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ENVIRONMENTAL ENGINEERING

MARLA D. GUENSLER
ENVIRONMENTAL ENGINEER
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June 2, 1992

Exxon RAS 7-0104
1725 Park Street
Alameda, California

Ms. Katherine Chesick
Alameda County Health Agency
Division of Hazardous Materials
80 Swan Way, Suite 200
Oakland, California 94621

Dear Ms. Chesick:

Attached for your review and comment is a letter report entitled **Groundwater Monitoring Results, Second Quarter 1992** for the above referenced Exxon station in Alameda. This report, prepared by Harding Lawson Associates of Novato, California, presents the results of the ground water sampling event performed in April, 1992.

The results of this sampling event indicate that petroleum hydrocarbons were detected in all wells at the site.

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

Sincerely,
Marla D. Guensler

Attachment

c - w/attachment:
Mr. L. Feldman - San Francisco Bay Region Water Quality Control Board

w/o attachment:
Mr. G. DeMarzo
Mr. G. A. Lieberman - Harding Lawson Associates

MDG:sd
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RECYCLED

Harding Lawson Associates

MAY 18 1992

May 12, 1992

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Exxon Company, U.S.A.
Post Office Box 4032
Concord, California 94520

Attention: Mr. William Y. Wang

Gentlemen:

Groundwater Monitoring Results, Second Quarter 1992
Exxon Station #7-0104
Alameda, California

This letter presents the results of Harding Lawson Associates' (HLA) second quarter 1992 sampling of seven groundwater monitoring wells at Exxon Station #7-0104, 1725 Park Street, Alameda, California (site). The site history and detailed monitoring well sampling procedures are described in HLA's report *Phase II Evaluation of Petroleum Hydrocarbons, Exxon Service Station R/S #7-0104, 1725 Park Street, Alameda, California*, dated March 21, 1989. This sampling event was conducted on April 24, 1992, and represents HLA's final sampling event authorized by Exxon Company, U.S.A. (Exxon), Work Authorization #90066058.

Groundwater-Level Monitoring and Groundwater Sampling

HLA has obtained monthly groundwater-level and free-phase petroleum product (FPPP) measurements from the monitoring wells since September 1989. All measurements were performed with an electric oil-water interface probe or a chalked steel tape. During monthly monitoring, the groundwater collected from each well was visually inspected for the presence of FPPP using a clear Lucite bailer. No measurable FPPP has been observed in any of the wells during the course of this investigation.

Prior to groundwater sample collection on April 24, 1992, the monitoring wells were purged a minimum of three well volumes using a PVC bailer or centrifugal pump. The purged water was stored onsite in 55-gallon drums. Measurements of pH, conductivity, and temperature of the purged water were monitored and recorded during purging of the wells. Copies of HLA's Groundwater Sampling Forms documenting sampling activities are attached to this letter.

Groundwater samples were collected from each of the monitoring wells using a stainless-steel bailer and decanted into pre-acidified 40-milliliter volatile organic analysis (VOA) vials. A quality assurance/quality control (QA/QC) trip blank

consisting of laboratory-supplied VOA vials containing organic-free water accompanied the sample containers to and from the laboratory. The groundwater samples and QA/QC trip blank were labeled, placed in a cooler with blue ice, and transported under chain of custody procedures to PACE Inc., Novato, California. PACE is a state-certified hazardous waste laboratory.

To help prevent potential cross contamination, all water-level measurement and sampling equipment was decontaminated prior to use by steam cleaning or washing in a low phosphorous soap solution.

Laboratory Analyses

The groundwater samples and trip blank were analyzed for total petroleum hydrocarbons (TPH) calibrated as gasoline, and for benzene, toluene, ethylbenzene, and xylenes (BTEX). Groundwater analytical results are summarized in Table 1, along with analytical results from HLA's previous groundwater sampling rounds. Copies of laboratory reports from the April 24, 1992, sampling round are attached to this letter.

Groundwater Gradient and Flow Direction

Potentiometric surface elevations from the April 1992 groundwater-level survey are presented in Table 2, along with previously measured potentiometric surface elevations. Potentiometric surface elevations at the site for the second quarter have increased over previous quarters, most likely as a result of increased precipitation. Plate 1 presents a generalized potentiometric surface map for the site. As shown on Plate 1, the generalized local direction of groundwater flow is toward the east at an approximate gradient of 0.04 ft/ft. This flow direction is consistent with previous potentiometric surface data obtained during this investigation.

Laboratory Analytical Results

Laboratory analytical results indicate that petroleum hydrocarbon constituents were detected in all seven onsite wells at concentrations similar to those previously detected. Detected concentrations of TPH as gasoline ranged from 4.9 to 42 milligrams per liter (mg/l). The concentration of benzene exceeds the California Maximum Contaminant Level (MCL) of 1.0 microgram per liter (μg/l) in all monitoring wells at the site. The MCLs for ethylbenzene (680 μg/l) and xylenes (1750 μg/l) were exceeded in Wells MW-2, MW-3, MW-4, MW-6, and MW-7. The U.S. Environmental Protection Agency (EPA) MCL for toluene (1000 μg/l) was exceeded in Well MW-6; no California MCL has been established. The highest concentrations of petroleum hydrocarbon constituents were detected in the groundwater sample collected from Monitoring Well MW-6, located adjacent to the tank field. No petroleum hydrocarbons were detected in the trip blank submitted to the laboratory for analysis.

HLA plans to continue quarterly sampling and monthly groundwater level monitoring and is in the process of soliciting contractor bids for treatment system construction during the next quarter. The next quarterly sampling event is scheduled for July 1992.

We trust that this is the information Exxon requires at the present time. HLA recommends that copies of this report be submitted to the Regional Water Quality Control Board and the Alameda County Health Department for their review.

Please call us at 415/892-0821 if you have any questions.

Yours very truly,

HARDING LAWSON ASSOCIATES

Gary A. Lieberman
Staff Geologist

Michael L. Siembieda
Associate Geologist - RG 4007

REGISTERED GEOLOGIST
MICHAEL L. SIEMBIEDA
No: 4007
STATE OF CALIFORNIA

GAL/MLS/mm/T23684-H

Attachments:
- Table 1 - Summary of Chemical Results of Groundwater Samples
- Table 2 - Potentiometric Surface Elevations and Product Thickness Measurements
- Plate 1 - Generalized Potentiometric Surface Contour Map, April 24, 1992
- Groundwater Sampling Forms
- Laboratory Analytical Reports

Groundwater Monitoring Results, Second Quarter 1992
Exxon Station #7-0104
Alameda, California

Harding Lawson Associates

Table 1. Summary of Chemical Results of Groundwater Samples

Well Number	Date	TPH Gasoline mg/l[1]	Benzene µg/l[2]	Toluene µg/l	Ethyl-benzene µg/l	Xylenes µg/l	Total Dissolved Solids mg/l
California MCLs[3]			1.0	1000[4]	680	1750	
MW-1	06/07/88	27	5,000	77	1,100	2,700	NT[5]
	01/17/89	6.8	2,000	91	800	1,600	NT
	06/01/89	1.7	170	6.9	13	230	NT
	09/18/89	2.1	9.0	53	18	130	NT
	12/11/89	5.8	200	42	290	330	NT
	03/07/90	NT	NT	NT	NT	NT	910
	03/13/90	2.3	430	14	16	220	NT
	06/14/90	32	1,400	19	<5[6]	120	NT
	09/19/90	0.95	290	2.9	<0.5	27	NT
	12/17/90	2.1	550	13	350	110	NT
	03/19/91	1.4	900	45	390	150	NT
	07/24/91	9.7	1,300	670	950	2,100	NT
	10/22/91	0.540	220	1.8	110	7.8	NT
	01/21/92	1.8	650	23	300	64	NT
	04/24/92	4.9	1,600	78	660	250	NT
MW-2	06/07/88	110	12,000	12,000	2,100	12,000	NT
	01/17/89	30	6,600	3,300	1,600	7,700	NT
	06/01/89	8.7	330	280	680	1,200	NT
	09/18/89	17	580	280	570	220	NT
	12/11/89	32	1,000	850	310	1,200	NT
	03/13/90	39	3,500	1,500	2,100	3,900	NT
	06/14/90	34	3,800	730	1,600	3,900	NT
	09/19/90	63	670	180	390	1,000	NT
	12/17/90	140	3,700	2,500	3,000	8,300	NT
	03/19/91	48	4,500	1,600	2,100	5,500	NT
	07/24/91	49	3,500	2,200	2,000	6,400	NT
	10/22/91	34	3,700	1,100	1,800	5,200	NT
	01/21/92	21	4,600	1,300	1,700	5,100	NT
	04/24/92	36	5,000	970	2,300	5,200	NT
MW-3	06/07/88	28	6,000	80	940	1,900	NT
	01/17/89	5.3	2,500	230	590	1,100	NT
	06/01/89	5.4	330	300	570	680	NT
	09/18/89	12	680	170	350	860	NT
	12/11/89	14	1,100	150	670	690	NT
	03/13/90	18	6,300	200	1,100	1,100	NT
	06/14/90	9.5	1,300	880	310	1,800	NT
	09/19/90	16	5,000	65	1,500	450	NT
	12/17/90	6.7	1,500	64	650	460	NT
	03/19/91	18	4,200	2,100	1,100	1,200	NT
	07/24/91	38	6,200	990	2,900	9,600	NT

Table 1. Summary of Chemical Results
of Groundwater Samples
(continued)

Well Number	Date	TPH Gasoline mg/l[1]	Benzene µg/l[2]	Toluene µg/l	Ethyl-benzene µg/l	Xylenes µg/l	Total Dissolved Solids mg/l
California MCLs[3]			1.0	1000[4]	680	1750	
MW-3	10/22/91	23	3,400	150	2,500	4,400	NT
(con't)	01/21/92	13	2,700	30	1,800	740	NT
	04/24/92	17	4,200	170	1,600	600	NT
MW-4	01/17/89	19	1,000	1,500	360	2,200	NT
	06/01/89	3.6	180	240	63	810	NT
	09/18/89	6.0	290	200	28	510	NT
	12/11/89	13	750	910	510	1,200	NT
	03/07/90	NT	NT	NT	NT	NT	370
	03/13/90	12	1,500	1,500	470	2,800	NT
	06/14/90	12	5,700	400	1,300	760	NT
	09/19/90	5.5	670	180	390	1,000	NT
	12/17/90	14	1,400	620	540	2,100	NT
	03/19/91	11	1,500	740	620	2,100	NT
	07/24/91	10	1,200	440	410	1,200	NT
	10/22/91	4.6	750	190	350	780	NT
	01/21/92	6	1,300	320	510	1,200	NT
	04/24/92	11	1,700	630	710	1,600	NT
MW-5	01/17/89	26	8,700	3,900	990	5,900	NT
	06/01/89	5.2	240	220	130	690	NT
	09/18/89	8.0	340	150	140	460	NT
	12/11/89	15	720	320	450	870	NT
	03/13/90	10	3,400	220	280	800	NT
	06/14/90	12	3,300	160	350	730	NT
	09/19/90	8.5	1,800	85	120	460	NT
	12/17/90	18	2,300	810	430	1,400	NT
	03/19/91	17	2,900	610	580	1,200	NT
	07/24/91	16	3,200	320	690	1,100	NT
	10/22/91	6.6	2,000	64	320	480	NT
	01/21/92	14	4,000	190	630	1,300	NT
	04/24/92	12	2,600	120	620	530	NT
MW-6	01/17/89	38	7,400	9,300	2,000	9,900	NT
	06/01/89	23	1,900	2,500	2,000	6,000	NT
	09/18/89	17	650	410	650	320	NT
	12/11/89	29	1,100	810	330	1,500	NT
	03/13/90	38	12,000	15,000	2,500	12,000	NT
	06/14/90	38	9,100	7,800	2,900	12,000	NT
	09/19/90	22	4,200	300	1,400	3,400	NT
	12/17/90	20	3,100	4,100	890	2,700	NT

Table 1. Summary of Chemical Results of Groundwater Samples (continued)

Well Number	Date	TPH Gasoline mg/l[1]	Benzene µg/l[2]	Toluene µg/l	Ethyl-benzene µg/l	Xylenes µg/l	Total Dissolved Solids mg/l
California MCLs[3]			1.0	1000[4]	680	1750	
MW-6	03/19/91	180	11,000	55,000	5,600	28,000	NT
(con't)	07/24/91	48	5,400	2,300	2,000	9,000	NT
MW-6	10/22/91	18	3,100	700	1,400	2,900	NT
(con't)	01/21/92	9.4	2,100	370	1,000	1,100	NT
	04/24/92	42	3,500	8,000	2,100	8,000	NT
MW-7	01/09/90	17	380	180	330	1,300	NT
	03/13/90	16	360	270	83	460	NT
	06/14/90	14	1,200	2,800	75	930	NT
	09/19/90	16	2,800	95	2,500	1,700	NT
	12/17/90	75	2,600	7,000	3,300	14,000	NT
	03/19/91	44	1,600	740	3,400	8,600	NT
	07/24/91	18	1,300	160	2,700	1,000	NT
	10/22/91	10	990	26	1,900	490	NT
	01/21/92	23	2,200	3,000	1,800	6,100	NT
	04/24/92	25	1,400	220	2,100	2,600	NT
Field Blank	12/11/89	<0.05	0.88	0.95	0.62	1.7	NT
	12/17/90	<0.05	<0.5	<0.5	<0.5	<0.5	NT
	03/19/91	<0.05	<0.5	<0.5	<0.5	<0.5	NT
	07/24/91	<0.05	<0.5	<0.5	<0.5	<0.6	NT
	10/22/91	<0.05	<0.5	<0.5	<0.5	<0.5	NT
	01/21/92	<0.05	<0.5	<0.5	<0.5	<0.5	NT
Trip Blank	06/14/90	<0.05	<0.5	<0.5	<0.5	<0.5	NT
	09/19/90	<0.05	0.8	<0.5	0.6	1.0	NT
	04/24/92	<0.05	<0.5	<0.5	<0.5	<0.5	NT

1 mg/l: milligrams per liter
2 µg/l: micrograms per liter
3 MCL: Maximum Contaminant Level
4 Represents EPA MCL; California MCL has not been established.
5 NT: Not tested
6 Numbers preceded by "<" indicate that sample was not detected at the indicated detection limit

Table 2. Potentiometric Surface and Product Thickness Measurements

Well Number	Elevation Top of Well Casing[1]	Date	Depth to Water BTOC[2] (feet)	Depth to Product BTOC (feet)	Product Thickness (feet)	Potentiometric Surface Elevation (feet above MSL)
MW-1	17.35	06-10-88	6.35	NP[3]	NP	11.00
		01-17-89	5.81	NP	NP	11.54
		01-24-89	5.16	NP	NP	12.19
		06-01-89	6.27	NP	Sheen	11.08
		09-18-89	7.11	NP	NP	10.24
		10-20-89	7.28	NP	NP	10.07
		11-22-89	7.02	NP	NP	10.33
		12-11-89	6.60	NP	NP	10.75
		02-13-90	6.02	NP	NP	11.33
		03-13-90	5.91	NP	NP	11.44
		04-18-90	6.18	NP	NP	11.17
		05-23-90	6.29	NP	NP	11.06
		06-14-90	6.19	NP	NP	11.28
		08-21-90	7.03	NP	NP	10.32
		09-19-90	7.26	NP	NP	10.09
		12-17-90	6.75	NP	NP	10.60
		01-31-91	6.78	NP	NP	10.57
		02-25-91	6.59	NP	NP	10.76
		03-19-91	5.85	NP	NP	11.50
		04-22-91	5.72	Sheen	Sheen	11.63
		05-17-91	6.00	NP	NP	11.35
		07-24-91	6.79	NP	NP	10.56
		09-10-91	7.25	NP	NP	10.10
		09-23-91	7.33	NP	NP	10.02
		10-21-91	7.53	NP	NP	9.82
		11-18-91	7.13	NP	NP	10.22
		12-11-91	7.25	NP	NP	10.10
		01-21-92	6.54	NP	NP	10.81
		02-20-92	4.82	NP	NP	12.53
		03-19-92	5.24	NP	NP	12.11
		04-24-92	5.71	NP	NP	11.64
MW-2	16.67	06-10-88	6.20	NP	NP	10.47
		01-17-89	5.96	NP	NP	10.71
		01-24-89	5.04	NP	NP	11.63
		06-01-89	6.32	NP	Sheen	10.35
		09-18-89	6.73	NP	NP	9.94
		10-20-89	6.87	NP	NP	9.80
		11-22-89	6.80	NP	NP	9.87
		12-11-89	6.57	NP	NP	10.10
		02-13-90	6.12	NP	NP	10.55

Table 2. Potentiometric Surface and Product Thickness Measurements (continued)

Well Number	Elevation Top of Well Casing[1]	Date	Depth to Water BTOC[2] (feet)	Depth to Product BTOC (feet)	Product Thickness (feet)	Potentiometric Surface Elevation (feet above MSL)
MW-2 (con't)	16.67	03-13-90	6.02	NP	NP	10.65
		04-18-90	6.35	NP	NP	10.32
		05-23-90	6.28	NP	NP	10.39
		06-14-90	6.14	NP	NP	10.53
		08-21-90	6.70	NP	NP	9.97
		09-19-90	6.84	NP	NP	9.83
		12-17-90	6.46	NP	NP	10.21
		01-31-91	6.66	Sheen	Sheen	10.01
		02-25-91	6.50	NP	NP	10.17
		03-19-91	5.76	Sheen	Sheen	10.91
		04-22-91	5.78	NP	NP	10.89
		05-17-91	6.01	NP	NP	10.66
		07-24-91	6.43	NP	NP	10.24
		09-10-91	6.81	NP	NP	9.86
		09-23-91	6.82	NP	NP	9.85
		10-21-91	7.01	NP	NP	9.66
		11-18-91	6.66	NP	NP	10.01
		12-11-91	6.85	NP	NP	9.82
		01-21-92	6.22	NP	NP	10.45
		02-20-92	5.28	NP	NP	11.39
		03-19-92	5.34	NP	NP	11.33
		04-24-92	5.75	Sheen	Sheen	10.92
MW-3	17.11	06-10-88	6.05	NP	NP	11.06
		01-17-89	5.49	NP	NP	11.62
		01-24-89	5.38	NP	NP	11.73
		06-01-89	5.96	NP	NP	11.15
		09-18-89	6.65	NP	NP	10.46
		10-20-89	6.88	NP	NP	10.23
		11-22-89	6.74	NP	NP	10.37
		12-11-89	6.37	NP	NP	10.74
		02-13-90	5.58	NP	NP	11.53
		03-13-90	5.48	NP	NP	11.63
		04-18-90	6.01	NP	NP	11.10
		05-23-90	6.14	NP	NP	10.97
		06-14-90	5.83	NP	NP	11.28
		08-21-90	6.67	NP	NP	10.44
		09-19-90	6.88	NP	NP	10.23
		12-17-90	6.46	NP	NP	10.65
		01-31-91	6.24	NP	NP	10.87
		02-25-91	6.18	NP	NP	10.93

Table 2. Potentiometric Surface and Product Thickness Measurements (continued)

Well Number	Elevation Top of Well Casing[1]	Date	Depth to Water BTOC[2] (feet)	Depth to Product BTOC (feet)	Product Thickness (feet)	Potentiometric Surface Elevation (feet above MSL)
MW-3 (con't)	17.11	03-19-91	5.35	NP	NP	11.76
		04-22-91	5.72	NP	NP	11.39
		05-17-91	5.55	NP	NP	11.56
		07-24-91	6.41	NP	NP	10.70
		09-10-91	6.80	NP	NP	10.31
		09-23-91	6.80	NP	NP	10.31
		10-21-91	7.09	NP	NP	10.02
		11-18-91	6.74	NP	NP	10.37
		12-11-91	6.79	NP	NP	10.32
		01-21-92	6.16	NP	NP	10.95
		02-20-92	4.89	NP	NP	12.22
		03-19-92	4.85	NP	NP	12.26
		04-24-92	5.28	NP	NP	11.83
MW-4	17.34	01-17-89	5.36	NP	NP	11.98
		01-24-89	5.46	NP	NP	11.88
		06-01-89	6.01	NP	NP	11.33
		09-18-89	6.80	NP	NP	10.54
		10-20-89	7.08	NP	NP	10.26
		11-22-89	6.82	NP	NP	10.52
		12-11-89	6.37	NP	NP	10.97
		02-13-90	5.49	NP	NP	11.85
		03-13-90	5.44	NP	NP	11.90
		04-18-90	6.14	NP	NP	11.20
		05-23-90	6.22	NP	NP	11.12
		06-14-90	5.92	NP	NP	11.42
		08-21-90	6.83	NP	NP	10.51
		09-19-90	7.07	NP	NP	10.27
		12-17-90	6.50	NP	NP	10.84
		01-31-91	6.66	NP	NP	10.68
		02-25-91	6.21	NP	NP	11.13
		03-19-91	5.29	NP	NP	12.05
		04-22-91	5.26	NP	NP	12.08
		05-17-91	5.60	NP	NP	11.74
		07-24-91	6.54	NP	NP	10.80
		09-10-91	7.04	NP	NP	10.10
		09-23-91	7.14	NP	NP	10.20
		10-21-91	7.30	Sheen	Sheen	10.04
		11-18-91	6.90	NP	NP	10.44
		12-11-91	7.01	NP	NP	10.33
		01-21-92	6.25	NP	NP	11.09

Table 2. Potentiometric Surface and Product Thickness Measurements (continued)

Well Number	Elevation Top of Well Casing[1]	Date	Depth to Water BTOC[2] (feet)	Depth to Product BTOC (feet)	Product Thickness (feet)	Potentiometric Surface Elevation (feet above MSL)
MW-4 (con't)	17.34	02-20-92	4.79	NP	NP	12.55
		03-19-92	4.70	NP	NP	12.64
		04-24-92	5.25	Sheen	Sheen	12.09
MW-5	16.71	01-17-89	5.39	NP	NP	11.32
		01-24-89	5.51	NP	NP	11.20
		06-01-89	5.83	Sheen	Sheen	10.88
		09-18-89	6.52	NP	NP	10.19
		10-20-89	6.72	NP	NP	9.99
		11-22-89	6.54	NP	NP	10.17
		12-11-89	6.21	NP	NP	10.50
		02-13-90	5.60	NP	NP	11.11
		03-13-90	5.54	NP	NP	11.17
		04-18-90	5.75	NP	NP	10.76
		05-23-90	5.98	NP	NP	10.73
		06-14-90	5.81	NP	NP	10.90
		08-21-90	6.51	NP	NP	10.20
		09-19-90	6.70	NP	NP	10.01
		12-17-90	6.24	Sheen	Sheen	10.47
		01-31-91	6.31	NP	NP	10.40
		02-25-91	6.13	NP	NP	10.58
		03-19-91	5.32	NP	NP	11.39
		04-22-91	5.30	Sheen	Sheen	11.41
		05-17-91	5.59	NP	NP	11.12
		07-24-91	6.33	NP	NP	10.38
		09-10-91	6.66	NP	NP	10.05
		09-23-91	6.75	NP	NP	9.96
		10-21-91	6.92	Sheen	Sheen	9.79
		11-18-91	6.55	NP	NP	10.16
		12-11-91	6.64	NP	NP	10.07
		01-21-92	6.07	Sheen	Sheen	10.64
		02-20-92	4.83	NP	NP	11.88
		03-19-92	4.83	Sheen	Sheen	11.88
		04-24-92	5.32	Sheen	Sheen	11.39
MW-6	17.56	01-17-89	5.59	NP	NP	11.97
		01-24-89	5.27	NP	NP	12.29
		06-01-89	6.25	NP	Sheen	11.31
		09-18-89	6.95	NP	NP	10.61
		10-20-89	7.24	NP	NP	10.32
		11-22-89	7.05	NP	NP	10.51

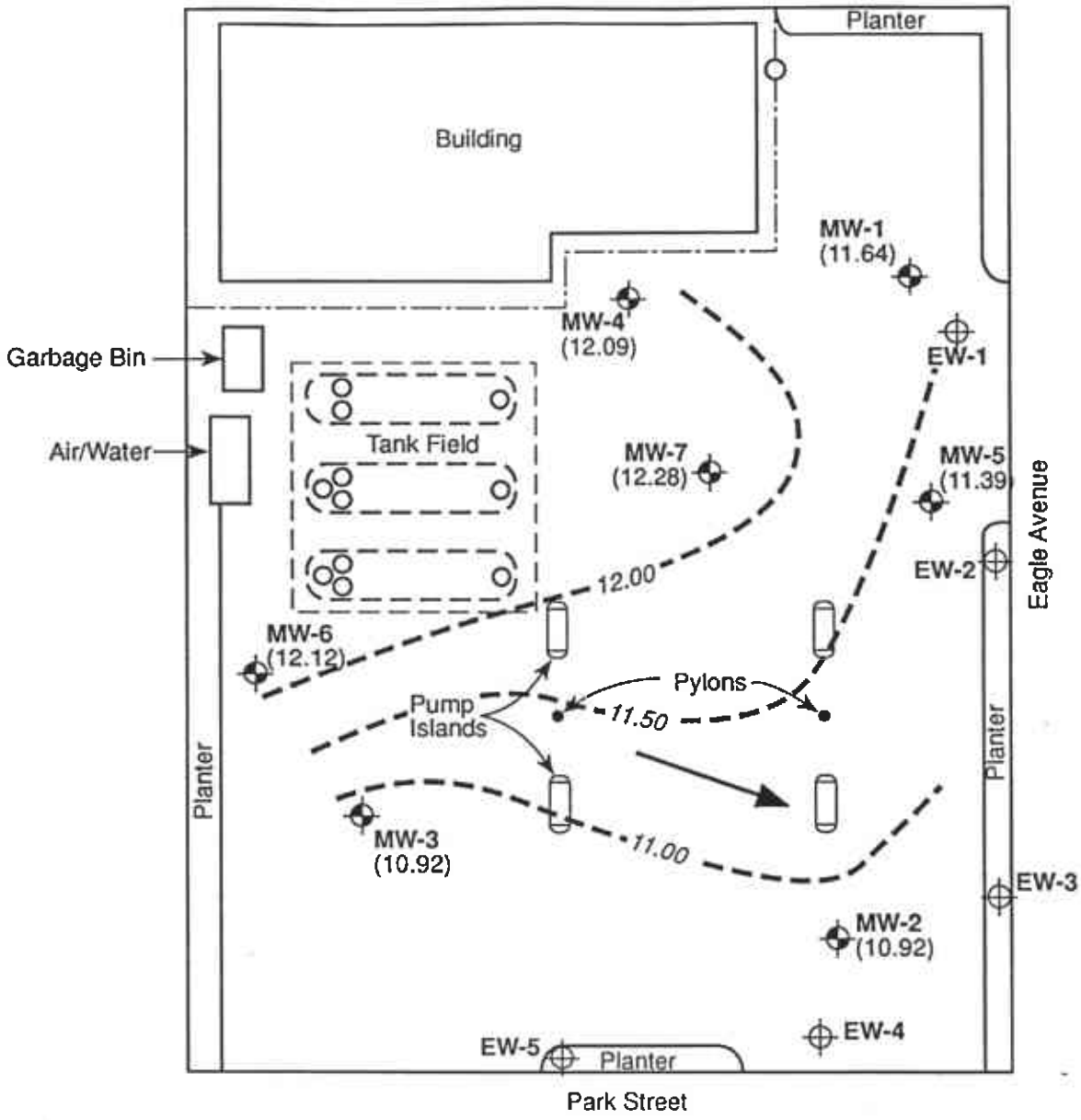
Table 2. Potentiometric Surface and Product Thickness Measurements (continued)

Well Number	Elevation Top of Well Casing[1]	Date	Depth to Water BTOC[2] (feet)	Depth to Product BTOC (feet)	Product Thickness (feet)	Potentiometric Surface Elevation (feet above MSL)
MW-6 (con't)	17.56	12-11-89	6.63	NP	NP	10.93
		02-13-90	5.70	NP	NP	11.86
		03-13-90	5.63	NP	NP	11.93
		04-18-90	6.26	NP	NP	11.30
		05-23-90	6.42	NP	NP	11.14
		06-14-90	6.19	NP	NP	11.37
		08-21-90	7.01	NP	NP	10.55
		09-19-90	7.23	NP	NP	10.33
		12-17-90	6.66	NP	NP	10.90
		01-31-91	6.39	NP	NP	11.17
		02-25-91	6.39	NP	NP	11.17
		03-19-91	5.57	NP	NP	11.99
		04-22-91	5.42	NP	NP	12.14
		05-17-91	5.73	NP	NP	11.83
		07-24-91	6.72	NP	NP	10.84
		09-10-91	7.15	NP	NP	10.41
		09-23-91	7.25	NP	NP	10.31
		10-21-91	7.42	NP	NP	10.14
		11-18-91	7.08	NP	NP	10.48
		12-11-91	7.17	NP	NP	10.39
		01-21-92	6.40	NP	NP	11.16
		02-20-92	5.06	NP	NP	12.50
		03-19-92	4.86	NP	NP	12.70
		04-24-92	5.44	NP	NP	12.12
MW-7	17.12	02-13-90	4.98	NP	NP	12.14
		03-13-90	4.94	NP	NP	12.18
		05-23-90	5.87	NP	NP	11.25
		06-14-90	5.55	NP	NP	11.57
		09-19-90	6.79	NP	NP	10.33
		12-17-90	6.15	NP	NP	10.97
		01-31-91	6.64	NP	NP	10.48
		02-25-91	5.80	NP	NP	11.32
		03-19-91	4.96	NP	NP	12.16
		04-22-91	4.82	Sheen	Sheen	12.30
		05-17-91	5.18	NP	NP	11.94
		07-24-91	6.22	NP	NP	10.90
		09-10-91	6.71	NP	NP	10.41
		09-23-91	6.84	NP	NP	10.28
		10-21-91	7.00	NP	NP	10.12
		11-18-91	6.56	NP	NP	10.56

Table 2. Potentiometric Surface and Product Thickness Measurements (continued)

Well Number	Elevation Top of Well Casing[1]	Date	Depth to Water BTOC[2] (feet)	Depth to Product BTOC (feet)	Product Thickness (feet)	Potentiometric Surface Elevation (feet above MSL)
MW-7 (con't)	17.12	12-11-91	6.68	NP	NP	10.44
		01-21-92	5.99	NP	NP	11.13
		02-20-92	4.36	NP	NP	12.76
		03-19-92	4.22	NP	NP	12.90
		04-24-92	4.84	Sheen	Sheen	12.28

1 Elevations surveyed to mean sea level.
2 BTOC - Below top of casing.
3 NP: No product.



EXPLANATION

MW-3 ⊕ Monitoring Well Locations

EW-1 ⊕ Extraction Well Location

(11.39) Potentiometric Surface Elevation in Feet Above Mean Sea Level

11.00 Potentiometric Surface Elevation Contour

Approximate Groundwater Flow Direction

N

0 20 40

SCALE IN FEET

0511LZ

Harding Lawson Associates
Engineering and Environmental Services

Generalized Poteniometric Surface Contour Map - April 24, 1992
Exxon Station #7-0104
Alameda, California

PLATE **1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NJBc	4167,416.02	GAL	5/92	

Harding Lawson Associates
Engineers and Geoscientists

GROUND-WATER SAMPLING FORM

Well No. MW-1
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Job Name EXXON ALAMEDA
Job Number 4167, 416.02
Date 4-24-92 Time 1150
Recorded by (Signature)
Sampled by KJS (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☐ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 20.5
Water Level Depth (WL in feet BTOC): 5.71
Number of Well Volumes to be purged (# Vols)
☒ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☑ Bailer - Type: PVC
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): Screen Interval in feet (BTOC): from to

PURGE VOLUME CALCULATION

$(20.5 \text{ TD (feet)} - 5.71 \text{ WL (feet)}) \times 4^2 \text{ D (inches)} \times 3 \text{ \# Vols} \times 0.0408 = 29.0$ gallons Calculated Purge Volume

PURGE TIME

1130 Start 1145 Stop 15 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

29.0 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
0 GAL	6.2	500	28	>100
10	6.2	630	21	"
20	6.6	600	19.5	"
29	6.6	610	19.5	"

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	1566	29666		

Observations During Purging (Well Condition, Turbidity, Color, Odor): TURB. FROM BAILING SOME ODOR NO SHEEN
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☑ Other DRUMS ON SITE

WELL SAMPLING

SAMPLING METHOD

☒ Bailer - Type: SS
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Same As Above
☐ Grab - Type:
☐ Other - Type:

SAMPLE DISTRIBUTION

Sample Series: 9104

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
	3 VOAs	TPH/GAS + BTEX	HCL	PACE	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Harding Lawson Associates
Engineers and Geoscientists

GROUND-WATER SAMPLING FORM

Well No. MW-2
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Job Name EXXON ALAMEDA
Job Number 4167,416,02
Date 4-24-92 Time 1310
Recorded by (Signature)
Sampled by KDO (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 15.9
Water Level Depth (WL in feet BTOC): 5.75
Number of Well Volumes to be purged (# Vols)
☒ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☒ Bailer - Type: PVC
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): Screen Interval in feet (BTOC): from to

PURGE VOLUME CALCULATION

$(15.9 - 5.75) \times 4^2 \times 3 \times 0.0408 = 19.9$ gallons

(15.9 TD (feet) − 5.75 WL (feet)) × 4 D (inches)² × 3 # Vols × 0.0408 = 19.9 Calculated Purge Volume

PURGE TIME

1240 Start 130 Stop 20 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
0 GAL	6.7	700	21	7100
7	6.6	700	21	"
14	6.5	700	21	"
19.9	6.7	640	21	"

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	1566	29666		

Observations During Purging (Well Condition, Turbidity, Color, Odor): TURBID FROM BAILING STRONG ODOR - GASOLINE
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other DRUMS ON SITE

WELL SAMPLING

SAMPLING METHOD

☒ Bailer - Type: SS
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:

☐ Same As Above
☐ Grab - Type:
☐ Other - Type:

SAMPLE IDENTIFICATION

Sample Series: 9204

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
24024	3 VOAs	TPH/GAS + BTEX	HCL	PAE	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original Sample No.	Duplicate Sample No.	Type	Sample No.	Type	Sample No.
		TRIP	2401		

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GROUND-WATER SAMPLING FORM

Job Name EXXON ALAMEDA
Job Number 4167,416,02
Recorded by _____ (Signature)

Well No. MW-3
Well Type: ☒ Monitor ☐ Extraction ☐ Other _____
Well Material: ☒ PVC ☐ St. Steel ☐ Other _____
Date 4-24-92 Time 1525
Sampled by KDG (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other _____
Total Depth of Casing (TD in feet BTOC): 14.2
Water Level Depth (WL in feet BTOC): 5.28
Number of Well Volumes to be purged (# Vols)
☒ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other _____

PURGE METHOD

☒ Bailer - Type: PVC
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: _____
☐ Other - Type: _____

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other _____
Depth in feet (BTOC): _____ Screen Interval in feet (BTOC): from _____ to _____

PURGE VOLUME CALCULATION

(14.2 TD (feet) − 5.28 WL (feet)) X 4 D (inches)^2 X 3 # Vols X 0.0408 = 17.5 gallons
Calculated Purge Volume

PURGE TIME

1500 Start 1518 Stop 18 Elapsed

PURGE RATE

Initial _____ gpm Final _____ gpm

ACTUAL PURGE VOLUME

17.5 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
0 GAL	6.5	550	22	>100
6	6.5	560	21	"
12	6.7	510	21	"
17.5	6.8	500	21	"

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	1566	29666		

Observations During Purging (Well Condition, Turbidity, Color, Odor): TURBID FOR BAILING, GREY, STRONG ODOR, NO SHEEN
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other DRUMS ON SITE

WELL SAMPLING

SAMPLING METHOD

☒ Bailer - Type: SS
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: _____
☐ Same As Above
☐ Grab - Type: _____
☐ Other - Type: _____

SAMPLE DISTRIBUTION

Sample Series: 9204

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
	3 VOAS	TPH/GAS, BTEX	HCL	PACE.	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

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Engineers and Geoscientists

GROUND-WATER SAMPLING FORM

Well No. MW-4
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Date 4-24-92 Time 1705
Sampled by KJG (Initials)

Job Name EXXON ALAMEDA
Job Number 4167.416.02
Recorded by (Signature)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 18.0
Water Level Depth (WL in feet BTOC): 5.25
Number of Well Volumes to be purged (# Vols)
☒ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☒ Bailer - Type: PVC
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): Screen Interval in feet (BTOC): from to

PURGE VOLUME CALCULATION

$$(\underset{\text{TD (feet)}}{18.0} - \underset{\text{WL (feet)}}{5.25}) \times \underset{\text{D (inches)}}{4}^2 \times \underset{\text{\# Vols}}{3} \times 0.0408 = \underset{\text{Calculated Purge Volume}}{25.0} \text{ gallons}$$

PURGE TIME

1640 Start 1654 Stop 14 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

25.0 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
0 GAL	6.4	580	20	7100
8	6.5	590	20	"
16	6.7	590	20	"
25	6.8	580	19	

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	1566	29666		

Observations During Purging (Well Condition, Turbidity, Color, Odor): TURBID SMELLY BAILING, GREY
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other DRUMS ON SITE

WELL SAMPLING

SAMPLING METHOD

☒ Bailer - Type: SS
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Same As Above
☐ Grab - Type:
☐ Other - Type:

SAMPLE DISTRIBUTION

Sample Series: 9204

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
	3 VOAS	TPH-GAS, BTEX	HCL	PACE	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

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GROUND-WATER SAMPLING FORM

Well No. MW-5
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Date 4-24-92 Time 1220
Sampled by KJG (Initials)

Job Name EXXON ALAMEDA
Job Number 4167.416.07
Recorded by (Signature)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in Inches):
☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 18.9
Water Level Depth (WL in feet BTOC): 5.32
Number of Well Volumes to be purged (# Vols)
☒ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☒ Bailer - Type: PVC
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): Screen Interval in feet (BTOC): from to

PURGE VOLUME CALCULATION

$(18.9 \text{ TD (feet)} - 5.32 \text{ WL (feet)}) \times 4 \text{ D (inches)}^2 \times 3 \text{ \# Vols} \times 0.0408 = 26.6$ gallons (Calculated Purge Volume)

PURGE TIME

1200 Start 1210 Stop 10 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

26.6 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
0 GAL	6.6	620	21	> 100
9	6.6	650	20	"
18	6.7	640	19.5	"
26.6	6.8	600	19.5	"

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	156C	296GC		

Observations During Purging (Well Condition, Turbidity, Color, Odor): TURBID FROM BAILING, STRONG ODOR SHEEN
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other DRUMS ON SITE

WELL SAMPLING

SAMPLING METHOD

☒ Bailer - Type: SS
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:

☐ Same As Above
☐ Grab - Type:
☐ Other - Type:

SAMPLE DISTRIBUTION

Sample Series: 9204

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
2403	3 VOAs	TPH-GAS BTEX			

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

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GROUND-WATER SAMPLING FORM

Well No. MW-6
Well Type: ☐ Monitor ☐ Extraction ☐ Other
Well Material: ☐ PVC ☐ St. Steel ☐ Other
Job Name EXXON ALAMEDA
Job Number 4167.416.02
Date 4-24-92 Time 1630
Recorded by (Signature)
Sampled by KJG (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☐ 2-inch ☒ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 15.5
Water Level Depth (WL in feet BTOC): 5.44
Number of Well Volumes to be purged (# Vols)
☒ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☒ Bailer - Type: PVC
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): Screen Interval in feet (BTOC): from to

PURGE VOLUME CALCULATION

$(15.5 \text{ TD (feet)} - 5.44 \text{ WL (feet)}) \times 4^2 \text{ D (inches)} \times 3 \text{ \# Vols} \times 0.0408 = 19.7$ gallons Calculated Purge Volume

PURGE TIME

1556 Start 1629 Stop 25 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

19.7 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
0 BAIL	6.9	410	21	>100
7	6.7	400	20.5	"
14	6.6	4100	19.5	"

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	1566	29666		

Observations During Purging (Well Condition, Turbidity, Color, Odor): TURBID FROM BAILING, GREY, STRONG ODOR, NO SHEEN
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other DRUMS ON SITE

WELL SAMPLING

SAMPLING METHOD

☒ Bailer - Type: SS
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Same As Above
☐ Grab - Type:
☐ Other - Type:

SAMPLE DISTRIBUTION

Sample Series: 9204

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
2407	3 VOAS	TPH-GAS, BTEX	HCL	PACE	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Harding Lawson Associates
Engineers and Geoscientists

GROUND-WATER SAMPLING FORM

Well No. MW-7
Well Type: ☑ Monitor ☐ Extraction ☐ Other
Well Material: ☑ PVC ☐ St. Steel ☐ Other
Date 4-24-92 Time 1420
Sampled by KJG (Initials)

Job Name EXXON ALAMEDA
Job Number 4167.416.02
Recorded by (Signature)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☒ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 16.5
Water Level Depth (WL in feet BTOC): 4.84
Number of Well Volumes to be purged (# Vols)
☒ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer - Type:
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): Screen Interval in feet (BTOC): from to

$$\left(\frac{16.5}{\text{TD (feet)}} - \frac{4.84}{\text{WL (feet)}}\right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{22.8}{\text{Calculated Purge Volume}} \text{ gallons}$$

PURGE TIME

1355 Start 1410 Stop 15 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

22.8 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
0 CAL	6.8	490	22	>100
8	6.8	480	21	"
16	6.6	430	20	"
22.8	6.5	420		"

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	156C	296GC		

Observations During Purging (Well Condition, Turbidity, Color, Odor): TURBID FOR BAILING, GREY, STRONG ODOR STRONG SHEEN
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other DRUMS ON SITE

WELL SAMPLING

SAMPLING METHOD

☒ Bailer - Type: SS
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:

☐ Same As Above
☐ Grab - Type:
☐ Other - Type:

SAMPLE DISTRIBUTION

Sample Series: 9204

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
2405	3 VOAs	TPH-GAS, BTEX	HCL	PACE	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

4 MAY 92 9:53

May 01, 1992

Mr. Gary Leiberman
Harding Lawson Associates
7655 Redwood Boulevard
Novato, CA 94948

RE: PACE Project No. 420424.514
Client Reference: Exxon 7-0104

Dear Mr. Leiberman:

Enclosed is the report of laboratory analyses for samples received April 24, 1992.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Carol Reid

Carol Reid
Project Manager

Enclosures

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FAX: 415-883-2673

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Harding Lawson Associates
7655 Redwood Boulevard
Novato, CA 94948

May 01, 1992
PACE Project Number: 420424514

Attn: Mr. Gary Leiberman

Client Reference: Exxon 7-0104

PACE Sample Number:			70 0086086	
Date Collected:			04/24/92	
Date Received:			04/24/92	
Client Sample ID:			92042401	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
TPH GASOLINE/BTEX				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/28/92
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	ND	04/28/92
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/28/92
Benzene	ug/L	0.5	ND	04/28/92
Toluene	ug/L	0.5	ND	04/28/92
Ethylbenzene	ug/L	0.5	ND	04/28/92
Xylenes, Total	ug/L	0.5	ND	04/28/92

MDL Method Detection Limit
ND Not detected at or above the MDL.

11 Digital Drive
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FAX: 415-883-2673

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Mr. Gary Leiberman
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May 01, 1992
PACE Project Number: 420424514

Client Reference: Exxon 7-0104

PACE Sample Number:			70 0086094	
Date Collected:			04/24/92	
Date Received:			04/24/92	
Client Sample ID:			92042402	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
TPH GASOLINE/BTEX				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/28/92
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	1200	4900	04/28/92
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/28/92
Benzene	ug/L	12	1600	04/28/92
Toluene	ug/L	12	78	04/28/92
Ethylbenzene	ug/L	12	660	04/28/92
Xylenes, Total	ug/L	12	250	04/28/92

MDL Method Detection Limit

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May 01, 1992
PACE Project Number: 420424514

Client Reference: Exxon 7-0104

PACE Sample Number:			70 0086108	
Date Collected:			04/24/92	
Date Received:			04/24/92	
Client Sample ID:			92042403	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
TPH GASOLINE/BTEX				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/28/92
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	2500	12000	04/28/92
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/28/92
Benzene	ug/L	25	2600	04/28/92
Toluene	ug/L	25	120	04/28/92
Ethylbenzene	ug/L	25	620	04/28/92
Xylenes, Total	ug/L	25	530	04/28/92

MDL Method Detection Limit

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REPORT OF LABORATORY ANALYSIS

Mr. Gary Leiberman
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May 01, 1992
PACE Project Number: 420424514

Client Reference: Exxon 7-0104

PACE Sample Number:			70 0086116	
Date Collected:			04/24/92	
Date Received:			04/24/92	
Client Sample ID:			92042404	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
TPH GASOLINE/BTEX				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/28/92
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	6200	36000	04/28/92
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/28/92
Benzene	ug/L	62	5000	04/28/92
Toluene	ug/L	62	970	04/28/92
Ethylbenzene	ug/L	62	2300	04/28/92
Xylenes, Total	ug/L	62	5200	04/28/92

MDL Method Detection Limit

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Mr. Gary Leiberman
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May 01, 1992
PACE Project Number: 420424514

Client Reference: Exxon 7-0104

PACE Sample Number:			70 0086124	
Date Collected:			04/24/92	
Date Received:			04/24/92	
Client Sample ID:			92042405	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
TPH GASOLINE/BTEX				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/28/92
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	2500	25000	04/28/92
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/28/92
Benzene	ug/L	25	1400	04/28/92
Toluene	ug/L	25	220	04/28/92
Ethylbenzene	ug/L	25	2100	04/28/92
Xylenes, Total	ug/L	25	2600	04/28/92

MDL Method Detection Limit

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Mr. Gary Leiberman
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May 01, 1992
PACE Project Number: 420424514

Client Reference: Exxon 7-0104

PACE Sample Number:			70 0086132	
Date Collected:			04/24/92	
Date Received:			04/24/92	
Client Sample ID:			92042406	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
TPH GASOLINE/BTEX				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/28/92
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	5000	17000	04/28/92
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/28/92
Benzene	ug/L	50	4200	04/28/92
Toluene	ug/L	50	170	04/28/92
Ethylbenzene	ug/L	50	1600	04/28/92
Xylenes, Total	ug/L	50	600	04/28/92

MDL Method Detection Limit

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Mr. Gary Leiberman
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May 01, 1992
PACE Project Number: 420424514

Client Reference: Exxon 7-0104

PACE Sample Number:			70 0086140	
Date Collected:			04/24/92	
Date Received:			04/24/92	
Client Sample ID:			92042407	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
TPH GASOLINE/BTEX				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/28/92
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	6200	42000	04/28/92
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/28/92
Benzene	ug/L	62	3500	04/28/92
Toluene	ug/L	62	8000	04/28/92
Ethylbenzene	ug/L	62	2100	04/28/92
Xylenes, Total	ug/L	62	8000	04/28/92

MDL Method Detection Limit

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Mr. Gary Leiberman
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May 01, 1992
PACE Project Number: 420424514

Client Reference: Exxon 7-0104

PACE Sample Number:			70 0086159	
Date Collected:			04/24/92	
Date Received:			04/24/92	
Client Sample ID:			92042408	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
TPH GASOLINE/BTEX				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/28/92
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	6200	11000	04/28/92
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/28/92
Benzene	ug/L	62	1700	04/28/92
Toluene	ug/L	62	630	04/28/92
Ethylbenzene	ug/L	62	710	04/28/92
Xylenes, Total	ug/L	62	1600	04/28/92

MDL Method Detection Limit

These data have been reviewed and are approved for release.

Mark A. Valentini

Mark A. Valentini, Ph.D.
Regional Director

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REPORT OF LABORATORY ANALYSIS

Mr. Gary Leiberman
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QUALITY CONTROL DATA

May 01, 1992
PACE Project Number: 420424514

Client Reference: Exxon 7-0104

TPH GASOLINE/BTEX
Batch: 70 11949
Samples: 70 0086086, 70 0086094, 70 0086108, 70 0086116, 70 0086124
70 0086132, 70 0086140, 70 0086159

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-
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 8015)	ug/L	50	355	95%	103%	8%
Benzene	ug/L	0.5	40.0	105%	108%	2%
Toluene	ug/L	0.5	40.0	104%	107%	2%
Ethylbenzene	ug/L	0.5	40.0	105%	108%	2%
Xylenes, Total	ug/L	0.5	80.0	106%	108%	1%

MDL Method Detection Limit
RPD Relative Percent Difference

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EXXON COMPANY, U.S.A.
P.O. Box 4415, Houston, TX 77210-4415
CHAIN OF CUSTODY

Consultant Name: Harding Lawson Assoc
Address: 7655 Redwood Blvd Novato CA
Project Contact: Gary Lieberman Project #: 416 7,416,02
Phone #: 892-0821 Fax #(415) 892-1586
Consultant Work Release #: 9106 4698

Exxon Contact: Bill Wang Phone #:
Site RAS #: 7-0104
Site Location: Alameda 1725 Park Ave
Laboratory Work Release #:

Sampled by (please print): KARL J. GROSS
Sampler Signature: Karl J. Gross Date Sampled: 4-24-92

Sample Description	Collection Date/Time	Matrix	Prsv.	# of Cont.	SOIL: TPH/GAS/BTEX EPA 8015/8020	SOIL: TPH/Diesel EPA 8015	SOIL: Organic Lead DHS Method	WATER: TPH/GAS/BTEX EPA 8015/8020	WATER: TPH/Diesel EPA 8015	WATER: Organic Lead DHS Method	TRPH EPA 418.1	Total Oil & Grease SM 5520	Remarks
92042401	4-24-92 1100	H_2O	HCl	3				X					8608.6
92042402	1150	H_2O	HCl	3				X					09.4
92042403	1220	H_2O	HCl	3				X					10.8
92042404	1310	H_2O	HCl	3				X					11.6
92042405	1420	H_2O	HCl	3				X					12.4
92042406	1525	H_2O	HCl	3				X					13.2
92042407	1630	H_2O	HCl	3				X					14.0
92042408	1705	H_2O	HCl	3				X					15.9

Cooler No. 9/1
Cooler Seal Intact ☐ Yes ☐ No

Relinquished by/Affiliation	Accepted by/Affiliation	Date	Time
Karl J. Gross VIA COURIER	[illegible] PACE	4/24	6:30

Turnaround Time (circle choice)
24 hr.
48 hr.
72 hr.
96 hr.
5 workday (standard)

Shipment Method: HCA DELIVERY
Shipment Date:

Additional Comments:

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

4204.519