EXONCOMPANY, LLSA. 77210-4415

MARKETING DEPARTMENT REAL ESTATE & ENGINEERING ENVIRONMENTAL ENGINEERING 89 NOV 16 PM12: 56

J. KEVIN HUNTER MARKETING ENGINEER

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 Hundes

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



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.

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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.

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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

Plate I

Ground-Water Sampling Forms Laboratory Analytical Reports



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

44					T.1 1	
Weli 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

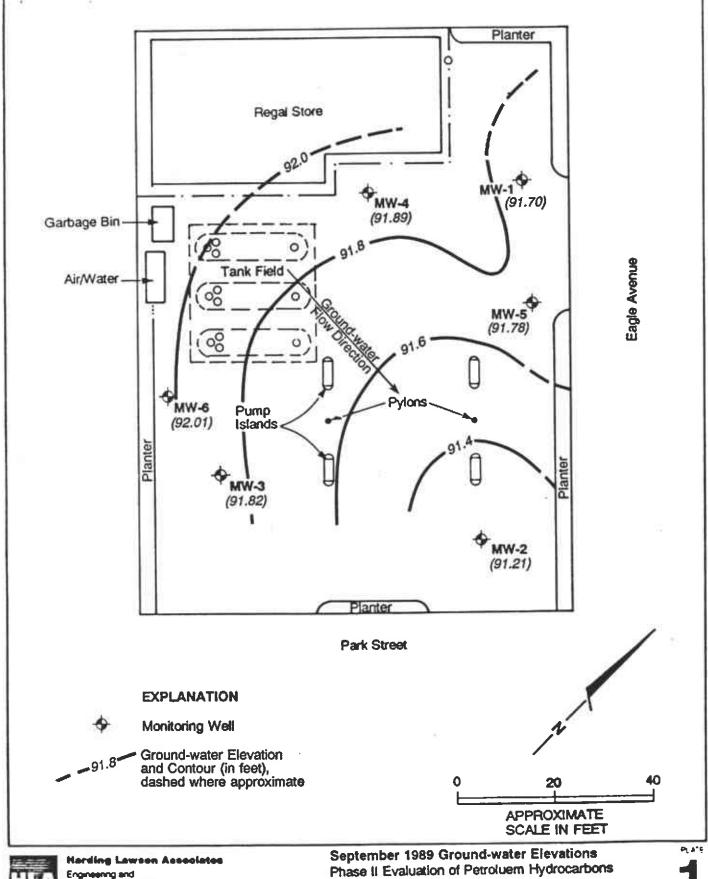
Table 2. Exxon Station R/S #7-0104 Ground-Water Elevations (feet)

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

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

^{**} BTOC - Below top of casing

NP No product





Engineering and Environmental Services

Phase II Evaluation of Petroluem Hydrocarbons Exxon

Alameda, California

DATE DATE REGIMEN BOL MOI 10/89 4167,284.02

Harding Engineer	g Lawson	n Associate oscientists	.					VATER SA	AMPLI	NG FOR	
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	7=				We	Well Type: ☐Monitor ☐ Extraction ☐ Other					
ob Name	E	xxon			_ We	Well Material: □PVC □ St. Steel □ Other					
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5	66	4.40	759	7100							
16	6.6	450	75.4	710	c)						
15	6.8	450	76.7		00						
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therding Lawson Associates Engineers and Geoscientists ob Name ob Number ecorded by						Well No. Well Type: DiMonitor Date 19-18-84 Time 18-8					
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Harding Lawson Associates Engineers and Geoscientists						GROUND-WATER SAMPLING FORM					
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Harding Lawson Associates GROUND-WATER SAMPLING FORM **Engineers and Geoscientists** Well No. MW-5 Well Type: Monitor □ Extraction □ Other _ Job Name Well Material: □ PVC □ St. Steel □ Other = 9-18-84 Job Number Time 1438 RLW Recorded by Sampled by PURGING PURGE VOLUME PURGE METHOD Casing Diameter (D in inches): ☐ Bailer - Type: _ 24nch Setinch 64nch Other Total Depth of Casing (TD in feet BTOC):_ Other - Type: ... Water Level Depth (WL in feet BTOC): PUMP INTAKE SETTING Number of Well Volumes to be purged (# Vols) ☐ Near Bottom ☐ Near Top Other_ □3 274 □5 □10 □ Other ... Depth in feet (BTOC): _____ Screen interval in feet (BTOC): PURGE VOLUME CALCULATION: from _____ to _ X 0.0408 gallons alculated Purge Volume PURGETIME PURGE RATE ACTUAL PURGE VOLUME 1437 Start 1473 Stop Elapsed Initial ___ Final_ FIELD PARAMETER MEASUREMENT Minutes Since Pumping Began Cond. (mhos/cm) Minutes Since Pumping Began Cond. Other +u/C Other +ulr (Mmhos/cm) 6.6 530 7100 71.6 100 590 10 7160 15 600 2/00 26 Meter Nos. petroleum Observations During Purging (Well Condition, Turbidity, Color, Odor): . Dother Buccel Storm Sewer WELL SAMPLING SAMPLING METHOD Same As Above Baller - Type:_ ☐ Grab - Type: -☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: Other - Type: Sample Series: 8404 SAMPLE DISTRIBUTION Sample No. Volume/Cont. Analysis Requested Preservatives Comments 1803 SVOA Pachic Wet hione

QUALITY CONTROL SAMPLES

Duplicate Samples

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Black Samples

	g Lawson Assoc							AMPL	ING FOR		
Enginee	rs and Geoscientist	5			Well No F	nu	1-6				
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10	6.5 56	0 71.	2 7	100							
15	6.5 54	0 71.	9 71	00							
20	6.9 560	70.	9 71	00	Meter Nos.						
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300 11 (340) WATER LEVEL DATA SHEET Cary Lieber Mostgument used: mmc Probe Recorded by:_ pg.___of_ DEPTH TO WATER DEPTH TO PRODUCT BORING COMMENTS NUMBER 2nd 3rd no Steen-Fuint 4-18-84 N/A 1218 Priretunador

NU Shoon/Frint

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

Formerly: ANATEC Labs, Inc.

SEP 89 19:00

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:

Approved by:

Group Leader

Gas Chromatography

Group Leader

Classical Chemistry

/ma

Enc: Sample Custody Document

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September 28, 1989

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

: Nephelametric 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.

umbos/cm

: Micramhos 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.



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SAMPLE DESCRIPTION: 89091801 LAB NO.: (-35056)	09-18-89	1328	
Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030		1 09-22-89	
as Gasoline	0.05	2.1	mg/L
METHOD 602 Benzene Ethylbenzene Toluene Xylenes, total	0.5 1.5 0.5 1.5	9.0 18 53 130	ug/L ug/L ug/L ug/L
SAMPLE DESCRIPTION: 89091802 LAB NO.: (-35057)	09-18-89	1409	
Parameter	Reporting <u>Limit</u>	Results	<u>Units</u>
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030		5 09-26-89	
as Gasoline METHOD 602	0.05	6.0	mg/L
Benzene Ethylbenzene Toluene Xylenes, total	0.5 1.5 0.5 1.5	290 28 200 510	ug/L ug/L ug/L ug/L



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September 28, 1989

SAMPLE DESCRIPTION: 89091803 LAB NO.: (-35058)	09-18-89	1438	
Parameter	Reporting <u>Limit</u>	<u>Results</u>	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030		5 09-26-89	
as Gasoline METHOD 602	0.05	8.0	mg/L
Benzene Ethylbenzene Toluene Xylenes, total	0.5 1.5 0.5 1.5	340 140 150 460	ug/L ug/L ug/L ug/L
SAMPLE DESCRIPTION: 89091804 LAB NO.: (-35059)	09-18-89	1505	
Parameter	Reporting <u>Limit</u>	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030		5 09-22-89	
as Gasoline	0.05	17	mg/L
METHOD 602 Benzene Ethylbenzene Toluene Xylenes, total	0.5 1.5 0.5 1.5	580 570 280 220	ug/L ug/L ug/L ug/L



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September 28, 1989

SAMPLE DESCRIPTION: 89091805 LAB NO.: (-35060)	09-18-89	1542	
<u>Parameter</u>	Reporting <u>Limit</u>	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030		10 09-22-89	
as Gasoline METHOD 602	0.05	12	mg/L
Benzene Ethylbenzene Toluene Xylenes, total	0.5 1.5 0.5 1.5	680 350 170 860	ug/L ug/L ug/L ug/L
SAMPLE DESCRIPTION: 89091806 LAB NO.: (-35061)	09-18-89	1613	
Parameter	Reporting <u>Limit</u>	Results	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030		5 09-22-89	
as Gasoline	0.05	17	mg/L
METHOD 602 Benzene Ethylbenzene Toluene Xylenes, total	0.5 1.5 0.5 1.5	650 650 410 320	ug/L ug/L ug/L ug/L

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QUALITY CONTROL RESULTS - TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

Lab No.	Spike	and Spike	Replicate
Results		Recovery)	

Blank (mg/L)	<u>(-35093S</u>)	(-35093SR)	RPD (%)
<0.05	95	83	13

QUALITY CONTROL RESULTS - PURGEABLE AROMATICS

Lab No. Spike and Spike Replicate Results (% Recovery)

Analyte	Blank (ug/L)	(-350938)	(-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

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