

Ultramar

Ultramar Inc.
P.O. Box 466
525 W. Third Street
Hanford, CA 93232-0466
(209) 582-0241

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April 10, 1992

Ms. Pamela Evans
Hazardous Materials Program
Department of Environmental Health
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94612

COMMUNICATIONS SECTION
APR 11 1992

**SUBJECT: BEACON STATION NO. 721, 44 LEWELLING BLVD., SAN LORENZO,
CALIFORNIA**

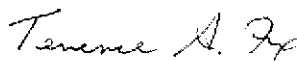
Dear Ms. Evans:

Enclosed is a copy of the Groundwater Monitoring and Sampling Report First Quarter 1992 for the above-referenced Ultramar facility. Also included is a copy of the Quarterly Status Report which describes the work completed this quarter and the work anticipated to be completed next quarter.

Please call if you have any questions regarding this project.

Sincerely,

ULTRAMAR INC.



Terrence A. Fox
Senior Project Manager
Marketing Environmental Department

Enclosures

cc w/encl: Mr. Steven Ritchie, San Francisco Bay Region, RWQCB



A Member of the Ultramar Group of Companies

BEACON
#1 Quality and Service

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ENVIRONMENTAL PROJECT QUARTERLY STATUS REPORT

DATE REPORT SUBMITTED: May 13, 1992
QUARTER ENDING: March 31, 1992

SERVICE STATION NO.: 721
ADDRESS: 44 Lewelling Blvd., San Lorenzo, CA
COUNTY: Alameda

ULTRAMAR CONTACT: Terrence A. Fox

TEL. NO: 209-583-5545

BACKGROUND:

In April 1987, three underground gasoline storage tanks were excavated and removed. Samples collected from beneath the former tanks indicated that hydrocarbons were present in the soil. In May 1987, three monitoring wells (MW-1 through MW-3) were installed by Conoco. Hydrocarbons were detected in soil and ground-water samples collected from the wells. In December 1988, four additional wells (MW-4 through MW-7) were installed. Dissolved-phase hydrocarbons were detected in the new wells. In September 1989, two additional wells (MW-8 and MW-9) were installed. The site has been on a monitoring program since May 1987.

In July 1990, the site was purchased by Ultramar Inc. from Conoco. The monitoring program has continued. Submitted work plan for additional assessment on March 14, 1991.

In October 1991, drilled two additional offsite wells (MW-10 and MW-11) southwest of the site and one onsite recovery well (RW-1). In November 1991, performed ground-water pump test and vapor extraction test.

SUMMARY OF THIS QUARTER'S ACTIVITIES:

Performed quarterly monitoring on February 18, 1992. Manual bailing of free product was performed on January 17 and 29, February 29, and March 25, 1992

Preparing remedial action plan.



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RESULT OF QUARTERLY MONITORING:

Monitoring data indicates that a sheen of free product was detected in MW-1, MW-3, and RW-1 and those wells were not sampled. The benzene concentration decreased in MW-7 from 52 ppb to 16 ppb. Benzene concentrations increased in MW-6 from not detected to 4.8 ppb and in MW-10 from 29 ppb to 110 ppb. Benzene concentrations remained not detected in wells MW-2, MW-4, MW-5, MW-8, MW-9, and MW-11.

Aproximately 0.07 gallons of product was removed during the manual bailing this quarter.

PROPOSED ACTIVITY OR WORK FOR NEXT QUARTER:

<u>ACTIVITY</u>	<u>ESTIMATED COMPLETION DATE</u>
Continue quarterly ground-water monitoring	Ongoing
Submit remedial action plan	April 10, 1992

**GROUNDWATER MONITORING
AND SAMPLING REPORT
FIRST QUARTER 1992
AT
BEACON GAS STATION NO. 721
44 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA**

FOR

**ULTRAMAR, INC.
525 WEST THIRD STREET
HANFORD, CALIFORNIA 93230**

Prepared by

**RESNA Industries Inc.
42501 Albrae Street
Fremont, California**

March 1992

Project No. 3-30092-32

RESNA
42501 Albrae Street
Fremont, California 94538
(510) 440-3300

42501 Albrae Street
Fremont, California 94538
Phone: (510) 440-3300
FAX: (510) 651-2233

April 24, 1992
Project No. 3-30092-32

Ultramar Inc.
525 West Third Street
Hanford, CA 93230

Attention: Mr. Terrence A. Fox

Subject: Groundwater Monitoring and Sampling Report
First Quarter of 1992, Beacon Gas Station No. 721
44 Lewelling Boulevard, San Lorenzo, California

Dear Mr. Fox:

This report presents the results of groundwater sampling and analyses for the first quarter of 1992, conducted by RESNA Industries Inc. (formerly Exceltech, Inc.) for Beacon Gas Station No. 721 in the City of San Lorenzo, Alameda County, California (Figure 1). The purpose of this sampling program is to monitor and evaluate the extent of hydrocarbons dissolved in the groundwater underlying the subject property.

Summary

RESNA sampled nine on- and off-site groundwater monitoring wells on February 18, 1992.

RESNA measured the depth to groundwater and collected groundwater samples from nine monitoring wells in accordance with the RESNA groundwater sampling protocol (Appendix A). Wells MW-1, MW-3, and RW-1 were not sampled because sheen was present in those wells. The equipment rinse water and groundwater purged from the wells were placed in drums approved by the California Department of Transportation and left on-site pending laboratory analytical results. Groundwater monitoring data is presented in Table 1. RESNA prepared a groundwater surface contour map (Figure 2) from the measured depths to groundwater and the elevations of the tops of the well casings. A summary of previous and most current groundwater elevation data are presented in Table 2.

Groundwater elevations at the site on February 18, 1992 were higher than on November 5, 1991. The increase varied from 2.57 feet in well MW-8 to 3.98 feet in well MW-1. The apparent general groundwater flow direction observed in February 1992 was to the southwest. The groundwater surface gradient calculated for February 1992 varied from approximately 0.003 to 0.007 (Figure 2).

RESNA Environmental Laboratories, a state-certified laboratory in Fremont, analyzed the groundwater samples for total petroleum hydrocarbons as gasoline (TPHG) and benzene, toluene, ethyl benzene, and total xylenes (BTEX). Hydrocarbon constituents were not detected in February

1992 in groundwater from wells MW-5 and MW-9. Benzene was not detected in groundwater from wells MW-2, MW-4, MW-5, MW-8, MW-9, and MW-11.

Benzene concentrations varied from below the detection limit to 110 parts per billion (ppb). Concentrations of benzene increased in groundwater samples collected from wells MW-6 and MW-10, and decreased in MW-7 if compared to data from the previous sampling round in November 1991.

Summary of groundwater analyses and monitoring data for February 1992 monitoring round is presented in Table 1. A summary of cumulative groundwater analytical results is presented in Table 3. Certified laboratory results are presented in Appendix B and field data are in Appendix C.

Reporting Requirements

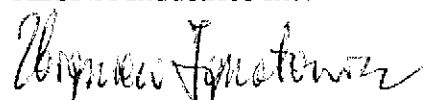
Ultramar, Inc. should forward a copy of this report to the following agencies in a timely manner.

California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612


Alameda County Health Care Services
Department of Environmental Health
Hazardous Materials Division
80 Swan Way Center, Suite 200
Oakland, California 94621-1439

If you have any questions or comments concerning this report, or if we may be of further service to Ultramar, please call us at (510) 440-3300.

Sincerely,
RESNA Industries Inc.


Zbigniew Ignatowicz
Staff Geologist

ZI/DW/sr
Attachments


Dan Wynne, C.E.G./1569
Senior Geologist

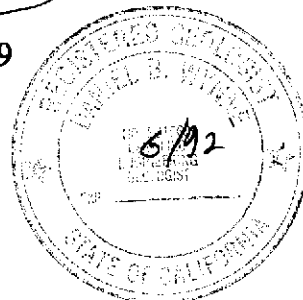


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- 3 Benzene Concentration Map (2/18/92)

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- A Groundwater Sampling Protocol and Laboratory Procedures
 - B Certified Laboratory Results and Chain-of-Custody Record
 - C Field Data
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TABLE 1
SUMMARY OF GROUNDWATER ANALYSES AND MONITORING DATA
(February 18, 1992)

Sample Number	Date Collected	TPHG ppb	Benzene ppb	Toluene ppb	Ethyl Benzene ppb	Total Xylenes ppb	Well Elevation famsl	DTW feet	Water Elevation famsl
MW-1	2/18/92	NS	NS	NS	NS	NS	43.67	16.42	27.25*
MW-2	2/18/92	1,600	ND	ND	1.9	ND	43.09	16.65	26.44
MW-3	2/18/92	NS	NS	NS	NS	NS	43.10	16.89	26.21
MW-4	2/18/92	5,100	ND	ND	12	21	44.66	18.51	26.15
MW-5	2/18/92	ND	ND	ND	ND	ND	43.79	17.37	26.42
MW-6	2/18/92	370	4.8	ND	ND	ND	42.47	15.87	26.60
MW-7	2/18/92	670	16	ND	10	16	41.54	15.51	26.03
MW-8	2/18/92	1,200	ND	ND	9.5	ND	42.26	16.57	25.69
MW-9	2/18/92	ND	ND	ND	ND	ND	44.94	18.87	26.07
MW-10	2/18/92	18,000	110	57	440	63	42.34	16.63	25.71
MW-11	2/18/92	2,400	ND	ND	ND	ND	45.00	19.62	25.38
BB-1	2/18/92	ND	ND	ND	ND	ND	---	---	---
RW-1	2/18/92	NS	NS	NS	NS	NS	43.17	17.00	26.17

ppb Parts per billion
 famsl Feet above mean sea level
 ND None detected
 DTW Depth to water
 --- No data available
 * Water elevation not used for groundwater elevation contour map
 NS Not sampled

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION DATA

Well Number	Top of Well Casing (famsl)	Date Sampled	Depth to Water (feet)	Groundwater Surface Elevation (famsl)	Elevation Change Since Previous Measurement (feet)
MW-1	43.67	03/10/88	17.12	26.55	---
		06/14/88	18.05	25.62	-0.93
		12/05/88	19.48	24.19	-1.43
		03/08/89	18.07	25.60	1.41
		06/22/89	18.60	25.07	-0.53
		09/27/89	19.98	23.69	-1.38
		12/29/89	20.45	23.22	-0.47
		03/29/90	19.31	24.36	1.14
		06/21/90	19.69	23.98	-0.38
		09/25/90*	21.88	22.51	-1.47
		12/18/90*	20.89	23.12	0.61
		03/28/91	17.77	25.90	2.78
		06/25/91	18.60	25.07	-0.83
		09/17/91	20.14	23.53	-1.54
		11/05/91	20.40	23.27	-0.26
02/18/92	16.42	27.25	3.98		
MW-2	43.09	03/10/88	16.43	26.66	---
		06/14/88	17.35	25.74	-0.92
		12/05/88	18.79	24.30	-1.44
		03/08/89	17.31	25.78	1.48
		06/22/89	17.92	25.17	-0.61
		09/27/89	19.27	23.82	-1.35
		12/29/89	19.75	23.34	-0.48
		03/29/90	18.62	24.47	1.13
		06/21/90	19.12	23.97	-0.50
		09/25/90	20.54	22.55	-1.42
		12/18/90	20.30	22.79	0.24
		03/28/91	16.94	26.15	3.36
		06/25/91	17.95	25.14	-1.01
		09/17/91	19.50	23.59	-1.55
		11/05/91	19.73	23.36	-0.23
02/18/92	16.65	26.44	3.08		
MW-3	43.10	03/10/88	16.68	26.42	---
		06/14/88	17.59	25.51	-0.91
		12/05/88	18.96	24.14	-1.37
		03/08/89	17.60	25.50	1.36
		06/22/89	18.11	24.99	-0.51

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION DATA

Well Number	Top of Well Casing (famsl)	Date Sampled	Depth to Water (feet)	Groundwater Surface Elevation (famsl)	Elevation Change Since Previous Measurement (feet)
MW-3 Cont'd		09/27/89	19.47	23.63	-1.36
		12/29/89*	19.97	23.13	-0.50
		3/29/90*	17.60	25.53	2.40
		06/21/90	19.35	23.75	-1.78
		9/25/90*	20.72	22.41	-1.34
		12/18/90*	21.42	22.00	-0.41
		03/28/91	17.45	25.85	3.85
		06/25/91	18.12	25.01	-0.84
		9/17/91*	19.55	23.55	-1.46
		11/05/91	19.98	23.12	-0.43
		02/18/92	16.89	26.21	3.09
MW-4	44.66	12/05/88	20.47	24.19	---
		03/08/89	19.03	25.63	1.44
		06/22/89	19.57	25.09	-0.54
		09/27/89	20.98	23.68	-1.41
		12/29/89	21.43	23.23	-0.45
		03/29/90	20.29	24.37	1.14
		06/21/90	20.78	23.88	-0.49
		09/25/90	22.24	22.42	-1.46
		12/18/90	22.18	22.48	0.06
		03/28/91	18.79	25.87	3.39
		06/25/91	19.59	25.07	-0.80
		09/17/91	21.15	23.51	-1.56
		11/05/91	21.41	23.25	-0.26
02/18/92	18.51	26.15	2.90		
MW-5	43.79	12/05/88	19.48	24.31	---
		03/08/89	18.00	25.79	1.48
		06/22/89	18.60	25.19	-0.60
		09/27/89	20.00	23.79	-1.40
		12/29/89	20.43	23.36	-0.43
		03/29/90	19.24	24.55	1.19
		06/21/90	19.82	23.97	-0.58
		09/25/90	21.23	22.56	-1.41
		12/18/90	21.04	22.75	0.19
		03/28/91	17.69	26.10	3.35
		06/25/91	18.62	25.17	-0.93
		09/17/91	20.23	23.56	-1.61
		11/05/91	20.43	23.36	-0.20
02/18/92	17.37	26.42	3.06		

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION DATA

Well Number	Top of Well Casing (famsl)	Date Sampled	Depth to Water (feet)	Groundwater Surface Elevation (famsl)	Elevation Change Since Previous Measurement (feet)
MW-6	42.47	12/05/88	17.99	24.48	---
		03/08/89	16.75	25.72	-1.24
		06/22/89	17.30	25.17	-0.55
		09/27/89	18.64	23.83	-1.34
		12/29/89	19.16	23.31	-0.52
		03/29/90	18.04	24.43	1.12
		06/21/90	18.53	23.94	-0.49
		09/25/90	19.91	22.56	-1.38
		12/18/90	20.61	21.86	-0.70
		03/28/91	16.29	26.18	4.32
		06/25/91	17.36	25.11	-1.07
		09/17/91	18.89	23.58	-1.53
		11/05/91	19.07	23.40	-0.18
		02/18/92	15.87	26.60	3.20
MW-7	41.54	12/05/88	17.61	23.93	---
		03/08/89	16.27	25.27	1.34
		06/22/89	16.72	24.82	-0.45
		09/27/89	17.99	23.55	-1.27
		12/29/89	18.54	23.00	-0.55
		03/29/90	17.43	24.11	1.11
		06/21/90	17.88	23.66	-0.45
		09/25/90	19.12	22.42	-1.24
		12/18/90	19.16	22.38	-0.04
		03/28/91	16.04	25.50	3.12
		06/25/91	16.66	24.88	-0.62
		09/17/91	17.99	23.55	-1.33
		11/05/91	18.33	23.21	-0.34
		02/18/92	15.51	26.03	2.82
MW-8	42.26	09/27/89	18.89	23.37	---
		12/29/89	19.45	22.81	-0.56
		03/29/90	18.39	23.87	1.06
		06/21/90	18.80	23.46	-0.41
		09/25/90	20.10	22.16	-1.30
		12/18/90	20.13	22.13	-0.03
		03/28/91	17.14	25.12	2.99
		06/25/91	17.45	24.81	-0.31
		09/17/91	18.81	23.45	-1.36
		11/05/91	19.14	23.12	-0.33
02/18/92	16.57	25.69	2.57		

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION DATA

Well Number	Top of Well Casing (famsl)	Date Sampled	Depth to Water (feet)	Groundwater Surface Elevation (famsl)	Elevation Change Since Previous Measurement (feet)
MW-9	44.94	09/27/89	21.38	23.56	---
		12/29/89	21.76	23.18	-0.38
		03/29/90	20.58	24.36	1.18
		06/21/90	21.11	23.83	-0.53
		09/25/90	22.60	22.34	-1.49
		12/18/90	22.56	22.38	0.04
		03/28/91	19.13	25.81	3.43
		06/25/91	19.90	25.04	-0.77
		09/17/91	21.49	23.45	-1.59
		11/05/91	21.75	23.19	-0.26
		02/18/92	18.87	26.07	2.88
MW-10	42.34	11/05/91	19.28	23.06	---
		02/18/92	16.63	25.71	2.65
MW-11	45.00	11/05/91	22.11	22.89	---
		02/18/92	17.00	26.17	3.28

NOTE: All available water elevation data were recalculated to present wellhead elevations as reported by Ronald R. Archer, Surveyor, on November 6, 1991

1. famsl = feet above mean sea level
2. * = groundwater elevations for these quarters were corrected for the presence of floating gasoline product using the equation:

$$GWE = WE - [DTW - (PT \times 0.8)]$$

Where:

- GWE = Groundwater elevation in feet above mean sea level
- WE = Well elevation at top of casing
- DTW = Depth to water from top of casing in feet
- PT = Product thickness in feet
- 0.8 = Assumed difference in specific gravities between water and gasoline

TABLE 3

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Well No.	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Xylenes (ppb)	TPHG (ppb)	Comments
MW-1	05/29/87	490	150	930	3,790	18,050	
	07/14/87	560	120	950	3,270	14,750	
	08/17/87	630	40	320	1,130	12,860	
	09/01/87	558	84	562	1,942	14,269	
	12/10/87	200	138	273	777	14,000	
	03/10/88	70	40	340	940	7,300	
	06/14/88	290	ND	330	790	34,000	
	12/05/88	100	16	140	310	4,000	
	03/08/89	670	20	580	1,200	9,100	Sheen
	06/22/89	1,000	20	1,200	2,200	12,000	Sheen
	09/27/89	960	9	260	360	6,800	
	12/29/89	210	33	1,200	250	4,800	
	03/29/90	1,100	42	510	1,800	14,000	
	06/21/90	1,400	ND	160	130	7,900	
	09/25/90	NS	NS	NS	NS	NS	0.9 ft free-product
	12/18/90	NS	NS	NS	NS	NS	0.4 ft free-product
	03/28/91	230	75	570	2,000	26,000	Sheen
	06/25/91	970	35	300	610	22,000	
	09/17/91	490	150	250	370	16,000	
	11/05/91	420	45	410	780	35,000	
02/18/92	NS	NS	NS	NS	NS	Sheen	
MW-2	05/29/87	113	14	46	58	4,870	
	07/14/87	103	25	34	48	2,207	
	08/17/87	37.6	10.9	8.2	11.1	756	
	09/01/87	75.3	14.2	16.4	27.6	1,482	
	12/10/87	28	40.6	38.1	100.3	1,800	
	03/10/88	9.2	3.1	7.3	2.6	1,200	
	06/14/88	ND	ND	2.2	5.7	500	
	12/05/88	ND	1.3	5.6	3.6	500	
	03/08/89	ND	1.3	3.5	3.7	730	
	06/22/89	ND	ND	ND	ND	570	
	09/27/89	3.8	0.64	2.9	54	420	
	12/29/89	6.7	2	5.7	2.9	270	
	03/29/90	10	0.88	10	3.3	420	
	06/21/90	ND	ND	4	ND	650	
	09/25/90	ND	1.5	3.5	1.5	680	
12/18/90	ND	1.7	2.2	0.6	500		

TABLE 3

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Well No.	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Xylenes (ppb)	TPHG (ppb)	Comments
MW-2 (cont)	03/28/91	ND	2.2	2.7	1.1	730	
	06/25/91	ND	ND	ND	1.2	610	
	09/17/91	ND	ND	2.5	1.2	820	
	11/05/91	ND	ND	1.1	ND	700	
	02/18/92	ND	ND	1.9	ND	1600	
MW-3	05/29/87	5,400	3,900	1,700	5,200	40,300	
	07/14/87	6,880	7,080	1,580	4,770	30,320	
	08/17/87	5,930	4,180	1,240	3,370	25,620	
	09/01/87	8,540	6,660	1,020	3,740	38,210	
	12/10/87	4,240	2,350	890	1,860	25,000	
	03/10/88	3,210	950	940	950	13,400	
	06/14/88	5,900	7,600	450	4,600	54,000	
	12/05/88	4,200	2,400	1,000	3,100	19,000	
	03/08/89	11,000	9,400	2,300	9,900	53,000	Sheen
	06/22/89	16,000	5,900	2,100	6,600	60,000	Sheen
	09/27/89	8,100	2,800	1,200	4,300	34,000	
	12/29/89	NS	NS	NS	NS	NS	0.02 ft free-product
	03/29/90	NS	NS	NS	NS	NS	0.04 ft free-product
	06/21/90	19,000	22,000	22,000	120,000	2,100,000	
	09/25/90	NS	NS	NS	NS	NS	0.04 ft free-product
	12/18/90	NS	NS	NS	NS	NS	0.42 ft free-product
	03/28/91	NS	NS	NS	NS	NS	0.25 ft free-product
	06/25/91	NS	NS	NS	NS	NS	0.02 ft free-product
09/17/91	NS	NS	NS	NS	NS	0.44 ft free-product	
11/05/91	NS	NS	NS	NS	NS	Sheen	
02/18/92	NS	NS	NS	NS	NS	Sheen	
MW-4	12/05/88	ND	ND	2.3	6.5	4,500	
	03/08/89	ND	ND	ND	ND	3,900	
	06/22/89	ND	ND	ND	ND	1,500	
	09/27/89	11	ND	ND	ND	1,200	
	12/29/89	ND	2.1	2.3	ND	920	
	03/29/90	ND	ND	8	ND	870	
	06/21/90	ND	ND	ND	ND	1,500	
	09/25/90	ND	11	4.6	6	3,100	
	12/18/90	ND	4.4	15	6.3	3,600	
	03/28/91	8.9	4.4	4.4	2.2	2,000	
06/25/91	ND	5.4	1.7	ND	2,000		

TABLE 3

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Well No.	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Xylenes (ppb)	TPHG (ppb)	Comments
MW-4 (Con't)	09/17/91	ND	ND	0.8	ND	2,300	
	11/05/91	ND	ND	3.2	1.1	3,500	
	02/18/92	ND	ND	12	21	5,100	
MW-5	12/05/88	ND	0.78	0.23	0.92	3.9	
	03/08/89	2.7	6.7	2.7	15	58	
	06/22/89	0.91	ND	ND	ND	5	
	09/27/89	1.3	ND	ND	ND	5.3	
	12/29/89	ND	ND	ND	ND	ND	
	03/29/90	ND	ND	ND	ND	ND	
	06/21/90	ND	ND	ND	ND	12	
	09/25/90	ND	ND	ND	ND	ND	
	12/18/90	ND	ND	ND	ND	ND	
	03/28/91	ND	ND	ND	ND	ND	
	06/25/91	ND	ND	ND	ND	ND	
	09/17/91	ND	ND	ND	ND	ND	
	11/05/91	ND	ND	ND	ND	ND	
02/18/92	ND	ND	ND	ND	ND		
MW-6	12/05/88	4	1.3	0.63	1.3	190	
	03/08/89	2.2	ND	ND	1.1	23	
	06/22/89	0.82	2.6	0.18	1.2	57	
	09/27/89	0.2	0.24	ND	ND	2.1	
	12/29/89	ND	ND	ND	ND	ND	
	03/29/90	2.1	ND	ND	ND	12	
	06/21/90	ND	ND	ND	ND	ND	
	09/25/90	1.4	ND	ND	ND	98	
	12/18/90	2.2	ND	ND	ND	200	
	03/28/91	3.5	ND	ND	ND	140	
	06/25/91	ND	ND	ND	ND	95	
	09/17/91	ND	ND	ND	ND	ND	
	11/05/91	ND	ND	ND	ND	130	
02/18/92	4.8	ND	ND	ND	370		
MW-7	12/05/88	140	150	40	370	1,500	
	03/08/89	730	72	180	370	2,400	
	06/22/89	570	43	180	220	2,000	
	09/27/89	420	5.9	140	28	1,400	
	12/29/89	87	3.5	18	15	150	

TABLE 3

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

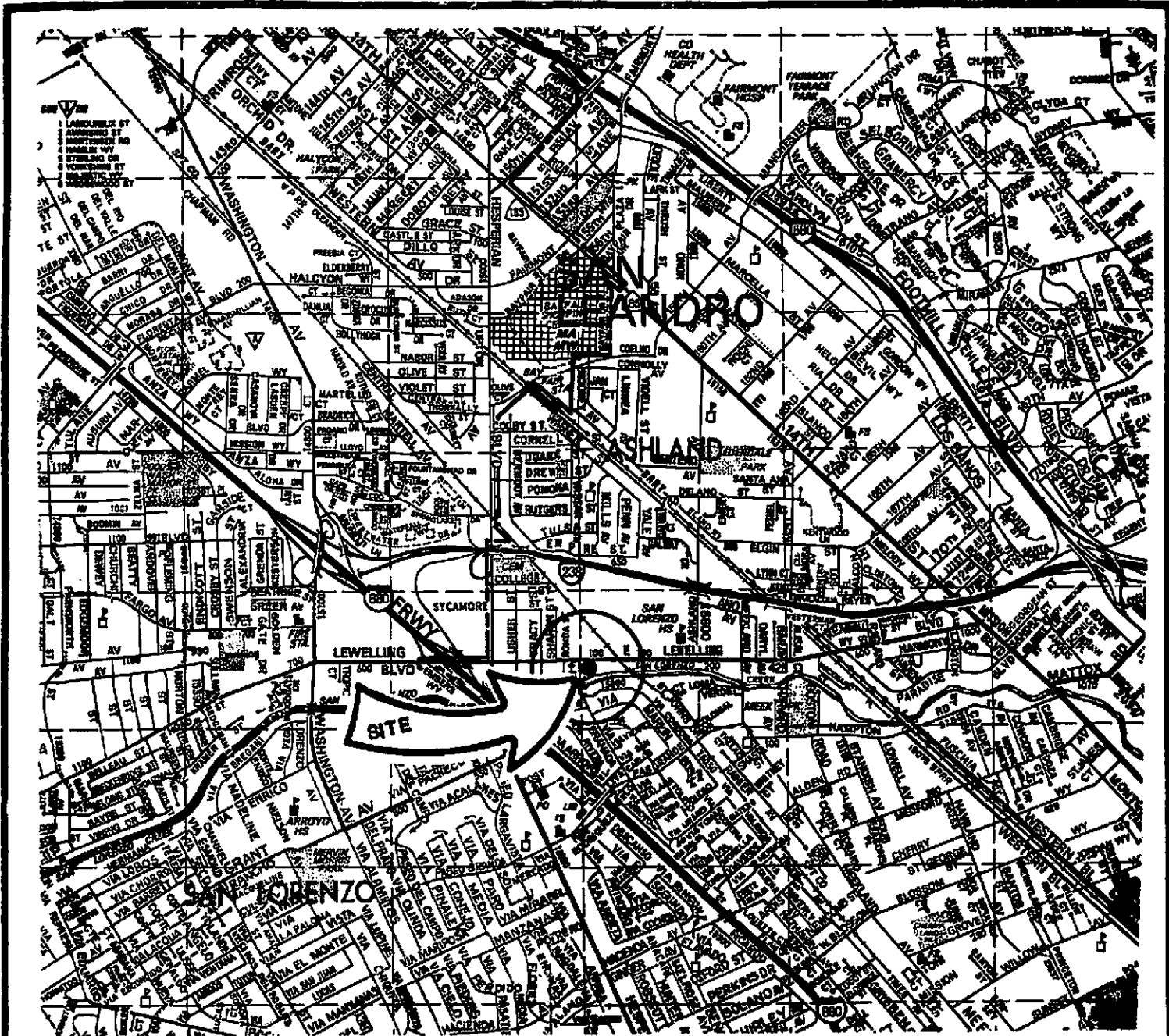
Well No.	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Xylenes (ppb)	TPHG (ppb)	Comments
MW-7 (con't)	03/29/90	110	40	53	150	530	
	06/21/90	620	34	290	400	4,100	
	09/25/90	49	2.4	30	42	750	
	12/18/90	74	4.5	25	69	510	
	03/28/91	53	0.8	24	24	500	
	06/25/91	23	ND	32	37	570	
	09/17/91	79	1	89	100	1,400	
	11/05/91	52	ND	76	58	1,100	
	02/18/92	16	ND	10	16	670	
MW-8	09/27/89	ND	ND	16	ND	4,200	
	12/29/89	ND	3.2	18	ND	2,800	
	03/29/90	ND	ND	19	ND	2,600	
	06/21/90	ND	ND	13	ND	4,600	
	09/25/90	2.3	22	16	26	4,500	
	12/18/90	0.7	6	9.7	2.3	1,100	
	03/28/91	2.6	4.6	3.2	3.1	1,600	
	06/25/91	ND	ND	2.5	1.3	760	
	09/17/91	ND	ND	13	3.9	1,900	
	11/05/91	ND	ND	15	ND	1,400	
02/18/92	ND	ND	9.5	ND	1,200		
MW-9	09/27/89	ND	ND	ND	ND	25	
	12/29/89	ND	ND	ND	2.5	11	
	03/29/90	ND	ND	ND	ND	ND	
	06/21/90	ND	ND	ND	ND	ND	
	09/25/90	ND	ND	ND	ND	ND	
	12/18/90	ND	ND	ND	ND	100	
	03/28/91	ND	ND	ND	ND	ND	
	06/25/91	ND	ND	ND	ND	ND	
	09/17/91	ND	ND	ND	ND	ND	
	11/05/91	ND	ND	ND	ND	ND	
02/18/92	ND	ND	ND	ND	ND		
MW-10	11/05/91	29	140	500	320	27,000	
	02/18/92	110	57	440	63	18,000	

TABLE 3

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

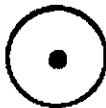
Well No.	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Xylenes (ppb)	TPHG (ppb)	Comments
MW-11	11/05/91	ND	ND	ND	ND	890	
	02/18/92	ND	ND	ND	ND	2,400	
RW-1	11/13/91	74	68	7	99	1,600	

1. TPHG Total petroleum hydrocarbons as gasoline
2. ND - Not detected
3. NS - Not sampled
4. Samples prior to December 1988 collected by Applied GeoSystems
5. Sample from December 1988 through December 1990 collected by DuPont Environmental
6. Sample from March 1991 through September 1991 collected by Groundwater Technology



BASE MAP: THOMAS BROS. GUIDE ALAMEDA CO. 1991

LEGEND



SITE LOCATION



REVIEWED BY:
[Signature]

APPROVED BY:
[Signature]

SITE LOCATION MAP

ULTRAMAR BEACON STATION NO. 721

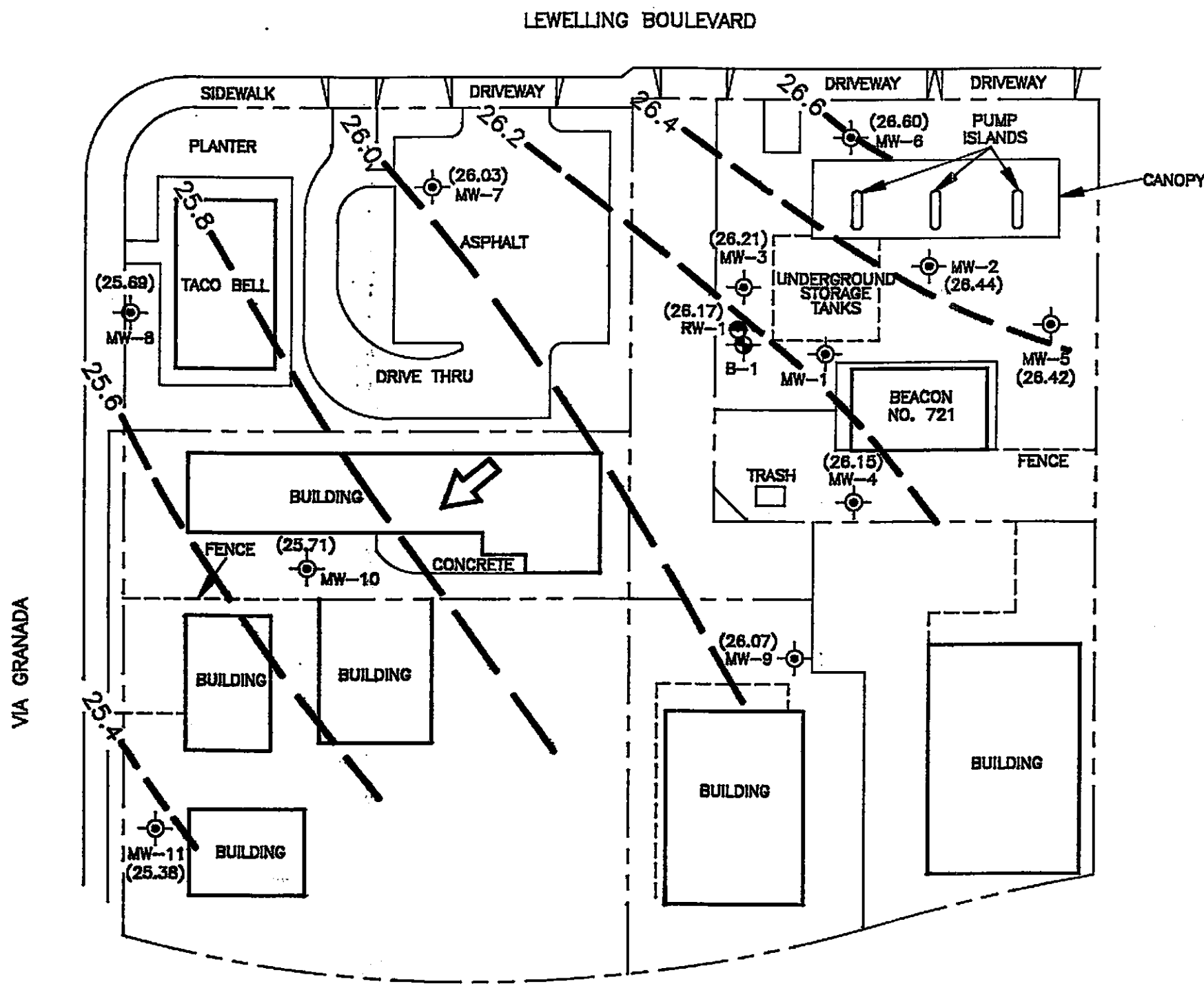
44 LEWELLING BOULEVARD

SAN LORENZO, CALIFORNIA

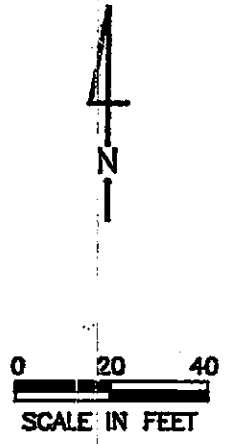
RESNA

JOB #: 330092-32
DATE: 1/8/92

DRAWN BY: J.D.S.
DRAWING #: FIG. 1

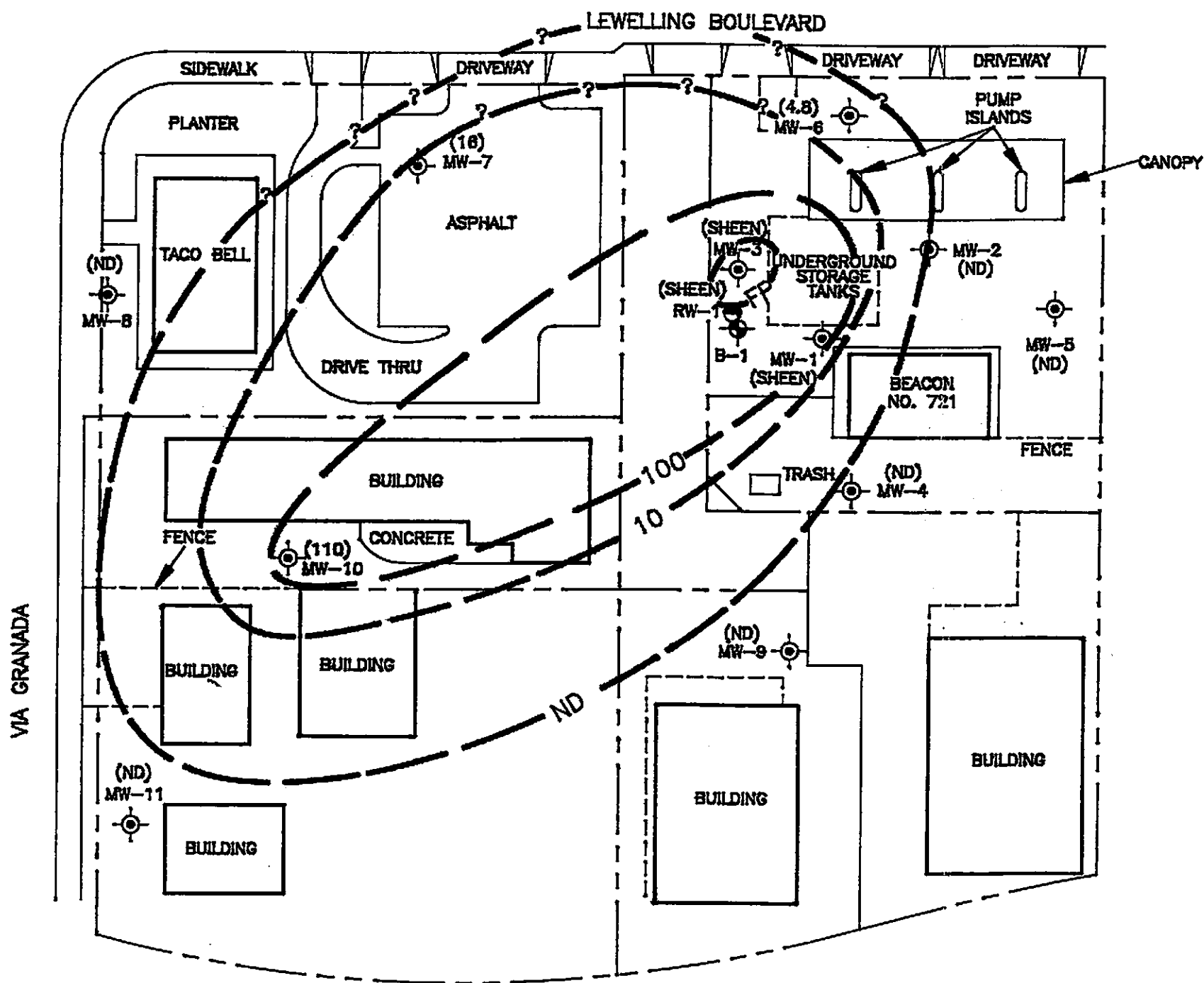


- LEGEND**
- MW-11-⊙ GROUNDWATER MONITORING WELL
 - B-1-⊙ EXPLORATORY BORING
 - RW-1-⊙ RECOVERY WELL
 - - - - - APPROXIMATE PROPERTY LINES
 - (26.60) GROUNDWATER ELEVATION IN FEET (DATUM: M.S.L.)
 - 26.6 - - - - GROUNDWATER ELEVATION CONTOUR LINE IN FEET (DATUM: M.S.L.)
 - ↙ APPROXIMATE DIRECTION OF GROUNDWATER FLOW
 - CONTOUR INTERVAL = 0.2 FEET



NOTE: CONTOURS ARE BASED ON INTERPRETATION OF AVAILABLE DATA, AND ARE NOT INTENDED TO IMPLY CERTAINTY.

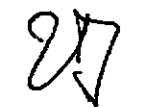
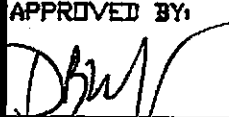
REVIEWED BY: <i>[Signature]</i>	GROUNDWATER ELEVATION CONTOUR MAP (2-18-92)		RESNA	
APPROVED BY: <i>[Signature]</i>	ULTRAMAR/BEACON STATION NO. 721			
	44 LEWELLING BOULEVARD		JOB # 3-30092-32	DRAWN BY: E.C.
	SAN LORENZO, CALIFORNIA		DATE: 3/9/92	DRAWING #: FIG. 2



- LEGEND**
- MW-11-⊙ GROUNDWATER MONITORING WELL
 - B-1-⊙ EXPLORATORY BORING
 - RW-1-⊙ RECOVERY WELL
 - - - - - APPROXIMATE PROPERTY LINES
 - (420) BENZENE CONCENTRATION IN PPB
 - ND NONE DETECTED
 - NS NOT SAMPLED
 - FP FREE PRODUCT AREA
 - 100- - - - - BENZENE CONCENTRATION CONTOUR LINE IN PPB



NOTE: CONTOURS ARE BASED ON INTERPRETATION OF AVAILABLE DATA, AND ARE NOT INTENDED TO IMPLY CERTAINTY.

REVIEWED BY: 	BENZENE CONCENTRATION MAP (2/18/92)		RESNA	
APPROVED BY: 	ULTRAMAR/BEACON STATION NO. 721		JOB #: 3-30092-32	DRAWN BY: E.C.
	44 LEWELLING BOULEVARD		DATE: 3/18/92	DRAWING #: FIG. 3
	SAN LORENZO, CALIFORNIA			

APPENDIX A

**GROUNDWATER SAMPLING PROTOCOL
AND
LABORATORY PROCEDURES**



Groundwater Sampling Protocol

GROUNDWATER SAMPLING PROTOCOL

Sampling of groundwater is performed by RESNA Industries Inc. sampling technicians. Summarized field sampling procedures are as follows:

1. Proceed to first well with clean and decontaminated equipment.
 2. Measurements depth(s) of liquid surface(s) in the well, and total depth of well. Note presence of sediment.
 3. Field check for presence of floating product; measure thickness.
 4. Purge well prior to collecting samples; purge volume (casing volumes) calculated prior to removal.
 5. Monitor groundwater for temperature, pH, and specific conductance during purging.
 6. Allow well to recover.
 7. Collect samples using Environmental Protection Agency (EPA) recommended sample collection devices, i.e., teflon or stainless steel bailers or pumps.
 8. Transfer samples into laboratory-supplied containers containing any necessary chemical preservations.
 9. Label samples and log onto chain-of-custody form.
 10. Store samples in a chilled ice chest for shipment to a state-certified analytical laboratory.
 11. Decontaminate equipment prior to sampling next well.
-

Equipment Cleaning and Decontamination

All water samples are placed in precleaned laboratory-supplied bottles. Sample bottles and caps remain sealed until actual usage at the site. All equipment which comes in contact with the well or groundwater is thoroughly cleaned with a trisodium phosphate (TSP) solution and rinsed with deionized or distilled water before use at the site. This cleaning procedure is performed after sampling each well. Wells are sampled in approximate order of increasing contamination. If a teflon cord is used, the cord is cleaned. If a nylon or cotton cord is used, a new cord is used to sample each well. All equipment blanks are collected prior to sampling. The blanks are analyzed periodically to ensure proper cleaning procedures are used.

Water Level Measurements

Depth to groundwater is measured in each well prior to purging or sampling using a sealed sampling tape or scaled electric sounder. If the well is known or suspected of containing free-phase petroleum hydrocarbons, an optical interface probe is used to measure the depth to the hydrocarbons, the hydrocarbon thickness and groundwater level. Measurements are recorded to the nearest 0.01 foot. Each monitoring well's total depth is also measured.

Bailer Sheen Check

If no measurable free-phase petroleum hydrocarbons are detected, a clear acrylic bailer is used to retrieve a water sample. The sample in the bailer is evaluated for the presence of a sheen. Any observed film as well as odor and color of the water is recorded.

Groundwater Sampling

Each well is purged of several volumes of groundwater prior to sampling. Either a bailer, hand pump, or submersible pump is used to purge the well. The amount of purging is dependent on the well yield. In a high yield formation, samples will be collected when normal field measurement, including temperature, pH, and specific conductance stabilize, provided a minimum of three well-casing volumes of water have been removed. Field measurements will be taken after purging each well volume. Physical parameter measurements (temperature, pH, and specific conductance) are closely monitored throughout the well purging process and are used as indicators to assess the adequacy of purging. The purging parameters are measured to observe stabilization to a range of values typical for that aquifer and well. Stable field

parameters are recognized as indicative of groundwater aquifer chemistry entering the well. Specific conductance (conductivity) meters are read to the nearest ± 10 umhos/cm and are calibrated daily. pH meters are read to the nearest ± 0.1 pH units and are calibrated daily. Temperature is read to the nearest 0.1 °F. Calibration of physical parameter meters will follow manufacturer's specifications. Collected field data during purging activities will be entered on the Well Sampling Field Data Sheet.

In low yield formations, one volume of water is removed and the well is allowed to recharge. (Normal field measurements will be periodically recorded during the purging process.) In situations where recovery to 80% of static water level does not occur within two hours, a sample will be collected when sufficient volume is available. In high-yield formations, the well is not pumped so quickly that water cascades into the well through the well screen.

In wells where free-phase hydrocarbons are detected, the free-phase portion will be bailed from the well and an estimate of the volume removed will be recorded. A groundwater sample will be collected if bailing reduces the amount of free-phase hydrocarbons to the point where a measurable thickness is no longer present in the well. If free-phase hydrocarbons persist throughout bailing, then a groundwater sample will not be collected.

Volatile organic groundwater samples are collected so that air passage through the sample is minimal (to prevent volatiles from being stripped from the water): To do this, sample bottles are filled by slowly running water down the side of the bottle until there is an upwardly convex meniscus over the mouth of the bottle. The teflon side of the septum (in cap) is then positioned against the meniscus, and the cap is screwed on tightly. The sample is then inverted and the bottle lightly tapped. If an air bubble is evident, the cap is removed, more sample is added, and the bottle is resealed.

Chain-of-Custody

Groundwater sample containers are labeled with a unique sample number, location, and date of collection. All samples are logged into a chain-of-custody form and placed in a chilled ice chest for shipment to a laboratory certified by the State of California Department of Health Services.

Sample Storage

Groundwater samples collected in the field are stored in an ice chest cooled to approximately 4 °C while in transit to the office or analytical laboratory. Samples are stored in a refrigerator prior to being taken to the designated analytical laboratory.

The refrigerator is set to 4 °C and access to it is controlled by a designated sample custodian.

Quality Assurance/Quality Control Objectives

The sampling and analysis procedures employed by RESNA for groundwater sampling and monitoring follow quality assurance/quality control (QA/QC) guidelines. Quality assurance objectives have been established to develop and implement procedures for obtaining and evaluating water quality and field data in an accurate, precise, and complete manner. In this way, sampling procedures and field measurements provide information that is comparable and representative of actual field conditions. Quality control (QC) is maintained by site-specific field protocols and requiring the analytical laboratory to perform internal and external QC checks. The goal is to provide data that are accurate, precise, complete, comparable, and representative. The definitions as developed by overseeing federal, state, and local agency guidance documents for accuracy, precision, completeness, comparability, and representativeness are:

- **Accuracy** — the degree of agreement of a measurement with an accepted reference or true value.
 - **Precision** — a measure of agreement among repeated measurements of the same material under similar conditions.
-



Laboratory Procedures

LABORATORY PROCEDURES

Selection of the Laboratory

The laboratories which performed the analytical work reported here were certified by the California State Department of Health Services (DHS) as being qualified to perform the selected analyses.

Chain-of-Custody Control

The following procedures are used during sampling and analytical activities to provide chain-of-custody control during transfer of samples from collection through delivery to the laboratories. Record keeping activities used to achieve chain-of-custody control are:

- Contact made by sampling organization with facility supervisor and laboratory prior to sampling to alert them of dates of sampling and sample delivery.
- Labels for identifying individual samples.
- Chain-of-custody record for documenting transfer and possession of samples.

Sample Containers

Sample containers vary with each type of analytical parameter. Selected container types and materials are non-reactive with the sample and the particular analytical parameter being tested. Appropriate containers for volatile organics are glass bottles of at least 40 milliliters in size, fitted with teflon-faced silicon septa. Sample containers are properly cleaned and sterilized by the certified laboratory according to the Environmental Protection Agency (EPA) protocol for the individual analysis. RESNA uses laboratory-prepared sample containers for the sampling and analysis desired. Containers prepared by one laboratory are not sent to a different laboratory.

Sample Preservation and Shipment

Various preservatives are used by the certified laboratory to retard changes in samples. Sample shipment from RESNA to laboratories performing the selected analyses

routinely occurs within 24 hours of sample collection. If an overnight delivery service is required, samples are shipped at the end of each day.

Analytical Procedures

The analysis of groundwater samples is conducted in accordance with accepted quantitative analytical procedures. The following six publications are considered the primary references for groundwater sample analysis, and the contracts with the laboratories analyzing the samples stipulate that the methods set out in these publications be used. Please note that procedures used are periodically updated by federal and state agencies, and that the certified laboratories amend analysis as required by the update.

- Standard Methods for the Examination of Water and Wastewater, 16th Ed., American Public Health Association, et al., 1985, and later revisions.
- Methods for Chemical Analysis of Water and Wastes, U.S. EPA, 600/4-79-020, March 1979, and later revisions.
- Test Methods for Evaluation of Solid Waste: Physical/Chemical Methods, U.S. EPA SW-846, 1982, and later revisions.
- Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA, 600/4-82-057, 1982, and later revisions.
- Practical Guide for Groundwater Sampling, EPA, 600/2-85/104, September 1985.
- RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, EPA, September 1986.

Analytical Methods

The analytical methods used by the selected laboratories are those required by the type of analysis (fuels, metals, etc.). These methods are those currently approved by the State Regional Water Quality Control Board (RWQCB). Additional information regarding chemical analyses are contained in the RWQCB Leaking Underground Fuel Tank(LUFT) Manual; Tri-Regional Board guidance dated August 2, 1988; policy letters on guidance offered at irregular intervals; or analytical procedures selected for site-specific project needs.

APPENDIX B

**CERTIFIED LABORATORY RESULTS
AND
CHAIN-OF-CUSTODY**

42501 Albrae Street
Fremont, CA 94538
Phone: (510) 623-0775
(800) 247-5223
FAX: (510) 651-8754

ANALYSIS REPORT

1020lab.frm

Attention:	Mr. Zbig Ignatowicz RESNA/Exceltech Inc. 42501 Albrae St. Fremont, CA 94538	Date Sampled:	02-18-92
		Date Received:	02-20-92
		BTEX Analyzed:	02-20-92
Project:	AGS 19505-L, Project #3-30092-32 Station #721, San Lorenzo	TPHg Analyzed:	02-20-92
		TPHd Analyzed:	NR
		Matrix:	Water

	Benzene ppb	Toluene ppb	Ethyl- benzene ppb	Total Xylenes ppb	TPHg ppb	TPHd ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100

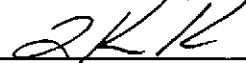
SAMPLE
Laboratory Identification

BB1 W1202386	ND	ND	ND	ND	ND	NR
MW-9 W1202387	ND	ND	ND	ND	ND	NR
MW-4 W1202388	ND	ND	12	21	5100	NR
MW-6 W1202389	4.8	ND	ND	ND	370	NR
MW-5 W1202390	ND	ND	ND	ND	ND	NR

ppb = parts per billion = $\mu\text{g/L}$ = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.
TPHg--Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.
TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.



Laboratory Representative

February 26, 1992

Date Reported

42501 Albrae Street
Fremont, CA 94538
Phone: (510) 623-0775
(800) 247-5223
FAX: (510) 651-8754

ANALYSIS REPORT

1020lab.frm

Attention:	Mr. Zbig Ignatowicz RESNA/Exceltech Inc. 42501 Albrae St. Fremont, CA 94538	Date Sampled:	02-18-92
		Date Received:	02-20-92
		BTEX Analyzed:	02-20-92
Project:	AGS 19505-L, Project #3-30092-32 Station #721, San Lorenzo	TPHg Analyzed:	02-20-92
		TPHd Analyzed:	NR
		Matrix:	Water

	Benzene ppb	Toluene ppb	Ethyl- benzene ppb	Total Xylenes ppb	TPHg ppb	TPHd ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100

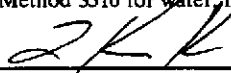
SAMPLE
Laboratory Identification

MW-11 W1202391	ND	ND	ND	ND	2400	NR
MW-10 W1202392	110	57	440	63	18000	NR
MW-8 W1202393	ND	ND	9.5	ND	1200	NR
MW-7 W1202394	16	ND	10	16	670	NR
MW-2 W1202395	ND	ND	1.9	ND	1600	NR

ppb = parts per billion = $\mu\text{g/L}$ = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.
TPHg--Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.
TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.



Laboratory Representative

February 26, 1992

Date Reported



Ultramar Inc.

BEACON

CHAIN OF CUSTODY REPORT

094658

Beacon Station No. 721		Sampler (Print Name) Robin Sutherland			ANALYSES				Date 2-18-92	Form No. 1 of 2
Project No. 3-30092-32		Sampler (Signature) <i>Robin Sutherland</i>			BTEX	TPH (gasoline)	TPH (diesel)	No. of Containers	REMARKS	
Project Location 44 Lewelling Blvd San Lorenzo, CA		Affiliation Resna								
Sample No./Identification	Date	Time	Lab No.							
BB-1	2-18-92	9:50		XX						
MW-9	↓	10:30		XX						
MW-4		11:30		XX						
MW-6		12:20		XX						
MW-5		13:10		XX						
MW-11		14:00		XX						
MW-10		14:50		XX						
Relinquished by: (Signature/Affiliation) <i>Robin Sutherland</i>		Date 2/20/92	Time 08:30	Received by: (Signature/Affiliation) <i>Anthony Encino - RESNA</i>				Date 2/20/92	Time 8:52	
Relinquished by: (Signature/Affiliation)		Date	Time	Received by: (Signature/Affiliation)				Date	Time	
Relinquished by: (Signature/Affiliation)		Date	Time	Received by: (Signature/Affiliation)				Date	Time	
Report To: Zbig				Bill to: ULTRAMAR INC. 525 West Third Street Hanford, CA 93230 Attention: _____						

WHITE: Return to Client with Report

YELLOW: Laboratory Copy

PINK: Originator Copy



CHAIN OF CUSTODY REPORT

Beacon Station No. 721		Sampler (Print Name) Robin Sutherland			ANALYSES				Date 2-18-92	Form No. 2 of 2
Project No. 3-30092-32		Sampler (Signature) <i>Robin Sutherland</i>			BTEX	TPH (gasoline)	TPH (diesel)			No. of Containers
Project Location 44 Lewelling Blvd San Lorenzo CA		Affiliation Resna								
Sample No./Identification	Date	Time	Lab No.							REMARKS
MW-8	8-19-92	8:30			XX					
MW-7	↓	9:30			XX					
MW- 7 2	↓	10:30			XX					
Relinquished by: (Signature/Affiliation) <i>Robin Sutherland</i>		Date 8/19/92	Time 08:30	Received by: (Signature/Affiliation) <i>Anthony Green Resna</i>				Date 2/18/92	Time 8:50	
Relinquished by: (Signature/Affiliation)		Date	Time	Received by: (Signature/Affiliation)				Date	Time	
Relinquished by: (Signature/Affiliation)		Date	Time	Received by: (Signature/Affiliation)				Date	Time	
Report To: Zbig				Bill to: ULTRAMMAR INC. 525 West Third Street Hanford, CA 93230 Attention: <i>Glenn Pembroff</i>						

APPENDIX C

FIELD DATA

JOB NAME: Ultramar #1721 San Lorenzo DATE: 2-18-92

JOB NO.: 3-30092-32

SAMPLED BY: R Sutherland

PHASE: _____

LABORATORY: Resna

TASK: Sample

DRUMS AT SITE: FULL 3

SUBTASK: _____

EMPTY 5

start
4.73 9:32
After
4.88 9:35

WELL NO.	DEPTH TO WATER (FT.)	WELL DEPTH (FT.)	TIME (W*L)	PURGE VOLUME (GAL.)	TEMP. (°C)	COND. (UMHO/CM)	D.O. (MG/L)	pH	OBSERVATIONS
MW-1	16.42	31.00	9:25	2.4 NOT Sampled		Redevelope			Odor sheen
MW-2	16.65	32.60	9:20	2.7 5 7.5 10.8	63.2 64.2 64.9	1030 1030 1050	6.93 6.92 6.95		Odor No Sheen cloudy
MW-3	16.89	31.00	9:30	NOT Sampled		Redevelope			Odor Sheen
MW-4	18.51	24.70	8:25	1.0 2 3 4	63.1 64.0 64.5	750 870 920	7.04 6.99 6.98		slight Odor No Sheen cloudy
MW-5	17.37	29.31	8:40	2.0 4 6	62.7 64.7 64.3	710 730 740	7.20 7.18 7.14		No Odor No Sheen cloudy
MW-6	15.87	28.66	8:30	2.1 4 6	62.6 63.7	790 790	7.10 7.06		slight Odor No Sheen cloudy
MW-7	15.51	24.38	9:12	1.5 3 4.5 6	63.0 64.5 64.6	1130 1140 1110	6.74 6.78 6.82		slight Odor No Sheen cloudy
MW-8	16.57	23.30	9:07	1.1 2.2 3.3 4.4	61.7 62.2 62.7	1070 1090 1060	6.77 6.81 6.81		slight Odor No Sheen cloudy/silty
MW-9	18.87	23.83	8:15	1.8 2 3 4	63.4 63.7 64.0	970 970 1010	6.96 7.00 7.01		No Odor No Sheen cloudy/silt
MW-10	16.63	29.61	9:00	2.2 4.4 6.6 8.8	60.3 62.1 63.0	1000 1020 1030	6.99 6.92 6.93		slight Odor No Sheen cloudy

