EXXON COMPANY, U.S.A.
POST OFFICE BOX 4032 . CONCORD, CA 94524-2032

ENVIRONMENTAL ENGINEERING
MARLA D. GUENSLER
SENIOR ENVIRONMENTAL ENGINEER
(510) 246-8776
(510) 246-8798 FAX

May 11, 1993

Ms. Juliet Shin
Alameda County Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

May 1993

Subject: Exxon RAS #7-0104
1725 Park Street
Alameda, CA

Dear Ms. Shin:

Attached for your review and comment is a letter report entitled **Groundwater Monitoring Report, First Quarter 1993** for the above referenced site. This report, prepared by RESNA Industries, Inc., of Novato, California, details the results of the groundwater monitoring and sampling event which occurred in February 1993.

RESNA is currently completing the installation of three off-site monitoring wells. A report detailing the results will be forwarded to your office in the near future. Also, all future quarterly monitoring reports for this site will be submitted to your office by the first day of the second month following the quarter in which the work was completed. Exxon has incorporated this internal deadline with RESNA to insure that future reports are submitted in a timely manner.

Should you have any questions or comments, or require additional information, please do not hesitate to contact me at the above listed phone number.

Sincerely,

Marla D. Guensler

Marla D. Guensler

Attachment

c: w/attachment:
Mr. Richard Hiett - San Francisco Region CWRQCB

w/o attachment:
Mr. Gary Pischke - RESNA, Novato, CA

MDG/mdg

RESNA
Working To Restore Nature

73 Digital Drive
Novato, CA 94949
Phone: (415) 382-7400
FAX: (415) 382-7415

GROUNDWATER MONITORING REPORT

First Quarter 1993
Exxon Service Station No. 7-0104
1725 Park Street
Alameda, California

RESNA
Working To Restore Nature

73 Digital Drive
Novato, CA 94949
Phone: (415) 382-7400
FAX: (415) 382-7415

April 14, 1993

Ms. Marla Guensler
Exxon Company, U.S.A.
P.O. Box 4032
2300 Clayton Road
Concord, California 94524

Subject: Groundwater Monitoring, First Quarter 1993, Exxon Service Station No. 7-0104, 1725 Park Street, Alameda, California

Ms. Guensler:

At the request of Exxon Company, U.S.A (Exxon), RESNA Industries, Inc. (RESNA) performed the first quarter 1993 groundwater monitoring event at the subject site. The location of the site is shown on the Site Vicinity Map (Plate 1). The purpose of quarterly monitoring is to evaluate fluctuations in hydrocarbon concentrations in groundwater below the site and to evaluate the groundwater flow direction and gradient.

BACKGROUND

Exxon acquired the subject site, formerly a Regal Service Station owned by Wickland Oil Company of Sacramento, California, in 1988. Previous work at the site has included replacement of the underground storage tanks in 1989. Subsequently, Harding Lawson Associates (Harding Lawson) of Novato, California, drilled twelve soil borings, constructed seven groundwater monitoring wells and five groundwater extraction wells. Gasoline hydrocarbons were detected in soil and groundwater (Harding Lawson Associates, May 1, 1990, Project No. 10495 416). In September 1992, per the County of Alameda's request, Harding Lawson performed an offsite groundwater survey. Harding Lawson's investigation concluded that the hydrocarbon plume was primarily limited to the site and partially off-site into the intersection of Park and Eagle (Harding Lawson Associates, October 30, 1992, Project No. 10495 416). In October 1992, Harding Lawson performed a vapor-extraction test at the site (Harding Lawson Associates, December 28, 1992, Project No. 10495 416). In December 1992, Harding Lawson began construction of a groundwater treatment system. The groundwater extraction and treatment system had not began operation as of February 5, 1993, the present quarterly monitoring event. Quarterly groundwater sampling has been performed quarterly at the site since 1988.

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PRESENT GROUNDWATER MONITORING

On February 5, 1993, RESNA personnel measured depth-to-water in each well, subjectively evaluated water from the wells for separate phase product and purged and sampled the groundwater from monitoring wells MW-1, MW-3, MW-4, MW-6, and MW-7 for laboratory analysis. Monitoring wells MW-2 and MW-5 were not sampled because of the presence of separate phase product. Separate phase product in MW-2 had a measured thickness of 0.01 feet. Separate phase product was not present during subjective analysis in MW-5, however, an emulsion developed during purging of the well. Subjective evaluations are included in Table 1. Field methods are described in Appendix A.

RESNA compiled potentiometric data to evaluate the direction of groundwater flow beneath the site. Depth-to-water measurements taken on February 5, 1993, were used to calculate the groundwater elevation in each well. Cumulative depth-to-water and groundwater elevation data are presented in Table 1. Based on the February 5, 1993 data, the evaluated groundwater flow direction was to the east with an approximate gradient of 0.039 (Plate 2). This groundwater flow direction is generally consistent with the previous groundwater flow directions interpreted for this site. Since last quarter, the groundwater elevation rose approximately 2 to 3 feet in each well.

Results of Laboratory Analysis

The groundwater samples from the monitoring wells were analyzed at Pace Inc., a California certified laboratory in Novato, California for total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX) using modified Environmental Protection Agency (EPA) Methods 8015/8020. The Report of Laboratory Analysis and Chain of Custody record and are attached (Appendix B). The results of these and previous water analyses are summarized in Table 1.

Results of the laboratory analyses of water samples collected during this event indicate that:

- Concentrations of TPHg were present in groundwater samples collected from monitoring wells MW-1, MW-3, MW-4, MW-6, and MW-7 at concentrations ranging from 11,000 parts per billion (ppb) (MW-1) to 33,000 (MW-7) ppb.

- Concentrations of BTEX were present in the groundwater sample from monitoring wells MW-1, MW–3, MW-4, MW-6, and MW-7. Benzene concentrations ranged from 1,100 ppb (MW-7) to 3,600 ppb (MW-3). Toluene concentrations ranged from 110 ppb (MW-3) to 4,300 ppb (MW-6). Ethylbenzene concentrations ranged from 980 ppb (MW-4) to 1,700 ppb (MW-6). Total xylene isomer concentrations ranged from 430 ppb (MW-3) to 5,300 ppb (MW-6).

RESNA recommends that signed copies of this report be forwarded to:

Mr. Richard Hiett
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street
Oakland, California 94612

Ms. Juliett Shin
Alameda County Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

LIMITATIONS

The discussion presented in this report is based on the observations by field personnel; the results of laboratory analyses performed by a California-certified laboratory; referenced documents; and RESNA's understanding of the regulations of the State of California, the County of Alameda, and the City of Alameda.

It is possible that variations in the soil or groundwater could exist beyond the points explored in this investigation. Also, changes in groundwater conditions could occur at some time in the future because of variations in rainfall, temperature, regional water uses, acts of man, and other factors.

The service performed by RESNA has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession practicing under similar conditions in the Alameda County area. Please note that contamination of the soil and/or groundwater must be reported to the appropriate agencies in a timely manner. No other warranty, expressed or implied, is made.

RESNA includes in this report chemical analytical data from a California-certified laboratory. The analytical tests are performed according to procedures suggested by the U.S. EPA and the State of California.

RESNA
Working To Restore Nature

Please call with any questions or comments regarding this letter report.

Sincerely,
RESNA Industries, Inc.

J Chase for

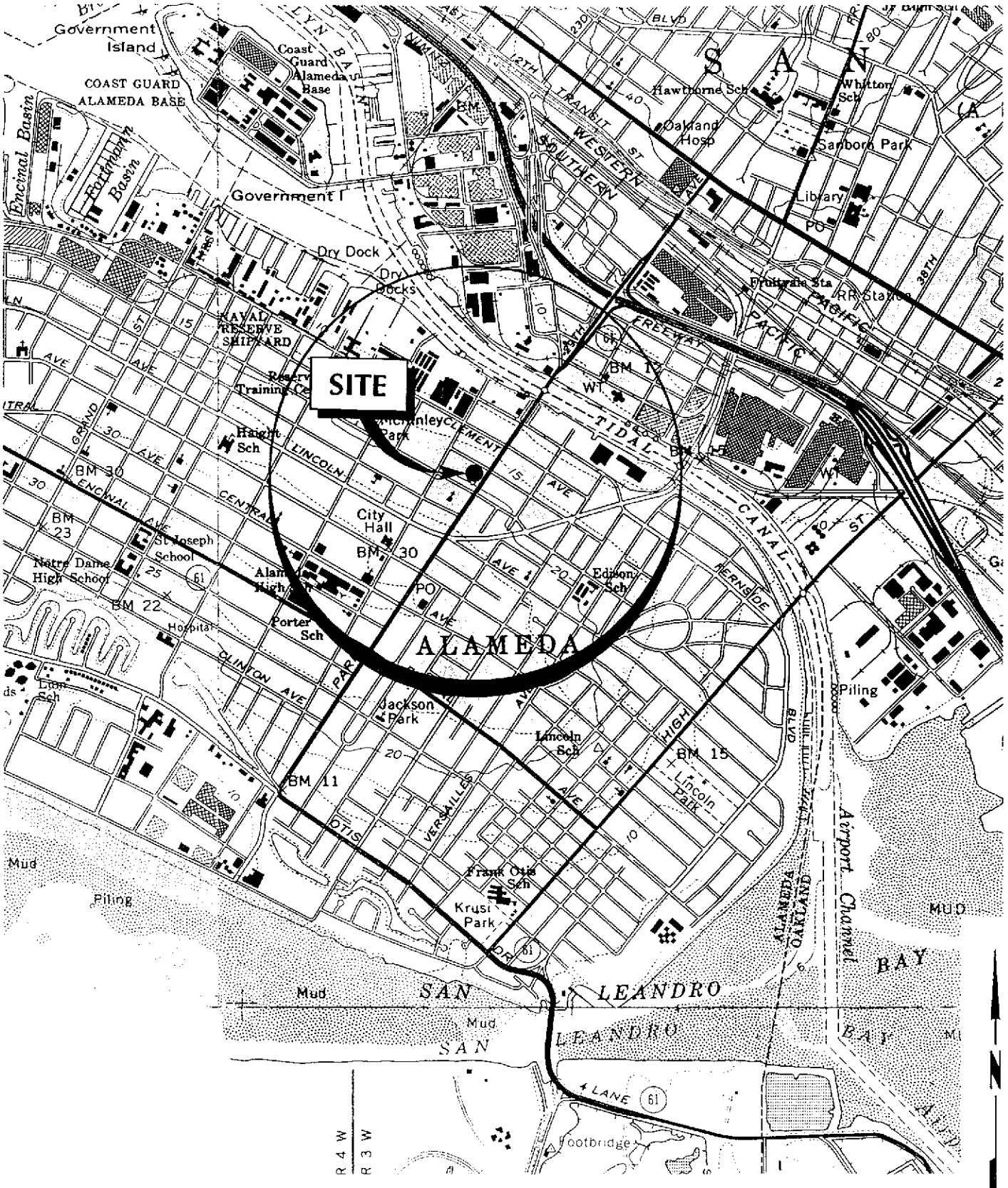
Mark Frye
Engineering Technician

REGISTERED GEOLOGIST
GARY PISCHKE
No. 1501
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Gary Pischke, C.E.G. 1501
Senior Project Geologist

Enclosures:

Plate 1, Site Vicinity Map
Plate 2, Potentiometric Surface Map (February 5, 1993)
Plate 3, TPHg and Benzene Concentration Map (February 5, 1993)
Table 1, Cumulative Groundwater Monitoring Data
Appendix A: Groundwater Sampling Protocol
Appendix B: Report of Laboratory Analysis and Chain of Custody Record



Source: USGS Topographic Map, 7.5 minute series, Oakland East, Calif. and San Leandro, Calif. quadrangles, 1980

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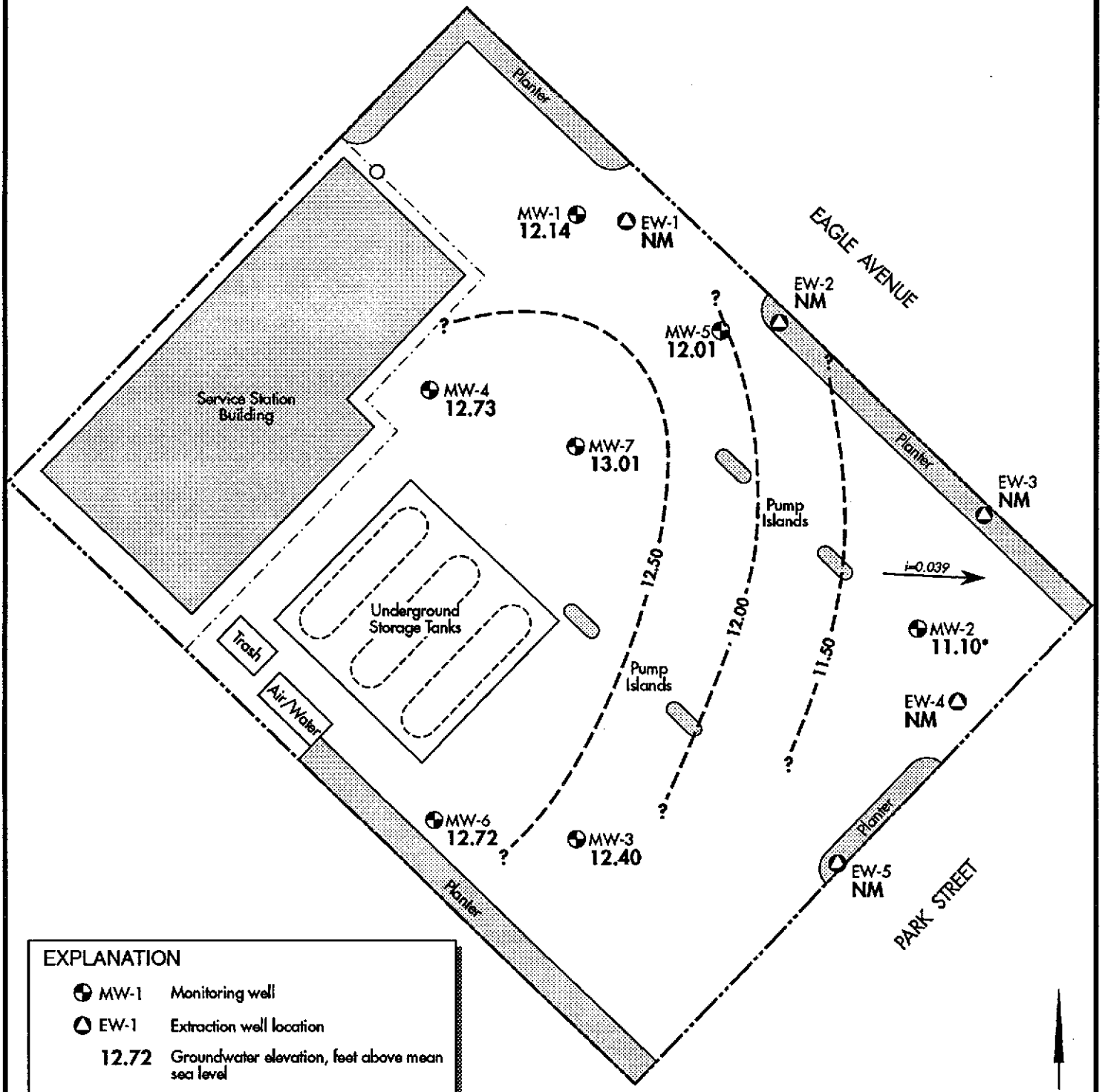
PROJECT NO. 170077.02 | 1/93

SITE VICINITY MAP

Exxon Service Station No. 7-0104
1725 Park Street
Alameda, California

PLATE
1



EXPLANATION

MW-1	Monitoring well
EW-1	Extraction well location
12.72	Groundwater elevation, feet above mean sea level
NM	Not measured
*	Corrected for the presence of separate phase product
12.00 — — -?	Groundwater elevation contour, feet above mean sea level, dashed where inferred, queried where uncertain
i=0.039	Estimated direction of groundwater flow with evaluated gradient

Base Map Source: Site Map by Harding Lawson Associates, 1992

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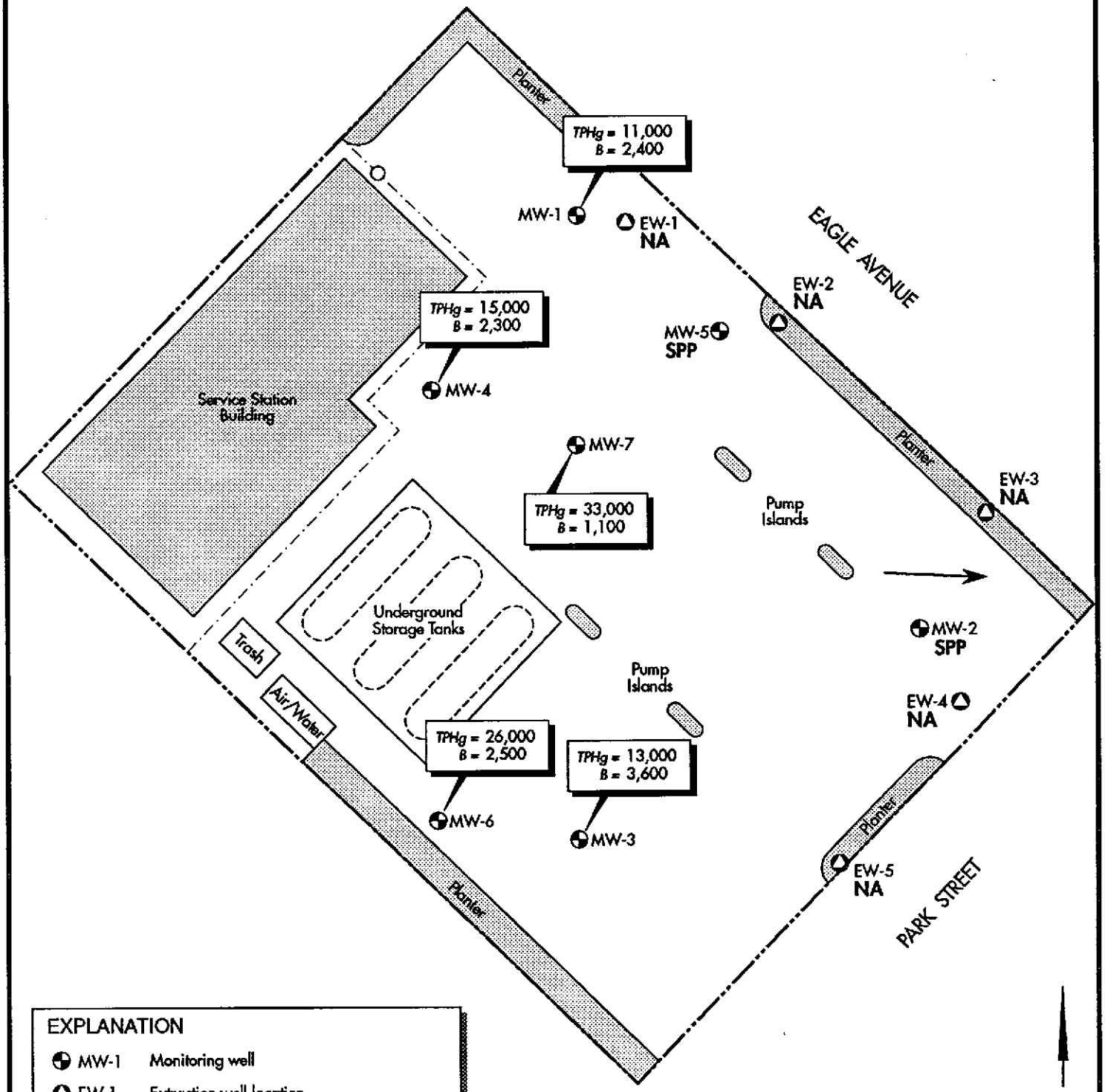
PROJECT NO. 170077.01 | 3/93

POTENTIOMETRIC SURFACE MAP—
February 5, 1993
Exxon Service Station No. 7-0104
1725 Park Street
Alameda, California

PLATE
2



EXPLANATION

MW-1	Monitoring well
EW-1	Extraction well location
TPHg =	TPHg concentration in parts-per-billion (ppb)
B =	Benzene concentration in ppb
SPP	Separate phase product present
NA	Not analyzed
←	Estimated direction of groundwater flow

N

0 20' 40' 60'

Base Map Source: Site Map by Harding Lawson Associates, 1992

RESNA

PROJECT NO. 170077.01 | 4/93

TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (TPHg) AND BENZENE CONCENTRATION MAP—February 5, 1993

Exxon Service Station No. 7-0104
1725 Park Street, Alameda, California

PLATE 3

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Exxon Service Station No. 7-0104
1725 Park street
Alameda, California
(Page 1 of 8)

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.-W	TPHg	B	T	E	X
		< ft >			< ppb >				
MW-1	06/07/88	---	---	---	27,000	5,000	77	1,100	2,700
(17.35)	06/10/88	NP	6.35	11.00	---	---	---	---	---
	01/17/89	NP	5.81	11.54	6,800	2,000	91	800	1,600
	01/24/89	NP	5.16	12.19	---	---	---	---	---
	06/01/89	sheen	6.27	11.08	1,700	170	6.9	13	230
	09/18/89	NP	7.11	10.24	2,100	9.0	53	18	130
	10/20/89	NP	7.28	10.07	---	---	---	---	---
	11/22/89	NP	7.02	10.33	---	---	---	---	---
	12/11/89	NP	6.60	10.75	5,800	200	42	290	330
	02/13/90	NP	6.02	11.33	---	---	---	---	---
	03/07/90 (a)	---	---	---	---	---	---	---	---
	03/13/90	NP	5.91	11.44	2,300	430	14	16	220
	04/18/90	NP	6.18	11.17	---	---	---	---	---
	05/23/90	NP	6.29	11.06	---	---	---	---	---
	06/14/90	NP	6.19	11.28	32,000	1,400	19	<5	120
	08/21/90	NP	7.03	10.32	---	---	---	---	---
	09/19/90	NP	7.26	10.09	950	290	2.9	<0.5	27
	12/17/90	NP	6.75	10.60	2,100	550	13	350	110
	01/31/91	NP	6.78	10.57	---	---	---	---	---
	02/25/91	NP	6.59	10.76	---	---	---	---	---
	03/19/91	NP	5.85	11.50	1,400	900	45	390	150
	04/22/91	sheen	5.72	11.63	---	---	---	---	---
	05/17/91	NP	6.00	11.35	---	---	---	---	---
	07/24/91	NP	6.79	10.56	9,700	1,300	670	950	2,100
	09/10/91	NP	7.25	10.10	---	---	---	---	---
	09/23/91	NP	7.33	10.02	---	---	---	---	---
	10/21/91	NP	7.53	9.82	---	---	---	---	---
	10/22/91	---	---	---	540	220	1.8	110	7.8
	11/18/91	NP	7.13	10.22	---	---	---	---	---
	12/11/91	NP	7.25	10.10	---	---	---	---	---
	01/21/92	NP	6.54	10.81	1,800	650	23	300	64
	02/20/92	NP	4.82	12.53	---	---	---	---	---
	03/19/92	NP	5.24	12.11	---	---	---	---	---
	04/24/92	NP	5.71	11.64	4,900	1,600	78	660	250
	05/13/92	NP	5.99	11.36	---	---	---	---	---
	06/24/92	NP	6.65	10.70	---	---	---	---	---
	07/16/92	NP	6.72	10.63	3,400	1,000	11	550	100
	08/19/92	NP	7.07	10.28	---	---	---	---	---
	09/24/92	NP	7.36	9.99	3,700	1,300	21	330	<10
	02/05/93	NP	5.21	12.14	11,000	2,400	160	1,400	790

See notes on page 8 of 8

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Exxon Service Station No. 7-0104
1725 Park street
Alameda, California
(Page 2 of 8)

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.-W	TPHg	B	T	E	X
		< ft >			< ppb >				
MW-2	06/07/88	---	---	---	110,000	12,000	12,000	2,100	12,000
(16.67)	06/10/88	NP	6.20	10.47	---	---	---	---	---
	01/17/89	NP	5.96	10.71	30,000	6,600	3,300	1,600	7,700
	01/24/89	NP	5.04	11.63	---	---	---	---	---
	06/01/89	sheen	6.32	10.35	8,700	330	280	680	1,200
	09/18/89	NP	6.73	9.94	17,000	580	280	570	220
	10/20/89	NP	6.87	9.80	---	---	---	---	---
	11/22/89	NP	6.80	9.87	---	---	---	---	---
	12/11/89	NP	6.57	10.10	32,000	1,000	850	310	1,200
	02/13/90	NP	6.12	10.55	---	---	---	---	---
	03/13/90	NP	6.02	10.65	39,000	3,500	1,500	2,100	3,900
	04/18/90	NP	6.35	10.32	---	---	---	---	---
	05/23/90	NP	6.28	10.39	---	---	---	---	---
	06/14/90	NP	6.14	10.53	34,000	3,800	730	1,600	3,900
	08/21/90	NP	6.70	9.97	---	---	---	---	---
	09/19/90	NP	6.84	9.83	63,000	670	180	390	1,000
	12/17/90	NP	6.46	10.21	140,000	3,700	2,500	3,000	8,300
	01/31/91	sheen	6.66	10.01	---	---	---	---	---
	02/25/91	NP	6.50	10.17	---	---	---	---	---
	03/19/91	sheen	5.76	10.91	48,000	4,500	1,600	2,100	5,500
	04/22/91	NP	5.78	10.89	---	---	---	---	---
	05/17/91	NP	6.01	10.66	---	---	---	---	---
	07/24/91	NP	6.43	10.24	49,000	3,500	2,200	2,000	6,400
	09/10/91	NP	6.81	9.86	---	---	---	---	---
	09/23/91	NP	6.82	9.85	---	---	---	---	---
	10/21/91	NP	7.01	9.66	---	---	---	---	---
	10/22/91	---	---	---	34,000	3,700	1,100	1,800	5,200
	11/18/91	NP	6.66	10.01	---	---	---	---	---
	12/11/91	NP	6.85	9.82	---	---	---	---	---
	01/21/92	NP	6.22	10.45	21,000	4,600	1,300	1,700	5,100
	02/2092	NP	5.28	11.39	---	---	---	---	---
	03/19/92	NP	5.34	11.33	---	---	---	---	---
	04/24/92	sheen	5.75	10.92	36,000	5,000	970	2,300	5,200
	05/13/92	NP	5.95	10.72	---	---	---	---	---
	06/24/92	NP	6.39	10.28	---	---	---	---	---
	07/16/92	sheen	6.50	10.17	42,000	3,500	490	1,800	3,700
	08/19/92	NP	6.69	9.98	---	---	---	---	---
	09/24/92	sheen	6.74	9.93	26,000	3,600	370	1,700	3,300
	02/05/93	0.01	5.56	11.10	---	---	---	---	---

See notes on page 8 of 8

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Exxon Service Station No. 7-0104
1725 Park street
Alameda, California
(Page 3 of 8)

Well ID # l(TOC)	Sampling Date	SUBJ	DTW	Elev.-W	TPHg	B	T	E	X
		< ft >			< ppb >				
MW-3	06/07/88	---	---	---	28,000	6,000	80	940	1,900
(17.11)	06/10/88	NP	6.05	11.06	---	---	---	---	---
	01/17/89	NP	5.49	11.62	5,300	2,500	230	590	1,100
	01/24/89	NP	5.38	11.73	---	---	---	---	---
	06/01/89	NP	5.96	11.15	5,400	330	300	570	680
	09/18/89	NP	6.65	10.46	12,000	680	170	350	860
	10/20/89	NP	6.88	10.23	---	---	---	---	---
	11/22/89	NP	6.74	10.37	---	---	---	---	---
	12/11/89	NP	6.37	10.74	14,000	1,100	150	670	690
	02/13/90	NP	5.58	11.53	---	---	---	---	---
	03/13/90	NP	5.48	11.63	18,000	6,300	200	1,100	1,100
	04/18/90	NP	6.01	11.10	---	---	---	---	---
	05/23/90	NP	6.14	10.97	---	---	---	---	---
	06/14/90	NP	5.83	11.28	9,500	1,300	880	310	1,800
	08/21/90	NP	6.67	10.44	---	---	---	---	---
	09/19/90	NP	6.88	10.23	16,000	5,000	65	1,500	450
	12/17/90	NP	6.46	10.65	6,700	1,500	64	650	460
	01/31/91	NP	6.24	10.87	---	---	---	---	---
	02/25/91	NP	6.18	10.93	---	---	---	---	---
	03/19/91	NP	5.35	11.76	18,000	4,200	2,100	1,100	1,200
	04/22/91	NP	5.72	11.39	---	---	---	---	---
	05/17/91	NP	5.55	11.56	---	---	---	---	---
	07/24/91	NP	6.41	10.70	38,000	6,200	990	2,900	9,600
	09/10/91	NP	6.80	10.31	---	---	---	---	---
	09/23/91	NP	6.80	10.31	---	---	---	---	---
	10/21/91	NP	7.09	10.02	---	---	---	---	---
	10/22/91	---		---	23,000	3,400	150	2,500	4,400
	11/18/91	NP	6.74	10.37	---	---	---	---	---
	12/11/91	NP	6.79	10.32	---	---	---	---	---
	01/21/92	NP	6.16	10.95	13,000	2,700	30	1,800	740
	02/20/92	NP	4.89	12.22	---	---	---	---	---
	03/19/92	NP	4.85	12.26	---	---	---	---	---
	04/24/92	NP	5.28	11.83	17,000	4,200	170	1,600	600
	05/13/92	NP	5.58	11.53	---	---	---	---	---
	06/24/92	NP	6.22	10.89	---	---	---	---	---
	07/16/92	NP	6.36	10.75	11,000	2,700	230	1,100	570
	08/19/92	NP	6.65	10.46	---	---	---	---	---
	09/24/92	NP	6.93	10.18	7,100	2,000	44	1,000	220
	02/05/93	NP	4.71	12.40	13,000	3,600	110	1,300	430

See notes on page 8 of 8

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Exxon Service Station No. 7-0104
1725 Park street
Alameda, California
(Page 4 of 8)

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.-W	TPHg	B	T	E	X
		< ft >			< ppb >				
MW-4	01/17/89	NP	5.36	11.98	19,000	1,000	1,500	360	2,200
(17.34)	01/24/89	NP	5.46	11.88	---	---	---	---	---
	06/01/89	NP	6.01	11.33	3,600	180	240	63	810
	09/18/89	NP	6.80	10.54	6,000	290	200	28	510
	10/20/89	NP	7.08	10.26	---	---	---	---	---
	11/22/89	NP	6.82	10.52	---	---	---	---	---
	12/11/89	NP	6.37	10.97	13,000	750	910	510	1,200
	02/13/90	NP	5.49	11.85	---	---	---	---	---
	03/07/90	---	---	---	---	---	---	---	---
	03/13/90	NP	5.44	11.90	12,000	1,500	1500	470	28,000
	04/18/90	NP	6.14	11.20	---	---	---	---	---
	05/23/90	NP	6.22	11.12	---	---	---	---	---
	06/14/90	NP	5.92	11.42	12,000	5,700	400	1,300	760
	08/21/90	NP	6.83	10.51	---	---	---	---	---
	09/19/90	NP	7.07	10.27	5,500	670	180	390	1,000
	12/17/90	NP	6.50	10.84	14,000	1,400	620	540	2,100
	01/31/91	NP	6.66	10.68	---	---	---	---	---
	02/25/91	NP	6.21	11.13	---	---	---	---	---
	03/19/91	NP	5.29	12.05	11,000	1,500	740	620	2,100
	04/22/91	NP	5.26	12.08	---	---	---	---	---
	05/17/91	NP	5.60	11.74	---	---	---	---	---
	07/24/91	NP	6.54	10.80	10,000	1,200	440	410	1,200
	09/10/91	NP	7.04	10.30	---	---	---	---	---
	09/23/91	NP	7.14	10.20	---	---	---	---	---
	10/21/91	sheen	7.30	10.04	---	---	---	---	---
	10/22/91	---		---	4,600	750	190	350	780
	11/18/91	NP	6.90	10.44	---	---	---	---	---
	12/11/91	NP	7.01	10.33	---	---	---	---	---
	01/21/92	NP	6.25	11.09	6,000	1,300	320	510	1,200
	02/20/92	NP	4.79	12.55	---	---	---	---	---
	03/19/92	NP	4.70	12.64	---	---	---	---	---
	04/24/92	sheen	5.25	12.09	11,000	170	630	710	1,600
	05/13/92	sheen	5.62	11.72	---	---	---	---	---
	06/24/92	sheen	6.19	11.15	---	---	---	---	---
	07/16/92	sheen	6.51	10.83	5,400	870	240	440	700
	08/19/92	NP	6.85	10.49	---	---	---	---	---
	09/24/92	NP	7.17	10.17	5,900	1,300	130	530	690
	02/05/93	NP	4.61	12.73	15,000	2,300	820	980	2,200

See notes on page 8 of 8

RESNA
Working To Restore Nature

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Exxon Service Station No. 7-0104
1725 Park street
Alameda, California
(Page 5 of 8)

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.-W	TPHg	B	T	E	X
		< ft >			< ppb >				
MW-5	01/17/89	NP	5.39	11.32	26,000	8,700	3,900	990	5,900
(16.71)	01/24/89	NP	5.51	11.20	---	---	---	---	---
	06/01/89	sheen	5.83	10.88	5,200	240	220	130	690
	09/18/89	NP	6.52	10.19	8,000	340	150	140	460
	10/20/89	NP	6.72	9.99	---	---	---	---	---
	11/22/89	NP	6.54	10.17	---	---	---	---	---
	12/11/89	NP	6.21	10.50	15,000	720	320	450	870
	02/13/90	NP	5.60	11.11	---	---	---	---	---
	03/07/90	---	---	---	---	---	---	---	---
	03/13/90	NP	5.54	11.17	10,000	34,00	220	280	800
	04/18/90	NP	5.75	10.96	---	---	---	---	---
	05/23/90	NP	5.98	10.73	---	---	---	---	---
	06/14/90	NP	5.81	10.90	12,000	330	160	350	730
	08/21/90	NP	6.51	10.20	---	---	---	---	---
	09/19/90	NP	6.70	10.01	8,500	1,800	85	120	460
	12/17/90	sheen	6.24	10.47	18,000	2,300	810	430	1,400
	01/31/91	NP	6.31	10.40	---	---	---	---	---
	02/25/91	NP	6.13	10.58	---	---	---	---	---
	03/19/91	NP	5.32	11.39	17,000	2,900	610	580	1,200
	04/22/91	sheen	5.30	11.41	---	---	---	---	---
	05/17/91	NP	5.59	11.12	---	---	---	---	---
	07/24/91	NP	6.33	10.38	16,000	3,200	320	690	1,100
	09/10/91	NP	6.66	10.05	---	---	---	---	---
	09/23/91	NP	6.75	9.96	---	---	---	---	---
	10/21/91	sheen	6.92	9.79	---	---	---	---	---
	10/22/91	---		---	6,600	2,000	64	320	480
	11/18/91	NP	6.55	10.16	---	---	---	---	---
	12/11/91	NP	6.64	10.07	---	---	---	---	---
	01/21/92	sheen	6.07	10.64	14,000	4,000	190	630	1,300
	02/20/92	NP	4.83	11.88	---	---	---	---	---
	03/19/92	sheen	4.83	11.88	---	---	---	---	---
	04/24/92	sheen	5.32	11.39	12,000	2,600	120	620	530
	05/13/92	sheen	5.61	11.10	---	---	---	---	---
	06/24/92	NP	6.17	10.54	---	---	---	---	---
	07/16/92	sheen	6.25	10.46	20,000	4,000	48	880	720
	08/19/92	sheen	6.53	10.18	---	---	---	---	---
	09/24/92	sheen	6.80	9.91	9,300	2,200	31	330	250
	02/05/93	NP(b)	4.70	12.01	---	---	---	---	---

See notes on page 8 of 8

RESNA
Working To Restore Nature

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Exxon Service Station No. 7-0104
1725 Park street
Alameda, California

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.-W	TPHg	B	T	E	X
		< ft >			< ppb >				
MW-6	01/17/89	NP	5.59	11.97	38,000	7,400	9,300	2,000	9,900
(17.56)	01/24/89	NP	5.27	12.29	---	---	---	---	---
	06/01/89	sheen	6.25	11.31	23,000	1,900	2,500	2,000	6,000
	09/18/89	NP	6.95	10.61	17,000	650	410	650	320
	10/20/89	NP	7.24	10.32	---	---	---	---	---
	11/22/89	NP	7.05	10.51	---	---	---	---	---
	12/11/89	NP	6.63	10.93	29,000	1100	810	330	1,500
	02/13/90	NP	5.70	11.86	---	---	---	---	---
	03/07/90	---		---	---	---	---	---	---
	03/13/90	NP	5.63	11.93	38,000	12,000	15,000	2,500	12,000
	04/18/90	NP	6.26	11.30	---	---	---	---	---
	05/23/90	NP	6.42	11.14	---	---	---	---	---
	06/14/90	NP	6.19	11.37	38,000	9,100	7,800	2,900	12,000
	08/21/90	NP	7.01	10.55	---	---	---	---	---
	09/19/90	NP	7.23	10.33	22,000	4,200	300	1,400	3,400
	12/17/90	NP	6.66	10.90	20,000	3,100	4,100	890	2,700
	01/31/91	NP	6.39	11.17	---	---	---	---	---
	02/25/91	NP	6.39	11.17	---	---	---	---	---
	03/19/91	NP	5.57	11.99	180,000	11,000	55,000	5,600	28,000
	04/22/91	NP	5.42	12.14	---	---	---	---	---
	05/17/91	NP	5.73	11.83	---	---	---	---	---
	07/24/91	NP	6.72	10.84	48000	5,400	2,300	2,000	9,000
	09/10/91	NP	7.15	10.41	---	---	---	---	---
	09/23/91	NP	7.25	10.31	---	---	---	---	---
	10/21/91	NP	7.42	10.14	---	---	---	---	---
	10/22/91	---	---	---	18000	3,100	700	1,400	2,900
	11/18/91	NP	7.08	10.48	---	---	---	---	---
	12/11/91	NP	7.17	10.39	---	---	---	---	---
	01/21/92	NP	6.40	11.16	9,400	21,00	370	1,000	1,100
	02/20/92	NP	5.06	12.50	---	---	---	---	---
	03/19/92	NP	4.86	12.70	---	---	---	---	---
	04/24/92	NP	5.44	12.12	42000	3,500	8,000	2,100	8,000
	05/13/92	NP	5.83	11.73	---	---	---	---	---
	06/24/92	NP	6.50	11.06	---	---	---	---	---
	07/16/92	NP	6.68	10.88	14000	1,600	1,000	1,000	2,500
	08/19/92	NP	7.00	10.56	---	---	---	---	---
	09/24/92	NP	7.28	10.28	4,700	790	97	640	540
	02/05/93	NP	4.84	12.72	26,000	2,500	4,300	1,700	5,300

See page 8 of 8

RESNA
Working To Restore Nature

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Exxon Service Station No. 7-0104
1725 Park street
Alameda, California
(Page 7 of 8)

Wel ID #l (TOC)	Sampling Date	SUBJ	DTW	Elev.-W	TPHg	B	T	E	X
		< ft >			< ppb >				
MW-7	01/09/90	---	---	---	17,000	380	180	330	1,300
(17.12)	02/13/90	NP	4.98	12.14	---	---	---	---	---
	03/07/90	---	---	---	---	---	---	---	---
	03/13/90	NP	4.94	12.18	16,000	360	270	83	460
	05/23/90	NP	5.87	11.25	---	---	---	---	---
	06/14/90	NP	5.55	11.57	14,000	1,200	2,800	75	930
	09/19/90	NP	6.79	10.33	16,000	2,800	95	2,500	1,700
	12/17/90	NP	6.15	10.97	75,000	2,600	7,000	3,300	14,000
	01/31/91	NP	6.64	10.48	---	---	---	---	---
	02/25/91	NP	5.80	11.32	---	---	---	---	---
	03/19/91	NP	4.96	12.16	44,000	1,600	740	3,400	8,600
	04/22/91	NP	4.82	12.30	---	---	---	---	---
	05/17/91	NP	5.18	11.94	---	---	---	---	---
	07/24/91	NP	6.22	10.90	18,000	1,300	160	2,700	1,000
	09/10/91	NP	6.71	10.41	---	---	---	---	---
	09/23/91	NP	6.84	10.28	---	---	---	---	---
	10/21/91	NP	7.00	10.12	---	---	---	---	---
	10/22/91	---	---	---	10,000	990	26	1,900	490
	11/18/91	NP	6.56	10.56	---	---	---	---	---
	12/11/91	NP	6.68	10.44	---	---	---	---	---
	01/21/92	NP	5.99	11.13	23,000	2,200	3,000	1,800	6,100
	02/20/92	NP	4.36	12.76	---	---	---	---	---
	03/19/92	NP	4.22	12.90	---	---	---	---	---
	04/24/92	NP	4.84	12.28	25,000	1,400	220	21,00	2,600
	05/13/92	NP	5.24	11.88	---	---	---	---	---
	06/24/92	NP	6.04	11.08	---	---	---	---	---
	07/16/92	NP	6.19	10.93	8,700	470	45	970	86
	08/19/92	NP	6.55	10.57	---	---	---	---	---
	09/24/92	NP	6.83	10.29	9,200	560	48	1,300	54
	02/05/93	NP	4.11	13.01	33,000	1,100	2,300	1,200	4,200

See notes on page 8 of 8

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Exxon Service Station No. 7-0104
1725 Park street
Alameda, California
(Page 8 of 8)

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.-W	TPHg	B	T	E	X
		< ft >			< ppb >				
FB	12/11/89	---	---	---	<50	0.88	0.95	0.62	1.7
	12/17/90	---	---	---	<50	<0.5	<0.5	<0.5	<0.5
	03/19/91	---	---	---	<50	<0.5	<0.5	<0.5	<0.5
	07/24/91	---	---	---	<50	<0.5	<0.5	<0.5	<0.6
	10/22/91	---	---	---	<50	<0.5	<0.5	<0.5	<0.5
	01/21/92	---	---	---	<50	<0.5	<0.5	<0.5	<0.5
	07/16/92	---	---	---	<50	<0.5	<0.5	<0.5	<0.5
TB	06/14/90	---	---	---	<50	<0.5	<0.5	<0.5	<0.5
	09/19/90	---	---	---	<50	0.8	<0.5	0.6	1.0
	04/24/92	---	---	---	<50	<0.5	<0.5	<0.5	<0.5
	09/24/92	---	---	---	230	<0.5	<0.5	<0.5	<0.5

Notes:

ft = Feet
SUBJ = Results of subjective evaluation, separate phase product thickness (PT) in feet
NP = separate phase product not present in well
sheen = separate phase product present as a sheen
emulsion = separate phase product present as an emulsion
NR = not recorded
TOC = Elevation of top of well casing; datum is mean sea level
DTW = Depth to water
Elev.-W = Elevation of groundwater; datum is mean sea level
Elev.-W = TOC- (DTW+(PT*0.8))

ppb = Parts-per-billion
TPHg = Total petroleum hydrocarbons as gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total xylene isomers
< = Less than the indicated detection limit established by the laboratory
FB = Field blank
TB = Travel blank

— = Not sampled / not measured

(a) = MW-1, 03/07/90 sampling: Total Dissolved Solids detected at 910 milligrams-per-liter (mg/l)
(b) = Not sampled due to the presence of separate phase product as an emulsion which developed during bailing

0224mgue
170077.01

APPENDIX A

GROUNDWATER SAMPLING PROTOCOL

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GROUNDWATER SAMPLING PROTOCOL

The static water level and separate phase product level, if present, in each well that contained water and/or separate phase product are measured with a ORS Interface Probe Model No. 106801, which is accurate to the nearest 0.01 foot. To calculate groundwater elevations and evaluate groundwater gradient, depth to water (DTW) levels are subtracted from wellhead elevations and corrected for product thickness, when necessary, by multiplying product thickness (PT) by a correction factor 0.8 and subtracting from the DTW level (Adjusted DTW = DTW–[PT x 0.8])

Water samples collected for subjective evaluation are collected by gently lowering approximately half the length of a clean Teflon® bailer past the air-water interface (if possible) and collecting a sample from near the surface of the water in the well. The samples were checked for measurable separate phase hydrocarbon product or sheen. Any separate phase product is removed from the well.

Before water samples are collected from the groundwater monitoring wells, the wells are purged until stabilization of the temperature, pH, and conductivity are obtained. Approximately four well casing volumes are purged before those characteristics stabilized. Water samples from the wells that do not obtain stability of the temperature, pH, and conductivity are considered to be "grab samples". The quantity of water purged from each well is calculated as follows:

1 well casing volume = $\pi r2h(7.48)$ where:

r	=	radius of the well casing in feet.
h	=	column of water in the well in feet (depth to bottom - depth to water)
7.48	=	conversion constant from cubic feet to gallons

gallons of water purged/gallons in 1 well casing volume = well casing volumes removed.

After purging, each well was allowed to recharge to at least 80% of the initial water level. Water samples from wells that so not recover to at least 80% (due to slow recharging of the well) between purging and sampling are considered to be "grab samples". Water samples were collected with a PVC bailer which had been cleaned with Alconox® and deionized water, and were carefully poured into 40-milliliter (ml) glass vials, which are filled so as to produce a positive meniscus. Each vial is preserved with hydrochloric acid, sealed with a cap containing a Teflon® septum, and subsequently examined for air bubbles to avoid headspace which would allow volatilization to occur. The samples are promptly transported in iced storage in a thermally-insulated ice chest, accompanied by a Chain of Custody Record, to a California-certified laboratory.

APPENDIX B

REPORT OF LABORATORY ANALYSIS AND CHAIN OF CUSTODY RECORD

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Resna
73 Digital Dr.
Novato, CA 94949

February 12, 1993
PACE Project Number: 430205506

Attn: Mr. Mark Frye

Client Reference: Exxon 7-0104 (EE)

PACE Sample Number:			70 0005418	
Date Collected:			02/05/93	
Date Received:			02/05/93	
Client Sample ID:			MW-1	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/09/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	2500	11000	02/09/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/09/93
Benzene	ug/L	25	2400	02/09/93
Toluene	ug/L	25	160	02/09/93
Ethylbenzene	ug/L	25	1400	02/09/93
Xylenes, Total	ug/L	25	790	02/09/93

11 Digital Drive
Novato, CA 94949
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FAX: 415-883-2673

Mr. Mark Frye
Page 2

February 12, 1993
PACE Project Number: 430205506

Client Reference: Exxon 7-0104 (EE)

PACE Sample Number:			70 0005426	
Date Collected:			02/05/93	
Date Received:			02/05/93	
Client Sample ID:			MW-4	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/09/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	2500	15000	02/09/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/09/93
Benzene	ug/L	25	2300	02/09/93
Toluene	ug/L	25	820	02/09/93
Ethylbenzene	ug/L	25	980	02/09/93
Xylenes, Total	ug/L	25	2200	02/09/93

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye
Page 3

February 12, 1993
PACE Project Number: 430205506

Client Reference: Exxon 7-0104 (EE)

PACE Sample Number:			70 0005434	
Date Collected:			02/05/93	
Date Received:			02/05/93	
Client Sample ID:			MW-3	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/09/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	2500	13000	02/09/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/09/93
Benzene	ug/L	25	3600	02/09/93
Toluene	ug/L	25	110	02/09/93
Ethylbenzene	ug/L	25	1300	02/09/93
Xylenes, Total	ug/L	25	430	02/09/93

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REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye
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February 12, 1993
PACE Project Number: 430205506

Client Reference: Exxon 7-0104 (EE)

PACE Sample Number:			70 0005442	
Date Collected:			02/05/93	
Date Received:			02/05/93	
Client Sample ID:			MW-6	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/09/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	5000	26000	02/09/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/09/93
Benzene	ug/L	50	2500	02/09/93
Toluene	ug/L	50	4300	02/09/93
Ethylbenzene	ug/L	50	1700	02/09/93
Xylenes, Total	ug/L	50	5300	02/09/93

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REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye
Page 5

February 12, 1993
PACE Project Number: 430205506

Client Reference: Exxon 7-0104 (EE)

PACE Sample Number:			70 0005450	
Date Collected:			02/05/93	
Date Received:			02/05/93	
Client Sample ID:			MW-7	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS			-	02/09/93
TOTAL FUEL HYDROCARBONS, (LIGHT):				
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	2500	33000	02/09/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/09/93
Benzene	ug/L	25	1100	02/09/93
Toluene	ug/L	25	2300	02/09/93
Ethylbenzene	ug/L	25	1200	02/09/93
Xylenes, Total	ug/L	25	4200	02/09/93

These data have been reviewed and are approved for release.

Darrell Cain

Darrell C. Cain
Regional Director

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Mr. Mark Frye
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FOOTNOTES
for pages 1 through 5

February 12, 1993
PACE Project Number: 430205506

Client Reference: Exxon 7-0104 (EE)

MDL Method Detection Limit

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REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye

QUALITY CONTROL DATA

February 12, 1993
PACE Project Number: 430205506

Client Reference: Exxon 7-0104 (EE)

PURGEABLE FUELS AND AROMATICS
Batch: 70 18624
Samples: 70 0005418, 70 0005426, 70 0005434, 70 0005442, 70 0005450

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	95%	94%	1%
Benzene	ug/L	0.5	40.0	96%	99%	3%
Toluene	ug/L	0.5	40.0	94%	98%	4%
Ethylbenzene	ug/L	0.5	40.0	96%	99%	3%
Xylenes, Total	ug/L	0.5	120	95%	98%	3%

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FAX: 415-883-2673

Client Reference: Exxon 7-0104 (EE)

MDL	Method Detection Limit
ND	Not detected at or above the MDL.
RPD	Relative Percent Difference

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pace INCORPORATED THE ASSURANCE OF QUALITY

EXXON COMPANY, U.S.A.

P.O. Box 4415, Houston, TX 77210-4415

CHAIN OF CUSTODY

430205.506

☒ Novato, CA, 11 Digital Drive, 94949 (415) 883-6100

☐ Huntington Beach, CA, 5702 Bolsa Avenue, 92649 (714) 892-2565

Page 1 of 1

Consultant's Name: RESNA

Address: 73 DIGITAL DRIVE NOVATO CA.

Site Location: 1725 PARK ST. ALAMEDA CA

Project #: X

Consultant Project #: 170077.01

Consultant Work Release #: 09300238

Project Contact: MARK FRYE

Phone #: 382-7400 Fax #:

Laboratory Work Release #:

EXXON Contact: MARLA GUENSLER ☐ EE ☐ C&M

Phone #: Fax #:

EXXON RAS #: 7-0104

Sampled by (print): STEPHEN LOEW

Sampler's Signature:

Shipment Method: HAND DELIVER

Air Bill #:

Shipment Date:

TAT: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ Standard (5 day)

ANALYSIS REQUIRED

Sample Condition as Received
Temperature ° C: ____
Cooler #: ____
Inbound Seal Yes No
Outbound Seal Yes No
Client + Courier

Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	PACE Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	TRPH EPA 418.1	COMMENTS
MW-1	2/5/12:35	WATER	HCL	3	541.8	X			
MW-4	2/5/12:31	WATER	HCL	3	42.6	X			
MW-3	2/5/12:40	WATER	HCL	3	43.4	X			
MW-6	2/5/1:23	WATER	HCL	3	44.2	X			
MW-7	2/5/1:37	WATER	HCL	3	45.0	X			
5/2									

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time
	2/5	3:05		2/5/91	1505

Additional Comments:

Distribution: White - Original Yellow - Exxon Pink - Lab Goldenrod - Consultant Field Staff