EXXON COMPANY, U.S.A.
P.O. BOX 4415 HOUSTON, TEXAS 77210-4415
MARKETING DEPARTMENT
REAL ESTATE & ENGINEERING
ENVIRONMENTAL ENGINEERING

J. KEVIN HUNTER
MARKETING ENGINEER

89 NOV 16 PM 12:56

November 13, 1989

Exxon R/S#: 7-0104
1725 Park St.
Alameda, California

Mr. Ariu Levi
Alameda County Department of Health
80 Swan Way
Room 200
Oakland, California 94621

Dear Mr. Levi:

Attached is a copy of the report on recent groundwater sampling at the referenced site.

Please call me at (713) 656-7755 if you have any questions about this site.

Sincerely,

JK Hunter

JKH:sg
0598D/p.3
Attachments

c - w/attachments:
Mr. S. G. Hugenberger - RWQCB San Francisco Bay

c - w/o attachments:
Mr. J. R. Hastings
Mr. L. W. Lindeen
Mr. M. L. Siembieda - Harding Lawson Associates

Harding Lawson Associates

October 9, 1989

04167,284.02

Exxon Company, U.S.A.
Post Office Box 4415
Houston, Texas 77210-4415

Attention: Mr. J. Kevin Hunter

Gentlemen:

Second Quarter Ground-Water Sampling
Exxon Station #7-0104
Alameda, California

This letter presents the results of Harding Lawson Associates' (HLA) September 1989 monitoring of six ground-water 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 *Phase II Evaluation of Petroleum Hydrocarbons, Exxon Service Station R/S #7-0104, 1725 Park Street, Alameda, California*, dated March 21, 1989. The first round of quarterly sampling was conducted on June 1, 1989. The second round of quarterly sampling was conducted on September 18, 1989.

Water-Level Monitoring and Ground-Water Sampling

Prior to ground-water sampling, water-level and free-phase hydrocarbon product measurements were obtained from the six monitoring wells at the site. All measurements were performed with an oil-interface probe. No free-phase product was measured in any of the wells. Before ground-water samples were collected, the six monitoring wells were purged a minimum of three well volumes by hand bailing or with a centrifugal pump. The purge water was stored in 55 gallon drums on site. Measurements of pH, conductivity, and temperature were taken during purging of the wells. Copies of HLA's Ground-Water Sampling Forms documenting sampling activities are attached. All water-level measurement and sampling equipment was decontaminated prior to use by steam cleaning.

Ground-water samples from each of the monitoring wells were collected using a stainless steel bailer and decanted into 40-milliliter volatile organic analysis (VOA) vials. The samples were labeled, placed in a cooler and transported under chain of custody procedures to NET Pacific Laboratory, Santa Rosa, California (NET). NET is a California state-certified laboratory for the analyses required.

Laboratory Analysis

The ground-water samples were analyzed for total petroleum hydrocarbons (TPH) calibrated to gasoline, and for benzene, ethylbenzene, toluene, and xylenes (BETX). Ground-water analytical results are listed in Table 1, along with ground-water analytical results from HLA's previous sampling rounds. Copies of the original laboratory reports are attached.

Ground-Water Gradient and Flow Direction

Ground-water elevations from the September 1989 water-level survey are presented in Table 2. In comparison to the previous monitoring event on June 1, 1989, water-level elevations at the site have declined slightly. The water table appears to be fluctuating in response to seasonal precipitation and precipitation induced recharge. Ground-water contours are shown on Plate 1. As shown, the direction of ground-water flow is toward the east at a gradient of approximately 0.008 ft/ft. This flow direction is consistent with previous water-level data obtained throughout this investigation.

Conclusions

Review of laboratory analytical results indicates that the highest concentrations of petroleum hydrocarbon constituents are in ground-water samples collected from wells located adjacent to and downgradient of the tank field area.

As presented in Table 1, the levels of petroleum hydrocarbon constituents at the site appear to have declined significantly in comparison with concentrations detected during the June 1988 and January 1989 sampling events. However, the concentrations of benzene and toluene detected in all monitoring wells at the site (with the exception of toluene in MW-1) are in excess of the California State Department of Health Services (DHS) action levels established for these parameters (0.7 and 100 parts per billion, respectively).

HLA will continue to submit a written report to Exxon presenting the results of our quarterly sampling program. Each report will include laboratory analytical results and a description of the ground-water conditions at the site. The next sampling event is scheduled for mid-December 1989. HLA recommends that this report be submitted to the Regional Water Quality Control Board and the Alameda County Health Agency.

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

Yours very truly,

HARDING LAWSON ASSOCIATES

S. Michelle Watson

S. Michelle Watson
Staff Geologist

Michael L. Siembieda
Associate Geologist - RG 4007

SMW/MLS/bht/I9769-CT

Attachments: Table 1
Table 2
Plate 1
Ground-Water Sampling Forms
Laboratory Analytical Reports

Table 1. Analytical Results
HLA Ground-Water Sampling (ppb)*
Exxon Station #7-0104

Well Number	Date	TPH Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
MW-1	6/07/88	27,000	5,000	77	1,100	2,700
MW-1	1/17/89	6,800	2,000	91	800	1,600
MW-1	6/01/89	1,700	170	6.9	13	230
MW-1	9/18/89	2,100	9.0	53	18	130
MW-2	6/07/88	110,000	12,000	12,000	2,100	12,000
MW-2	1/17/89	30,000	6,600	3,300	1,600	7,700
MW-2	6/01/89	8,700	330	280	680	1,200
MW-2	9/18/89	17,000	580	280	570	220
MW-3	6/07/88	28,000	6,000	80	940	1,900
MW-3	1/17/89	5,300	2,500	230	590	1,100
MW-3	6/01/89	5,400	330	300	570	680
MW-3	9/18/89	12,000	680	170	350	860
MW-4	1/17/89	19,000	1,000	1,500	360	2,200
MW-4	6/01/89	3,600	180	240	63	810
MW-4	9/18/89	6,000	290	200	28	510
MW-5	1/17/89	26,000	8,700	3,900	990	5,900
MW-5	6/01/89	5,200	240	220	130	690
MW-5	9/18/89	8,000	340	150	140	460
MW-6	1/17/89	38,000	7,400	9,300	2,000	9,900
MW-6	6/01/89	23,000	1,900	2,500	2,000	6,000
MW-6	9/18/89	17,000	650	410	650	320

* ppb - parts per billion

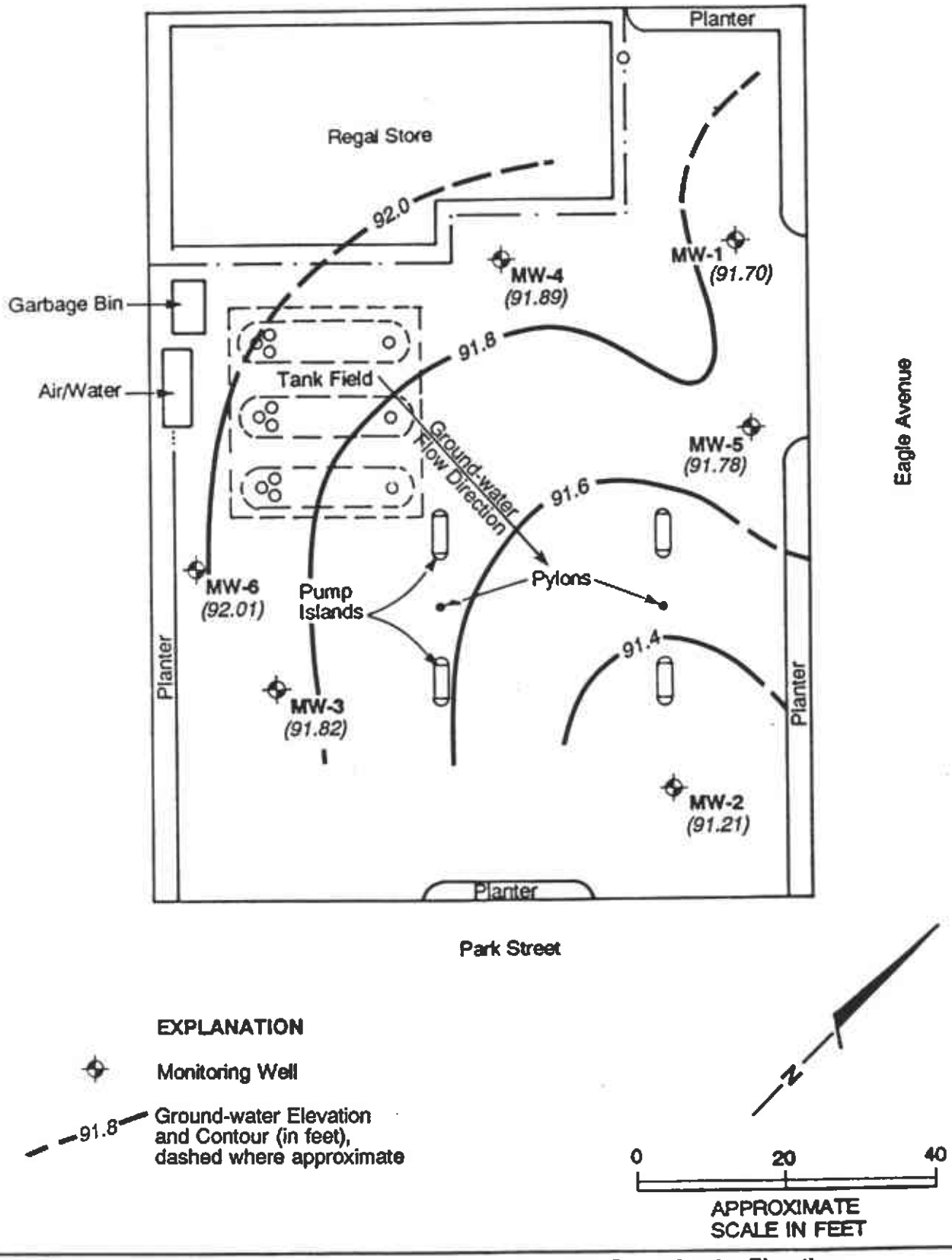
Table 2. Exxon Station R/S #7-0104
Ground-Water Elevations (feet)

Well Number	Elevation Top of Well Casing*	Date	Depth Water BTOC**	Depth to Product	Product Thickness	Ground-water Elevation
MW-1	98.81	6-1-89	6.27	NP	Sheen	92.54
		9-18-89	7.11	NP	NP	91.70
MW-2	97.94	6-1-89	6.32	NP	Sheen	91.62
		9-18-89	6.73	NP	NP	91.21
MW-3	98.47	6-1-89	5.96	NP	NP	92.51
		9-18-89	6.65	NP	NP	91.82
MW-4	98.69	6-1-89	6.01	NP	NP	92.68
		9-18-89	6.80	NP	NP	91.89
MW-5	98.30	6-1-89	5.83	NP	Sheen	92.47
		9-18-89	6.52	NP	NP	91.78
MW-6	98.96	6-1-89	6.25	NP	Sheen	92.71
		9-18-89	6.95	NP	NP	92.01

* Elevations surveyed relative to an assumed common datum of 100 feet

** BTOC - Below top of casing

NP No product



EXPLANATION

Monitoring Well

91.8 Ground-water Elevation and Contour (in feet), dashed where approximate

N

0 20 40

APPROXIMATE SCALE IN FEET

Harding Lawson Associates
Engineering and Environmental Services

September 1989 Ground-water Elevations
Phase II Evaluation of Petroluem Hydrocarbons
Exxon
Alameda, California

PLATE 1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
MOI	4167,284.02		10/89		

Harding Lawson Associates
Engineers and Geoscientists

GROUND-WATER SAMPLING FORM

Well No. mw-4
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☐ PVC ☐ St. Steel ☐ Other
Job Name Exxon
Job Number 4167, 284.02
Date 9-18-84 Time 1409
Recorded by Gary Fiala (Signature) Sampled by GAL RLW (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): 18.20
Water Level Depth (WL in feet BTOC): 6.80
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

PURGE VOLUME CALCULATION:

(18.2 TD (feet) - 6.80 WL (feet)) x 4 D (inches)^2 x 3 # Vols x 0.0408 = 22 gal Calculated Purge Volume gallons

PURGE TIME

1342 Start 1401 Stop 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	6.6	470	71.8	>100
5	6.6	4.40	75.9	>100
10	6.6	450	75.4	>100
15	6.8	450	76.7	>100
20	6.8	460	76.1	

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other turb
22	6.8	460	76.1	>100
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor): turbid / petroleum odor
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other Barrel

WELL SAMPLING

SAMPLING METHOD

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

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

SAMPLE DISTRIBUTION

Sample Series: 8409-

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
802	3 VOA's	TPH as Gas/BTXE	None	Not Purged	

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-1
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Job Name Exxon
Job Number 4167.284.02
Date 9-18-84 Time 1328
Recorded by Dan Seder (Signature)
Sampled by GAL ALN (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): 20.7
Water Level Depth (WL in feet BTOC): 7.11
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

PURGE VOLUME CALCULATION:

(20.7 TD (feet) − 7.11 WL (feet)) × 4 D (inches)^2 × 3 # Vols × 0.0408 = 27 Calculated Purge Volume gallons

PURGE TIME

13 Start 1320 Stop 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	[illegible]	200	72.1	059
5	6.8	430	73.0	>100
10	6.7	450	72.6	>100
15	6.7	450	74.0	>100
20	6.7	460	73.5	>100

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other turb
25	6.7	450	73.4	>100
27	6.7	450	73.8	>100
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor): Cloudy Strong pet odor
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other Burial

WELL SAMPLING

SAMPLING METHOD

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

SAMPLE DISTRIBUTION

Sample Series: 8904

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
1801	3 40A	TPH vs Gas/BTXE	HCl	Nor Pacific	

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. MW2
Well Type: ☒ Monitor ☐ Extraction ☐ Other ____
Well Material: ☒ PVC ☐ St. Steel ☐ Other ____
Date 9-18-89 Time 1505
Sampled by GAC RLW (Initials)

Job Name Exxon Alameda
Job Number ~~[illegible]~~ 04167.284.62
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): 15.90
Water Level Depth (WL in feet BTOC): 6.23
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

$(15.90 - 6.23) \times 4^2 \times 3 \times 0.0408 = 17.4$ gallons

TD (feet) − WL (feet); D (inches); # Vols; Calculated Purge Volume

PURGE TIME

1450 Start 1500 Stop ____ Elapsed

PURGE RATE

Initial ____ gpm Final ____ gpm

ACTUAL PURGE VOLUME

18.0 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☒ °F	Other Turbidity
0	6.6	670	69.7	>100
5	6.6	730	71.0	>100
10	6.7	720	71.0	>100
15	6.8	710	71.1	>100
18	6.8	710	71.0	>100

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

Observations During Purging (Well Condition, Turbidity, Color, Odor): Purged
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other Buried

WELL SAMPLING

SAMPLING METHOD

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

SAMPLE DISTRIBUTION

Sample Series: 8904

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
1804	3 VOA's	BTXE 2 TPH as Gas	None	Net Pacific	

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-3
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Date 9-18-85 Time 1542
Sampled by GTC RLN (Initials)

Job Name Exxon Alameda
Job Number 4167 284.02
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): 14.10
Water Level Depth (WL in feet BTOC): 6.65
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:

$(14.10 - 6.65) \times 4^2 \times 3 \times 0.0408 = 14.6$ gallons

(TD (feet) − WL (feet)) × D (inches)² × # Vols × 0.0408 = Calculated Purge Volume

PURGE TIME

1525 Start 1535 Stop ____ Elapsed

PURGE RATE

Initial ____ gpm Final ____ gpm

ACTUAL PURGE VOLUME

15 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐°C ☒°F	Other turb
0	6.5	690	71.0	>100
5	6.6	640	70.7	>100
10	6.50	630	70.5	>100
15	66	620	70.9	>100

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

Observations During Purging (Well Condition, Turbidity, Color, Odor): turbid / petroleum odor
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other Barrel

WELL SAMPLING

SAMPLING METHOD

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

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

SAMPLE DISTRIBUTION

Sample Series: 8409

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
B05	3 VOA's	TPH as Gas) BTXE	None	Nor Pacific	

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-5
Well Type: ☑ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Date 9-18-84 Time 1638
Sampled by GH RLW (Initials)

Job Name Exxon Alameda
Job Number 4167.284.62
Recorded by Dan Eilers (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): 18.8
Water Level Depth (WL in feet BTOC): 6.52
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

PURGE VOLUME CALCULATION

(18.8 TD (feet) − 6.52 WL (feet)) × 4 D (inches)^2 × 3 # Vols × 0.0408 = 24 gallons Calculated Purge Volume

PURGE TIME

1427 Start 1472 Stop 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	6.6	530	71.7	7100
5	6.7	560	71.6	7100
10	6.7	590		7100
15	6.6	600	71	7100
20				

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☒ °F	Other turb
24				
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor): turbid & petroleum odor
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other Barrel

WELL SAMPLING

SAMPLING METHOD

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

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

SAMPLE DISTRIBUTION

Sample Series: 8404

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
1803	3 VOA	TPH as Gas/BTXE	none	Wet Pacific	

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-6
Well Type: ☒ Monitor ☐ Extraction ☐ Other ____
Well Material: ☒ PVC ☐ St. Steel ☐ Other ____
Date 9-18-89 Time ~~1613~~ 1613
Sampled by Suzy GAL RLN (Signature) (Initials)

Job Name Exxon Alameda
Job Number 4167.284.02
Recorded by Suzy Sabin (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): 18.5
Water Level Depth (WL in feet BTOC): 6.45
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 ____

PURGE VOLUME CALCULATION:

$(\underset{\text{TD (feet)}}{18.5} - \underset{\text{WL (feet)}}{6.45}) \times \underset{\text{D (inches)}}{4}^2 \times \underset{\text{\# Vols}}{3} \times 0.0408 = \underset{\text{Calculated Purge Volume}}{22.6}$ gallons

PURGE TIME

1559 Start ~~1606~~ 1606 Stop ____ Elapsed

PURGE RATE

Initial ____ gpm Final ____ gpm

ACTUAL PURGE VOLUME

23 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐°C ☒°F	Other Turb
0	6.7	710	720	>100
5	6.5	580	70.4	>100
10	6.5	560	71.2	>100
15	6.5	540	71.0	>100
20	6.6	560	70.4	>100

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐°C ☒°F	Other Turb
23	6.7	560	>08	>100
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor): turbid, sandy / petroleum odor
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other Barrels

WELL SAMPLING

SAMPLING METHOD

☒ Bailer - Type: SS
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump
☐ Same As Above
☐ Grab - Type: ____
☐ Other - Type: ____

SAMPLE DISTRIBUTION

Sample Series: 8716

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
1806	3 VOA	TPH as Gas & BTXE	None	Nat Pac. Fis	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Job # [illegible] Date [illegible]

WATER LEVEL DATA SHEET

Recorded by: Gary Lieber Instrument used: mmc Probe pg.___of___

BORING NUMBER	DEPTH TO PRODUCT 1st	DEPTH TO PRODUCT 2nd	DEPTH TO PRODUCT 3rd	DEPTH TO WATER 1st	DEPTH TO WATER 2nd	DEPTH TO WATER 3rd	~~TIME~~ Date	~~DATE~~ Time	PRODUCT THICKNESS	COMMENTS
mw-1				7.11	7.11		4-18-84	1218	N/A	no Sheen - Faint petroleum odor
mw-4				6.80	6.80		↓	1224	↓	no Sheen / Faint petroleum odor / clear H2O
mw5				6.52	6.52		↓	1228	↓	no Sheen / Faint petroleum odor / clear
mw-2				6.73	6.73		↓	1234	↓	" "
mw-3				6.65	6.65		↓	1238	↓	" "
mw-6				6.95	6.95		↓	1246	↓	no sheen / Slight suspended sediment Faint petroleum odor

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Formerly: ANATEC Labs, Inc.

SEP 89 12:00

Mike Siembida
Harding Lawson Associates
7655 Redwood Blvd.
PO Box 578
Novato, CA 94948

09-28-89
NET Pacific Log No: 7783
Series No: 281
Client Ref: Job # 4167,284.02

Subject: Analytical Results for "EXXON-Alameda" Received 09-18-89.

Dear Mr. Siembida:

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Submitted by:

Susan Joy Griffin
Group Leader
Gas Chromatography

Approved by:

Sue J. Long
Group Leader
Classical Chemistry

/ma
Enc: Sample Custody Document

KEY TO ABBREVIATIONS and METHOD REFERENCES

Abbreviations

mean : Average; sum of measurements divided by number of measurements.

mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).

mg/L : Concentration in units of milligrams of analyte per liter of sample.

mL/L/hr : Milliliters per liter per hour.

MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.

N/A : Not applicable.

NA : Not analyzed.

ND : Not detected; the analyte concentration is less than applicable listed reporting limit.

NR : Not requested.

NTU : Nephelometric turbidity units.

RPD : Relative percent difference, 100 [Value 1 - Value 2]/mean value.

SNA : Standard not available.

ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).

ug/L : Concentration in units of micrograms of analyte per liter of sample.

umhos/cm : Micromhos per centimeter.

Method References

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

* Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated reporting limits by the dilution factor.

SAMPLE DESCRIPTION: 89091801 09-18-89 1328
LAB NO.: (-35056)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER)			
DILUTION FACTOR *		1	
DATE ANALYZED		09-22-89	
METHOD GC FID/5030			
as Gasoline	0.05	2.1	mg/L
METHOD 602			
Benzene	0.5	9.0	ug/L
Ethylbenzene	1.5	18	ug/L
Toluene	0.5	53	ug/L
Xylenes, total	1.5	130	ug/L

SAMPLE DESCRIPTION: 89091802 09-18-89 1409
LAB NO.: (-35057)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER)			
DILUTION FACTOR *		5	
DATE ANALYZED		09-26-89	
METHOD GC FID/5030			
as Gasoline	0.05	6.0	mg/L
METHOD 602			
Benzene	0.5	290	ug/L
Ethylbenzene	1.5	28	ug/L
Toluene	0.5	200	ug/L
Xylenes, total	1.5	510	ug/L

SAMPLE DESCRIPTION: 89091803 09-18-89 1438
LAB NO.: (-35058)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER)			
DILUTION FACTOR *		5	
DATE ANALYZED		09-26-89	
METHOD GC FID/5030			
as Gasoline	0.05	8.0	mg/L
METHOD 602			
Benzene	0.5	340	ug/L
Ethylbenzene	1.5	140	ug/L
Toluene	0.5	150	ug/L
Xylenes, total	1.5	460	ug/L

SAMPLE DESCRIPTION: 89091804 09-18-89 1505
LAB NO.: (-35059)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER)			
DILUTION FACTOR *		5	
DATE ANALYZED		09-22-89	
METHOD GC FID/5030			
as Gasoline	0.05	17	mg/L
METHOD 602			
Benzene	0.5	580	ug/L
Ethylbenzene	1.5	570	ug/L
Toluene	0.5	280	ug/L
Xylenes, total	1.5	220	ug/L

SAMPLE DESCRIPTION: 89091805 09-18-89 1542
LAB NO.: (-35060)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER)			
DILUTION FACTOR *		10	
DATE ANALYZED		09-22-89	
METHOD GC FID/5030			
as Gasoline	0.05	12	mg/L
METHOD 602			
Benzene	0.5	680	ug/L
Ethylbenzene	1.5	350	ug/L
Toluene	0.5	170	ug/L
Xylenes, total	1.5	860	ug/L

SAMPLE DESCRIPTION: 89091806 09-18-89 1613
LAB NO.: (-35061)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER)			
DILUTION FACTOR *		5	
DATE ANALYZED		09-22-89	
METHOD GC FID/5030			
as Gasoline	0.05	17	mg/L
METHOD 602			
Benzene	0.5	650	ug/L
Ethylbenzene	1.5	650	ug/L
Toluene	0.5	410	ug/L
Xylenes, total	1.5	320	ug/L

QUALITY CONTROL RESULTS - TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

Blank (mg/L)	Lab No. Spike and Spike Replicate Results (% Recovery) (-35093S)	(-35093SR)	RPD (%)
<0.05	95	83	13

QUALITY CONTROL RESULTS - PURGEABLE AROMATICS

Analyte	Blank (ug/L)	Lab No. Spike and Spike Replicate Results (% Recovery) (-35093S)	(-35093SR)	RPD (%)
Benzene	<0.5	103	98	5
Ethylbenzene	<1.5	97	94	3
Toluene	<0.5	98	94	4
Xylenes, total	<1.5	100	96	4

Harding Lawson Associates
200 Rush Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

7783

CHAIN OF CUSTODY FORM

Lab: Net Pacific

Job Number: 4167,284,02
Name/Location: Exxon Alameda
Project Manager: Mike Sembuda

Samplers: G. A. Lieberman
R. L. Nelson

Recorder: (signature)
(Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Plltnt. Metals	Benzene/Toluene/Xylene/E	Total Petrol. Hydrocarb.	TPH as Gas
23	X				3			89	09	1801	89	04	18	1328							X		X
↓	↓				↓			↓	↓	1802	↓	↓	↓	1409							X		X
										1803				1438							X		X
										1804				1505							X		X
										1805				1542							X		X
										1806				1613							X		X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
Robert L. Nelson		
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME

DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
		J. Schwartz	9-18-89 1800

METHOD OF SHIPMENT

Laboratory Copy White | Project Office Copy Yellow | Field or Office Copy Pink