dorado Environmental  
2221 Goldorado Trail  
El Dorado, CA 95623

Subject: Analytical Results for 5 Water Samples  
Identified as: Beacon 604 (Proj. # 94-604-01)  
Received: 03/25/96

Dear Mr. van Dam:


Analysis of the sample(s) referenced above has been completed. This report is written to confirm results communicated on April 4, 1996 and describes procedures used to analyze the samples.

Sample(s) were analyzed using the following method(s):

"BTEX" (EPA Method 602/Purge-and-Trap)  
"TPH as Gasoline" (Modified EPA Method 8015/Purge-and-Trap)

Please refer to the following table(s) for summarized analytical results and contact us at 916-753-9500 if you have questions regarding procedures or results. The chain-of-custody document is enclosed.

Approved by:

  
\_\_\_\_\_  
Joel Kiff  
Senior Chemist



## MTBE (Methyl-t-butyl ether) Results

From : Beacon 604 (Proj. # 94-604-01)

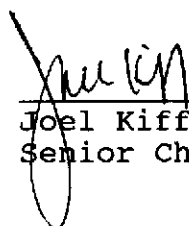
Sampled : 03/21/96

Received : 03/25/96

Matrix : Water

MTBE	(MRL) $\mu\text{g/L}$	Measured Value $\mu\text{g/L}$
MW-1	(5.0)	<5.0
MW-2	(500)	<500
MW-5	(13)	<13
MW-6	(1300)	<1300
MW-7	(130)	<130

Approved By:

  
\_\_\_\_\_  
Joel Kiff  
Senior Chemist

Sample: MW-1

From : Beacon 604 (Proj. # 94-604-01)

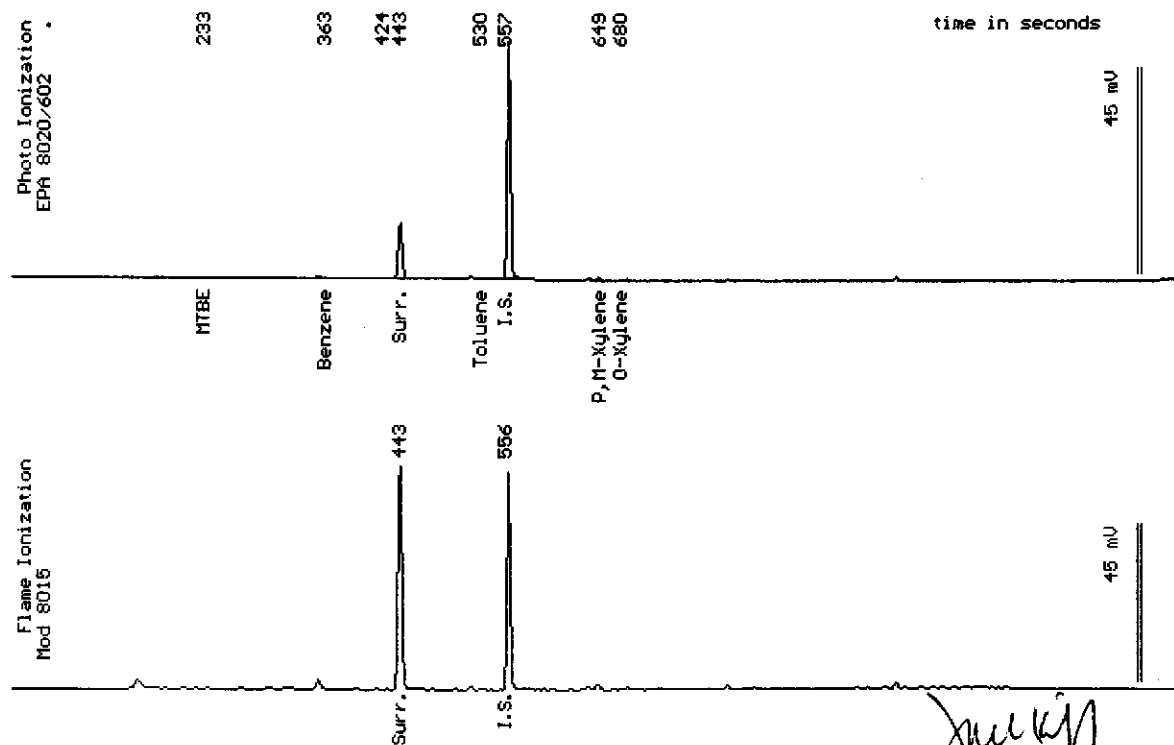
Sampled : 03/21/96

Dilution : 1:1

QC Batch : 2141h

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	.52
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	.51
TPH as Gasoline	(50)	<50
Surrogate Recovery		103 %

Date Analyzed: 04-04-96  
Column : 0.53mm X 60m Restek Rtx-1301Joe Kiff  
Senior Chemist

Sample: **MW-2**

From : Beacon 604 (Proj. # 94-604-01)

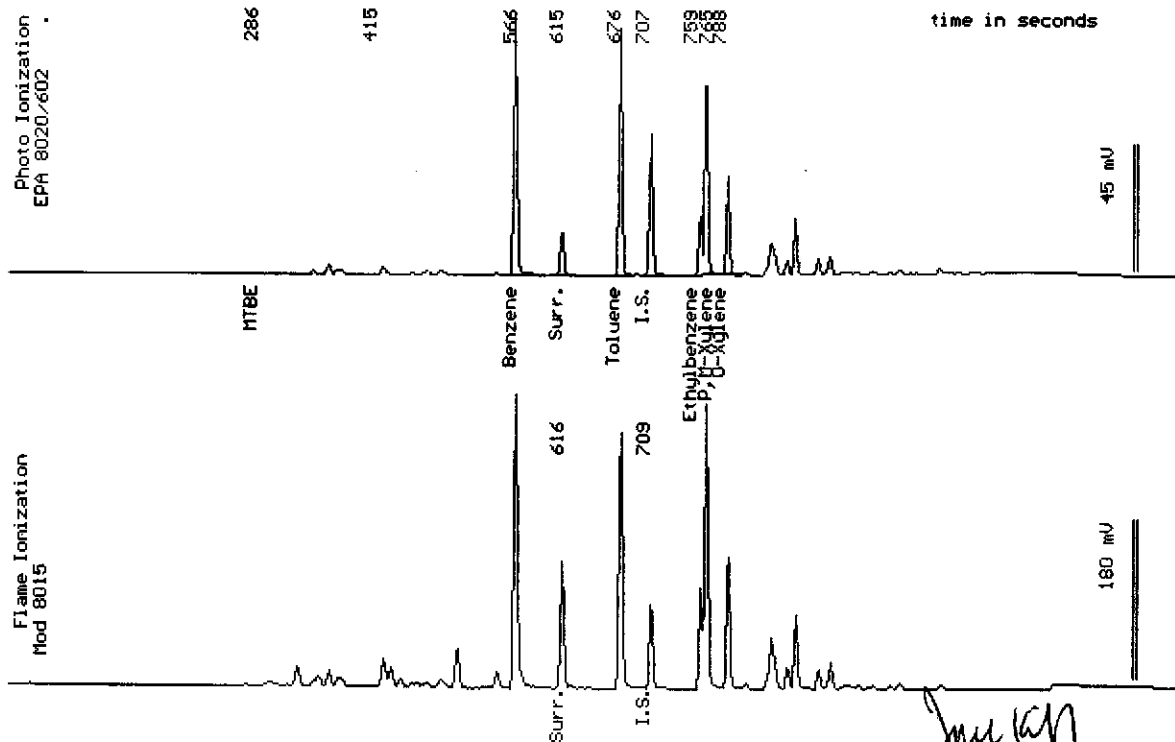
Sampled : 03/21/96

Dilution : 1:100

QC Batch : 6169p

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(50)	8000
Toluene	(50)	7700
Ethylbenzene	(50)	2400
Total Xylenes	(50)	12000
TPH as Gasoline	(5000)	48000
Surrogate Recovery		99 %



Date Analyzed: 04-04-96  
 Column : 0.53mm ID X 75m DB624 (J&W Scientific)

*Joel Kiff*  
 Joel Kiff  
 Senior Chemist

Sample: MW-5

From : Beacon 604 (Proj. # 94-604-01)

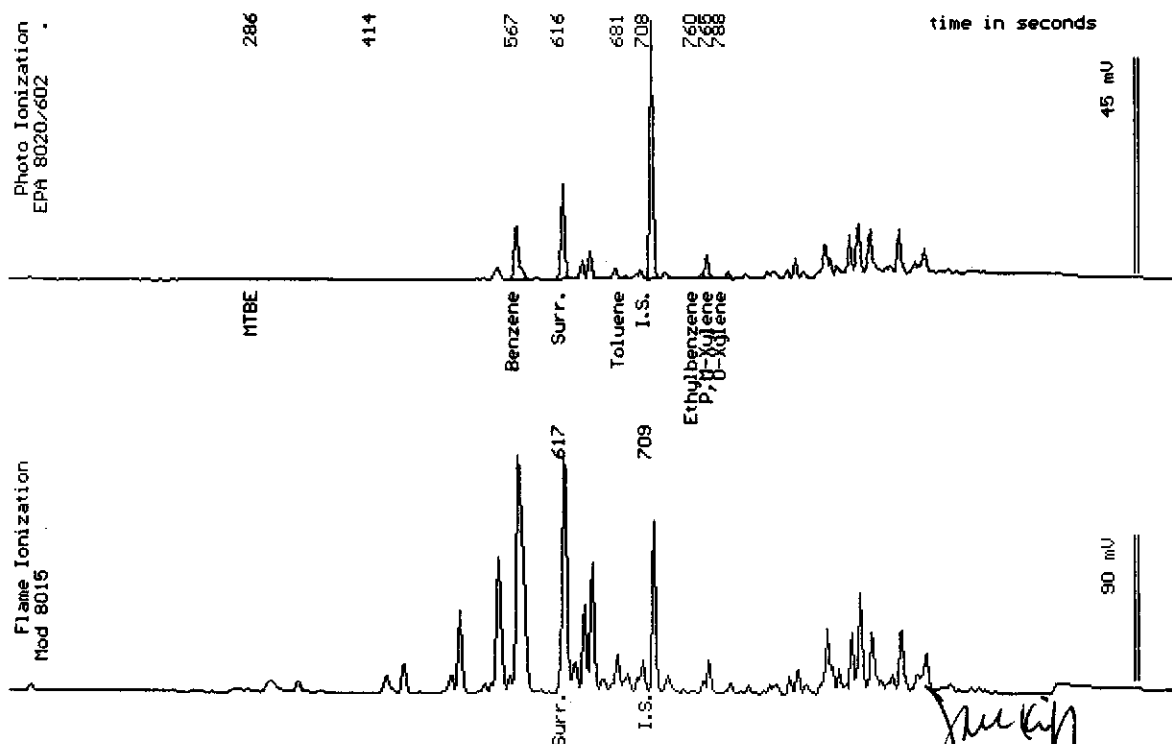
Sampled : 03/21/96

Dilution : 1:3

QC Batch : 6169p

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(1.3)	35
Toluene	(1.3)	2.0
Ethylbenzene	(1.3)	2.0
Total Xylenes	(1.3)	18
TPH as Gasoline	(130)	930
Surrogate Recovery		111 %



Date Analyzed: 04-04-96  
 Column : 0.53mm ID X 75m DB624 (J&W Scientific)

*Joel Kiff*  
 Joel Kiff  
 Senior Chemist

Sample: MW-6

From : Beacon 604 (Proj. # 94-604-01)

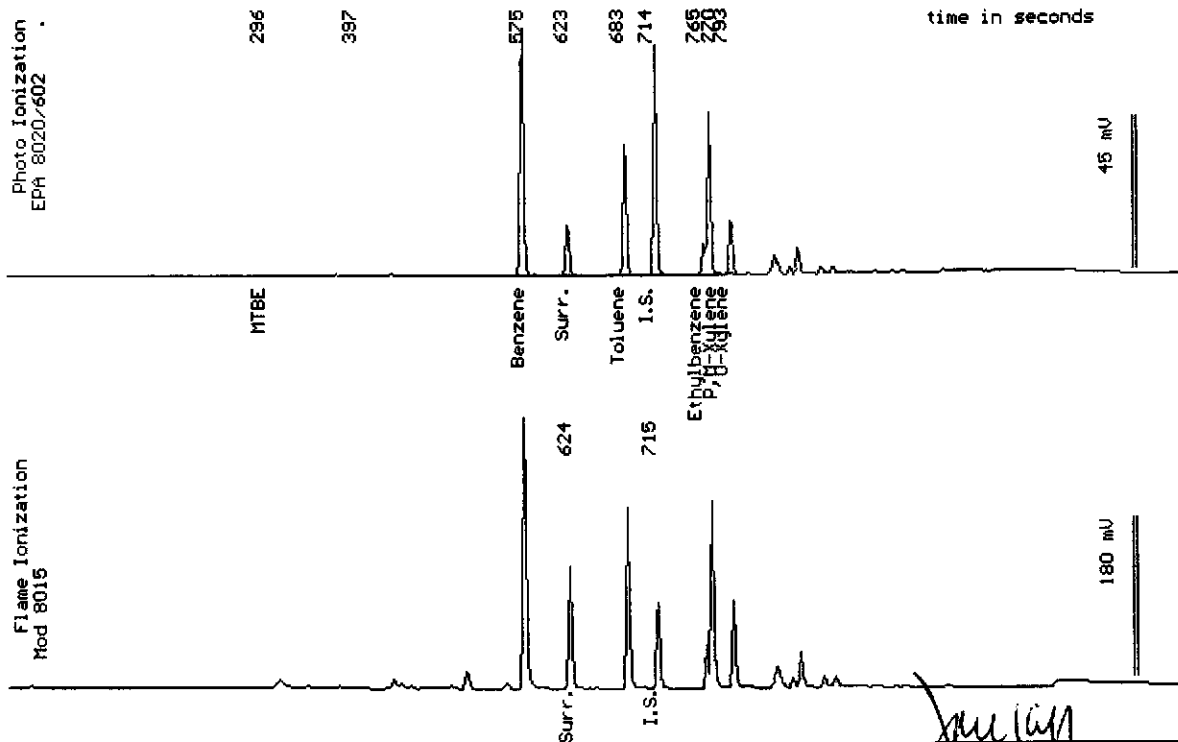
Sampled : 03/21/96

Dilution : 1:250

QC Batch : 6169j

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(130)	18000
Toluene	(130)	9800
Ethylbenzene	(130)	2400
Total Xylenes	(130)	16000
TPH as Gasoline	(13000)	65000
Surrogate Recovery		121 %



Date Analyzed: 96  
 Column : 0.53mm ID X 75m DB624 (J&W Scientific)

Joel Kiff  
 Senior Chemist

Sample: MW-7

From : Beacon 604 (Proj. # 94-604-01)

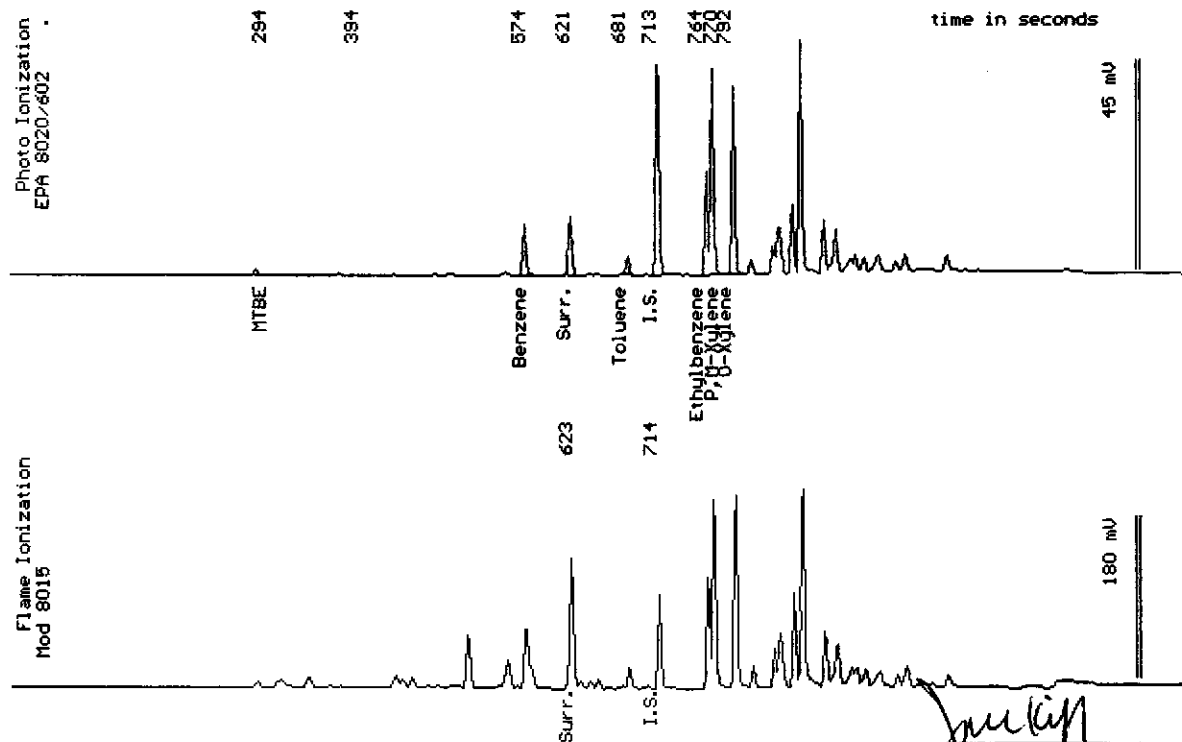
Sampled : 03/21/96

Dilution : 1:25

QC Batch : 6169j

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(13)	320
Toluene	(13)	100
Ethylbenzene	(13)	730
Total Xylenes	(13)	2500
TPH as Gasoline	(1300)	12000
Surrogate Recovery		127 %



Date Analyzed: 04-03-96  
 Column : 0.63mm ID X 75m DB624 (J&W Scientific)

*Joel Kiff*  
 Joel Kiff  
 Senior Chemist



**Ultramar Inc.**  
**CHAIN OF CUSTODY REPORT**

**BEACON**

Beacon Station No. <b>604</b>	Sampler (Print Name) <b>Hq1 Hanson</b>		ANALYSES				Date <b>3-21-96</b>	Form No. <b>1 of 1</b>
Project No. <b>94-604-01</b>	Sampler (Signature) <i>[Signature]</i>		MTBE	BTEX	TPH (gasoline)	TPH (diesel)	No. of Containers	<b>Standard TAT</b>
Project Location <b>1619 First St Livermore Ca</b>	Affiliation <b>Doulos Env</b>							
Sample No./Identification	Date	Time						
<b>MW-1</b>	<b>3-21-96</b>	<b>200</b>	<b>14324-01</b>	X	X		<b>2</b>	
<b>MW-2</b>		<b>330</b>	<b>02</b>					
<b>MW-5</b>		<b>212</b>	<b>03</b>					
<b>MW-6</b>		<b>224</b>	<b>04</b>					
<b>MW-7</b>		<b>240</b>	<b>05</b>					<b>03/25/96 1102 00 pm</b>
Relinquished by: (Signature/Affiliation) <i>[Signature]</i> <b>Doulos Env</b>		Date <b>3/21/96</b>	Time <b>08:15</b>	Received by: (Signature/Affiliation) <i>[Signature]</i>		Date <b>3/21/96</b>	Time <b>01:15</b>	
Relinquished by: (Signature/Affiliation) <i>[Signature]</i>		Date <b>3/21/96</b>	Time <b>11:02</b>	Received by: (Signature/Affiliation) <i>[Signature]</i>		Date	Time	
Relinquished by: (Signature/Affiliation) <i>[Signature]</i>		Date	Time	Received by: (Signature/Affiliation) <i>[Signature]</i>		Date	Time	
Report To: <b>Dale Van Dam</b>				Bill to: <b>ULTRAMAR INC.</b> 525 West Third Street Hanford, CA 93230 Attention: <b>Terry Fox</b>				

WHITE: Return to Client with Report

YELLOW: Laboratory Copy

PINK: Originator Copy