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MARKETING DEPARTMENT

ENVIRONMENTAL ENGINEERING

G. D. GIBSON
SENIOR ENVIRONMENTAL ENGINEER

May 17, 1990

Exxon RAS 7-0104
1725 Park Street
Alameda, California

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

Dear Mr. Levy:

Attached for your review and comment is a report by Harding Lawson Associates of Novato, California on the First Quarter 1990 Groundwater Sampling at the above referenced site in the City of Alameda. A detailed report on the Phase III Groundwater Investigation recently completed at this site is currently being reviewed and will be submitted to your office in the very near future.

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

Sincerely,

Gary D. Gibson

GDG:vv
1110E
Attachment

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

w/o attachment:
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

8/3/89

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

J. KEVIN HUNTER
STAFF ENVIRONMENTAL ENGINEER

July 28, 1989

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

Mr. Lowell Miller
470 - 27th Street, Room 322
Oakland, California 94612

Dear Mr. Miller

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

While contaminant levels have declined significantly, they remain well above action levels in most of the wells.

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

Sincerely,

JK Hunter

JKH:sg
0598D/p.2
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

June 28, 1989

04167,284.02

Exxon Company, USA
Post Office Box 4415
Houston, Texas 77210-4415

Attention: Mr. J. Kevin Hunter
Environmental Geologist

Gentlemen:

First Quarter Ground-Water Sampling
Exxon Station Number 7-0104
Alameda, California

This letter summarizes the results of Harding Lawson Associates' (HLA) June 1989 monitoring of six ground-water wells at Exxon Station 7-0104, 1724 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* dated March 21, 1989. The first round of quarterly sampling was conducted on June 1, 1989.

Water Level Monitoring and Ground-Water Sampling

Water level and free product measurements were taken with an oil interface probe. No floating product was measured in any of the wells. Prior to sample collection, the monitoring wells were purged a minimum of three well volumes by hand bailing or with a centrifigal 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 the Ground Water Sampling Forms are attached. All water-level measurement and sampling equipment was decontaminated prior to use by steam cleaning.

Water samples were collected using a stainless steel bailer and decanted into 40 milliliter volatile organic analysis (VOA) vials. The samples were labeled, placed in a refrigerated environment and transported under chain of custody control to NET Pacific Laboratory, Santa Rosa, California (NET). NET is a state certified laboratory for the analyses requested.

Laboratory Analysis -

The ground-water samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline and benzene, ethylbenzene, toluene, and xylenes (BETX). Ground-water analytical results are listed in Table 1, along

with ground-water analytical results from HLA's Phase II evaluation of petroleum hydrocarbons. Copies of the original laboratory reports are attached.

Ground-Water Gradient and Flow Direction

Ground-water elevations are presented in Table 2. Since the previous monitoring on January 17, 1989, water level elevations have dropped 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. Ground-water flow is towards the east at a gradient of approximately 0.008 ft/ft. This flow direction is consistent with flow directions calculated throughout this investigation.

Conclusions

In general, chemical concentrations appear to have declined in ground water samples collected from all of the wells at the site.

HLA will submit a written report to Exxon presenting the results of each quarterly sampling event. Each report will include laboratory sampling results and a description of the ground water conditions at the site. If you have any questions please call us at (415) 892-0821.

Yours very truly,

HARDING LAWSON ASSOCIATES

S. Michelle Watson

S. Michelle Watson
Staff Geologist

Michael L. Siembieda
Associate Geologist - 4007

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

MW:het:086

Attachments:
Table 1
Table 2
Plate 1
Ground Water Sampling Forms

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

Well Number	Date	TPH Gasoline	Benzene	Toluene	Ethylbenzene	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-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-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-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-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-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

*ppb - parts per billion

MW:het:087

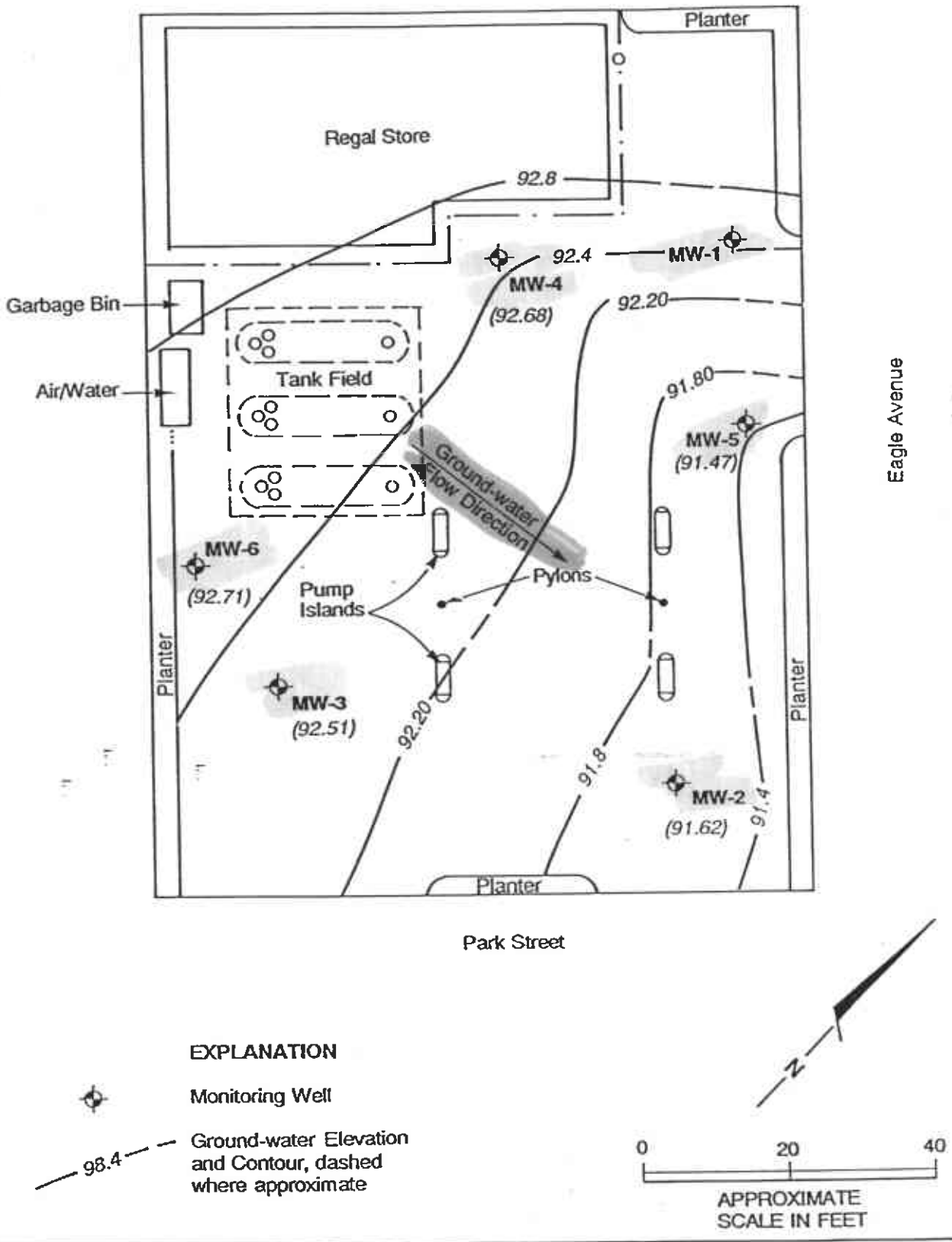
Table 2
Exxon Station R/S #7-0104
[redacted]er Elevations
(Feet)

Well No.	Elevation Top of Well Casing*	Depth Water BTOC**	Depth to Product	Product Thickness	Groundwater Elevation
MW-1	98.81	6.27	NP	Sheen	92.54
MW-2	97.94	6.32	NP	Sheen	91.62
MW-3	98.47	5.96	NP	NP	92.51
MW-4	98.69	6.01	NP	NP	92.68
MW-5	98.30	5.83	NP	Sheen	92.47
MW-6	98.96	6.25	NP	Sheen	92.71

NP - No product
*Elevations surveyed relative to an assumed common datum of 100 feet.
**BTOC - Below top of casing.

MJH/het:071
Table Pg. 3/

12803



PLATE

Harding Lawson Associates
Engineering and Environmental Services

June 1989 Groundwater Elevations
Phase III Evaluation of Petroleum Hydrocarbons
Exxon
Alameda, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
MOI	4167,284.02		2/89		

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.

M. Siembieda
Harding Lawson Associates
7655 Redwood Blvd.
PO Box 578
Novato, CA 94948

06-22-89
NET Pacific Log No: 6657
Series No: 281
Client Ref: Job #04167.284.02

Subject: Analytical Results for "Exxon ALameda, Source Code 23" Received 06-02-89

Dear Mr. Siembieda:

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:

Brian Fies
Group Leader
Atomic Spectroscopy

Approved by:

Susan Joy Griffin
Group Leader
Gas Chromatography

/ml
Enc: Sample Custody Document

KEY TO ABBREVIATIONS

mean	:	Average; the sum of the measurements divided by the total 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, unless noted otherwise.
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.
ND	:	Not detected; the analyte concentration is less than the listed reporting limit.
NR	:	Not requested.
NTU	:	Nephelometric turbidity units.
RL	:	Reporting limit.
RPD	:	Relative percent difference, $[V^1-V^2/V \text{ mean}]x100$.
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.
ug/filter	:	Concentration in units of micrograms of analyte per filter.
umhos/cm	:	Micromhos per centimeter.
*	:	See cover letter for details.

THE COVER LETTER AND KEY TO ABBREVIATIONS ARE AN INTEGRAL PART OF THIS REPORT

Parameter	Reporting Limit (mg/L)	Descriptor, Lab No. and Results (mg/L) 89060101 06-01-89 1452 (-28527)	89060102 06-01-89 1540 (-28528)	89060103 06-01-89 1648 (-28529)
PETROLEUM HYDROCARBONS				
Volatile, as Gasoline	0.05	23	5.4	5.2
DATE ANALYZED		06-16-89	06-16-89	06-16-89

Parameter	Reporting Limit (ug/L)	Descriptor, Lab No. and Results (ug/L) 89060101 06-01-89 1452 (-28527)	89060102 06-01-89 1540 (-28528)	89060103 06-01-89 1648 (-28529)
Benzene	0.5	1,900	330	240
Ethylbenzene	1.5	2,000	570	130
Toluene	0.5	2,500	300	220
Xylenes, total	1.5	6,000	680	690

Parameter	Reporting Limit (mg/L)	Descriptor, Lab No. and Results (mg/L) 89060104 06-01-89 1709 (-28530)	89060105 06-01-89 1758 (-28531)	89060106 06-01-89 1843 (-28532)
PETROLEUM HYDROCARBONS				
Volatile, as Gasoline	0.05	8.7	1.7	3.6
DATE ANALYZED		06-16-89	06-16-89	06-16-89

Parameter	Reporting Limit (ug/L)	Descriptor, Lab No. and Results (ug/L) 89060104 06-01-89 1709 (-28530)	89060105 06-01-89 1758 (-28531)	89060106 06-01-89 1843 (-28532)
Benzene	0.5	330	170	180
Ethylbenzene	1.5	680	13	63
Toluene	0.5	280	6.9	240
Xylenes, total	1.5	1,200	230	810

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

CHAIN OF CUSTODY FORM

6653

Lab: NET

284/TMD

Samplers: TM DRINKARD
JS FENTON

Job Number: 04117.244.02

Name/Location: EXXON ALAMEDA

Project Manager: M. SIEMBIEDA

Recorder: TOM Dunkard (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	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene (BE)	Total Petrol. Hydrocarb. (As Gasoline)
23	X				3			890601	01		890601			1452						X	X
↓	↓				3				02					1540						X	X
					3				03					1648						X	X
					3				04					1709						X	X
					3				05					1758						X	X
↓	↓				3			↓	06		↓			1843						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
Tom Dunkard	[signature]	6/2/89 1330
[signature]	[signature]	6/2 3:08
[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
[signature] 6/2/89 1552

METHOD OF SHIPMENT

Laboratory Copy Project Office Copy Field or Office Copy

6533

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
Date 6/1/89 Time 1758
Sampled by JJF/TMD (Initials)

Job Name EXXON ALAMEDA
Job Number 0H167 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): 20.7
Water Level Depth (WL in feet BTOC): 6.27
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:

$(20.7 \text{ TD (feet)} - 6.27 \text{ WL (feet)}) \times 4^2 \text{ D (inches)} \times 3 \text{ \# Vols} \times 0.0408 = 28.3$ gallons Calculated Purge Volume

PURGE TIME

1732 Start 1752 Stop 20 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

29 gallons

FIELD PARAMETER MEASUREMENT

6 GALS

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
0	6.5	766	24.5	16
5	6.8	696	21.9	>100
10	6.8	685	20.4	77
15	6.8	703	19.9	74
20	6.9	697	19.8	>100

20 GALS

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
25	7.1	690	19.6	>100
29	7.1	677	19.8	>100
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor): clear, slight gasoline odor, bubbles grey, muddy at 5 gals
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☐ Other 55 gal drum

WELL SAMPLING

SAMPLING METHOD

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

SAMPLE DISTRIBUTION

Sample Series: 8906

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
8906 0105	3 VOAS	TPH as GAS, BTXE	NONE	NET	

QUALITY CONTROL SAMPLES

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

0746 .1

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
Date 6/1/89 Time 1709

Job Name EXXON ALAMEDA
Job Number 04116728802
Recorded by (Signature)
Sampled by JJF/TMD (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): 6.32
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

$(15.9 - 6.32) \times 4^2 \times 3 \times 0.0408 = 18.8$ gallons

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

PURGE TIME

1600 Start 1702 Stop 62 Elapsed

PURGE RATE

Initial _____ gpm Final _____ gpm

ACTUAL PURGE VOLUME

19 gallons

FIELD PARAMETER MEASUREMENT

~~Minutes~~ Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other NTU
0 GAL	6.0	940	23	58
4	6.6	930	22	7100
8	6.8	930	22	7100
12	6.9	920	21.5	>100
16	6.8	890	21.5	80

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other NTU
19	6.8	900	21	>100
Meter Nos.	COMBO METER 5290			

Observations During Purging (Well Condition, Turbidity, Color, Odor): COMBO @ SLIGHT SHEEN + GAS ODER
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other 55 GAL DRUM 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: 8906

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
0104	3 VOA's	TPH AS GASOLINE & BTXE	NONE	NET	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

OFFICE COPY

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 6/1/89 Time 1540
Sampled by JJF/TMD (Initials)

Job Name EXXON ALAMEDA
Job Number 04167 284.02
Recorded by Jeffrey Farr (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): 14.1
Water Level Depth (WL in feet BTOC): 5.96
Number of Well Volumes to be purged (# Vols)
☒ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE VOLUME CALCULATION:
(14.1 TD (feet) − 5.96 WL (feet)) × 4² D (inches) × 3 # Vols × 0.0408 = 16.0 gallons
Calculated Purge Volume

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 TIME

1513 Start 1536 Stop 23 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

16 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other NTU
0 (start)	10.6	9600	31	78
4	10.6	800	17	>100
8	6.8	850	16	>100
12	6.7	757	16	>100
16	7.1	767	18	>100

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	COMBO METER 5290			

Observations During Purging (Well Condition, Turbidity, Color, Odor): slight gasoline odor, cloudy
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☐ Other

WELL SAMPLING

SAMPLING METHOD

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

SAMPLE DISTRIBUTION

Sample Series: 8906

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
8906-0102	3 VOAs	TPH as GAS & BTXE	NONE	NET	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

OFFICE COPY

Harding Lawson Associates
Engineers and Geologists

GROUND-WATER SAMPLING FORM

Well No. MW-4
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Date 6/1/89 Time 1843
Sampled by JJF/TMD (Initials)

Job Name EXXON ALAMEDA
Job Number 04467.284.C2
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): 18.2
Water Level Depth (WL in feet BTOC): 6.01
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:

(18.2 (TD feet) − 6.01 (WL feet)) × 4 (D inches)² × 3 (# Vols) × 0.0408 = 23.9 gallons (Calculated Purge Volume)

PURGE TIME

1816 Start 1838 Stop 22 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

24 gallons

FIELD PARAMETER MEASUREMENT

(EAS)

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
0	6.6	732	22.4	10
5	6.8	747	21.6	>100
10	6.9	712	20.8	>100
15	6.9	702	19.7	>100
20	7.0	712	19.4	>100

(EAS)

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other TURB
24	7.1	681	20.1	>100
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor): clear, very slight GAS odor; murky at ± 5 gals
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other 55 gal drum

WELL SAMPLING

SAMPLING METHOD

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

SAMPLE DISTRIBUTION

Sample Series: 8906

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
8906-0106	3 VOAs	TPH as GAS & BTXE	NONE	NET	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

OFFICE COPY

0746

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 6/1/89 Time 1648
Sampled by JJF / TMD (Initials)

Job Name EXXON ALAMEDA
Job Number 04167 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): 18.8
Water Level Depth (WL in feet BTOC): 5.83
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

(18.8 (TD feet) − 5.83 (WL feet)) × 4 (D inches)^2 × 3 (# Vols) × 0.0408 = 25.4 gallons (Calculated Purge Volume)

PURGE TIME

1620 Start 1645 Stop 25 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

26 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other NTU
0 GAL	6.3	900	21	>100
5	6.5	900	21	"
10	6.7	890	21	>100
15	6.9	880	20	"
20	6.9	860	21	>100

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☒ °C ☐ °F	Other NTU
25 GAL	7.0	850	21	>100
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor): VERY CLOUDY, SLIGHT GAS ODOR & SHEEN
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☒ Other 55 GAL DRUM ONSITE

WELL SAMPLING

SAMPLING METHOD

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

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

SAMPLE DISTRIBUTION

Sample Series: 8906

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
0103	3 VOAs	TPH AS GASOLINE & BTXE	NONE	NET	

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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