EXON COMPANY, U.S.A.

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MARKETING DEPARTMENT

ENVIRONMENTAL ENGINEERING

G. D. GIBSON SENIOR ENVIRONMENTAL ENGINEER

July 27, 1990

Exxon RAS 7-0104 1725 Park Street Alameda, California

Mr. Ariu Levy Alameda County Environmental Health Department Hazardous Materials Division 80 Swan Way, Suite 200 Oakland, California 94621

Dear Mr. Levy:

Attached for your review and comment is the letter report on Second Quarter Groundwater Sampling for the above referenced site in the City of Alameda. This report is by Harding Lawson Associates of Novato, California. We are currently in the process of designing a remediation system for this site; details of this system will be forwarded to your office in the near future.

Should you have any questions or concerns after your review, please contact me at (415) 246-8768. Thank you.

7ha (4)/

incerely

Gary D. Gibson

GDG:rh 1407E Attachment

c = w/attachment:

Mr. L. Feldman - San Francisco Bay Region Water Quality Control Board

w/o attachment:

Mr. P. J. Brininstool

Mr. J. R. Hastings

Mr. J. K. Hunter

Mr. L. W. Lindeen

Mr. M. Thomson - Alameda County District Attorney's Office

Ms. S. M. Watson - Harding Lawson Associates



July 9, 1990

04167,326.02

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

Attention:

Mr. Gary D. Gibson

Senior Environmental Engineer

Gentlemen:

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

This letter presents the results of Harding Lawson Associates' (HLA) June 1990 monitoring 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 Phase II Evaluation of Petroleum Hydrocarbons, Exxon Service Station R/S #7-0104, 1725 Park Street, Alameda, California, dated March 21, 1989. The sampling round was conducted on June 14, 1990, and represents HLA's fifth sampling event and the first of a renewed year-long monitoring program.

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Water-Level Monitoring and Groundwater Sampling

HLA has been obtaining monthly water-level and free-phase hydrocarbon measurements from the seven monitoring wells onsite. All measurements were performed with an electric oil-water interface probe. The water was also visually inspected for the presence of free-phase petroleum product using a clear Lucite bailer. No free-phase product was measured in any of the wells. On June 14, 1990, prior to groundwater sample collection, the seven monitoring wells were purged a minimum of three well volumes by hand bailing or with a centrifugal pump. The purged water was stored in 55 gallon drums onsite. Measurements of pH, conductivity, and temperature of the purged water were taken during purging of the wells. Copies of HLA's Groundwater Sampling Forms documenting sampling activities are attached. All water-level measurement and sampling equipment was decontaminated prior to use by steam cleaning.

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Groundwater 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 with blue ice, and transported under chain of custody procedures to NET Pacific Laboratory (NET), Santa Rosa, California. NET is a state-certified hazardous waste laboratory.

Laboratory Analyses

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

Groundwater Gradient and Flow Direction

Groundwater elevations from the June 1990 water-level survey are presented in Table 2, along with previously measured groundwater elevations. Water-level elevations at the site have decreased slightly over the past three months from the previous measurements. The water table appears to be fluctuating in response to seasonal precipitation and precipitation induced recharge. Groundwater contours are shown on Plate 1. As shown, the direction of groundwater flow is toward the east at an approximate gradient of 0.01 ft/ft. This flow direction is consistent with previous water-level data obtained during this investigation.

Laboratory Analytical Results

Review of laboratory analytical results indicates that the highest concentrations of petroleum hydrocarbon constituents are in groundwater samples collected from wells located adjacent to and downgradient of the tank field area (Wells MW-6 and MW-2, respectively).

As presented in Table 1, the concentrations of TPH as gasoline have remained roughly analogous to concentrations detected during the previous sampling event with the exception of Well MW-1. The detected TPH concentrations range from 12 to 38 milligrams per liter (mg/l). The concentration of TPH as gasoline has increased in Well MW-1 from 2.3 to 32 mg/l. The concentrations of benzene, toluene, and xylenes detected in all monitoring wells at the site (with the exception of toluene and xylenes in Well MW-1) are in excess of the California State Department of Health Services (DHS) action levels established for these parameters (0.7, 100, and 620 micrograms per liter (μ g/l), respectively). Concentrations of ethylbenzene detected in Wells MW-2, MW-4, and MW-6 exceed the DHS drinking water action level of 680 μ g/l.

HLA is in the process of designing a soil and groundwater remediation program for the site. Quarterly sampling and monthly groundwater level measurements will continue.

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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 Water S. Michelle Watson

Project Geologist

Michael L. Siembieda

Associate Geologist - RG 4007

SMW/MLS/ere/H13088-H

Attachments:

Table 1

Table 2 Plate 1

Groundwater Sampling Forms Laboratory Analytical Reports

Table 1. Summary of Chemical Results of Groundwater Samples

Well Number	Date	TPH Gasoline mg/l ¹	Benzene μg/l²	Toluene μg/l	Ethyl- benzene μg/l	Xylenes μg/l	Total Dissolved Solids mg/l
DHS Acti	on Levels		0.7	100	680	620	
N#557 1	07/07/00	27	5.000	77		2 700	> tc=2
MW-1	06/07/88	27	5,000	77	1,100	2,700	NT ³
	01/17/89	6.8	2,000	91	800	1,600	NT
	06/01/89 09/18/89	1.7 2.1	170 9.0	6.9	13	230	NT
	12/11/89	5.8	9.0 200	53 42	18 290	130	NT NT
	03/07/90	NT	NT	NT	290 NT	330 NT	910
	03/07/90	2,3	430	14	16	220	NT
	06/14/90	32	1,400	19	<5 ⁴	120	NT
3.437. 0	06/07/00	110					
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 12/11/89	17 32	580	280	570	220	NT
	03/13/90	32 39	1,000 3,500	850	310	1,200	NT
	06/14/90	39 34	3,800	1,500 730	2,100 1,600	3,900 3,900	NT NT
3450 2	06/07/00	20	6.000	0.0	0.40) TOO
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 18	1,100	150	670	690	NT
	03/13/90 06/14/90		6,300	200	1,100	1,100	NT
	00/14/90	9.5	1,300	880	310	1,800	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

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

Well Number	Date	TPH Gasoline mg/l ¹	Benzene µg/l²	Toluene μg/l	Ethyl- benzene μg/l	Xylenes μg/l	Total Dissolved Solids mg/l
DHS Acti	on Levels		0.7	100	680	620	3000
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
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
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
Field							
Blank	12/11/89	<0.5	0.88	0.95	0.62	1.7	NT
Trip Blank	06/14/90	<0.5	<0.5	<0.5	<0.5	<0.5	NT

¹ mg/l: milligrams per liter (parts per million)

 $^{^2}$ μ g/l: micrograms per liter (parts per billion)

³ NT: Not tested

^{4 &}lt;: Numbers preceded by "<" indicate that sample was below the indicated detection limit.</p>

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
21217	x 7 . 3 0	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
		05-23-90	6.19	NP	NP	11.28
		00-14-50	0.19	141	141	11.20
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
		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
						- 0,20
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
		05 65 70	V.17	7.47	4 7 4	10.77

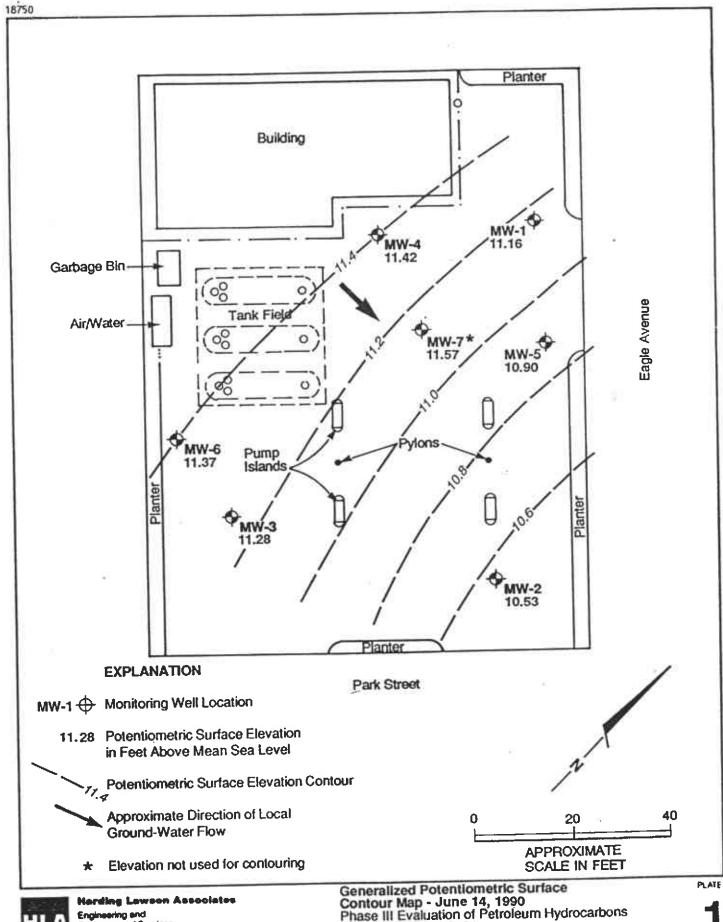
Well Number	Elevation Top of Well Casing ¹	Date	Depth to Water BTOC ² (feet)	Depth to Product BTOC (feet)	Product Thickness (feet)	Potentiometric Surface Elevation (feet above MSL)
		The state of the s			MAN	
MW-4	17.34	01-17-89	5.36	NP	NP	11.98
		01-24-89	5.46	NP	NP	11.88
		06-01-89	6.01	NP	NP	11.33
		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
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	NP	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
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
		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

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	17.12	02-13-90 03-13-90 05-23-90 06-14-90	4.98 4.94 5.87 5.55	NP NP NP NP	NP NP NP NP	12.14 12.18 11.25 11.57

¹ Elevations surveyed to mean sea level.

² BTOC - Below top of casing.

³ NP: No product.





Environmental Services

Contour Map - June 14, 1990
Phase III Evaluation of Petroleum Hydrocarbons
Exxon Station #7-0104
Alameda, California

DATE REVISED APPRIONED JOB HUMBER 7/90 SMW 04167,326.02

Harding Lawson Associates		GROUND-WATER SAMPLING FORM					
Engineers and Geoscientists	V	Well No. MW-1					
	V	Well Type: ☑ Monitor ☐ Extraction ☐ Other					
JOB Name EXXON ALAMEDA	V	Well Material: ☑PVC ☐ St. Steel ☐ Other					
Joh Number 4167, 306, 00				90 ,			
Recorded by Thomas Nitt		Sampled by	1	TSN	1000000		
(Signature)				((Init/als)		
	ELL PUR	IGING	100			THE WATER	180%
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Harding Lawson Associates Éngineers and Geoscientists

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Disservations During Discharge Water Discharge Water Discharge Water Discharge Property of the Control of the C	TROL SAMPLES	Ider; Pump No ample Series: Analysis Re BTEX	WELLS	Story #C. Story #C. Story #C. Other ONS AMPLING Grab - Type: Other - Type Preservatives NON C	ove	Lab VET	C	comments
Disservations Durin Discharge Water D SAMPLING ME Disaller - Type: SAMPLE DISTI Sample No. (403	THOD SS Centrifugal DBlack RIBUTION St Volume/Cont. 3 VO As TROL SAMPLES cate Samples	dder; Pump No ample Series; Analysis Re BTEX	WELLS 9006 quested TPH-L	Story #C. Story #C. Story #C. Other ONS AMPLING Grab - Type: Other - Type Preservatives NON C.	ove	Lab /ET		comments
Disservations During Discharge Water Discharge Water Discharge Water Discharge Type: SAMPLE DISTING MEDISTING TO BE DISTING TO BE DISTING TO BE DISTING TO BE DISTING TO BE DESCRIPTION TO BE D	TROL SAMPLES	dder; Pump No ample Series; Analysis Re BTEX	WELLS	Story #C. Story #C. Story #C. Other ONS AMPLING Grab - Type: Other - Type Preservatives NON C	ove	Lab VET	C	comments
Discharge Water Discharge Water Discharge Water Discharge Water Discharge Water Discharge Property Sample No. (403)	THOD SS Centrifugal DBlack RIBUTION St Volume/Cont. 3 VO As TROL SAMPLES cate Samples	dder; Pump No ample Series; Analysis Re BTEX	WELLS 9006 quested TPH-L	Story #C. Story #C. Story #C. Other ONS AMPLING Grab - Type: Other - Type Preservatives NON C.	ove	Lab /ET	C	comments
Observations Durin Discharge Water D SAMPLING ME DEaller - Type: Submersible SAMPLE DISTI Sample No. (4 0 3	THOD SS Centrifugal DBlack RIBUTION St Volume/Cont. 3 VO As TROL SAMPLES cate Samples	dder; Pump No ample Series; Analysis Re BTEX	WELLS 9006 quested TPH-L	Story #C. Story #C. Story #C. Other ONS AMPLING Grab - Type: Other - Type Preservatives NON C.	ove	Lab /ET	C	comments



Harding Lawson Associates Engineers and Geoscientists Job Name Harding Lawson Associates Engineers and Geoscientists Job Number HIG7, 326 0 3 Recorded by Gignsture)	Well No				therther	
	WELL P	URGING			Milia	Un Carlo
PURGE VOLUME Casing Diameter (D in inches): 2-inch	Vols PURGE R	ATE	□ Cen E SEI □ Ne [OC):	TING ear Top Ot Scree from Calculated Pt	hern Interval	in feet (BTOC): to gallons ne
1nitial 6.8 2450 23.3 6 6.8 2580 21.6 12 6.9 2440 20.7 17 6.9 4330 21.2 Observations During Purging (Well Condition, Turbidity	ther TURS 11 5 2 y, Color, Odor)	Minutes Since Pumping Began	рН	Cond. (µmhos/cm)	17.6	Other
Samuely Cower II of		AMPLING	0.00	100000000000000000000000000000000000000		
SAMPLING METHOD Baller - Type: Submersible Contribugal Bladder; Pump No.: SAMPLE DISTRIBUTION Sample Series:	9006	☐ Same As Abo ☐ Grab - Type: ☐ Other - Type:				
Sample No. Volume/Cont. Analysis Required 1904 3VOAS BTAE, THE		Preservatives NOA €	,	Lab VET	C	omments
QUALITY CONTROL SAMPLES						
Duplicate Samples	Blank S	Samples	2006	Oth	er Sample	\$
Original Sample No. Duplicate Sample No.	Туре	Sample No.	\neg \vdash	Туре		Sample No.

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Harding Lawson As: Engineers and Geoscier			GROUND-WATER SAMPLING FOR					
Englithed and occapionnate			Well No	Well No				
			Well Type: E	Well Type: ☐Monitor ☐ Extraction ☐ Other				
lob Name <u>EXXのル</u>	ALAM	<u>EDA</u>	Well Material:	Well Material:, ☐PVC ☐ St. Steel ☐ Other				
lob Number	326.00		Date6/	14/	90	Time	13:30	
Recorded by	bb Number 4167, 326.00 ecorded by Chous Skignature)				98 TSM	finitials)		
Partie of the Control	(orginaldre)	WEL	L PURGING	1002		Michael Control		
PURGE VOLUME			PURGE MET	HOD			CHARLES COME	
Casing Diameter (D in inches):			A Bailer - Type:	- Contract	PVC			
□ 2-inch □ 4-inch □ 6-inch	Other				trifugal Blad	der; Pump	No.:	
Total Depth of Casing (TD in feet								
Water Level Depth (WL in feet B	roc): 5 °	72	PUMP INTAK	E SET	TTING			
Number of Well Volumes to be p	urged (# Vols)		☐ Near Bottom	□ Ne	ear Top 🗆 Ot	ther		
□ 5 □ 4 □ 5 □ 10 □ Other			Depth in feet (B	TOC):_	Scree	en Interval	in feet (BTOC):	
PURGE VOLUME CALCUL	ATION:	2			from		_ to	
(8,1 - 5.9) TD (feet) WL (feet)	x 4	x 3	X 0.0408 =	£	23.9		gallons	
TD (feet) WL (feet)	D (inches		Vols		Calculated P	urge Volur	ne	
PURGE TIME		PURG	E RATE		ACTU	AL PUR	GE VOLUME	
Start \(\alpha\)329Stop _	Elapsed	Initial	gpm Final	gpr	m		gallons	
FIELD PARAMETER MEAS								
Minutes Since Pumping Began PH (µmh	nd. los/cm) T	Other TU	Minutes Since Pumping Began	рН	Cond. (µmhos/cm)	т⊟°С	Other	
INITIAL 6.7 45			Tunping cogain		gammos/emy			
	50 20.							
18 7-0 11	140 21.	1 66						
24 7.1 11,1	20 21.	5 72						
			Meter Nos.					
Observations During Purging (W	ell Condition, Tu	bidity, Color, (r, n	o shee	1		
Discharge Water Disposal:	anitary Sewer	☐ Storm Sew		1517	E IN 2	DRUN	n	
	View III STEAM	WELL	SAMPLING	190			TO LOS	
SAMPLING METHOD			☐ Same As Abo	ove				
☐ Bailer - Type:			Grab - Type:					
☐ Submersible ☐ Centrifugal ☐	Bladder; Pump	No.: 900	6 ☐ Other - Type:	-				
SAMPLE DISTRIBUTION	Sample Serie	s:						
Sample No. Volume/Co		Requested	Preservatives NON		Lab	- 0	comments	
1407 300%	S BTEX-	IPH-L	NONE	_/	VET	+		
	-					+		
	+					+		
						+		
						1		
QUALITY CONTROL SAME	PLES							
Duplicate Samples	MC LEGISTE	Bla	ank Samples		Oth	ner Sample	is	
Original Sample No. Duplicate	Sample No.	Туре	Sample No.	$\dashv \vdash$	Type	17	Sample No.	
				\dashv				
				$\dashv\vdash$				
						_		
	1.1			1.1				

Harding Lawson Associates Engineers and Geoscientists	GRO	GROUND-WATER SAMPLING FOR					
La Para de la Constantida	Well No	Well No. MW-5					
TEST OF BUILDING SAME		Well Type: ☑Monitor □ Extraction □ Other					
Job Name EXXON ALAMED	4 Well Materi	Well Material: ☑PVC ☐ St. Steel ☐ Other					
Job Number 4167, 326,02	Date <u>6</u> /	<u>14/90</u> T	ime <u>9100</u>				
Job Number 4167, 326,02 Recorded by Chours Nucl.	Sampled b	y TSM					
(Signature)		(In	utials)				
was the property of the same was a second of the way	ELL PURGING						
PURGE VOLUME	PURGE M	ETHOD					
Casing Diameter (D in inches):	☐ Bailer - Ty	pe:					
2-inch 4-inch 6-inch Other	•	ole	er; Pump No.:				
Total Depth of Casing (TD in feet BTOC): 19.0	Other - Ty						
Water Level Depth (WL in feet BTOC): 5-81	The formal production of the control	AKE SETTING					
Number of Well Volumes to be purged (# Vols)	E-MOSTAGE CONTROL OF COLUMN	Contract of the Contract of th	er				
☑3 □4 □5 □10 □ Other			Interval in feet (BTOC):				
PURGE VOLUME CALCULATION:		•	to				
THE RESIDENCE OF THE PARTY OF T	3						
$\left(\frac{19.0}{10 \text{ (feet)}} - \frac{5.8}{\text{WL (feet)}}\right) \times \frac{4}{0 \text{ (inches)}} \times \frac{1}{0 (inc$	X 0.0408	= 25.4	gallons				
The same of the sa							
THE PROPERTY AND ADDRESS OF THE PROPERTY A	IRGE RATE	CONTRACTOR OF THE PARTY OF THE	L PURGE VOLUME				
8:31 Start 8:51 Stop Elapsed Initi	al 6 gpm Final_		26.0 gallons				
Minutes Since Pumping Began pH Cond. T☐C Other_	Minutes Since	e pH (μmhos/cm)	TO Other TURB				
initial 7.3 HI 18-9 4		7.0 2733	18.4 41				
	4 26 gal	1.0 2 233	10.1				
	3	+					
Account to the second s	74	1 1 - 1					
went ory are 18	zal	+					
- wasted for vectoring	Meter Nos.	10 0 11 1	,				
Observations During Purging (Well Condition, Turbidity, Col	or, Odor): String 19	Cooper purish	colon				
Discharge Water Disposal: Sanitary Sewer Storm		DRUM, on	SITE				
and the state of t	ELL SAMPLING	SXEW COMPANY	Land Control				
SAMELING METHOD	☐ Same As /	Above					
Baller - Type: 55	Grab - Tyr	oe;					
Submersible Centrifugal Bladder; Pump No.:		pe:					
SAMPLE DISTRIBUTION Sample Series: 900							
Sample No. Volume/Cont. Analysis Requested		Lab	Comments				
1402 BUDA BTEX TPH-	NOWE	NET					
QUALITY CONTROL SAMPLES Duplicate Samples	Blank Samples	Othe	r Samples				
Original Sample No. Duplicate Sample No. Type			Sample No.				

Harding	Lawson	Associates
Éngineers	and Geos	scientists

GROUND-WATER SAMPLING FORM

	and Geoscientists			Well No		ут	1W-	6
								ther
ob Name _ EX	WON F	LAME	DA	Well Material	(ZLEX	IC I St Ste	ما امد	ther
ob Number	4167328.	02		Date _6/	14/9	o dell'ole	Time	11:45
ob Name ob Number ecorded by	hours	Nix		Sampled by	4	TSN	1,11119	
ecorded by	rs	ignature)		Sampled by			(Initials)	
7 15 75 7	Step (0)		WELL	PURGING		0.00	TATE	
PURGE VOLUM	E			PURGE MET	HOD			
Casing Diameter (D	in inches):			☐ Bailer - Type:	:	_		
2-inch 4-inch	6-inch	Other		□ Submersible	⊕ Cen	trifugal Blade	der; Pump	No.:
Total Depth of Casin	g (TD in feet BTC	oc): 18.	60	Other - Type:				
Water Level Depth (WL in feet BTOC)	6.19		PUMP INTAK	E SE	ITING		
Number of Well Volu	imes to be purge	d (# Vois)		Near Bottom	DN	ear Top Ot	her	
Ø3 O4 O5 O				Depth in feet (B	TOC):_	Scree	n Interval	in feet (BTOC):
PURGE VOLUM		9				from		_ 10
18.60 -	6.19 \x	4	x .3	X 0.0408	=	24.	4	gallons
(18.60 - TD (feet)	WL (feet)	D (inches)				Calculated P	urge Volur	ne gallons
PURGE TIME			PURGE			ACTU	AL PUR	GE VOLUME
11:15 Start 11	4/200	Elegrad	Manage Company of the	gpm Final	4	Geografia	25	NAME OF PERSONS ASSOCIATED
FIELD PARAMET			muai	gpm rinal	-/ gpr		~	ganoria
Maytes Class I	ρΗ Cond. (μmhos/cr	SHEET CORPORATE CO.	Other TUKE	Minutes Since	pН	Cond,	TH:E	Other
The second second	19 52 9 0		7/00	Pumping Began	Pi	(µmhos/cm)	. П.Р	Onto:
	9 444	Commence of the Commence of th	7,00	-				
A	.9 4430						_	1
25	17730	0 22.3			_			
~ ,				Meter Nos				
	USA PERIO PER A LOTTURA DE SE			Meter Nos.		c	1-8	Lopes
Observations During	A STATE OF THE PARTY OF THE PAR		The state of the state of the	3/25/16/20/39/44	9 H	Cospor	10 S	Loan
	A STATE OF THE PARTY OF THE PAR		Storm Sewer	Other ON	g H sire	Costor IN DRU	10 S	Loan
Observations During Discharge Water Dis	posal: Sanita		Storm Sewer	FOTHER ON S		Colfor IN DRU	No S	Loan
Observations During Discharge Water Dis SAMPLING MET	posal: Sanita		Storm Sewer	Other ON		Costor IN DRU	MOS (M	hoar
Observations During Discharge Water Dis	posal: Sanita		Storm Sewer	FOTHER ON S	ove	Coifer IN DRU	10 S	Loan
Observations During Discharge Water Dis SAMPLING MET Baller - Type;	posal: ☐ Sanita	dder; Pump No	Storm Sewer WELL S	SAMPLING Same As Abo	ove	Cospor IN DRU	m	Loan
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible	posal: □ Sanita	dder; Pump No	Storm Sewer WELL S	SAMPLING Same As Abo Grab - Type:	ove			
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible C SAMPLE DISTRI Sample No.	POSAI: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont.	dder; Pump No ample Series;	Storm Sewer WELL S	Grab - Type: Other - Type:	ove	Lab		Comments
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible	posal: □ Sanita	dder; Pump No	Storm Sewer WELL S	SAMPLING Same As Abo Grab - Type:	ove			
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible C SAMPLE DISTRI Sample No.	POSAI: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont.	dder; Pump No ample Series;	Storm Sewer WELL S	Grab - Type: Other - Type:	ove	Lab		
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible C SAMPLE DISTRI Sample No.	POSAI: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont.	dder; Pump No ample Series;	Storm Sewer WELL S	Grab - Type: Other - Type:	ove	Lab		
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible C SAMPLE DISTRI Sample No.	POSAI: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont.	dder; Pump No ample Series;	Storm Sewer WELL S	Grab - Type: Other - Type:	ove	Lab		
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible C SAMPLE DISTRI Sample No.	POSAI: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont.	dder; Pump No ample Series;	Storm Sewer WELL S	Grab - Type: Other - Type:	ove	Lab		
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible C SAMPLE DISTRI Sample No.	POSAI: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont.	dder; Pump No ample Series;	Storm Sewer WELL S	Grab - Type: Other - Type:	ove	Lab		
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible C SAMPLE DISTRI Sample No.	POSAI: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont.	dder; Pump No ample Series;	Storm Sewer WELL S	Grab - Type: Other - Type:	ove	Lab		
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible Co SAMPLE DISTRI Sample No. / 4 05	THOD Antrifugal Black BUTION S Volume/Cont. 3 VOX J	dder; Pump No ample Series; Analysis Rec	Storm Sewer WELL S	Grab - Type: Other - Type:	ove	Lab		
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible Co SAMPLE DISTRI Sample No. / 4 05 QUALITY CONT	THOD >ntrifugal □Black BUTION S Volume/Cont. □ 3 VOA ROL SAMPLE	dder; Pump No ample Series; Analysis Rec	Storm Sewer WELL S 9006 Quested TPH-L	Grab - Type: Other ON S Same As Abo Grab - Type: Other - Type Preservatives NO NE	ove	Lab		comments
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible SAMPLE DISTRI Sample No / 4 05 QUALITY CONT Duplice	Posal: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont. ☐ 3 VOA ROL SAMPLE ate Samples	dder; Pump No ample Series: Analysis Red BTCX	Storm Sewer WELL S 9006 Quested TPH-L	Other ONS AMPLING Same As About Grab - Type: Other - Type Preservatives NONE	ove	Lab VET		comments
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible Co SAMPLE DISTRI Sample No. / 4 05 QUALITY CONT	Posal: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont. ☐ 3 VOA ROL SAMPLE ate Samples	dder; Pump No ample Series: Analysis Red BTCX	Storm Sewer WELL S 9006 Quested TPH-L	Grab - Type: Other ON S Same As Abo Grab - Type: Other - Type Preservatives NO NE	ove	Lab		comments
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible DISTRI Sample No. / 4 05 QUALITY CONT	Posal: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont. ☐ 3 VOA ROL SAMPLE ate Samples	dder; Pump No ample Series: Analysis Red BTCX	Storm Sewer WELL S 9006 Quested TPH-L	Other ONS AMPLING Same As About Grab - Type: Other - Type Preservatives NONE	ove	Lab VET		comments
Observations During Discharge Water Dis SAMPLING MET Baller - Type: Submersible SAMPLE DISTRI Sample No / 4 05 QUALITY CONT	Posal: ☐ Sanita THOD Antrifugal ☐ Black BUTION S Volume/Cont. ☐ 3 VOA ROL SAMPLE ate Samples	dder; Pump No ample Series: Analysis Red BTCX	Storm Sewer WELL S 9006 Quested TPH-L	Other ONS AMPLING Same As About Grab - Type: Other - Type Preservatives NONE	ove	Lab VET		comments

Harding Lawson Associates GROUND-WATER SAMPLING FORM Engineers and Geoscientists MW-7 Well No. ____ Well Type: ☐ Monitor ☐ Extraction ☐ Other. Well Material: ☑PVC □ St. Steel □ Other -Date 6/14/90 Time 12:30 Recorded by _ Sampled by __ WELL PURGING PURGE VOLUME PURGE METHOD PVC Bailer - Type: ____ Casing Diameter (D in inches): 2-inch 4-inch 6-inch Other_ ☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: _ Total Depth of Casing (TD in feet BTOC): 7-0 Other - Type: ___ Water Level Depth (WL in feet BTOC): 5.55 PUMP INTAKE SETTING Number of Well Volumes to be purged (# Vols) ☐ Near Bottom ☐ Near Top ☐ Other _ ☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other _ Depth in feet (BTOC): _____ Screen Interval in feet (BTOC): PURGE VOLUME CALCULATION: from _____ to ___ 77.6 - 5.55 X 4 X 3 X 0.0408 = 225 TD (feet) WL (feet) X 0 (inches) # Vols Calculated Purge Volume PURGE TIME PURGE RATE ACTUAL PURGE VOLUME 12:15 Start 12:29 Stop 14 Elapsed Initial _____gpm Final ____gpm FIELD PARAMETER MEASUREMENT Minutes Since Pumping Began Minutes Since Pumping Began Cond. Other TUAP (µmhos/cm) (µmhos/cm) Initial 3940 22.4 >100 >100 8 21.2 16 3730 21.6 >100 23 3670 210.6 Meter Nos. Observations During Purging (Well Condition, Turbidity, Color, Odor): MURKY, STROWEHS, ODOR, SHEEN Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☐ Other _ WELL SAMPLING SAMPLING METHOD Same As Above Baller - Type:____ Grab - Type: __ ☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: . Other - Type:_ SAMPLE DISTRIBUTION Sample Series: 9006 Volume/Cont. Sample No. Analysis Requested Preservatives Comments 1406 SYOAR NET BTEX. TPH-L NONE

QUALITY CONTROL SAMPLES

Duplicate Samples

	and the second s	577,000,000	Constitution Telephone			
Original Sample No.	Duplicate Sample No.	Туре	Sample No.	Туре	Sample No.	
			-			

Blank Samples

Other Semples

gallons

___ gallons

Other_



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

7 年 90 至: 17

Michelle Watson Harding Lawson Associates 200 Rush Landing Novato, CA 94947 Date: 06-28-90

NET Client Acct No: 281 NET Pacific Log No: 2458 Received: 06-14-90 1800

Client Reference Information

Exxon, Alameda; Job: 4167,326.02

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

dules Skamarack Laboratory Manager

Enclosure(s)

Client Acct: 281 Client Name: Harding Lawson Associates NET Log No: 2458

Ref: Exxon, Alameda; Job: 4167,326.02

Date: 06-28-90

Page: 2

Descriptor,	Lab	No.	and	Resul	t.s
DCJCI IDCOI 1	Lub	110.	unu	11/6-3-44-1	ÇJ

	_			
	Donouting	90061401 06-14-90 0800	90061402 06-14-90 0900	
Parameter	Reporting Limit	55460	55461	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030 as Gasoline METHOD 602	0.05	 10 06-25-90 32	 25 06-25-90 12	mg/L
DILUTION FACTOR * DATE ANALYZED Benzene Ethylbenzene Toluene Xylenes, total	0.5 0.5 0.5 0.5	1 06-25-90 1,400 ND 19 120	250 06-25-90 3,300 350 160 730	ug/L ug/L ug/L ug/L

Client Acct: 281 Client Name: Harding Lawson Associates

NET Log No: 2458

Ref: Exxon, Alameda; Job: 4167,326.02

Date: 06-28-90 Page: 3

	Descriptor,	Lab	No.	and	Resul	lts
--	-------------	-----	-----	-----	-------	-----

	Danastina	90061403 06-14-90 0950	90061404 06-14-90 1050	
Parameter	Reporting Limit	55462	55463	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030 as Gasoline METHOD 602 DILUTION FACTOR * DATE ANALYZED Benzene Ethylbenzene Toluene Xylenes, total	0.05 0.5 0.5 0.5	 -0 100 06-23-90 34 100 06-23-90 3,800 1,600 730 3,900	 10 06-23-90 12 100 06-25-90 5,700 1,300 400 760	mg/L ug/L ug/L ug/L ug/L

Client Acct: 281 Client Name: Harding Lawson Associates NET Log No: 2458

Ref: Exxon, Alameda; Job: 4167,326.02

Date: 06-28-90

Page: 4

Descriptor,	Lah	No	and	Resul	t c
Descriptor,	Lau	NO.	anu	resui	しつ

	_			
	0	90061405 06-14-90 1145	90061406 06-14-90 1230	
Parameter	Reporting Limit	55464	55465	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR *		 25	 50	
DATE ANALYZED METHOD GC FID/5030		06-25-90 	06-25-90 	
as Gasoline METHOD 602 DILUTION FACTOR *	0.05	38	14 50	mg/L
DATE ANALYZED Benzene Ethylbenzene	0.5 0.5	500 06-25-90 9,100 2,900	06-25-90 1,200 75	ug/L ug/L
Toluene Xylenes, total	0.5 0.5	7,800 12,000	2,800 930	ug/L ug/L

Client Acct: 281 Client Name: Harding Lawson Associates

NET Log No: 2458

Ref: Exxon, Alameda; Job: 4167,326.02

Date: 06-28-90 Page: 5

Descriptor,	Lab	No.	and	Results
beset ipeon,	LUD		uiiu	11030103

	_			
	Dan and in a	90061407 06-14-90 1330	90061408 06-14-90 1430	
Parameter	Reporting Limit	55466	55467	Units
PETROLEUM HYDROCARBONS VOLATILE (WATER)				
DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030		25 06-25-90	1 06-23-90	
as Gasoline METHOD 602 DILUTION FACTOR * DATE ANALYZED	0.05	9.5 25 06-25-90	ND 1 06-23-90	mg/L
Benzene Ethylbenzene Toluene Xylenes, total	0.5 0.5 0.5 0.5	1,300 310 880 1,800	ND ND ND ND ND	ug/L ug/L ug/L ug/L

Client Acct: 281

Client Name: Harding Lawson Associates

NET Log No: 2458

Date: 06-28-90

Page: 6

Ref: Exxon, Alameda; Job: 4167,326.02

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Gasoline	0.05	mg/L	109	ND	98	108	9.4
Benzene	0.5	ug/L	92	ND	91	94	3.4
Toluene	0.5	ug/L	98	ND	94	96	2.7

COMMENT: Blank Results were ND on other analytes tested.

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Gasoline	0.05	mg/L	109	ND	100	103	2.9
Benzene	0.5	ug/L	94	ND	100	103	3.1
Toluene	0.5	ug/L	98	ND	94	96	2.6

COMMENT: Blank Results were ND on other analytes tested.

KEY TO ABBREVIATIONS and METHOD REFERENCES

 Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.

: 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 (but do not multiply reported values).

ICVS : Initial Calibration Verification Standard (External Standard).

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.

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.

unhos/am : Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

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

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

 $\underline{\text{SM}}$: see "Standard Methods for the Examination of Water & Wastewater, 16th Edition, APHA, 1985.

 Harding Lawson Associates
7655 Redwood Boulevard
P.O. Box 578
Novato, California 94948
415/892-0821
 Telecopy: 415/892-0831
Telex: 340523

CHAIN OF CUSTODY FORM
2450
Samplers: Tom Nett

Lab: ___

415/892-0821 Telecopy: 415/892-0831 Samplers: Tom//e//							ANALYSIS REQUESTED							
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