

3315 Almaden Expressway, Suite 34 San Jose, CA 95118 Phone: (408) 264-7723 FAX: (408) 264-2435

LETTER REPORT
QUARTERLY GROUNDWATER MONITORING

Fourth Quarter 1993

at

Exxon Station 7-0210 7840 Amador Valley Boulevard Dublin, California

130001.01



3315 Almaden Expressway, Suite 34 San Jose, CA 95118 Phone: (408) 264-7723

FAX: (408) 264-2435

December 6, 1993 1103MGUE 130001.01

Ms. Marla Guensler Exxon Company, U.S.A. P.O. Box 4032 2300 Clayton Road Concord, California 94520

(

Subject:

Letter Report Quarterly Groundwater Monitoring, Fourth Quarter 1993 at Exxon Station 7-0210, 7840 Amador Valley Boulevard, Dublin, California

#### Ms. Guensler:

As requested by Exxon Company U.S.A. (Exxon), this letter report summarizes the methods and results of the fourth quarter 1993 groundwater monitoring performed by RESNA Industries Inc. (RESNA) at the above-referenced site. The site is located on the eastern corner of the intersection of Amador Valley Boulevard and Regional Street in Dublin, California, as shown on the Site Vicinity Map (Plate 1). Exxon has contracted with RESNA to perform quarterly groundwater monitoring, sampling, and analyses to evaluate the groundwater gradient, flow direction, and gasoline hydrocarbon concentrations in the groundwater.

The site was owned and operated by Texaco until 1988 when it was purchased by Exxon. In February 1990, Exxon replaced product dispensers and installed a vapor recovery system. In October 1992, Exxon replaced three 8,000-gallon single-walled steel underground storage tanks (USTs) with 12,000-gallon double-walled fiberglass-reinforced plastic (FRP) USTs. The piping was also upgraded to double-walled FRP. The locations of the USTs, groundwater monitoring wells, and pertinent site features are shown on Plate 2, Generalized Site Plan.



Quarterly Groundwater Monitoring Exxon Station 7-0210, Dublin, California

December 6, 1993 130001.01

#### Groundwater Sampling and Gradient Evaluation

RESNA personnel performed the latest quarterly groundwater monitoring and sampling on October 25, 1993. Field work during this monitoring consisted of measuring depth-to-water (DTW) levels of wells MW-1 through MW-4, subjectively analyzing water from wells MW-1 and MW-2 for the presence of floating product, and purging and sampling the groundwater from monitoring wells MW-1 and MW-2 for laboratory analysis. Monitoring well MW-3 is on an annual sampling schedule during the first quarter, and well MW-4 is on a semi-annual sampling schedule during first and third quarters. The results of the subjective analyses are summarized in Table 1, Cumulative Groundwater Monitoring Data and Results of Laboratory Analyses of Groundwater Samples. Field methods are described in RESNA's Groundwater Sampling Protocol (RESNA, September 22, 1993).

RESNA calculated groundwater elevations for each well by subtracting the measured DTW from the elevation of the wellhead. The measured DTW levels, wellhead elevations, and groundwater elevations for this and the previous monitoring events at the site are summarized in Table 1. Based on the October 25, 1993, groundwater elevation data, a nearly flat local groundwater gradient of about 0.003 with a flow direction toward the southeast was interpreted for the site. This groundwater flow direction, shown on Plate 3, Groundwater Gradient Map, is consistent with the results from previous monitorings.

Monitoring wells MW-1 and MW-2 were purged and sampled in accordance with the RESNA's protocol (RESNA, September 22, 1993). Well purge data sheets for the parameters monitored on October 25, 1993, are included in Appendix A, Well Purge Data Sheets.

#### Results of Laboratory Analysis

Groundwater samples collected from monitoring wells MW-1 and MW-2 were analyzed for gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons as gasoline (TPHg) using modified EPA Methods 5030/8015/8020. Groundwater samples were analyzed by PACE Incorporated Laboratories (California Hazardous Waste Testing Laboratory Certification No. 1282) in Novato, California. The laboratory analyses and chain of custody record sheets are included in Appendix B, Laboratory Analyses Reports and Chain of Custody Record. The results of these and previous groundwater analyses are summarized in Table 1. Concentrations of TPHg and BTEX in the groundwater, based on the October 25, 1993 laboratory analyses, are shown on Plate 4, Concentrations of Gasoline Hydrocarbons in Groundwater.



## Quarterly Groundwater Monitoring Exxon Station 7-0210, Dublin, California

December 6, 1993 130001.01

Results of this quarter's laboratory analyses of groundwater samples from monitoring wells MW-1 and MW-2 indicate:

- O TPHg was detected in wells MW-1 and MW-2 at concentrations of 140 parts per billion (ppb) and 75 ppb, respectively;
- benzene was not detected in wells MW-1 and MW-2 at or greater than the laboratory method detection limit (MDL) of 0.5 ppb;
- toluene, ethylbenzene, and total xylenes in wells MW-1 and MW-2 were either not detected at the MDL of 0.5 ppb, or were detected at concentrations less than the Department of Health Services (DHS) Drinking Water Action Level (DWAL) of 100 ppb toluene, and DHS Maximum Contaminant Levels (MCLs) of 680 ppb ethylbenzene and 1,750 ppb total xylenes in drinking water.

#### Limitations

This report was prepared in accordance with generally accepted standards of environmental geological practice in California at the time this investigation was performed. This report has been prepared for Exxon Company U.S.A. and any reliance on this report by third parties shall be at such party's sole risk.



#### Quarterly Groundwater Monitoring Exxon Station 7-0210, Dublin, California

December 6, 1993 130001.01

eanne bucktal

If you have any questions or comments regarding this letter report, please call (408) 264-7723.

Sincerely,

RESNA Industries Inc.

GEOLOGIST. Jeanne Buckthal Staff Geologist

JAMES LEWIS NELSON

> No. 1463 CERTIFIED

ENGINEERING GEOLOGIST

lames L. Nelson

Certified Engineering Géologist No. 1463

ATE OF CALIFORNIA

Enclosures: References

Plate 1. Site Vicinity Map

Plate 2, Generalized Site Plan

Plate 3, Groundwater Gradient Map (October 25, 1993)

Plate 4, Concentrations of Gasoline Hydrocarbons in Groundwater

Cumulative Groundwater Monitoring Data and Results of Table 1,

Laboratory Analyses of Groundwater Samples

Appendix A: Well Purge Data Sheets

Appendix B: Laboratory Analysis Reports and Chain of Custody Record



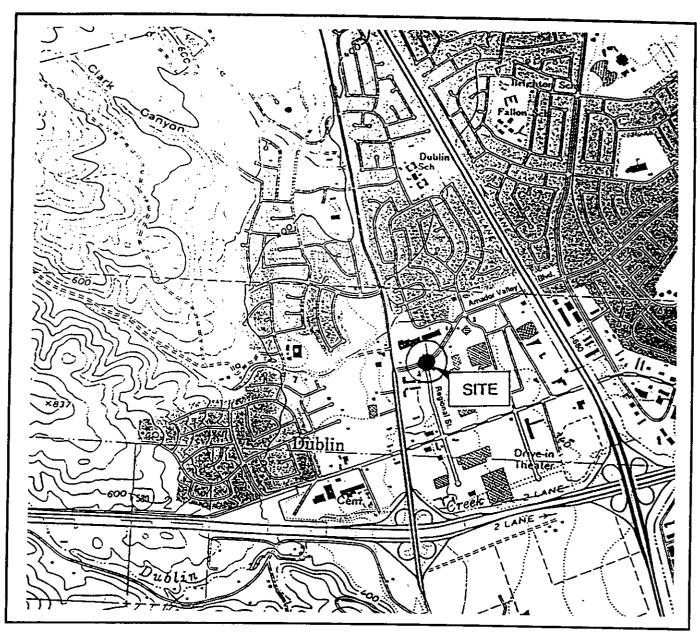
Quarterly Groundwater Monitoring Exxon Station 7-0210, Dublin, California

December 6, 1993 130001.01

#### REFERENCES

- Alton Geoscience. 1991. Preliminary Soil Assessment Report at Exxon RS 7-0210.
- Department of Health Services, State of California. October 24, 1990. <u>Summary of California Drinking Water Standards.</u>
- EA Engineering, Science, and Technology. 1992. <u>Report of Closure Sampling, Exxon Retail Site 7-0210, 7840 Amador Valley Boulevard, Dublin, California.</u>
- EA Engineering, Science, and Technology. October 28, 1992. Report of Well Installation, Exxon Retail Site 7-0210, 7840 Amador Valley Boulevard, Dublin, California. 81002.23.0000.
- RESNA Industries Inc. March 9, 1993. <u>Letter Report Quarterly Groundwater Monitoring</u>. <u>First Quarter 1993 at Exxon Station 7-0210, 7840 Amador Valley Boulevard, Dublin, California.</u> 130001.01.
- RESNA Industries Inc. July 28, 1993. <u>Letter Report Quarterly Groundwater</u>

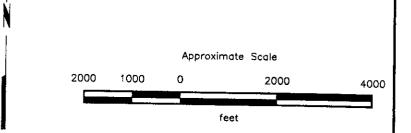
  <u>Monitoring, Second Quarter 1993 at Exxon Station 7-0210, 7840 Amador Valley Boulevard, Dublin, California.</u> 130001.01.
- RESNA Industries Inc. September 22, 1993. <u>Letter Report Quarterly Groundwater Monitoring, Third Quarter 1993 at Exxon Station 7-0210, 7840 Amador Valley Boulevard, Dublin, California.</u> 130001.01.



Base: U.S. Geological Survey 7.5—Minute Quadrangles Dublin, California. Photorevised 1980

LEGEND

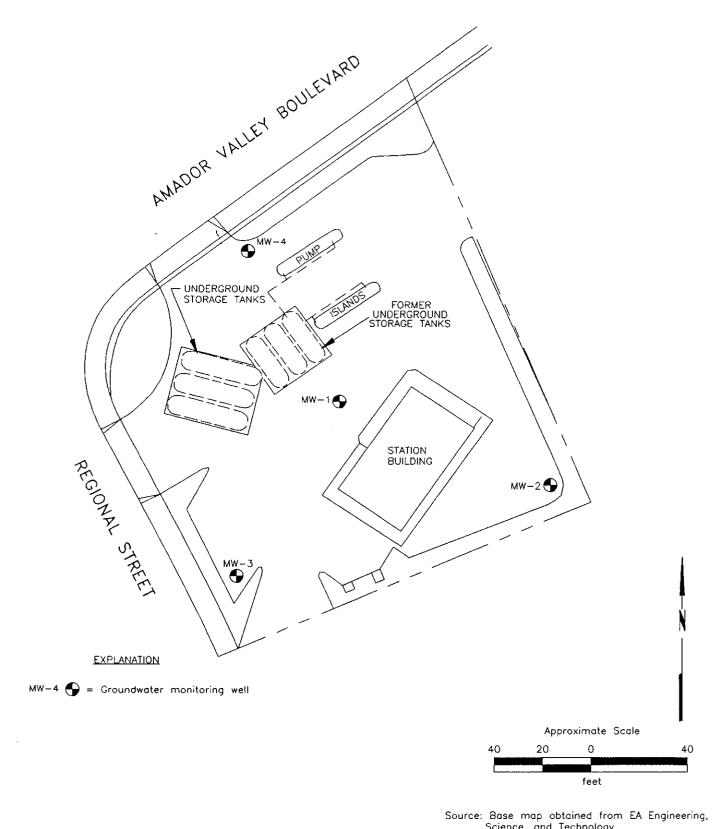
 $(\bullet)$  = Site Location



Working to Restore Nature

PROJECT 130001.01

SITE VICINITY MAP Exxon Station 7-0210 7840 Amador Valley Boulevard Dublin, California PLATE



Science, and Technology.



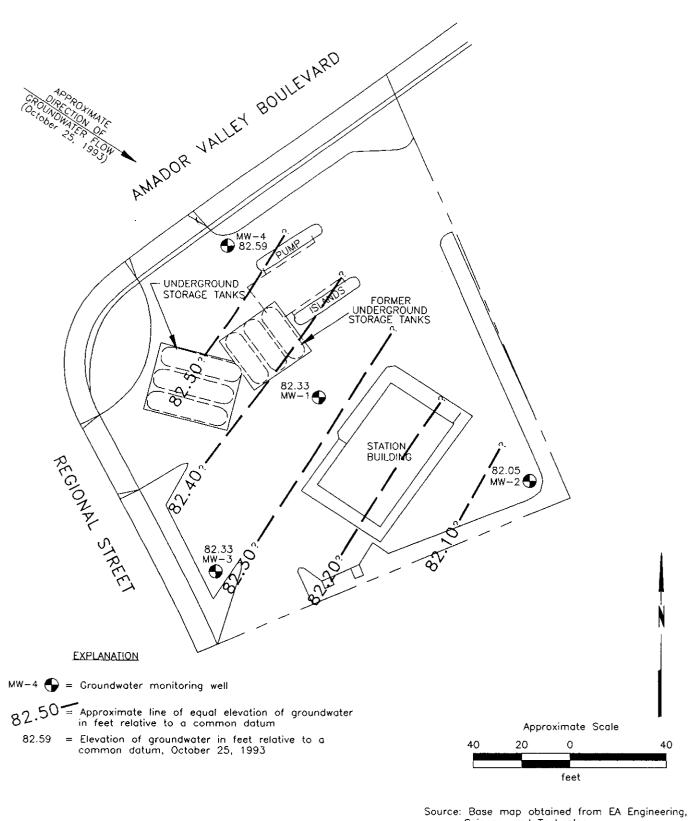
**PROJECT** 

130001.01

13000104

GENERALIZED SITE PLAN EXXON Station 7-0210 7840 Amador Valley Boulevard Dublin, California

PLATE



Science, and Technology.

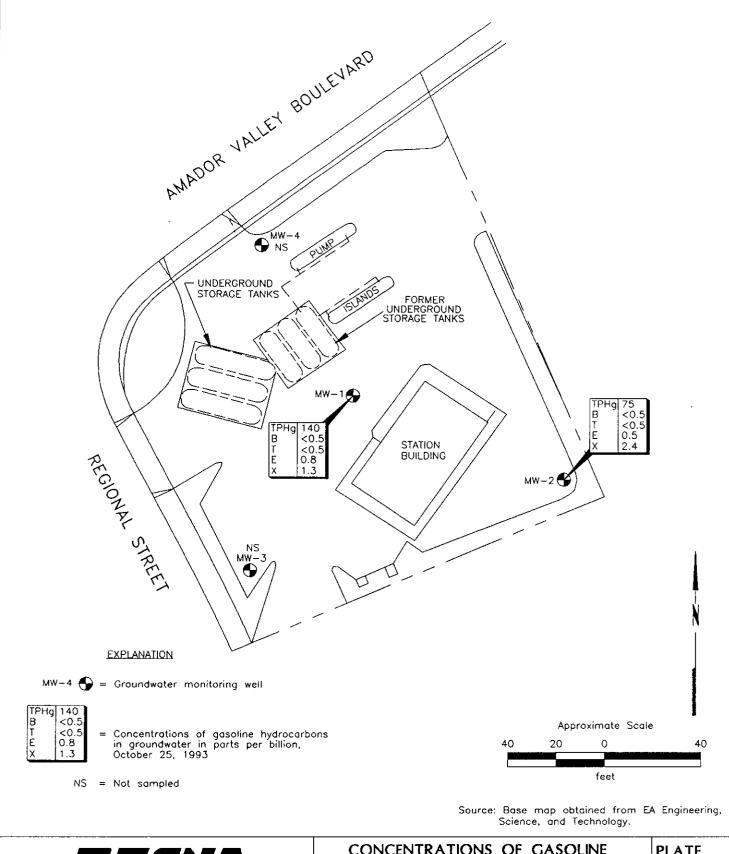


**PROJECT** 130001.01

13000104

GROUNDWATER GRADIENT MAP EXXON Station 7-0210 7840 Amador Valley Boulevard Dublin, California

**PLATE** 



Working to Restore Nature

**PROJECT** 130001.01

13000104

CONCENTRATIONS OF GASOLINE HYDROCARBON IN GROUNDWATER EXXON Station 7-0210 7840 Amador Valley Boulevard Dublin, California

**PLATE** 



## TABLE 1 CUMULATIVE GROUNDWATER MONITORING DATA AND RESULTS OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES

Exxon Service Station 7-0210 7840 Amador Valley Boulevard Dublin, California

Well ID #	Sampling				1 of 2				
		SUBJ	DTW	Elev.	TPHg	В	т	E	,
(TOC)	Date	<del>', '</del>	feet .	>	<		parts per billi	on	>
MW-1									
(96.32)	•		j						
EA	05/21/92	NFP	14.45	81.87	<50				
RESNA	02/10/93	NFP	12.22	84.10	2,600	< 0.5	<0.5	<0.5	<0.5
	05/20/93	NFP	10.74	85.58	1,000	3.1	<0.5	1.8	0.6
	06/23/93	NFP	11.74	84.58	1,300	1.9	< 0.5	1.8	<1.0
	08/23/93	NFP	12.72	83.60	80	1.0 <0.5	< 0.5	1.2	< 0.5
	10/25/93	NFP	13.99	82.33	140	<0.5	<0.5 <0.5	<0.5 0.8	0.8
MW-2						10.0	70.5	0.8	1.3
(95.91)									
EA	05/21/92	MED	44.00						
RESNA	02/10/93	NFP NFP	14.30	81.61	< 50	< 0.5	< 0.5	<0.5	< 0.5
	05/20/93	NFP	12.34	83.57	<50	<0.5	< 0.5	<0.5	<0.5
	06/23/93		10.73	85.18	320	< 0.5	< 0.5	< 0.5	<1.0
	08/23/93	NFP NFP	11.74	84.17	130	< 0.5	< 0.5	<0.5	<0.5
	10/25/93	NFP	12.60	83.31	140	<0.5	< 0.5	< 0.5	1.1
	10/25/55	INFP	13.86	82.05	75	<0.5	<0.5	0.5	2.4
MW-3								•	
(97.95)									
EA	05/21/92	NFP	16.05	81.90	<50				
RESNA	02/10/93	NFP	13.77	84.18	<50	< 0.5	<0.5	<0.5	<0.5
	05/20/93	NFP	12.32	85.63	<50 <50	< 0.5	<0.5	<0.5	0.7
	06/23/93	NFP	13.34	84.61	<50 <50	< 0.5	< 0.5	<0.5	<1.0
	08/23/93	NFP	14.30	83.65	<50 <50	<0,5 2,3	<0.5	<0.5	<0.5
	10/25/93	NFP	15.62	82.33	7.50		1.2 sampled	1.4	4.1
4147.4							ampiou		
ЛW-4									
96.69)									
A	05/21/92	NFP	14.59	82.10	<50	< 0.5	<0.5	< 0.5	<0.5
IESNA	02/10/93	NFP	12.30	84.39	<50	< 0.5	<0.5	<0.5	<0.5
	05/20/93	NFP	10.75	85.94	<50	1.4	1.0	<0.5	1.8
	06/23/93	NFP	11.78	84.91	<50	< 0.5	< 0.5	<0.5	<0.5
	08/23/93	NFP	12.82	83.87	<50	< 0.5	<0.5	<0.5	0.8
	10/25/93	NFP	14.10	82.59			ampled	10.0	0.5
1CLs						1.0			
WAL						1.0	100	680	1,750



## TABLE 1 CUMULATIVE GROUNDWATER MONITORING DATA AND RESULTS OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES

Exxon Service Station 7-0210 7840 Amador Valley Boulevard Dublin, California Page 2 of 2

SUBJ NFP	=	Results of subjective evaluation, free-phase product thickness (PT) in feet
	=	
тос	-	Elevation of top of well casing in feet relative to a common datum: fire hydrant at northwest corner of the site assumed elevation of 100.00 feet.
DTW	=	Depth to water
Elev.	=	Elevation of groundwater
TPHg	=	Total patrolaum hydrogeness
BTEX	=	Total petroleum hydrocarbons as gasoline analyzed using modified EPA method 5030/8015.
<	=	
MCLs	=	Less than the indicated detection limit shown by the laboratory  Maximum Contaminant Levels (DHS, October 1990)
DWAL	=	Dripking Motor Assistant Levels (DRS, October 1990)
	=	Drinking Water Action Level (DHS, October 1990)  Not applicable
EA	_	
	=	Monitoring by EA Engineering, Science, and Technology
RESNA	_=_	RESNA Industries Inc. began monitoring and sampling



# APPENDIX A WELL PURGE DATA SHEETS



#### WELL PURGE DATA SHEET

Project Name: Exxon 7-0210

Job No. <u>130001.01</u>

Date: <u>October 25, 1993</u>

Page <u>1</u> of <u>1</u>

Well No. MW-1

Time Started 1413

TIME (hr)	GALLONS (cum.)	TEMP. (F)	рн	CONDUCT. (micromho)	TURBIDITY (NTU)	
1413	Start purging MW-1					
1413	0	89.4	6.92	8.83	18.0	
1418	6.5	81.8	6.77	11.74	3.5	
1425	13	80.2	6.82	11.70	5.8	
1430	Dry at 19 gallons					
1502	19.5	83.3	6.91	12.23	2.2	
1508	26	80.1	6.87	11.69	14.1	
1510	Stop pu	rging MW-1				
Notes:	De <sub>i</sub>	Dept pth to Wate pth to Wate allons per Well Ca	h to Botto r - initia r - final % Time Well Casin Gallon sing Volum	(inches): 4 m (feet): 2 l (feet): 1   (feet): 1 recovery: 8 Sampled: 1 g Volume: 6 s Purged: 2 e Purged: 4 te (gpm): 0	3.72 3.99 5.08 9 600 .35 6	



#### WELL PURGE DATA SHEET

Project Name: <u>Exxon 7-0210</u>

Job No. <u>130001.01</u>

Date: October 25, 1993

Page <u>1</u> of <u>1</u>

Well No. MW-2

Time Started 1523

TIME (hr)	GALLONS (cum.)	TEMP. (F)	рН	CONDUCT. (micromho)	TURBIDITY (NTU)		
1523	Start pu	rging MW-2			<del></del>		
1523	0	78.5	6.98	11.57	14.0		
1530	7.5	78.7	6.90	11.20	10.2		
1537	15	77.8	6.91	11.18	4.7		
1543	22.5	76.7	6.91	11.08	2.0		
1552	30	77.6	6.94	11.17	1.5		
1552	Stop pu	Stop purging MW-2					

Notes:

Well Diameter (inches): 4

Depth to Bottom (feet): 25.16

Depth to Water - initial (feet): 13.86

Depth to Water - final (feet): 13.88

% recovery : 99

Time Sampled: 1615

Gallons per Well Casing Volume: 7.38

Gallons Purged: 30

Well Casing Volume Purged: 4.1

Approximate Pumping Rate (gpm): 1.0



#### APPENDIX B

#### LABORATORY ANALYSIS REPORTS AND CHAIN OF CUSTODY RECORD



November 02, 1993

Mr. Marc Briggs RESNA 3315 Almaden Expressway Suite 34 San Jose, CA 95118

RE: PACE Project No. 431026.517

Client Reference: Exxon 7-0210 (EE)

Dear Mr. Briggs:

Enclosed is the report of laboratory analyses for samples received October 26, 1993.

Please note a peak eluting earlier than Benzene and suspected to be methyl tert butyl ether was present in your samples W-15-MWl and W-13-MW2.

Footnotes are given at the end of the report.

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

Sincerely,

Stephanic matzo

Stephanie Matzo Project Manager

**Enclosures** 

AECEIVED

AN DEF



RESNA

3315 Almaden Expressway Suite 34

San Jose, CA 95118

November 02, 1993

PACE Project Number: 431026517

Attn: Mr. Marc Briggs

Client Reference: Exxon 7-0210 (EE)

PACE Sample Number:

Date Collected:

Date Received:

Client Sample ID:

Parameter

70 0181305 10/25/93

10/26/93 Rinsate

MDL ORGANIC ANALYSIS

Units

ug/L

ug/L

DATE ANALYZED

PURGEABLE FUELS AND AROMATICS TOTAL FUEL HYDROCARBONS, (LIGHT):

Purgeable Fuels, as Gasoline (EPA 8015M) ug/L PURGEABLE AROMATICS (BTXE BY EPA 8020M):

Benzene Toluene

Ethylbenzene Xylenes, Total

0.5 ug/L ug/L 0.5

50

0.5

ND ND 0.5 ND

ND

10/29/93 10/29/93 10/29/93

10/29/93

10/29/93

10/29/93

10/29/93

ND



Mr. Marc Briggs

Page

November 02, 1993

PACE Project Number: 431026517

DATE ANALYZED

10/29/93

Client Reference: Exxon 7-0210 (EE)

PACE	Sample	Number:
		_

Date Collected:

Date Received:

Client Sample ID: Parameter

70 0181313

10/25/93 10/26/93

MW1R

MDL

Units

ORGANIC	ANALYSIS

PURGEABLE	<b>FUELS</b>	AND	AROMATICS
	I OLLO	שוווי	VIVOLIVITES

	LACTO WIND WKOWN	
TOTAL FUEL	HYDROCARBONS.	(LIGHT):

Purgeable Fuels, as Gasoline (EPA 8015M) ug/L PURGEABLE AROMATICS (BTXE BY EPA 8020M):

Benzene Toluene

Ethylbenzene Xylenes, Total

10/29/93 50 ND 10/29/93

10/29/93 ug/L 0.5 ND 10/29/93 ug/L 0.5 ND 10/29/93 ug/L 0.5 ND

ug/L 0.5 ND 10/29/93



Mr. Marc Briggs

Page

November 02, 1993

PACE Project Number: 431026517

Client Reference: Exxon 7-0210 (EE)

PACE Sample Number:

Date Collected: Date Received:

Client Sample ID:

70 0181321 10/25/93 10/26/93

1.3

Parameter

W-15-MW1 Units MDL

DATE ANALYZED

10/29/93

10/29/93

10/29/93

10/29/93

10/29/93

10/29/93

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT): Purgeable Fuels, as Gasoline (EPA 8015M) ug/L 50 140 PURGEABLE AROMATICS (BTXE BY EPA 8020M): Benzene ug/L 0.5 ND Toluene ug/L 0.5 ND Ethylbenzene ug/L 0.5 0.8

Xylenes, Total

ug/L 0.5 10/29/93

11 Digital Drive Novato, CA 94949 TEL: 415-883-6100 FAX: 415-883-2673



Mr. Marc Briggs

Page

November 02, 1993

PACE Project Number: 431026517

Client Reference: Exxon 7-0210 (EE)

PACE Sample Number: Date Collected:

Date Received: Client Sample ID:

Parameter

70 0181348 10/25/93 10/26/93

W-13-MW2 DATE ANALYZED

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS TOTAL FUEL HYDROCARBONS, (LIGHT): 10/29/93 Purgeable Fuels, as Gasoline (EPA 8015M) ug/L 50 75 10/29/93 PURĞEABLE AROMATICS (BTXE BY ÈPA 8020M): 10/29/93 Benzene 0.5 ug/L ND 10/29/93 Toluene ug/L 0.5 ND 10/29/93 **Ethylbenzene** ug/L 0.5 0.5 10/29/93 Xylenes, Total ug/L 0.5 2.4 10/29/93

Units

MDL

These data have been reviewed and are approved for release.

2 C. Coop

Darrell C. Cain Regional Director



Mr. Marc Briggs

**FOOTNOTES** 

November 02, 1993

Page

for pages 1 through

PACE Project Number: 431026517

Client Reference: Exxon 7-0210 (EE)

MDL

Method Detection Limit

ND

Not detected at or above the MDL.



Mr. Marc Briggs Page 6

QUALITY CONTROL DATA

November 02, 1993

PACE Project Number: 431026517

Client Reference: Exxon 7-0210 (EE)

PURGEABLE FUELS AND AROMATICS

Batch: 70 26056

Samples: 70 0181305, 70 0181313, 70 0181321, 70 0181348

#### METHOD BLANK:

Parameter TOTAL FUEL HYDROCARBONS, (LIGHT):	Units	MDL	Method Blank
Purgeable Fuels, as Gasoline (EPA 8015M PURGEABLE AROMATICS (BTXE BY EPA 8020M)	ug/L	50	ND -
Benzene Toluene Ethylbenzene	ug/L ug/L	0.5	ND ND
Xylenes, Total	ug/L	0.5	ND
, , , , , , , , , , , , , , , , , , , ,	ug/L	0.5	ND

### LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter Purgeable Fuels, as Gasoline (EPA 8015M Benzene	Units ug/L ug/L	MDL 50 0.5	Reference Value 1000	Recv 97%		0%
Toluene Ethylbenzene Xylenes, Total	ug/L ug/L ug/L	0.5 0.5 0.5	40.0 10 40.0 11	102% 105% 110% 110%	100% 4% 100% 9%	2% <b>4</b> % 9% 3%



Mr. Marc Briggs Page 7

FOOTNOTES

November 02, 1993

age 7 for page 6

PACE Project Number: 431026517

Client Reference: Exxon 7-0210 (EE)

MDL

Method Detection Limit

ND

Not detected at or above the MDL.

RPD

Relative Percent Difference

# PAGE OF PORATE OF CHALITY

#### EXXON COMPANY, U.S.A.

P.O. Box 4415, Houston, TX 77210-4415

CHAIN OF CUSTODY

431026.517

Novato, CA, 11 Digital Drive, 94949 Huntington Beach, CA, 5702 Bolsa Avenue, 92649 (415) 883-6100 (714) 892-2565 Consultant's Name: Address: Site Location: Project #: Consultant Project #: # 1200001 Consultant Work Release #: Project Contact: 264 77 = 3Fax #: 264-2434 Laboratory Work Release #: 13 3 3 5 5 EXXON Contact: 1 C&M EXXON RAS #: 1 7 100 Sampled by (print): Sampler's Signature: Shipment Method: Air Bill #: Shipment Date: 72 hr ANALYSIS REQUIRED 24 hr 48 hr Sample Condition as Received Standard (5 day) Temperature ° C: Cooler #: Inbound Seal Yes No TPH/Diesel EPA 8015 Outbound Seal Yes No TRPH EPA 418.1 Sample Description Collection Matrix Prsv # of PACE Date/Time Soil/Water Cont Sample # COMMENTS 18130.5 18131.3 18132-1 18133-0 18 134.8 -Relinquished by/Affiliation Time Accepted by/Affiliation Date Time Additional Comments: