El Dorado Environmental, Inc. PROTECTION AL 530

2221 Goldorado Trail, El Dorado, California 95623 (0 MAR 22 PH 4: 4 Pax (916) 626-3898

No prize site

March 6, 2000

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

Subject:

Fourth Quarter 1999 Ground Water Monitoring Report

Beacon Station #604

1619 West First Street, Livermore, California

Dear Ms Chu:

El Dorado Environmental, Inc. (EDE) has prepared this report to document the results of quarterly ground water monitoring conducted on December 13, 1999, 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 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 ELEVATIONS

Prior to well sampling, 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 west-northwest (Figure 2) at a gradient of approximately 0.02 foot per foot. Ground water elevations beneath the site have decreased an average of 1.46 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
- Methyl-tertiary-butyl ether (MTBE) by EPA Method 602

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. Benzene was not detected in the ground water samples collected from monitoring wells MW-1 and MW-5. Dissolved benzene concentrations decreased in the ground water samples collected from monitoring wells MW-2, MW-6, and MW-7 compared to the most recent previous sampling event. Figure 3 illustrates the current interpreted distribution of dissolved benzene in ground water underlying the site.

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 (530) 626-3898.

Regards,

EL DORADO ENVIRONMENTAL, INC.

Dal a on Da

Dale A. van Dam, R.G.

Hydrogeologist

DAvD/davd

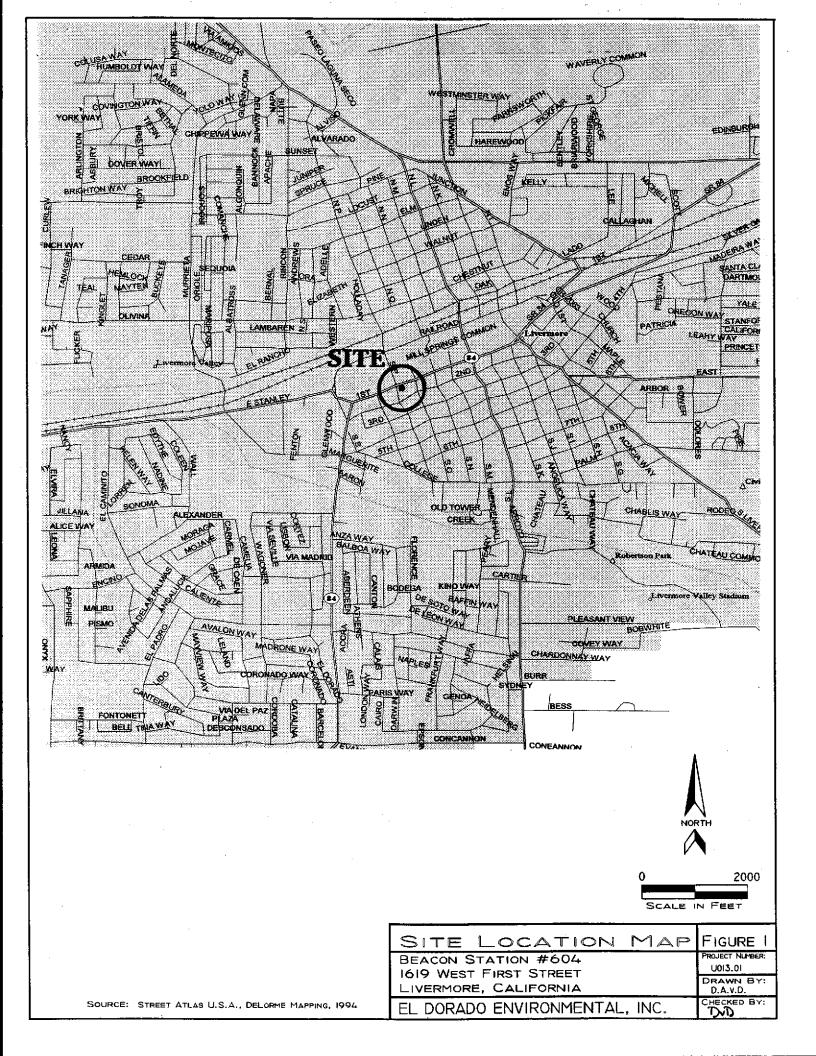
Attachments

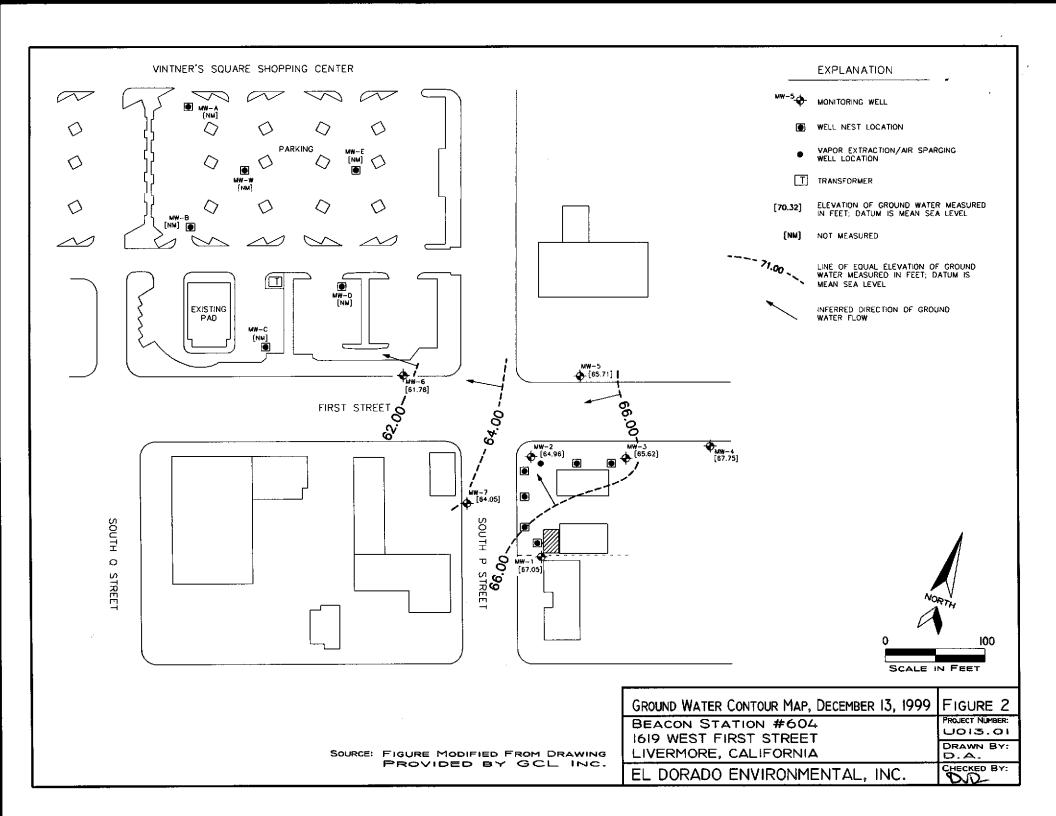
cc: Mr. Joe Aldridge, Senior Project Manager, Ultramar Inc., 525 West Third Street, Hanford, California 93230 Mr. Cecil Fox, California Regional Water Quality Control Board, San Francisco Bay Region,

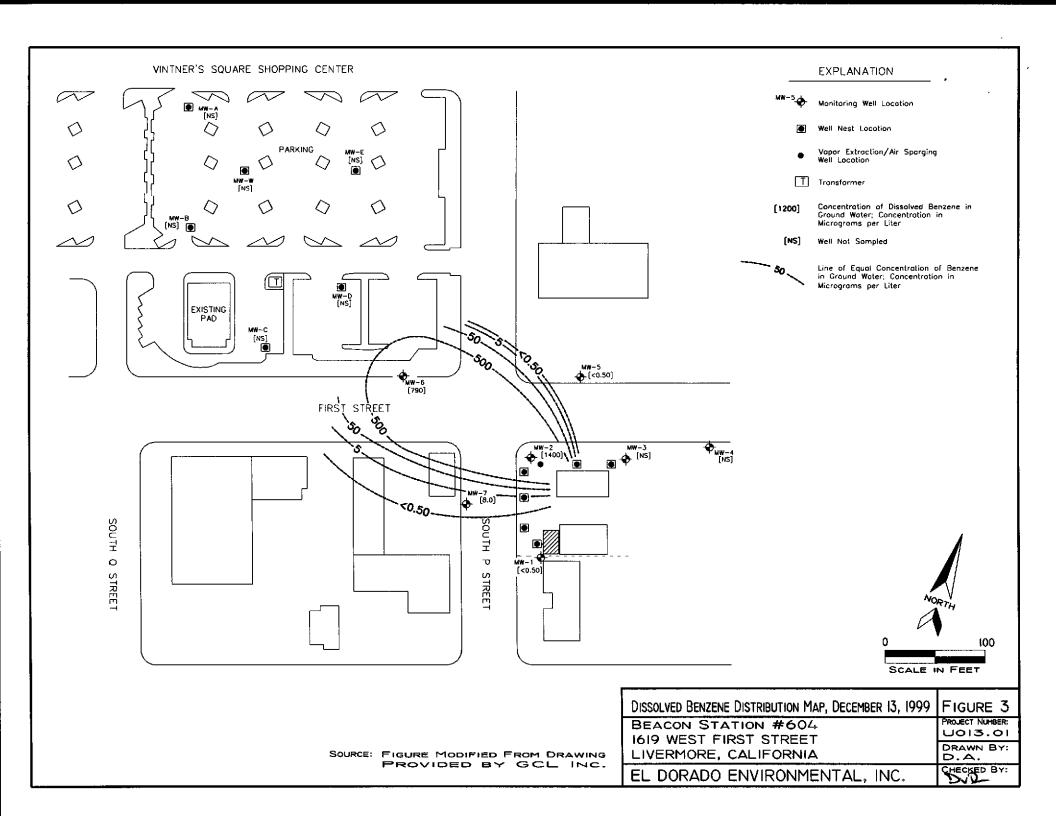
FIGURES:	FIGURE 1 SITE LOCATION MAP
	FIGURE 2 GROUND WATER CONTOUR MAP DECEMBER 13, 1999
	FIGURE 3 DISSOLVED BENZENE DISTRIBUTION MAP DECEMBER 13, 1999
TABLES:	TABLE 1 GROUND WATER ELEVATION DATA
	TABLE 2 GROUND WATER ANALYTICAL RESULTS
ATTACHMENTS:	A
	B DOULOS ENVIRONMENTAL FIELD DATA SHEETS
	C LABORATORY REPORT AND CHAIN-OF-CUSTODY FORM

.

•







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 09/26/95 31.05 68.95 No Product 12/15/95 28.11 71.89 No Product 12/15/95 28.11 71.89 No Product 03/21/96 17.67 82.33 No Product 06/13/96 22.86 77.14 No Product 06/13/96 22.86 77.14 No Product 12/02/96 26.74 73.26 No Product 12/02/96 26.74 73.26 No Product 03/07/97 20.84 79.16 No Product 06/12/97 28.71 71.29 No Product 06/12/97 28.71 71.29 No Product 06/12/97 34.88 65.12 No Product 03/19/98 19.83 80.17 No Product 03/19/98 19.83 80.17 No Product 05/29/98 21.57 78.43 No Product 09/15/98 31.68 68.32 No Product 11/30/98 36.80 63.20 No Product 04/15/19/98 31.68 68.32 No Product 04/15/19/99/99/99/99/99/99/99/99/99/99/99/99/	Monitoring Well	Top of Riser	Depth to Top/Bottom of Screened Interval (feet)	Monitoring Date	Depth to Water (feet)	Ground Water Elevation (feet)	Physical Observation
01/17/99 30.02 69.98 No Product 06/10/99 29.30 70.70 No Product 09/07/99 31.41 68.59 No Product 12/13/99 32.95 67.05 No Product	MW-1			06/01/93 06/22/93 10/06/93 01/13/94 03/30/94 04/25/94 08/12/94 12/14/94 02/10/95 06/15/95 09/26/95 12/15/95 03/21/96 06/13/96 09/16/96 12/02/96 03/07/97 06/12/97 09/29/97 12/01/97 03/19/98 05/29/98 09/15/98 11/30/98 01/17/99 06/10/99	37.50 38.46 42.22 34.52 31.93 33.49 41.03 38.63 30.80 25.46 31.05 28.11 17.67 22.86 30.04 26.74 20.84 28.71 33.91 34.88 19.83 21.57 31.68 36.80 30.02 29.30 31.41	62.50 61.54 57.78 65.48 68.07 66.51 58.97 61.37 69.20 74.54 68.95 71.89 82.33 77.14 69.96 73.26 79.16 71.29 66.09 65.12 80.17 78.43 68.32 63.20 69.98 70.70 68.59	No Product

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-2	98.68	34/54	06/01/93 06/22/93 10/06/93 01/13/94 03/30/94 04/25/94 08/12/94 12/14/94 02/10/95 06/15/95 09/26/95 12/15/95 03/21/96 06/13/96 09/16/96 12/02/96 03/07/97 06/12/97 09/29/97 12/01/97 03/19/98 05/29/98 09/15/98 11/30/98 01/17/99 06/10/99 09/07/99 12/13/99	38.02 39.07 43.72 35.85 32.82 34.76 44.33 40.00 32.16 25.93 32.42 29.41 17.47 23.69 31.24 26.90 21.33 29.94 34.22 35.94 20.34 22.63 32.30 36.90 30.17 29.98 31.85 33.72	60.66 59.61 54.96 62.83 65.86 63.92 54.35 58.68 66.52 72.75 66.26 69.27 81.21 74.99 67.44 71.78 77.35 68.74 64.46 62.74 78.34 76.05 66.38 61.78 68.51 68.70 66.83 64.96	No Product

Monitoring Top of Riser Well (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 06/22/93 10/06/93 01/13/94 03/30/94 04/25/94 08/12/94 12/14/94 02/10/95 06/15/95 09/26/95 12/15/95 03/21/96 06/13/96 09/16/96 12/02/96 03/07/97 06/12/97 09/29/97 12/01/97 03/19/98 05/29/98 09/15/98 11/30/98 01/17/99 06/10/99 09/07/99 12/13/99	36.18 37.11 41.15 33.95 30.97 32.46 41.72 37.62 29.96 23.66 29.62 27.10 15.85 21.31 28.62 25.55 19.77 27.67 29.60 33.37 18.76 20.64 30.70 34.96 28.81 28.10 30.48 31.46	60.90 59.97 55.93 63.13 66.11 64.62 55.36 59.46 67.12 73.42 67.46 69.98 81.23 75.77 68.46 71.53 77.31 69.41 67.48 63.71 78.32 76.44 66.38 62.12 68.27 68.98 66.60 65.62	No Product

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-4	99.35	27/47	03/30/94 04/25/94 08/12/94 12/14/94 02/10/95 06/15/95 09/26/95 12/15/95 03/21/96 06/13/96 09/16/96 12/02/96 03/07/97 06/12/97 09/29/97 12/01/97 03/19/98 05/29/98 09/15/98 11/30/98 01/17/99 06/10/99 09/07/99	31.56 32.73 41.61 38.11 30.50 23.63 29.70 27.56 15.63 21.07 28.99 26.04 19.69 28.04 29.91 33.88 18.67 20.16 30.46 34.50 28.30 27.60 30.79	67.79 66.62 57.74 61.24 68.85 75.72 69.65 71.79 83.72 78.28 70.36 73.31 79.66 71.31 69.44 65.47 80.68 79.19 68.89 64.85 71.05 71.75 68.56	No Product
			12/13/99	31.60	67.75	No Product

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-5	98.37	27/47	03/30/94 04/25/94 08/12/94 12/14/94 02/10/95 06/15/95 09/26/95 12/15/95 03/21/96 06/13/96 09/16/96 12/02/96 03/07/97 09/29/97 12/01/97 03/19/98 05/29/98 09/15/98 11/30/98 01/17/99 06/10/99 09/07/99 12/13/99	32.07 33.65 42.73 38.89 31.44 24.99 30.20 28.56 16.82 22.61 29.78 26.51 21.91 31.74 34.05 20.93 21.30 31.32 35.44 29.59 28.05 31.11 32.66	66.30 64.72 55.64 59.48 66.93 73.38 68.17 69.81 81.55 75.76 68.59 71.86 76.46 66.63 64.32 77.44 77.07 67.05 62.93 68.78 70.32 67.26 65.71	No Product

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 04/25/94 08/12/94 12/14/94 02/10/95 06/15/95 09/26/95 12/15/95 03/21/96 06/13/96 09/16/96 12/02/96 03/07/97 06/12/97	33.38 35.49 45.14 40.99 33.34 26.88 33.55 30.32 18.89 24.62 32.64 27.42 22.13 31.02	64.24 62.13 52.48 56.63 64.28 70.74 64.07 67.30 78.73 73.00 64.98 70.20 75.49 66.60	No Product
			09/29/97 12/01/97 03/19/98 05/29/98 09/15/98 11/30/98 01/17/99 06/10/99 09/07/99 12/13/99	35.77 37.14 21.10 23.26 33.50 38.73 32.05 31.44 33.94 35.84	61.85 60.48 76.52 74.36 64.12 58.89 65.57 66.18 63.68 61.78	No Product

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-7	98.03	27/47	03/30/94	31.98	66.05	No Product
TAT AA - I	70.03	21)41	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
	1		06/15/95	25.51	72.52	No Product
	1		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
			06/13/96	23.47	74.56	No Product
			09/16/96	31.35	66.68	No Product
			12/02/96	27.11	70.92	No Product
			03/07/97	21.33	76.70	No Product
			06/12/97	29.90	68.13	No Product
			09/29/97	34.37	63.66	No Product
			12/01/97	36.46	61.57	No Product
			03/19/98	20.33	77.70	No Product
			05/29/98	22.30	75.73	No Product
			09/15/98	32.54	65.49	No Product
			11/30/98	37.96	60.07	No Product
	1		01/17/99	31.04	66.99	No Product
			06/10/99	29.89	68.14	No Product
			09/07/99	32.38	65.65	No Product
			12/13/99	33.98	64.05	No Product
MW-A	?	?	01/17/99	30.13	?	No Product
			06/10/99	NM		
			09/07/99	NM	ì	
	:		12/13/99	NM		
MW-B	?	?	01/17/99	30.29	?	No Product
			06/10/99	NM		
	1		09/07/99	NM		
			12/13/99	NM		
MW-C	?	?	01/17/99	30.6	?	No Product
	1		06/10/99	NM		
			09/07/99	NM]	
			12/13/99	NM		
MW-D	?	?	01/17/99	31.32	?	No Product
			06/10/99	NM		
			09/07/99	NM		
			12/13/99	NM		

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-E	?	?	01/17/99 06/10/99 09/07/99 12/13/99	31.36 NM NM NM	?	No Product
MW-W	?	?	01/17/99 06/10/99 09/07/99 12/13/99	30.91 NM NM NM	?	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.

? = Not known; Not Surveyed.

NM = Well Not Measured on This Date.

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
3 6777 4	06/01/02		2200	400	< 50	4900	27000
MW-1	06/01/93		2200 8000	10000	260	10000	87000 87000
	06/22/93		4700	6500	740	5300	40000
	10/06/93		1300	950	110	850	9400
	01/13/94		1500	1800	290	1700	11000
	04/25/94			330	290 260	1400	11000
	08/12/94		550	1200	320	1500	11000
	12/14/94		1000	1500	280	1500	9300
	02/10/95		1200	< 0.50	<0.50	< 0.50	140
	06/15/95		5.6	< 0.50	<0.50	43	410
	09/26/95		140	< 1.3	<1.3	87	740
	12/15/95		250	1	<0.50	0.51	<50
	03/21/96	.50	0.52	< 0.50	< 0.50	< 0.50	240*
	06/13/96	<5.0	< 0.50	< 0.50		5.1	720
	09/16/96	<5.0	70	< 0.50	1.0	1	<50
	12/02/96	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	600
	03/07/97	< 5.0	6.7	< 0.50	1.2	1.8	F
	06/12/97	<50	180	800	410	1800	18000
	09/29/97	< 5.0	120	1.5	< 0.50	12	350
	12/01/97	<5.0	7.0	< 0.50	< 0.50	< 0.50	<50
	03/19/98	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50
	05/29/98	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50
	09/15/98	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50
	11/30/98	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50
	01/17/99	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50
	06/10/99	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50
	09/07/99	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50
	12/13/99	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Tolue <u>ne</u>	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-2	06/01/93		20000	21000	3300	18000	170000
IVI VV -Z	06/22/93		19000	22000	3500	18000	160000
	10/06/93]	17000	17000	3000	15000	110000
	01/13/94	1	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
	06/13/96	<250	7300	8800	1900	12000	33000
	09/16/96	<250	510	640	180	1300	8600
	12/02/96	< 130	4400	4000	1300	6100	29000
	03/07/97	<250	1800	1100	270	2000	13000
	06/12/97	< 500	7800	6600	2300	11000	68000
	09/29/97	<250	1500	97	740	1800	15000
	12/01/97	< 250	900	37	860	2400	13000
	03/19/98	< 250	5000	3600	2000	8300	42000
	05/29/98	< 250	5600	4700	2400	11000	68000
1	09/15/98	<250	3900	1200	1400	7800	36000
	11/30/98	<250	2200	59	1200	1500	16000
	01/17/99	<250	4000	2200	2100	9500	30000
	06/10/99	< 500	6300	1800	3600	14000	70000
	09/07/99	150	3800	840	1900	8000	42000
	12/13/99	34	1400	87	690	110	14000

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes_	Total Petroleum Hydrocarbons as Gasoline
N 637/ 0	06/01/02		4.6	< 0.50	< 0.50	1.9	270
MW-3	06/01/93 06/22/93		4.6 8.2	< 0.50	< 0.50	0.72	160
			5.2 57	110	24	120	740
	10/06/93		2.6	0.67	0.78	4.2	83
	01/13/94		0.75	3.2	0.78	3.6	60
	04/25/94		7.3	14	2.6	3.0 13	310
	08/12/94		< 0.50	< 0.50	<0.50	< 0.50	75
	12/14/94 02/10/95		1.4	< 0.50	<0.50	1.8	96
	02/10/95		< 0.50	<0.50	<0.50	< 0.50	<50
	09/26/95		< 0.50	< 0.50	<0.50	< 0.50	<50 <50
	12/15/95		< 0.50	< 0.50	< 0.50	< 0.50	<50
	03/21/96		NS	NS	NS	NS	NS
	03/21/96	NS	NS NS	NS NS	NS NS	NS NS	NS NS
	09/15/96	NS NS	NS	NS NS	NS NS	NS	NS NS
		NS NS	NS NS	NS NS	NS NS	NS	NS NS
	12/02/96	i	NS NS	NS NS	NS NS	NS	NS NS
	03/07/97	NS NS	NS NS	NS NS	NS NS	NS NS	NS NS
	06/12/97 09/29/97	NS NS	NS NS	NS NS	NS NS	NS NS	NS NS
	12/01/97	NS NS	NS	NS NS	NS NS	NS	NS
	03/19/98	NS NS	NS NS	NS NS	NS NS	NS	NS
	05/29/98	NS NS	NS	NS NS	NS NS	NS	NS
	09/15/98	NS NS	NS	NS NS	NS NS	NS	NS NS
	11/30/98	NS NS	NS NS	NS NS	NS NS	NS NS	NS NS
j	01/17/99	NS NS	NS NS	NS NS	NS NS	NS NS	NS NS
	01/17/99	NS NS	NS NS	NS NS	NS NS	NS NS	NS NS
	06/10/99	NS NS	NS NS	NS NS	NS NS	NS NS	NS NS
	12/13/99	NS NS	NS NS	NS NS	NS NS	NS	NS

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-4	03/30/94		4.2	15	2.5	26	120
141 44 -44	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
	06/13/96	NS	NS	NS	NS	NS	NS
	09/16/96	NS	NS	NS	NS	NS	NS
	12/02/96	NS	NS	NS	NS	NS	NS
	03/07/97	NS	NS	l NS	NS	NS	NS
	06/12/97	NS	NS	NS	NS	NS	NS
	09/29/97	NS	NS	NS	NS	NS	NS
	12/01/97	NS	NS	NS	NS	NS	NS
	03/19/98	NS	NS	NS	NS	NS	NS
	05/29/98	NS	NS	NS	NS	NS	NS
	09/15/98	NS	NS	NS	NS	NS	NS
	11/30/98	NS	NS	NS	NS	NS	NS
	01/17/99	NS	NS	NS	NS	NS	NS
	06/10/99	NS	NS	NS	NS	NS	NS
	09/07/99	NS	NS	NS	NS	NS	NS
	12/13/99	NS	NS	NS	NS	NS	NS

MW-5 03/30/94 04/25/94 1300 20 <13	Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
09/07/99		03/30/94 04/25/94 08/12/94 12/14/94 02/10/95 06/15/95 09/26/95 12/15/95 03/21/96 06/13/96 09/16/96 12/02/96 03/07/97 06/12/97 09/29/97 12/01/97 03/19/98 05/29/98 09/15/98 11/30/98 01/17/99	<5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0	1300 1100 420 660 490 <0.50 61 77 35 38 29 1.1 74 5.3 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50	20 41 2.9 <2.5 <13 <0.50 <0.50 1.5 2.0 0.72 <0.50 0.64 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50	<13 130 41 33 23 <0.50 3.1 10 2.0 1.9 0.95 <0.50 0.58 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <1.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50	160 740 98 13 19 <0.50 <0.50 1.5 18.00 2.0 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <1.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50	7500 6500 4000 4800 5200 460 1400 2100 930 610 380 200 520 140 <50 <50 <50 <50 67 430 500 66 820

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-6	03/30/94		21000	8600	1700	12000	63000
3.2	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
	06/13/96	<250	8600	3300	2200	12000	29000
	09/16/96	<250	6400	1800	2100	11000	42000
	12/02/96	< 500	3000	1100	970	8300	28000
	03/07/97	<250	2000	190	520	2300	12000
	06/12/97	< 100	3900	470	1600	6200	37000
	09/29/97	< 100	3500	370	1600	5200	34000
	12/01/97	< 100	2100	< 10	1200	2200	20000
	03/19/98	< 100	2900	460	1100	3400	24000
	05/29/98	< 100	3500	700	1800	5200	38000
	09/15/98	< 100	1900	110	1400	3000	22000
	11/30/98	< 100	770	16	820	710	9900
	01/17/99	< 100	2200	160	1700	3600	14000
	06/10/99	5.5	1600	160	1400	2900	22000
	09/07/99	< 50	1400	33	1300	1800	17000
	12/13/99	< 25	790	9.2	840	780	16000

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
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
	06/13/96	< 50	98	19	370	620	5900
	09/16/96	<25	140	43	440	590	7800
	12/02/96	<50	87	29	290	430	6300
	03/07/97	< 25	35	19	360	470	4500
	06/12/97	<5.0	29	5.2	170	48	3900
	09/29/97	<25	56	9	340	190	6100
	12/01/97	<25	24	< 2.5	400	250	6500
	03/19/98	<25	20	< 2.5	73	79	2000
•	05/29/98	<25	22	7.3	290	350	5700
	09/15/98	<25	15	< 2.5	44	5.1	1700
	11/30/98	<25	42	12	270	640	4800
	01/17/99	< 50	33	< 5.0	200	190	3400
	06/10/99	< 5.0	7.8	1.5	23	4.1	1700
	09/07/99	<5.0	9.7	2.1	70	2.9	1900
	12/13/99	< 5.0	8.0	1.1	10	1.1	1900

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

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
3.4337. A	01/17/99	<5.0	1700	85	65	320	5800
MW-A	06/10/99	NS S	NS	NS NS	NS	NS	NS NS
	09/07/99	NS NS	NS NS	NS NS	NS NS	NS	NS NS
	12/13/99	NS NS	NS	NS NS	NS NS	NS	NS
MW-B	01/17/99	<5.0	240	30	21	39	4400
	06/10/99	NS	NS	NS	NS	NS	NS
	09/07/99	NS	NS	NS	NS	NS	NS
	12/13/99	NS	NS	NS	NS	NS	NS
MW-C	01/17/99	<5.0	0.8	<0.50	< 0.50	0.55	1800
	06/10/99	NS	NS	NS	NS	NS	NS
	09/07/99	NS	NS	NS	NS	NS	NS
	12/13/99	NS	NS	NS	NS	NS	NS
MW-D	01/17/99	<5.0	1600	130	66	220	5600
	06/10/99	NS	NS	NS	NS	NS	NS
	09/07/99	NS	NS	NS	NS	NS	NS
	12/13/99	NS	NS	NS	NS	NS	NS
MW-E	12/16/98	< 50	1600	180	180	310	5700
	01/17/99	<25	1300	130	320	450	5000
	06/10/99	NS	NS	NS	NS	NS	NS
	09/07/99	NS	NS	NS	NS	NS	NS
	12/13/99	NS	NS	NS	NS	NS	NS
MW-W	12/16/98	< 50	7600.00	760.00	1400	5000	23000
	01/17/99	< 50	4100	420	1300	4000	16000
	06/10/99	NS [NS	NS	NS	NS	NS
	09/07/99	NS	NS	NS	NS	NS	NS
	12/13/99	NS	NS	NS	NS	NS	NS

NS = Well Not Sampled on This Date.

* = Product is not typical gasoline.

MTBE (1) = Methyl-Tertiary-Butyl Ether.

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)

	Procuntal and the second secon
	DEC 2 9 1999
Date: _	12 - +3 - 44

Project Address:

Beacon #604, 1619 West First Street

Livermore, CA Project No.: 94-604-01

ded by		Hal H	Hansen				
Time	Well Elev. TOC			Gr. Water Elevation	Depth to Product	Product Thickness	Comments
4:30	in the second se	32.95	54-11				
4:37		33.72	53.73				
4:50		31-46	52.54				
4:54		31.60	46.60				
4:01		32.66	i.				
4:10		35-84					-
4:20		33.98	46-61				
							·
	Time 4:30 4:37 4:50 4:54 4:01	Time TOC 4:30 4:37 4:50	Time Well Elev. Depth to Gr. Water 4:30 32.95 4:37 33.72 4:50 31.46 4:01 32.66	Time Well Elev. Toc Depth to Gr. Water Measured Total Depth 4:30 32.95 54.11 4:37 33.72 53.73 4:50 31.46 52.54 4:54 31.60 46.60 4:01 32.66 46.34 4:10 35.84 47.53	Time Well Elev. Toc Depth to Gr. Water Total Depth Elevation 4:30 32.95 54.11 4:37 33.72 53.73 4:50 31.46 52.54 4:01 32.66 46.60 4:01 35.84 47.53	Time Well Elev. Toc Depth to Gr. Water Total Depth Elevation Gr. Water Elevation Depth to Elevation 4:30 32.95 54.11 4:37 33.72 53.73 4:50 31.46 52.54 4:01 32.66 46.60 4:01 35.84 47.53	Time Well Elev. Depth to Gr. Water Total Depth Gr. Water Elevation Product Thickness 4:30 32.95 54.11 4:37 33.72 53.73 4:50 31.46 52.54 4:01 32.66 46.60 4:01 35-84 47.53

Notes:

DOULOS ENVIRONMENTAL CO	MPANY	·	SAMPI	ING INFORMA	TION SHEET
Client: <u>Ultramar</u>		Sa	mpling Dat	e: 12-13-	99
Site: Beacon #604			Project	No.: 95-60	4-01
1619_West_Fi	rst Stree	<u>et</u> Wel	.l Designat	ion: MW-	2
Livermore, (CA		_		
	well boy ked? r (in inc 12" 12" CNI nead asser " dispose " PVC ba:	ches): UV36 mbly: Ex able bail iler iler	NO YNO 11 IN NO YNO YNO YNO YNO YNO YNO YNO YNO YNO	If no, If no, Other Submersib Dedicated Centrifug	le pump bailer
Sampled with: Dispos					,
Well Diameter: 2'	·	4"	6"	8"	
Tuitial Management	Pech	arme Meas	surement	2.61 g lculated pur Actual pur	
Start purge: NA	Samp	ling time	: <u>4:42</u>		
Time Temp.	E.C.	рĦ	Turbid	ity Volu	me
			1		
	11		7		
	/0	///			
Sample appearance:	Clea	~	Lock:	alfolin	~
Equipment replaced: (Chec 2" Locking Cap: 4" Locking Cap: 6" Locking Cap:	k all tha Lock		Note con	dition of re 7/32 Allenh	placed item ead: olt:

c	lient: _	Ultramar	•	Sa	ampling Dat	e: <u>/2</u>	-13-9	9
-	Site:	Beacon #6	504		Project	No.:	95 - 604-0	1_
		1619 West	First Str	<u>eet</u> We:	ll Designat	ion:]	MW- 5	-
		Livermore,		<u>.</u>				
Is the Is top Is wel Height Well c	re stand of casi l cap se of well over typ	affic cont ing water ng cut lev aled and l casing ri e: 8" UV_ 2" DWP_ ion of wel	in well by yel? locked? ser (in in 12	ox? nches): " UV		S Abo S If S If O Othe	ve TOC I no, see no, see 8" BK r	
			2" PVC ba 4" PVC ba	ailer ailer		Dedic Cent:	ersible cated ba rifugal	iler
		iameter:			6"			
Initia Time:_ Depth Depth	1 <u>Measur</u> 4:6/	-46.34 : 32.66	Rec Time: Depth to				1 gal/ d purge: l purge:	
	Time	Temp.	E.C.	рн	Turbidi	ty	Volume	
				1/4	1			
s	ample ap	pearance:	_ale	w_	Lock: _	Del	Man	<u>~</u>
2" L 4" L	ocking C ocking C ocking C	aced: (Ch ap: ap:	_ Lock-l	nat apply) k #3753: Dolphin:		7/32 A 9	llenhead /16 Bolt	l:
			· · ·				. 12	
Signat	ure:					<u></u>		

Client	: <u>Ultrama</u>	r	Saı	mpling Date: <u>/</u>	2-13-99
Site	e: Beacon #	604		Project No.:_	95-604-01
	<u> 1619 West</u>	First Stre	<u>eet</u> Wel	l Designation:	
	<u>Livermore</u>				
Is there st Is top of (Is well can	traffic con canding water casing cut le sealed and well casing r type: 8" UV 12" DWP ndition of we	in well bo vel? locked?	x?	NO YES AI	time: hours bove TOC Below TOC If no, see remarks If no, see remarks 8" BK ner Fair Poor
Purging Equ		2" dispos 2" PVC ba 4" PVC ba	iler iler	Dec Cer	omersible pump dicated bailer ntrifugal pump
				Teflon bailer	
Time: 4 \ /o Depth of we Depth to wa		Rech Time: Depth to	water:	1.47 2 urement Calculate Acti	ted purge: NA
Ti		E.C.	рН	Turbidity	Volume
				Lock: Dol	
Sample	e appearance:	Clean		Lock: VOE	from_
2" Lockii 4" Lockii	replaced: (C ng Cap: ng Cap: ng Cap:	_ Loc)	at apply) (#3753:)olphin:	7/32	n of replaced item Allenhead: 9/16 Bolt: head (DWP):
Remarks:					
	2.77				

ATTACHMENT C

LABORATORY REPORT AND CHAIN-OF-CUSTODY FORM



Date: 12/29/99

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

Subject: 5 Water Samples Project Name: Beacon 604 Project Number: 94-604-01

Dear Mr. van Dam,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,



Date: 12/29/99

Project Name : Beacon 604
Project Number : 94-604-01

Sample: MW-1

Matrix: Water

Sample Date :12/13/99

Sample Date :12/13/99	Measured	Method Reporting		Analysis	Date
Parameter	Value	Limit	Units	Method	Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8020	12/22/99
Toluene	< 0.50	0.50	ug/L	EPA 8020	12/22/99
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8020	12/22/99
Total Xylenes	< 0.50	0.50	ug/L	EPA 8020	12/22/99
Methyl-t-butyl ether	< 5.0	5.0	ug/L	EPA 8020	12/22/99
TPH as Gasoline	< 50	50	ug/L	M EPA 8015	12/22/99
aaa-Trifluorotoluene (8020 Surrogate) aaa-Trifluorotoluene (Gasoline Surrogate)	105 83.9		% Recovery % Recovery	EPA 8020 M EPA 8015	12/22/99 12/22/99

Sample: MW-2

Matrix: Water

Sample Date :12/13/99

Sample Date . 12/13/99	Measured	Method Reporting	Unito	Analysis Method	Date Analyzed
Parameter	Value	Limit	Units	Method	
Benzene	1400	2.5	ug/L	EPA 8020	12/27/99
Toluene	87	2.5	ug/L	EPA 8020	12/27/99
Ethylbenzene	690	2.5	ug/L	EPA 8020	12/27/99
Total Xylenes	1100	2.5	ug/L	EPA 8020	12/27/99
Methyl-t-butyl ether	34	25	ug/L	EPA 8020	12/27/99
TPH as Gasoline	14000	250	ug/L	M EPA 8015	12/27/99
aaa-Trifluorotoluene (8020 Surrogate)	94.2		% Recovery	EPA 8020	12/27/99
aaa-Trifluorotoluene (Gasoline Surrogate)	98.4		% Recovery	M EPA 8015	12/27/99

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800



Date: 12/29/99

Project Name : Beacon 604
Project Number : 94-604-01

Sample: MW-5

Matrix: Water

Sample Date :12/13/99

Sample Date :12/13/99	Measured	Method		Analysis	Date	
Parameter Value		Reporting Limit	Units	Method	Analyzed	
Benzene	< 0.50	0.50	ug/L	EPA 8020	12/22/99	
Toluene	< 0.50	0.50	ug/L	EPA 8020	12/22/99	
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8020	12/22/99	
Total Xylenes	< 0.50	0.50	ug/L	EPA 8020	12/22/99	
Methyl-t-butyl ether	< 5.0	5.0	ug/L	EPA 8020	12/22/99	
TPH as Gasoline	< 50	50	ug/L	M EPA 8015	12/22/99	
aaa-Trifluorotoluene (8020 Surrogate) aaa-Trifluorotoluene (Gasoline Surrogate)	101 97.1		% Recovery % Recovery	EPA 8020 M EPA 8015	12/22/99 12/22/99	

Sample: MW-6

Matrix: Water

Sample Date :12/13/99

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed	
Benzene	790	2.5	ug/L	EPA 8020	12/27/99	
Toluene	9.2	2.5	ug/L	EPA 8020	12/27/99	
Ethylbenzene	840	2.5	ug/L	EPA 8020	12/27/99	
Total Xylenes	780	2.5	ug/L	EPA 8020	12/27/99	
Methyl-t-butyl ether	< 25	25	ug/L	EPA 8020	12/27/99	
TPH as Gasoline	16000	250	ug/L	M EPA 8015	12/27/99	
aaa-Trifluorotoluene (8020 Surrogate)	97.4		% Recovery	EPA 8020	12/27/99	
aaa-Trifluorotoluene (Gasoline Surrogate)	104		% Recovery	M EPA 8015	12/27/99	

Approved By: Opel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800



Date: 12/29/99

Project Name :

Beacon 604

Project Number: 94-604-01

Sample: MW-7

Matrix: Water

Sample Date :12/13/99

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	8.0	0.50	ug/L	EPA 8260B	12/27/99
Toluene	1.1	0.50	ug/L	EPA 8260B	12/27/99
Ethylbenzene	10	0.50	ug/L	EPA 8260B	12/27/99
Total Xylenes	1.1	0.50	ug/L	EPA 8260B	12/27/99
Methyl-t-butyl ether	< 5.0	5.0	ug/L	EPA 8260B	12/27/99
TPH as Gasoline	1900	50	ug/L	EPA 8260B	12/27/99
Toluene - d8 (Surr)	106		% Recovery	EPA 8260B	12/27/99
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	12/27/99

Approved By: Aloel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800



Ultramar Inc.CHAIN OF CUSTODY REPORT

BEACON .

15645

Beacon Station No.	Sampler (Print Name)				ANALYSES					T	Date 12-13-99	orm No	
604	Edgay Obselta				ANALYSES					\dagger	•	1 . 1 . 1	00
604 Project No. 94-604-01	Sampler (Signature)								4	Containers	STA		IL I)
Project Location	Affiliation		_			<u>e</u>							
LIVER MORE	poulos					PH (diesel)				3			
Sample No./Identification	Date	Time		Lab No.	BTE	H	声			ġ	REMARK	s	
mu -1	12-13-99	14-34		-01	X,	1				3			
mu-2		4:1	12	-02	Ш		-			\prod			"
Mu - 5		4:	05	-03						\prod			
mu-\$		4:	14	-04	Ш								
mu-5		4:2		-05	Ш	1				1			
											·		
Relinquished by: (Signature/Affiliation)	Date	Time	Receiv	ed by: (Signatur	e/Aff	iliati	оп)	-				Date	Time
Retinquished by: (Signature/Affiliation)	Date	Time	Receiv	ed by: (Signatur	e/Aff	iliati	on)					Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Pooriu	rod by: (Cianatur	0/04	سسسه	00)					Date	Time
Heinquistied by. (Signature/Animation)	Date Time Received by: (Signature/Affiliation)					S	121794						
Report To:	DAN	7	Bill 16:	The state of the s	NOTE INC	Stree	et				ry r	FOX	