El Dorado Environmental, Inc.

2221 Goldorado Trail, El Dorado, California 95623

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

November 4, 1999

When permanent wells are installed by Squary LISA, do Quir for those.

Mr. Terrence A. Fox Senior Project Manager Ultramar Inc. 525 West Third Street Hanford, California 93230

Subject:

Third Quarter 1999 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 September 7, 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 2.51 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 sample collected from monitoring well MW-1. Dissolved benzene concentrations decreased in the ground water samples collected from monitoring wells MW-2 and MW-6; and increased in the ground water samples collected from monitoring wells MW-2, MW-5, 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.

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 (530) 626-3898.

Regards,

EL DORADO ENVIRONMENTAL, INC.

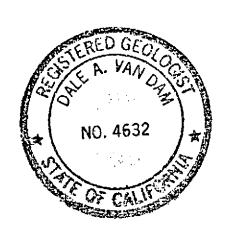
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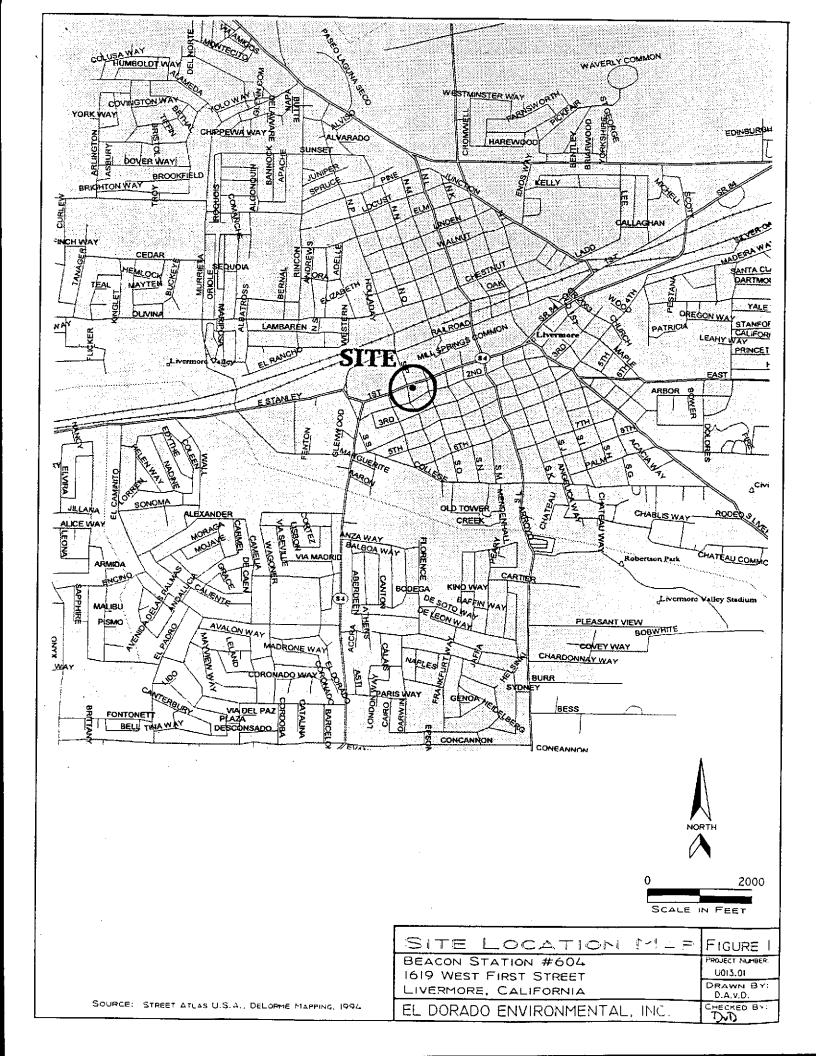
Hydrogeologist

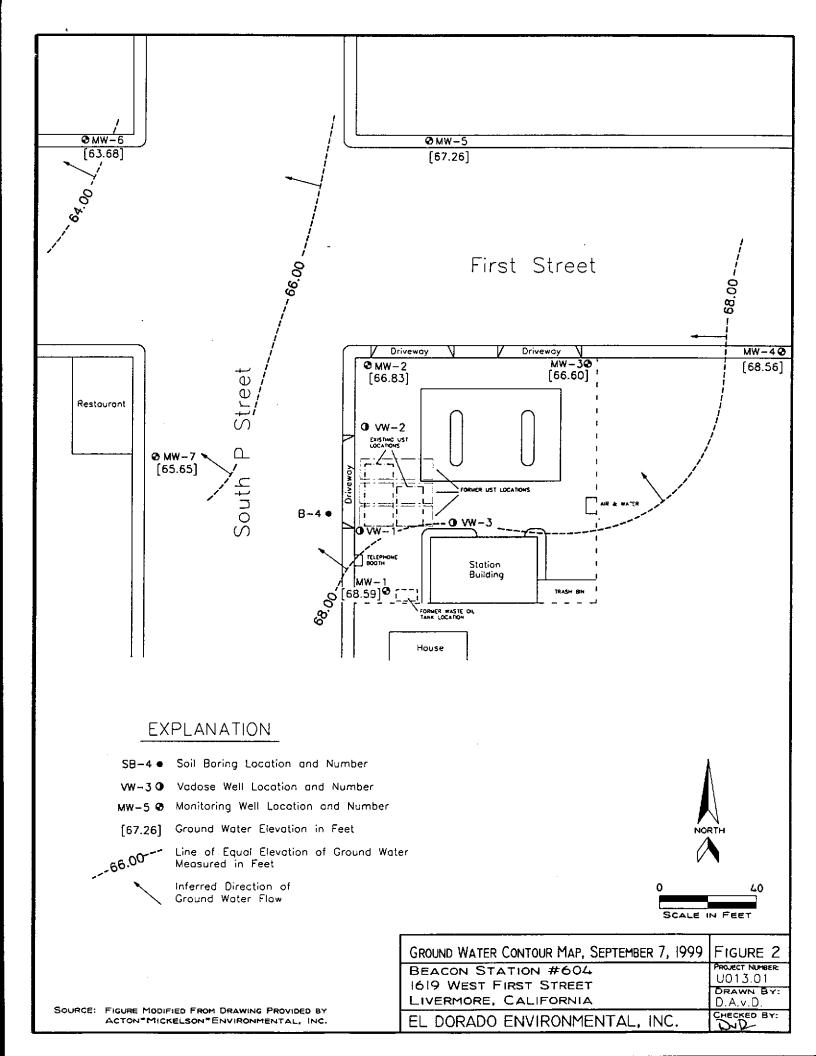
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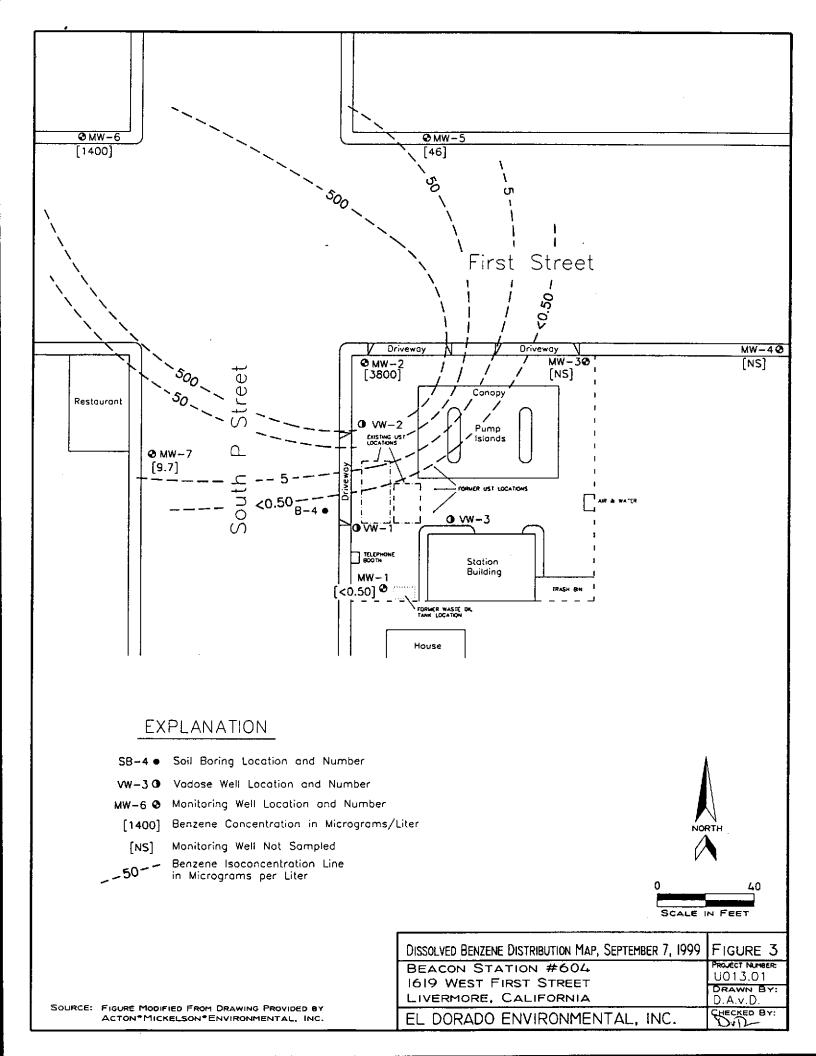
Attachments



FIGURES:	FIGURE 1 SITE LOCATION MAP
	FIGURE 2 GROUND WATER CONTOUR MAP SEPTEMBER 7, 1999
	FIGURE 3 DISSOLVED BENZENE DISTRIBUTION MAP SEPTEMBER 7, 1999
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







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
	100100	31131	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
		ļ	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
			06/13/96	22.86	77.14	No Product
			09/16/96	30.04	69.96	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
			09/29/97	33.91	66.09	No Product
			12/01/97	34.88	65.12	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
			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

Į.						
		Depth to				
		Top/Bottom of			Ground Water	
Monitoring	Top of Riser	Screened Interval	Monitoring	Depth to Water	Elevation	Physical
Well	(feet)	(feet)	Date	(feet)	(feet)	Observation
	· · · · · · · · · · · · · · · · · · ·	,			`	
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
1			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
			06/13/96	23.69	74.99	No Product
			09/16/96	31.24	67.44	No Product
		ļ	12/02/96	26.90	71.78	No Product
			03/07/97	21.33	77.35	No Product
			06/12/97	29.94	68.74	No Product
		1	09/29/97	34.22	64.46	No Product
			12/01/97	35.94	62.74	No Product
			03/19/98	20.34	78.34	No Product
1			05/29/98	22.63	76.05	No Product
į			09/15/98	32.30	66.38	No Product
			11/30/98	36.90	61.78	No Product
			01/17/99	30.17	68.51	No Product
			06/10/99	29.98	68.70	No Product
			09/07/99	31.85	66.83	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-3	97.08	(feet) 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	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	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	No Product
			06/10/99 09/07/99	28.10 30.48	68.98 66.60	No Product No Product

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
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

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	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	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	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 09/29/97 12/01/97 03/19/98 05/29/98 09/15/98 11/30/98	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 35.77 37.14 21.10 23.26 33.50 38.73	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 61.85 60.48 76.52 74.36 64.12 58.89	No Product
			01/17/99 06/10/99 09/07/99	32.05 31.44 33.94	65.57 66.18 63.68	No Product No Product No Product

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-7	98.03	27/47	03/30/94 04/25/94 08/12/94	31.98 33.56 43.35	66.05 64.47 54.68	No Product
			12/14/94	39.34	58.69	No Product 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 06/13/96	17.36 23.47	80.67 74.56	No Product 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
·			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
MW-A	?	?	01/17/99	30.13	?	No Product
			06/10/99	NM		
MW-B	?	?	01/17/99	30.29	?	No Product
			06/10/99	NM		
MW-C	?	?	01/17/99	30.6	?	No Product
			06/10/99	NM		
MW-D	?	?	01/17/99	31.32	?	No Product
			06/10/99	NM		
MW-E	?	?	01/17/99	31.36	?	No Product
	,		06/10/99	NM		
MW-W	?	?	01/17/99	30.91	?	No Product
			06/10/99	NM		

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.

NM = Well Not Measured on This Date.

^{? =} Not known; Not Surveyed.

Monitoring Well	Monitoring Date	MTBE (1)	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	1	1200	1500	280	1500	9300
	06/15/95		5.6	< 0.50	< 0.50	< 0.50	140
i	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
	06/13/96	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	240*
	09/16/96	< 5.0	70	< 0.50	1.0	5.1	720
	12/02/96	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50
**	03/07/97	< 5.0	6.7	< 0.50	1.2	1.8	600
	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

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-2	06/01/93		20000	21000	3300	18000	170000
Ì	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
İ	12/14/94		13000	13000	2200	12000	63000
	02/10/95	·}	12000	12000	2200	11000	63000
İ	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	1	8000	7700	2400	12000	48000
	06/13/96	<250	7300	8800	1900	12000	33000
i	09/16/96	< 250	510	640	180	1300	8600
	12/02/96	< 130	4400	4000	1300	6100	29000
l	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
	09/15/98	<250	3900	1200	1400	7800	36000
	11/30/98	<250	2200	59	1200	1500	16000
ľ	01/17/99	<250	4000	2200	2100	9500	30000
İ	06/10/99	<500	6300	1800	3600	14000	70000
ļ	09/07/99	150	3800	840	1900	8000	42000

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-3	06/01/93		4.6	< 0.50	< 0.50	1.9	270
101 44 -2	06/22/93		8.2	< 0.50	< 0.50	0.72	160
	10/06/93		57	110	24	120	740
1	01/13/94		2.6	0.67	0.78	4.2	83
İ	04/25/94		0.75	3.2	0.78	3.6	60
	08/12/94		7.3	3.2 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
İ	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	Ì	NS	NS	NS	NS	NS
ļ	06/13/96	NS	NS	NS	NS NS	NS	NS
Ī	09/16/96	NS	NS	NS	NS	NS	NS
	12/02/96	NS	NS	NS	NS I	NS	NS
	03/07/97	NS	NS	NS	NS	NS	NS
	06/12/97	NS	NS	NS	NS	NS	NS
	09/29/97	NS NS	NS NS	NS	NS NS	NS	NS NS
	12/01/97	NS	NS	NS	NS	NS	NS
İ	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

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
141.444	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 < 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	l 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	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
ļ	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

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-5	03/30/94		1300	20	<13	160	7500
	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
	06/13/96	< 5.0	38	0.72	1.9	2.0	610
	09/16/96	< 5.0	29	< 0.50	0.95	< 0.50	380
1	12/02/96	< 5.0	1.1	0.64	< 0.50	< 0.50	200
	03/07/97	<5.0	74	< 0.50	0.58	1.50	520
	06/12/97	<5.0	5.3	< 0.50	< 0.50	< 0.50	140
	09/29/97	<5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 50
	12/01/97	<5.0	< 0.50	< 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	4.1	< 0.50	< 0.50	0.52	540
	09/15/98	<5.0	< 0.50	< 0.50	< 0.50	< 0.50	67
	11/30/98	<5.0	< 0.50	< 0.50	< 0.50	< 0.50	430
	01/17/99	<5.0	< 0.50	< 0.50	< 0.50	< 0.50	500
İ	06/10/99	<5.0	< 0.50	< 0.50	< 0.50	< 0.50	66
	09/07/99	<5.0	46	1.7	10	21	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
1	04/25/94	ļ	22000	12000	2300	16000	77000
	08/12/94	i l	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	1	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
1	12/02/96	< 500	3000	1100	970	8300	28000
	03/07/97	<250	2000	190	520	2300	12000
Ì	06/12/97	< 100	3900	470	1600	6200	37000
ļ	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

Monitoring Well	Monitoring Date	MTBE (1)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons as Gasoline
MW-7	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	<50 <25 <50 <25 <5.0 <25 <25 <25 <25 <25 <25 <50 <5.0 <5.0 <5.0	7200 3900 3800 3600 4000 920 200 350 320 98 140 87 35 29 56 24 20 22 15 42 33 7.8 9.7	2400 1000 1400 1200 900 680 150 170 100 19 43 29 19 5.2 9 <2.5 <2.5 7.3 <2.5 12 <5.0 1.5 2.1	1600 940 1300 900 890 740 170 540 730 370 440 290 360 170 340 400 73 290 44 270 200 23 70	11000 6900 7500 6400 5100 4100 810 1900 2500 620 590 430 470 48 190 250 79 350 5.1 640 190 4.1 2.9	43000 30000 30000 31000 27000 17000 7000 11000 12000 5900 7800 6300 4500 3900 6100 6500 2000 5700 1700 4800 3400 1700

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
MW-A	01/17/99	<5.0	1700	85	65	320	5800
	06/10/99	NS	NS	l NS	NS NS	NS.	NS NS
	09/07/99	NS	NS	NS	NS NS	NS	NS
MW-B	01/17/99	<5.0	240	30	21	39	4400
1	06/10/99	NS	NS	NS	NS	NS	NS
	09/07/99	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
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
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
MW-W	12/16/98	<50	7600.00	760.00	1400	5000	23000
İ	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

NS = Well Not Sampled on This Date.

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

^{* =} Product is not typical gasoline.

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 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 TeflonTM 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: ___

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

Recorded by:

<u> Hal Hansen</u>

Well	No	Time	Well Elev. TOC	Depth to Gr. Water	Measured Total Depth	Gr. Water Elevation	Depth to Product	Product Thickness	Comments
mu.	1	4:42		31.41	54.10				
mu.	2	4:45		31.85	53.73				
yu-	3	4:46		30.48	52.55				
Mu	- 7	4:45 4:46 4:50		30-79	46.60				
mu	2-	4:30		31.11	46.36				
MW	-6	4:30 4:34 4:38		33.94	46.60 46.36 47.53 46.61				
MW	-7	4:38		32.38	46.61				
					-				
					<u> </u>	<u> </u>			
	· ·								

Notes:

Sample appearance: _	cean	Lock:	Mollin	
Equipment replaced: (Chec 2" Locking Cap: 4" Locking Cap: 6" Locking Cap:	k all that apply) Lock #3753: Lock-Dolphin:	7/: 	ion of replaced 32 Allenhead: 9/16 Bolt: enhead (DWP):	litem
Remarks:				

Signature:

Remarks:	Equipment replaced: (Check 2" Locking Cap: 4" Locking Cap: 6" Locking Cap:	all that apply) Lock #3753: Lock-Dolphin:	
	Remarks:		

Signature:

(Client:	Ultrama	r		Sampling D	ate:	9-7-	99
	Site:_	Beacon #	604		Projec	t No.:	95-604	-01
		1619 West	First Str	<u>eet</u> We	ell Design	ation:	mw- 5	·
	_	Livermore	CA				_	
Is the Is top Is well to Well to 12" BK Genera	ere stand of cas: l cap se of well cover typ l condit	ding water ing cut le caled and casing rose: 8" UV con of we continue.	trol device in well be vel? locked? iser (in in in it is is in it is is is in it is is in it in it is	nches): " UV3 embly: E	NO NO NO NO NO NO NO NO NO NO NO NO NO N	YES AI	ove TOC If no, s If no, s 8" Ber Fair	Poor e pump
· s	ampled w	ith: Dis	posable ba	iler: <u>×</u>	Teflon	bailer	*	. ,
	Well D	iameter:	2"	4"	6"	8"_		.•
Initia Time: Depth Depth	l Measur	: <u>31-11</u>	Rec Time:	water:	1.47 <u>surement</u> A ca e: 4:52	alculat Actu	-	
	Time	Temp.	E.C.	рН	Turbid	lity	Volume	
		·			4			
Sa	mple app	pearance:	(le	an	Lock:	10	Mel	
2" Lo 4" Lo	cking Cacking Cacking Ca	nced: (Che	eck all the Lock Lock-D	at apply) #3753: olphin:		7/32 A	Allenhead	aced item d: t:):
Signatu	re:							

	Client:	Ultrama	ır		Sampling	Date:	9-7-	79
	Site:_	Beacon #	604		Proj	ect No.:	95-604-	·01_
		1619 West	First St	reet W	ell Desig	gnation:	MW- 6	<u>. </u>
, 		Livermore						s*
Is to	of cas	raffic conding water ing cut le ealed and casing ree: 8" UV	vel?		МО	EES)	If no, se	e remark
Purgir	ng Equipm	ment:	2" dispo 2" PVC b 4" PVC b	sable bai ailer ailer	ler	Suk Ded Cen	omersible licated batrifugal	pump ailer
S		vith: Disp Diameter:						<u> </u>
Initia Time:_ Depth Depth	l Measur 4:34 of well: to water	tiplier: ement - 47.53 : 33.94	Rec Time: Depth to	0.65 harge Mea water: pling tim	surement NA	Calculat Actu		
Start	Time	Temp.	E.C.	T	T		Volume	
				1	//			
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2" Lo 4" Lo 5" Lo	ocking Ca ocking Ca ocking Ca	aced: (Cheap:ap:ap:	eck all th Lock			7/32 /	of repla Allenhead 0/16 Bolt ead (DWP)	<u>:</u>
Remar								
ignatu	re:							

ı	Client: _	Ultrama	r		Sampling Dat	:e:	1-7-99	;
	Site:_	Beacon #	604		Project	No.:_	95-604-	01_
	_	1619 West	First Str	eet W	ell Designat	ion:_	mw- 7	·
		Livermore	, CA			••••••••••••••••••••••••••••••••••••••		-
Is the	ere stand of casi	ling water ng cut le	in well b vel? locked?	ox?	NO YE NO YE	S Abo	ove TOC no, see	Below TO e remark
			4" PVC b	ailer ailer		Dedi Cent	ersible cated barifugal	ailer
s					Teflon b			
	Well D	iameter:	,		6"			•
Initia Time:_ Depth Depth	1 Measure 4:38 of well: to water	- 4661 : 32.38	Rec Time: <u>/</u> Depth to	water:	NA Cal			
Start :	purge:				e: <u>4:58</u>	-		\neg
	Time	Temp.	E.C.	рН	Turbidit	ТУ	Volume	_
					A			
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Remar	-ks:							
Signatu	ıre:							

ATTACHMENT C

LABORATORY REPORT AND CHAIN-OF-CUSTODY FORM

SEP-24-99 FRI 16:21 KIFF ANALYTICAL

Date: 10/21/99 Time: 10:26:26 PM

FAX NO. 5302974803

P. 01/05

Page of 5

Report Number: 14926

Date: 09/24/99

Date 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 530-297-4300.

Sincerely,

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

Date: 10/21/99 Time: 10:26:26 PM

Page 2 of 5

SEP-24-99 FRI 16:21 KIFF ANALYTICAL

FAX NO. 5302974803

P. 02/05



Report Number 1 14926

Date: 09/24/99

Project Name . Beacon 604

Project Number: 94-604-01

Samole: MW-1

Matrix: Water

Sample Date :09/07/99

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	ate malyzed
Benzene	< 0.50	0.50	ug/L	EPA 8020	19/13/99
Toluene	< 0.50	0.50	ug/L	EPA 8020	09/13/99
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8020	09/13/99
Total Xylenes	< 0.50	0.50	∂g/L	EPA 6020	09/13/99
Methyl-t-butyl ether	< 5.0	5.0	ug/L	EPA 8020	09/13/99
TPH as Gasoline	< 50	50	ug/L	M EPA 8015	U9/13/99
aaa-Trifluorotoluene (8020 Surrogate)	100		% Recovery	EPA 8020	09/13/99
asa-Trittuorotoluene (Gasoline Surrogate)	90,2		% Recovery	M EPA 8015	09/13/99

Sample: MW-2

Matrix: Water

Sample Date: 09/07/99

Parameter	Measured Value	Method Reporting Umit	Units	Analysis Method	Date Analyzed
Benzene	3800	10	ug/l	EPA 8020	09/20/99
Toluene	£43	10	ug/L	EPA 8020	09/20/99
Ethylbenzene	1900	10	ug/L	EPA 8020	09/20/99
Total Xylenes	8000	10	ug/L	EPA 8020	09/20/99
Methyl-t-butyl ether	150	100	ug/L	EPA 8020	09/20/99
TPH as Gasoline	42000	1000	ug/L	M EPA 8015	09/20/99
asa-Trifluorctoluene (8020 Surrogate)	97.3		% Recovery	EPA 8020	09/20/99
aza-Trifluorotoluene (Gasoline Surrogate)	100		% Recovery	M EPA 8015	09/20/99

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

SEP-24-99 FRI 16:22 KIFF ANALYTICAL

FAX NO. 5302974803

P. 03/05



Report Number: 14926

Date: 09/24/99

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

Sample: MW-5

Matrix: Water

Sample Date :09/07/99

Parametes	Measured Value	Method Reporting Limit	Units	Anaysis Method	Us An zed	
Benzone	46	0.50	ug/L	EPA 80-	· 9/	
Toluene	1.7	0.50	ug/L	EPA 8020	r: e a	
Ethylbenzene	10	0.50	ug/L	EPA 8020	09/13/99	
Total Xylenes	21	0.50	ug/L	EPA 8020	09/13/99	
Methyl-t-butyl ether	< 5.0	5.0	ug/L	EPA 8020	09/13/99	
TPH as Gasoline	820	50	u g/L	M EPA 8015	09/13/99	
aaa-Triffuorotoluene (8020 Surrogate)	98.3		% Recovery	EPA 8020	09/13/99	
aaa-Trifluorotoluene (Gasoline Surrogate)	95.5		% Recovery	M EPA 8015	09/13/99	

Sample: MW-6

Matrix: Water

Sample Date :09/07/99

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed	
Benzene	1400	5.0	ug/L	EPA 8020	09/14/99	
Toluene	88	5.0	ug/L	EPA 8020	09/14/99	
Ethylbenzene	1300	5.0	ug/L	EPA 8020	09/14/99	
Total Xylenes	1800	5.0	ug/L	EPA 8020	09/14/99	
Methyl-t-butyl ether	< 50	50	ug/L	EPA 8020	09/14/99	
TPH as Gasoline	17000	500	ug/L	M EPA 8015	09/14/99	
aaa-Trifluorotoluene (8020 Surrogate)	105		% Recovery	EPA 8020	09/14/99	
aaa-Trifluorotoluene (Gasoline Surrogale)	100		% Recovery	M EPA 8015	09/14/99	

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

Fage 4 of 5

SEF-24-99 FRI 16:22 KIFF ANALYTICAL

FAX NO. 5302974803

2.04.75



Report Number: 14926

Date: 09/24/99

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

Sample: MW-7

Matrix: Water

Sample Date: 09/07/99

Paramete:	Measured Value	Method Reporting Limit	Units	Analysis Method	Date	
Benzene	9.7	0.50	ug/L	EPA 8020	9' '10	
Toluene	2.1	0.50	ug/L	EPA 8^^	J9/1	
Ethylbenzene	70	0.50	ug/L	EPA 8020	14.3	
Total Xylenes	2.9	0.50	ug/L	EPA 8020	09/14/99	
Methyl-t-butyl ether	< 5.0	5.0	ug/L	FPA 8020	09/14/99	
TPH as Gasoline	1900	50	ug/L	M EPA 8015	09/14/99	
aaa-Trifluorotoluene (8020 Surrogate)	105		% Recovery	EPA 8020	09/14/99	
aaa-Trifluorotoluene (Gasoline Surrogate)	97.7		% Recovery	M EPA 8015	09/14/99	

Approved By: Joel Kiff



Ufframar inc. CHAIN OF CUSTODY REPORT

14926

BEACON

Beacon Station No.	Samp	ler (Prim	Name)		1	T					7	Date	Form N	lo.
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Project No. 94-604-01	Samp	oler (Sign								STAN	•	D		
rioject Location	Affilia		///			1	9	a		•		t)	4+	
_ LIVER-MORE		1	00	10	<u>ک</u>		(gasoline)							
Sample No./Identification		ato	Ti	me	Lab No.	818	H	Ī				REMAI	DVG	
_ nu-1	9-	7-99	5:0	24	-01	X	X	1				3	1110	4,000
MW-2		<u></u>	5:	07	- 02	1		1			1			
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MW-7			4	58	- 05	1	V					H		
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