RESNA
Working to Restore Nature

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

LETTER REPORT
GROUNDWATER MONITORING
FIRST QUARTER 1992
at Unocal Station No. 5367
500 Bancroft Avenue
San Leandro, California

RESNA Job No. 87091-6

5/8/92

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

May 8, 1992
RESNA 87091-6

Mr. Bob Boust
Unocal Corporation
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

Subject: Letter Report on Groundwater Monitoring for First Quarter 1992 at Unocal Station No. 5367, 500 Bancroft Avenue, San Leandro, California.

Dear Mr. Boust:

This letter report summarizes the results of the first quarter 1992 groundwater monitoring at the subject site. The work was performed by RESNA Industries (RESNA), formerly Applied GeoSystems (AGS), in accordance with the RESNA proposal dated November 15, 1991, as authorized by Unocal Corporation (Unocal). The site is located at the intersection of Bancroft Avenue and Dowling Boulevard in San Leandro, California, as shown on the Site Vicinity Map (Plate 1). Locations of the wells and site facilities are shown on Plate 2.

Background

This is an operating service station. At the request of Unocal, monitoring well MW-1 was installed by AGS in September 1987 (AGS Report No. 87091-1, dated December 16, 1987). Monitoring wells MW-2 through MW-4 were installed by AGS in September 1988 (AGS Report No. 87091-3, dated November 18, 1988). Wells MW-5 and MW-6, and MW-7 and MW-8 were installed in May 1989 and February 1990, respectively (AGS Report No. 87091-4, dated August 10, 1990).

Quarterly groundwater monitoring of all wells was initiated by AGS after elevated levels of hydrocarbons were detected in groundwater at the site. Monitoring at wells MW-4, MW-5, MW-6 and MW-7 was changed to biannual after the first quarter of 1991.

Sampling Procedures

The quarterly monitoring program conducted by RESNA includes measuring depth to water, subjectively evaluating groundwater for evidence of product, and purging and sampling

groundwater from all monitoring wells. The monitoring was performed on March 31 to April 1,1992, in accordance with the Field Procedures described in Attachment I. The well purge data sheet is included in Attachment II.

Results of Subjective Evaluations

Cumulative results of water level measurements and subjective evaluations are presented in Table 1. There was no floating product or sheen observed in water samples collected from any of the wells. The water level has risen an average of 6.38 feet in MW-2 through MW-7 since the last monitoring episode in December 1991. The groundwater levels measured this quarter are the highest recorded in all wells since initiation of the monitoring program. The rise in water level also allowed for obtaining a sample from MW-1, which was dry the previous quarter. A Hydrograph has been included as Plate 3 which shows historic groundwater fluctuations observed in selected wells at the site.

Groundwater Flow

Relative wellhead elevations and depth-to-groundwater measurements were used to calculate water level elevations in the monitoring wells (Table 2). A graphical interpretation of the groundwater surface elevation data for March 31, 1992, is shown on Plate 2. Groundwater is inferred to flow toward the west at a gradient of approximately 0.0009.

Analytical Methods and Results

Groundwater samples collected from MW-1 through MW-8 were analyzed at RESNA Environmental Laboratories in Fremont, California. Samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) using Environmental Protection Agency (EPA) modified method 8015; and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 602. Copies of the Chain of Custody record and certified analysis reports are included in Attachment III.

Cumulative results of laboratory analyses are presented in Table 3. The results show the highest concentrations of TPHg and BTEX were detected in the sample from MW-1, located west of the gasoline UST's. In general, concentrations of TPHg and BTEX have increased in MW-2, MW-3 and MW-8 (with the exception of toluene in MW-8) since the previous monitoring event. Relatively low concentrations of xylenes (0.9 - 2.0 ppb) were detected in samples from MW-5 to MW-7. Toluene was also detected in MW-6 at 1.3 ppb.

Conclusions and Recommendations

Elevated levels of TPHg and BTEX are present west and southwest of the gasoline USTs and service islands. The increase in TPHg and BTEX in MW-2, MW-3 and MW-8, and the detection of Xylenes and Toluene in some wells (which were previously not detected) may

be associated with the rise in water levels which can reintroduce residual soil hydrocarbons into the water.

Elevated concentrations of TPHg and BTEX exist in groundwater samples from monitoring wells MW-1, MW-2, MW-3, and MW-8. RESNA recommends continuing the quarterly monitoring of these wells with biannual sampling of wells MW-4 through MW-7.

RESNA also recommends that copies of this report be sent to:

- Mr. Eddy So, California Regional Water Quality Control Board, San Francisco Bay Region, 2101 Webster Street, Suite 500, Oakland, California 94612; and
- Mr. Joe Ferreira, San Leandro Fire Department, 835 East 14th Street, San Leandro, California 94577.

Scheduling

The second quarter 1992 monitoring (MW-1, MW-2, MW-3 and MW-8) is scheduled for June 1992.

Please call if you have any questions.

Sincerely,
RESNA Industries

Brian Worden

6/92

Brian Worden
Project Geologist

Dan Wynne, C.E.G. 1569
Project Manager

Enclosures:

Table 1:	Cumulative Results of Groundwater Measurements and Subjective Evaluations
Table 2:	Groundwater Elevation Data
Table 3:	Cumulative Results of Laboratory Analyses
Plate 1:	Site Vicinity Map
Plate 2:	Generalized Site Plan and Groundwater Elevation Map
Plate 3:	Hydrograph

Attachment I:	Field Procedures
Attachment II:	Well Purge Data Sheets
Attachment III:	Chain of Custody Record and Certified Analysis Report

TABLE 1
CUMULATIVE RESULTS OF GROUNDWATER MEASUREMENTS
AND SUBJECTIVE EVALUATIONS
(Page 1 of 2)

Well	Date	Depth to Water	Floating Product	Sheen
MW-1	09/23/87	33.40	0.02	NA
	09/24/87	33.24	0.01	NA
	10/06/87	33.39	0.01	NA
	11/05/87	34.14	0.31	NA
	11/13/87	34.15	0.38	NA
	11/19/87	33.89	0.06	NA
	04/27/88	32.40	0.01	NA
	09/07/88	---	Well dry	--
	10/03/88	---	Well dry	--
	01/27/89	---	Well dry	--
	02/16/90	---	Well dry	--
	07/19/90	---	Well dry	--
	08/24/90	---	Well dry	--
	11/30/90	---	Well dry	--
	02/06/91	---	Well dry	--
	05/06 91	33.00	NONE	NONE
	09/27/91	---	Well dry	--
	03/31/92	31.00	NONE	NONE
MW-2	10/03/88	36.04	NONE	NONE
	01/27/89	34.77	NONE	NONE
	02/16/90	34.50	NONE	NONE
	07/19/90	35.72	NONE	NONE
	08/24/90	36.30	NONE	NONE
	11/30/90	37.40	NONE	NONE
	02/07/91	37.27	NONE	NONE
	05/06/91	33.31	NONE	NONE
	09/27/91	36.86	NONE	NONE
	12/27/91	37.66	NONE	NONE
	03/31/92	31.27	NONE	NONE
MW-3	10/03/88	35.86	NONE	NONE
	01/27/89	34.60	NONE	NONE
	02/16/90	35.23	NONE	NONE
	07/19/90	35.50	NONE	NONE
	08/24/90	36.08	NONE	NONE
	11/30/90	37.17	NONE	NONE
	02/06/91	37.07	NONE	NONE
	05/06/91	33.11	NONE	NONE
	09/27/91	36.64	NONE	NONE
	12/27/91	37.46	NONE	NONE
	03/31/92	31.10	NONE	NONE
MW-4	10/03/88	36.12	NONE	NONE
	01/27/89	34.87	NONE	NONE
	02/16/90	35.60	NONE	NONE
	07/19/90	35.78	NONE	NONE
	08/24/90	36.35	NONE	NONE
	11/30/90	37.46	NONE	NONE
	02/06/91	37.40	NONE	NONE
	05/06/91	33.39	NONE	NONE
	09/27/91	36.90	NONE	NONE
	12/27/91	37.76	NONE	NONE
	03/31/92	31.41	NONE	NONE

See notes on page 2 of 2.

TABLE 1
CUMULATIVE RESULTS OF GROUNDWATER MEASUREMENTS
AND SUBJECTIVE EVALUATIONS
(Page 2 of 2)

Well	Date	Depth to Water	Floating Product	Sheen
MW-5	02/16/90	35.89	NONE	NONE
	07/19/90	36.10	NONE	NONE
	08/24/90	36.67	NONE	NONE
	11/30/90	37.74	NONE	NONE
	02/06/91	37.62	NONE	NONE
	05/06/91	33.67	NONE	NONE
	09/27/91	37.23	NONE	NONE
	12/27/91	38.02	NONE	NONE
	03/31/92	31.62	NONE	NONE
MW-6	02/16/90	34.50	NONE	NONE
	07/19/90	34.74	NONE	NONE
	08/24/90	35.32	NONE	NONE
	11/30/90	36.38	NONE	NONE
	02/06/91	36.27	NONE	NONE
	05/06/91	32.41	NONE	NONE
	09/27/91	35.87	NONE	NONE
	12/27/91	36.67	NONE	NONE
	03/31/92	30.32	NONE	NONE
MW-7	02/16/90	35.75	NONE	NONE
	07/19/90	35.03	NONE	NONE
	08/24/90	35.64	NONE	NONE
	11/30/90	36.68	NONE	NONE
	02/06/91	36.55	NONE	NONE
	05/06/91	32.69	NONE	NONE
	09/27/91	36.18	NONE	NONE
	12/27/91	36.96	NONE	NONE
	03/31/92	30.56	NONE	NONE
MW-8	02/16/90	35.10	NONE	NONE
	07/19/90	35.41	NONE	NONE
	08/24/90	36.00	NONE	NONE
	11/30/90	37.08	NONE	NONE
	02/06/91	36.92	NONE	NONE
	05/06/91	33.03	NONE	NONE
	09/27/91	36.55	NONE	NONE
	12/27/91	37.34	NONE	NONE
	03/31/92	31.93*	NONE	NONE

* = Data suspect; not used in water-elevation determination
Depth to water measured in feet below top of casing.
Product thickness measured in feet.
NA = Not applicable

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TABLE 2
GROUNDWATER ELEVATION DATA
March 31, 1992

Monitoring Well	Top of Casing Above MSL (C)	Depth to Water (W)	Water Level Above MSL (C-W)
MW-1	57.83	31.00	26.83
MW-2	58.13	31.27	26.86
MW-3	57.92	31.10	26.82
MW-4	58.29	31.41	26.88
MW-5	58.50	31.62	26.88
MW-6	56.96	30.32	26.64
MW-7	57.25	30.56	26.69

Measurements are in feet.
Depth to water measured in feet below top of casing.
Datum is mean sea level based on City of San Leandro datum at the southeastern corner of the intersection of Dowling Boulevard and Bancroft Avenue, next to the storm inlet.

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TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES
(Page 1 of 3)

Date	Sample Number	TPHg	B	T	E	X
WELL MW-1						
10/88			Well dry			
01/89			Well dry			
02/90			Well dry			
05/90			Well dry			
08/90			Well dry			
11/90			Well dry			
02/91			Well dry			
05/91		Insufficient water to sample				
09/91			Well dry			
03/92	MW1	**330,000**	**8,200**	**33,000**	**6,800**	**36,000**
WELL MW-2						
10/88	W-37-MW2	1,760	47.8	7.4	20.9	81.6
01/89	W-35-MW2	510	58.0	8.7	22.6	20.3
02/90	W-36-MW2	840	50.0	0.5	28.0	44.0
05/90	W-36-MW2	1,000	39.0	<0.5	32.0	52.0
08/90	W-36-MW2	330	17	<0.5	19	20
11/90	W-37-MW2	400	41	<0.5	39	37
02/91	W-37-MW2	510	40	<0.5	29	44
05/91	W-33-MW2	2,300	150	10	52	110
09/91	W-36-MW2	110	2.6	<0.5	5.6	5.1
12/91	W-37-MW2	170	3.9	<0.5	7.3	60
03/92	MW2	**4,200**	**110**	**3**	**190**	**250**
WELL MW-3						
10/88	W-37-MW3	61,000	1,060	3,380	1,520	8,720
01/89	W-35-MW3	39,000	1,570	2,830	1,250	7,070
02/90	W-36-MW3	22,000	710	4,100	6,900	33,000
05/90	W-36-MW3	19,000	330	170	310	1,500
08/90	W-36-MW3	19,000	480	160	510	1,500
11/90	W-37-MW3	13,000	390	81	410	1,000
02/91	W-37-MW3	13,000	310	150	380	1,200
05/91	W-33-MW3	39,000	1,000	570	930	3,900
09/91	W-36-MW3	4,000	160	84	180	560
12/91	W-37-MW3	31,000	240	280	400	1,600
03/92	MW3	**100,000**	**1,900**	**1,900**	**2,300**	**9,400**

See notes on page 3 of 3

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TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES
(Page 2 of 3)

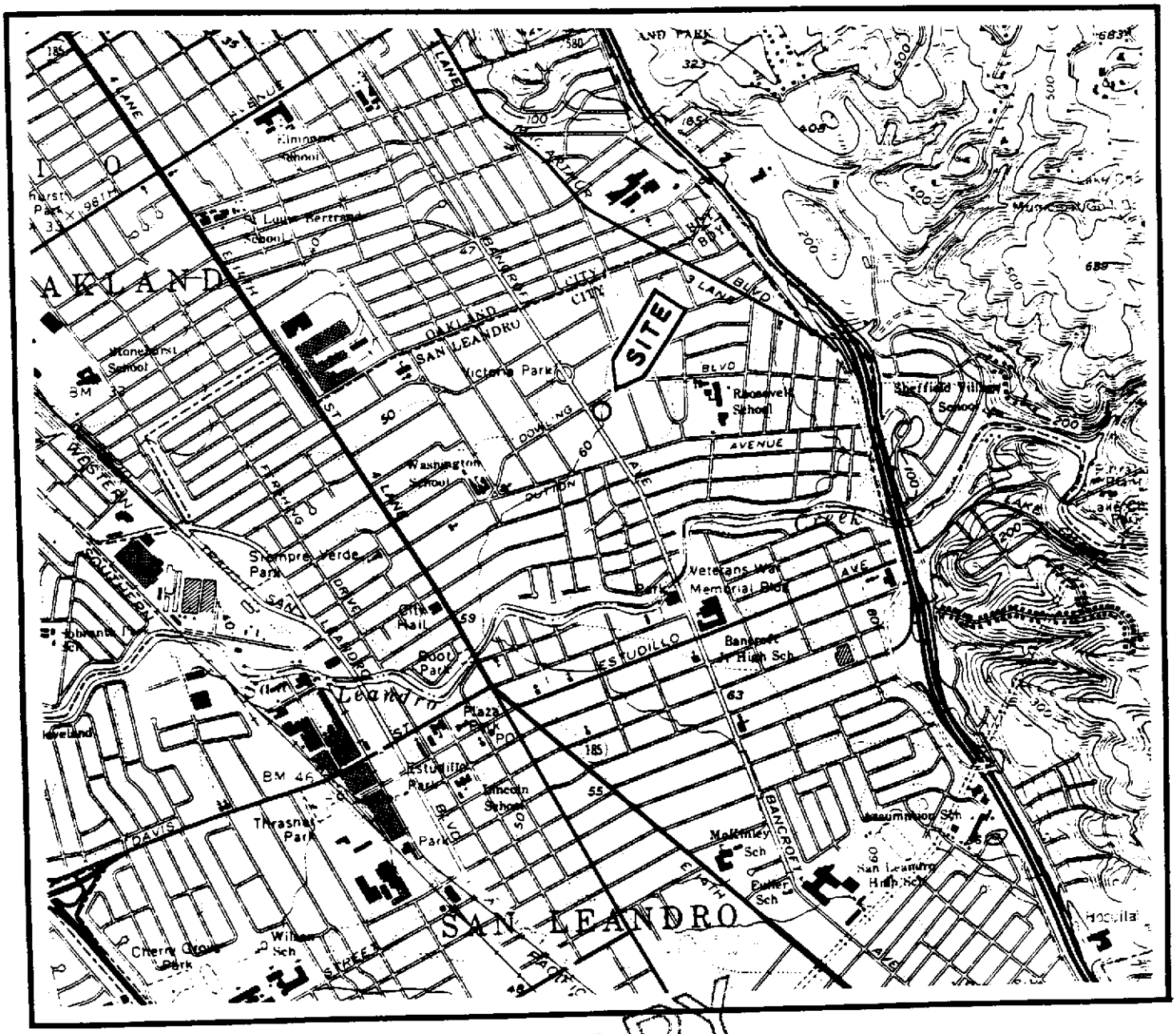
Date	Sample Number	TPHg	B	T	E	X
WELL MW-4						
10/88	W-37-MW4	<20	<0.5	<0.5	<0.5	<0.5
01/89	W-35-MW4	<20	<0.5	<0.5	<0.5	<0.5
02/90	W-36-MW4	<20	<0.5	<0.5	<0.5	<0.5
05/90	W-36-MW4	<20	<0.5	<0.5	0.68	1.4
08/90	W-36-MW4	<20	<0.5	<0.5	<0.5	<0.5
11/90	W-37-MW4	<50	<0.5	<0.5	<0.5	1.2
02/91	W-37-MW4	<50	<0.5	<0.5	<0.5	<0.5
05/91			Not Sampled			
09/91	W-36-MW4	<50	<0.5	<0.5	<0.5	<0.5
12/91			Not Sampled			
03/92	MW4	<50	<0.5	<0.5	<0.5	<0.5
WELL MW-5						
02/90	W-36-MW5	67	0.51	1.6	2.9	7.5
05/90	W-36-MW5	<20	<0.5	<0.5	<0.5	<0.5
08/90	W-35-MW5	<20	<0.5	<0.5	<0.5	<0.5
11/90	W-38-MW5	<50	<0.5	0.7	<0.5	<0.5
02/91	W-38-MW5	<50	<0.5	<0.5	<0.5	<0.5
05/91			Not Sampled			
09/91	W-37-MW5	<50	<0.5	<0.5	<0.5	<0.5
12/91			Not Sampled			
03/92	MW5	<50	<0.5	<0.5	<0.5	1.1
WELL MW-6						
02/90	W-35-MW6	<20	<0.5	<0.5	<0.5	<0.5
05/90	W-37-MW6	<20	<0.5	<0.5	<0.5	<0.5
08/90	W-35-MW6	<20	<0.5	<0.5	<0.5	<0.5
11/90	W-36-MW6	<50	<0.5	<0.5	<0.5	<0.5
02/91	W-36-MW6	<50	<0.5	<0.5	<0.5	<0.5
05/91			Not Sampled			
09/91	W-35-MW6	<50	<0.5	<0.5	<0.5	<0.5
12/91			Not Sampled			
03/92	MW6	<50	<0.5	1.3	<0.5	2.0

See notes on page 3 of 3

TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES
(Page 3 of 3)

Date	Sample Number	TPHg	B	T	E	X
WELL MW-7						
02/90	W-36-MW7	<20	<0.5	<0.5	<0.5	<0.5
05/90	W-35-MW7	24	<0.5	<0.5	0.74	1.7
08/90	W-35-MW7	<20	<0.5	<0.5	<0.5	<0.5
11/90	W-37-MW7	<50	<0.5	<0.5	0.6	1.5
02/91	W-37-MW7	<50	<0.5	<0.5	<0.5	<0.5
05/91			Not Sampled			
09/91	W-38-MW7	<50	<0.5	<0.5	<0.5	<0.5
12/91			Not Sampled			
03/92	MW7	<50	<0.5	<0.5	<0.5	0.9
WELL MW-8						
02/90	W-35-MW8	1,900	11	<0.5	52	55
05/90	W-36-MW8	770	6.5	<0.5	20	32
08/90	W-36-MW8	990	13	<0.5	48	66
11/90	W-37-MW8	570	13	<0.5	45	36
02/91	W-37-MW8	630	9.6	<0.5	35	36
05/91	W-33-MW8	14,000	80	<0.5	250	550
09/91	W-36-MW8	720	13	4.3	26	26
12/91	W-37-MW8	1,600	15	2.9	40	49
03/92	MW8	**15,000**	**120**	**1.0**	**430**	530

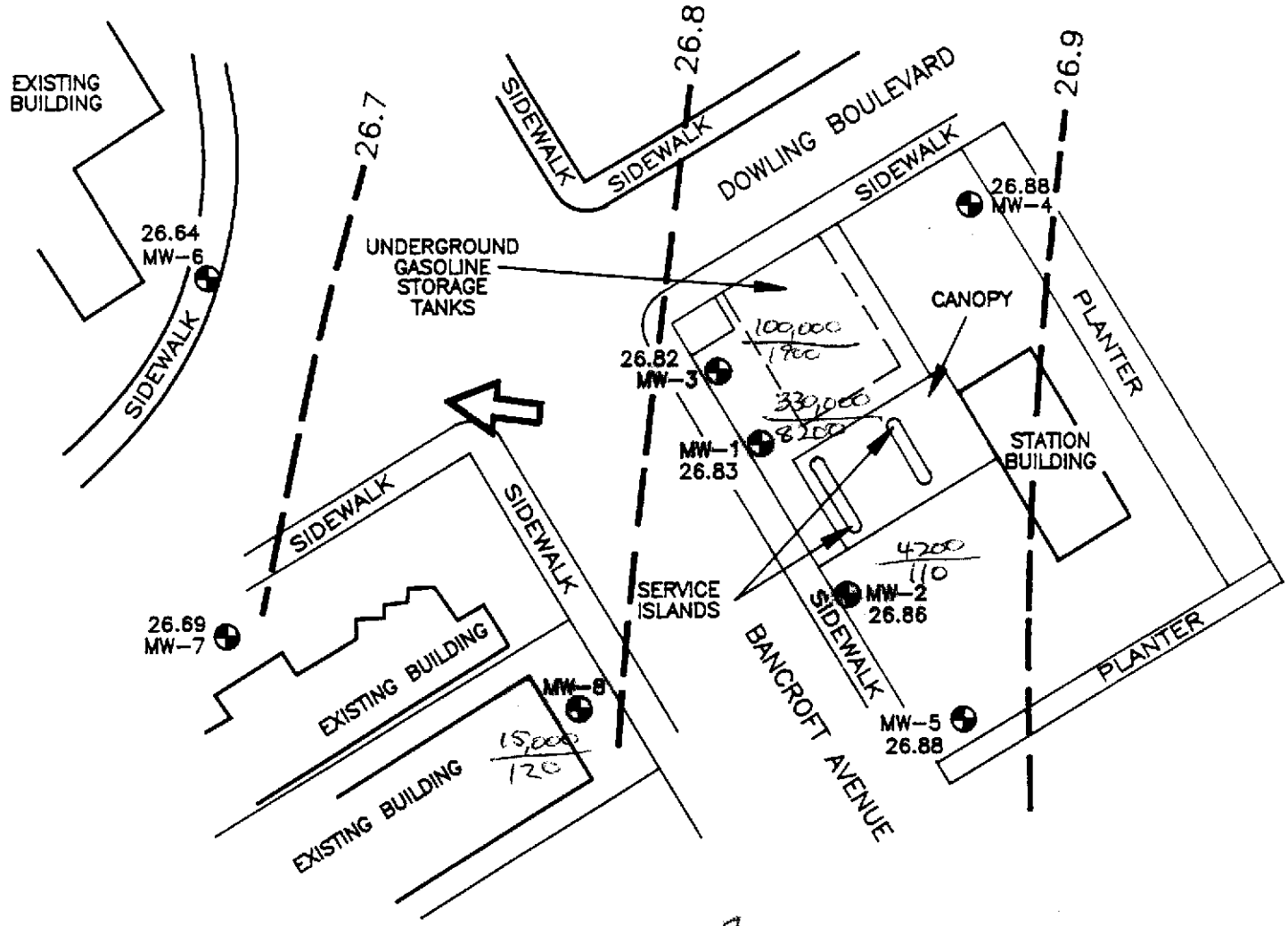
Results in micrograms/liter (μg/l) = parts per billion (ppb)
TPHg = Total petroleum hydrocarbons as gasoline
BTEX = Benzene, toluene, ethylbenzene, total xylene isomers
< = Not detected. Number following < indicates applicable detection limit.
Sample designation: W-37-MW8
W = Water sample
37 = Monitoring well number



Source: U.S. Geological Survey
7.5-Minute Quadrangle
San Leandro, California
Photorevised 1980

Approximate Scale
2000 1000 0 2000 4000
feet

RESNA	SITE VICINITY MAP Unocal Station No. 5367 500 Bancroft Avenue San Leandro, California	PLATE 1
PROJECT NO. 87091-6		



TPH (ppb)
benzene

26.9 = Inferred line of equal groundwater elevation in feet above mean sea level

= Inferred direction of groundwater flow (March 31, 1992)

MW-8 = Monitoring well

NOTE: Contours are based on interpretation of available data, and are not intended to imply certainty.

N

Approximate Scale

50 25 0 50 100

feet

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PROJECT NO. 87091-6

GENERALIZED SITE PLAN AND GROUNDWATER ELEVATION MAP
Unocal Station No. 5367
500 Bancroft Avenue
San Leandro, California

PLATE 2

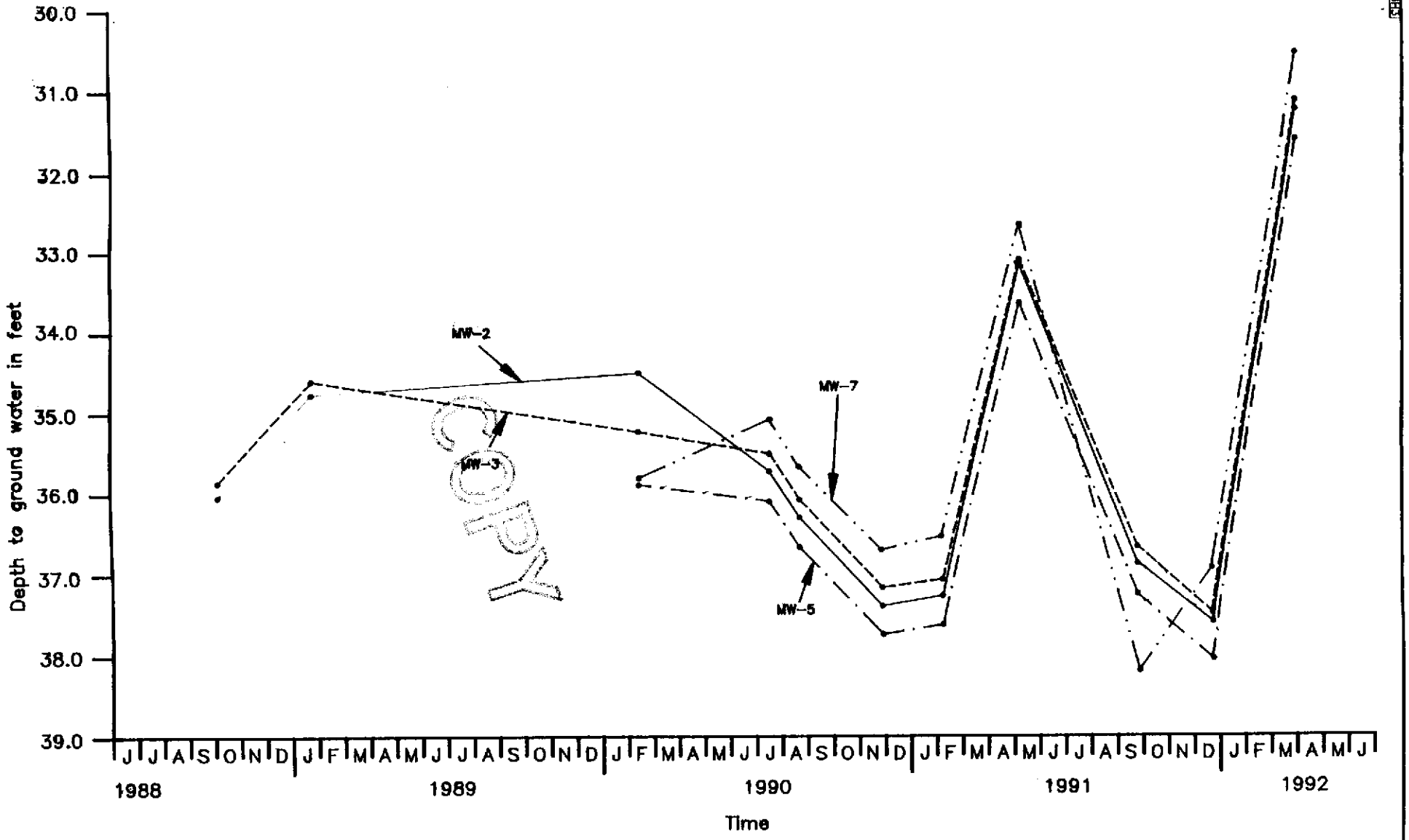

PLATE 3	HYDROGRAPH Unocal Station No. 5367 500 Bancroft Avenue San Leandro, California	RESNA PROJECT NO. 87091-6

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ATTACHMENT I
FIELD PROCEDURES

FIELD PROCEDURES

Groundwater Monitoring

Static water level was measured to the nearest 0.01 foot with a Solinst water-level indicator. After the static ground-water level was recorded, an initial sample was collected from each well and checked for floating product and sheen. The samples were collected by gently lowering approximately half the length of a Teflon bailer past the air-water interface to collect a sample from near the surface of the water in each well. The bailer was cleaned with Alconox and deionized water after each use.

Groundwater Sampling

The wells were purged of at least 3 well volumes of water and allowed to recover to their approximate static water levels. Samples for laboratory analysis then were collected from the static water surface with a Teflon bailer that was thoroughly cleaned with Alconox (a commercial, biodegradable detergent) and water. The samples were transferred to laboratory-cleaned, 40-milliliter glass vials. Hydrochloric acid was added to the vials as a preservative. The samples were sealed with Teflon-lined caps, labeled, and stored on ice. The sampler initiated a Chain of Custody Record and it accompanied the samples to the State-certified analytical laboratory.

Water Storage and Disposal

The water purged from the wells was temporarily stored onsite in labelled, sealed 17E 55-gallon liquid-waste drums approved for this use by the Department of Transportation. The purge water is scheduled to be removed from the site and transported to an appropriate disposal facility in May 1992 by H & H Environmental of San Francisco, California under direct contract to Unocal.

Groundwater Reporting

Concentrations of hydrocarbon constituents in groundwater samples are reported by the laboratory in units of parts per billion (ppb). The Maximum Contaminant Levels listed in Title 22 of the Code of California Regulations for benzene, ethylbenzene, and total xylene isomers are 1.0, 680, and 1,750 ppb, respectively. The action level established for toluene by the California Department of Health Services is 100 ppb. To conform to the laboratory reports we report groundwater chemical data in units of ppb.

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ATTACHMENT II
WELL PURGE DATA SHEET

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SAMPLING LOG

Job Name: Unocal Date: 3-31-92

Job No.: 87091-6A Sampled by: R. Adair

Phase: Qtly Laboratory: Resna

Wells Secure: ☒ Yes ☐ No If no, then comment: _____

Drums at Site: Full 2½ Empty 2½

Well No.	Depth to Water (ft)	Well Depth (ft)	Time (W*L)	Purge Volume (gal)	°F Temp. (°C)	Cond. (umho/cm)	pH	Observations
1	31.00'	35.00'	10:35	0.7	69.0	1130	6.66	clear ~ cloudy
				1.5	68.0	1084	6.75	Odor
				2.5	67.5	1048	6.67	No Sheen
				SAMPLE	64.6	970	6.90	31.71 at Sample
2	31.27'	47.00'	10:15	10	65.0	883	6.63	cloudy
				20	65.1	865	6.62	No Odor
				30	65.0	855	6.97	No Sheen
				SAMPLE	65.7	807	6.85	31.22' at sample
3	31.10'	48.60'	10:30	11.6	65.6	1037	6.60	clear ~ cloudy
				23.2	64.7	967	6.56	Odor
				35	64.8	939	6.71	No Sheen
				SAMPLE	66.1	953	6.80	31.10' at sample
4	31.41'	48.20'	9:45	11	67.0	717	7.47	clear ~ cloudy
				22	70.0	733	7.22	No Odor
				33	68.0	681	7.14	No Sheen
				SAMPLE	64.2	640	6.80	31.40' at sample
5	31.62'	44.60'	9:55	2.2	66.0	891	6.76	clear ~ cloudy
				4.4	67.4	895	6.73	No Odor
				7.0	69.2	851	6.93	No Sheen
				SAMPLE	66.7	737	6.90	31.42 at sample

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

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SAMPLING LOG

Job Name: Unocal Date: 3-31-92

Job No.: 97091 - 6A Sampled by: R. Adair

Phase: Qtrly Laboratory: Resna

Wells Secure: ☒ Yes ☐ No If no, then comment:

Drums at Site: Full 2½ Empty 2½

Well No.	Depth to Water (ft)	Well Depth (ft)	Time (W"L)	Purge Volume (gal)	°F Temp. (°C)	x1000 Cond. (umho/cm)	pH	Observations
6	30.32	44.80	10:00	2.5	68.2	750	7.10	cloudy - silty
				5.0	68.8	783	6.99	No odor
				7.5	69.3	756	6.88	No sheen
				SAMPLE	66.2	708	6.65	30.10' at sample
7	30.56	44.25	10 10	2.3	67.0	655	6.85	cloudy ~ silty
				4.6	66.1	656	6.71	No odor
				7.0	68.0	649	6.67	No sheen
				SAMPLE	64.0	658	6.69	30.56' at sample
8	31.93	44.05	1020	2.1	69.0	998	6.83	cloudy ~ silty
				4.2	67.5	967	6.61	No odor
				6.5	67.3	1013	6.80	No sheen
				SAMPLE	64.2	908	6.67	31.42' at sample

COPY

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

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ATTACHMENT III
CHAIN OF CUSTODY RECORD
AND
LABORATORY ANALYSIS REPORT

RESNA

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

4891

PROJECT NO.	PROJECT NAME/SITE
87091-GA	Unocal Bancroft, San Leandro

SAMPLERS (SIGN) / (PRINT) Robin A. Adair / Robin A. Adair

SAMPLE IDENTIFICATION	DATE	TIME	COMP	GRAB	PRES. USED	ICED	NO. CONTAINERS	SAMPLE TYPE	BTEX (602/8020)	TPHg (8015)	TPHd (8015)	TOG 418.1/5520	601/8010	624/8240	625/8270	REMARKS
BB1	3-31-92	11:15			HCl	X	3									Hold
MW 1	3-31-92	9:15						H2O	X	X						
MW 2	4-1-92	12:00							X	X						
MW 3	4-1-92	12:30							X	X						
MW 4	3-31-92	2:00							X	X						
MW 5	3-31-92	11:30							X	X						
MW 6	3-31-92	12:00							X	X						
MW 7	3-31-92	1:00							X	X						
MW 8	3-31-92	3:00							X	X						

P.O. #

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
Robin A. Adair	4-2-92	8:30	
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE 4/2/92	TIME 8:30	RECEIVED BY LABORATORY: Roberto Arcilla

LABORATORY: Resna

REQUESTED TURNAROUND TIME: Normal

RECEIPT CONDITION: good/cold

PLEASE SEND RESULTS TO: Dan Wynne

PROJECT MANAGER:

Environmental Laboratories

RESNA
Working to Restore Nature

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

ANALYSIS REPORT

1020lab.frm

Attention: Mr. Dan Wynne
RESNA
42501 Albrae Street
Fremont, CA 94538

Project: AGS 87091-6A
Unocal, San Leandro

Date Sampled: 3-31 TO 4-1-92
Date Received: 04-02-92
BTEX Analyzed: 04-09-92
TPHg Analyzed: 04-09-92
TPHd Analyzed: NR
Matrix: Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
MW1 W1204098	8200	33000	6800	36000	330000	NR
MW2 W1204099	110	3.0	190	250	4200	NR
MW3 W1204100	1900	1900	2300	9400	100000	NR
MW4 W1204101	ND	ND	ND	ND	ND	NR
MW5 W1204102	ND	ND	ND	1.1	ND	NR

ppb = parts per billion = µg/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

April 15, 1992
Date Reported

Environmental Laboratories

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ANALYSIS REPORT

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Attention:	Mr. Dan Wynne	Date Sampled:	3-31 TO 4-1-92
	RESNA	Date Received:	04-02-92
	42501 Albrae Street	BTEX Analyzed:	04-09-92
	Fremont, CA 94538	TPHg Analyzed:	04-09-92
Project:	AGS 87091-6A	TPHd Analyzed:	NR
	Unocal, San Leandro	Matrix:	Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
MW6 W1204103	ND	1.3	ND	2.0	ND	NR
MW7 W1204104	ND	ND	ND	0.9	ND	NR
MW8 W1204105	120	1.0	430	530	15000	NR

ppb = parts per billion = µg/L = micrograms per liter.
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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

April 14, 1992
Date Reported

Environmental Laboratories

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QUALITY ASSURANCE/QUALITY CONTROL REPORT

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Attention: Mr. Dan Wynne
RESNA
42501 Albrae St.
Fremont, CA 95320
Project: AGS 87091-6A

Date Analyzed: 04-09-92
G.C. #: 3
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
Blank	ND	ND	ND	ND	ND	NR

	Benzene %	Toluene %	Ethyl-benzene %	Total Xylenes %	TPHg %	TPHd %
Standard	106	106	108	105	99	NR
MS	110	106	105	105	82	NR
MSD	104	105	105	104	81	NR
RPD	5.6	0.9	0	0.9	1.2	NR

ppb = parts per billion = ug/L = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.
MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

	Acceptable Range
Standard	85-115%
Blank	ND
MS/MSD	70-130%
RPD	<25%

Laboratory Representative

April 10, 1992
Date Reported

RESNA ENVIRONMENTAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)