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**GROUNDWATER MONITORING REPORT**

Fourth Quarter 1993  
Exxon Service Station No. 7-0236  
6630 East 14th Street  
Oakland, California

Dec 23, 93

ALCO  
HAZMAT  
FEB 22 AM 9:17

73 Digital Drive  
Novato, CA 94949  
Phone: (415) 382-7400  
Fax: (415) 382-7415

December 23, 1993

Ms. Marla Guensler  
Exxon Company, U.S.A.  
P.O. Box 4032  
2300 Clayton Road  
Concord, California 94524

Subject: Groundwater Monitoring  
Fourth Quarter 1993  
Exxon Service Station No. 7-0236  
6630 East 14th Street  
Oakland, California

Ms. Guensler:

At the request of Exxon Company, U.S.A (Exxon), RESNA Industries Inc. (RESNA) performed the fourth quarter 1993 groundwater monitoring event at the subject site. The location of the site is shown on the Site Vicinity Map (Plate 1). The purpose of quarterly monitoring is to evaluate fluctuations in petroleum hydrocarbon concentrations in groundwater and to evaluate the groundwater flow direction and gradient.

## **BACKGROUND**

The subject site is currently operated as an Exxon retail service station. Three underground fuel storage tanks and one underground used-oil storage tank are located on the property. In March 1991, Alton Geoscience (Alton) installed three on-site groundwater monitoring wells MW-1, MW-2, and MW-3. Samples collected by Alton indicate that petroleum hydrocarbons are present in soil and groundwater beneath the site (Alton, December 21, 1992, Project No. 30-0401-02). In March 1992, Alton installed two additional on-site groundwater monitoring wells MW-6 and MW-7, and two off-site groundwater monitoring wells MW-4 and MW-5 (Alton, December 21, 1992, Project No. 30-0401-02). Exxon initiated quarterly groundwater monitoring at the site in January 1992.

## **GROUNDWATER MONITORING**

On November 16, 1993, RESNA personnel measured depth-to-water in each well, subjectively evaluated water for separate phase product or sheen, and purged and sampled groundwater from wells MW-1, MW-2, MW-3, MW-5, MW-6, and MW-7 for laboratory analysis. Well MW-4 had been paved over during street re-surfacing work and could not be accessed. Results of subjective analyses are included in Table 1. Field methods are described in Appendix A.

RESNA compiled potentiometric data to evaluate the direction of groundwater flow beneath the site. Depth-to-water measurements taken on November 16, 1993, were used to calculate the

groundwater elevation in each well measured. Cumulative depth-to-water and groundwater elevation data are presented in Table 1. Based on the November 16, 1993 data, the evaluated groundwater flow direction was to the southwest with an approximate gradient of 0.030 (Plate 2). This groundwater flow direction is generally consistent with the previous groundwater flow directions interpreted for this site. Since third quarter 1993, groundwater elevations at the site decreased an average of 1.0 foot.

### Laboratory Analysis

Pace Inc., a California-certified laboratory in Novato, California analyzed the groundwater samples from monitoring wells MW-1, MW-2, MW-3, MW-5, MW-6, and MW-7 for benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) and total petroleum hydrocarbons as gasoline (TPHg) using modified Environmental Protection Agency (EPA) Methods 8020M and 8015M, and for total petroleum hydrocarbons as diesel (TPHd) using EPA Method 8015. Copies of the Report of Laboratory Analysis and Chain of Custody Record are attached (Appendix B). A summary of present and historical groundwater analyses are presented in Table 1.

Results of RESNA's field observations and the laboratory analyses of water samples collected this event indicate that:

- A sheen developed in well MW-2 during purging, however, analytical results for TPHg and TPHd of a groundwater sample collected from the well were below saturation levels.
- Concentrations of TPHd were detected in samples collected from wells MW-2 and MW-3 at concentrations of 3,300 parts per billion (ppb) and 310 ppb, respectively.
- Concentrations of TPHg were detected in samples collected from wells MW-2 and MW-3 at concentrations of 8,500 parts per billion (ppb) and 650 ppb, respectively.
- Concentrations of benzene were detected in samples collected from well MW-2 at a concentration of 75 ppb.
- Concentrations of TPHd, TPHg, and benzene were not detected at or above their respective laboratory detection limits in samples collected from wells MW-1, MW-5, MW-6 and MW-7.

A map showing the concentrations of petroleum hydrocarbons in groundwater samples collected from each well is attached (Plate 3).

RESNA recommends that signed copies of this report be forwarded to:

Mr. Lester Feldman  
California Regional Water Quality Control Board  
San Francisco Bay Region  
2101 Webster Street  
Oakland, California 94612

Mr. Barney Chan  
Alameda County,  
Department of Environmental Health  
Hazardous Materials Division  
80 Swan Way, Room 200  
Oakland, California 94621

## 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 risk.

Please call with any questions or comments regarding this report.

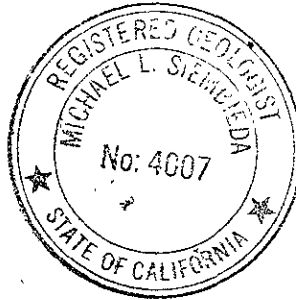
Sincerely,  
RESNA Industries Inc.



Mark P. Frye  
Environmental Scientist



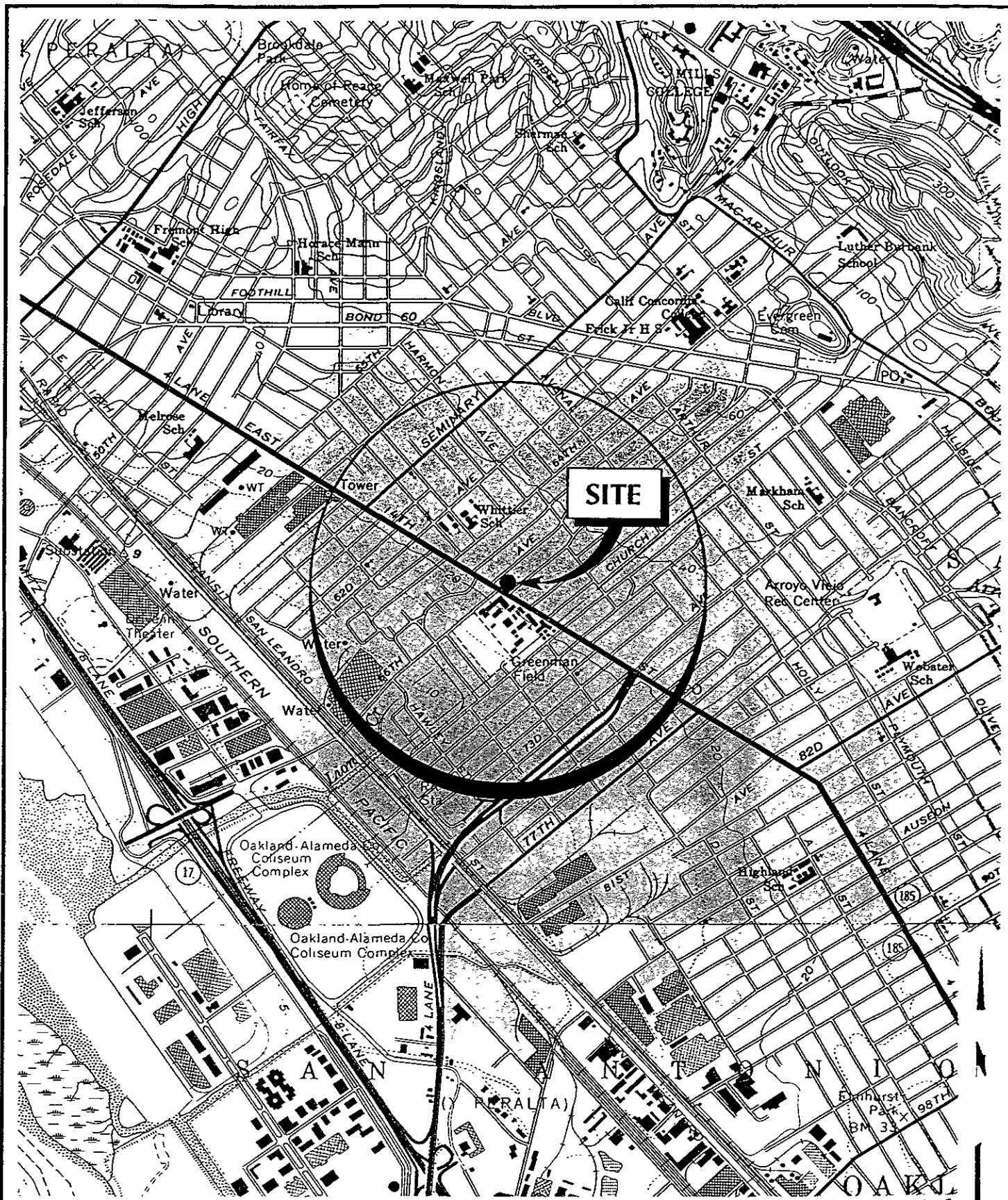
Michael L. Siembieda, RG 4007  
Geoscience Manager



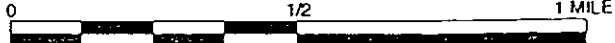
Justin Power  
(415) 382-7400

### Attachments:

- Plate 1: Site Vicinity Map
- Plate 2: Potentiometric Surface Map (November 16, 1993)
- Plate 3: Concentrations of Petroleum Hydrocarbons in Groundwater Samples (November 16, 1993)
- Table 1: Cumulative Groundwater Monitoring Data
- Appendix A: Groundwater Sampling Protocol
- Appendix B: Report of Laboratory Analysis and Chain of Custody Record



Source: USGS Topographic Map, 7.5 minute series, Oakland East, Calif and San Leandro, Calif. quadrangles, 1980

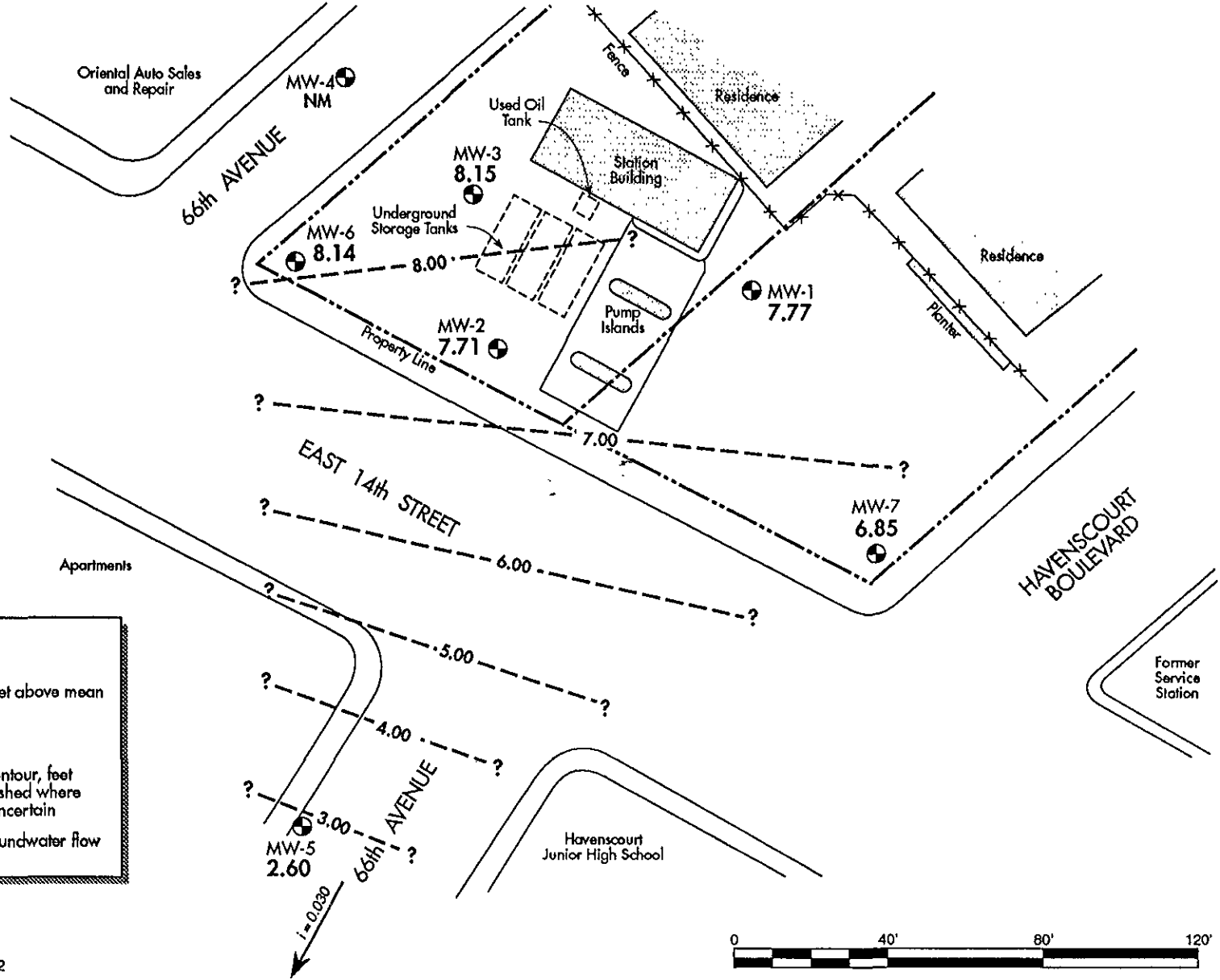


**RESNA**

PROJECT NO. 170079.01

**SITE VICINITY MAP**  
 Exxon Service Station No. 7-0236  
 6630 East 14th Street  
 Oakland, California

PLATE  
**1**



**EXPLANATION**

- MW-1  
7.77     Monitoring well and groundwater elevation, feet above mean sea level
- NM     -     Not measured
- 7.00 - - - ?     Groundwater elevation contour, feet above mean sea level, dashed where inferred, queried where uncertain
- $i = 0.030$      Estimated direction of groundwater flow with evaluated gradient

Map Source: Site Plan by Alton Geoscience, 1992

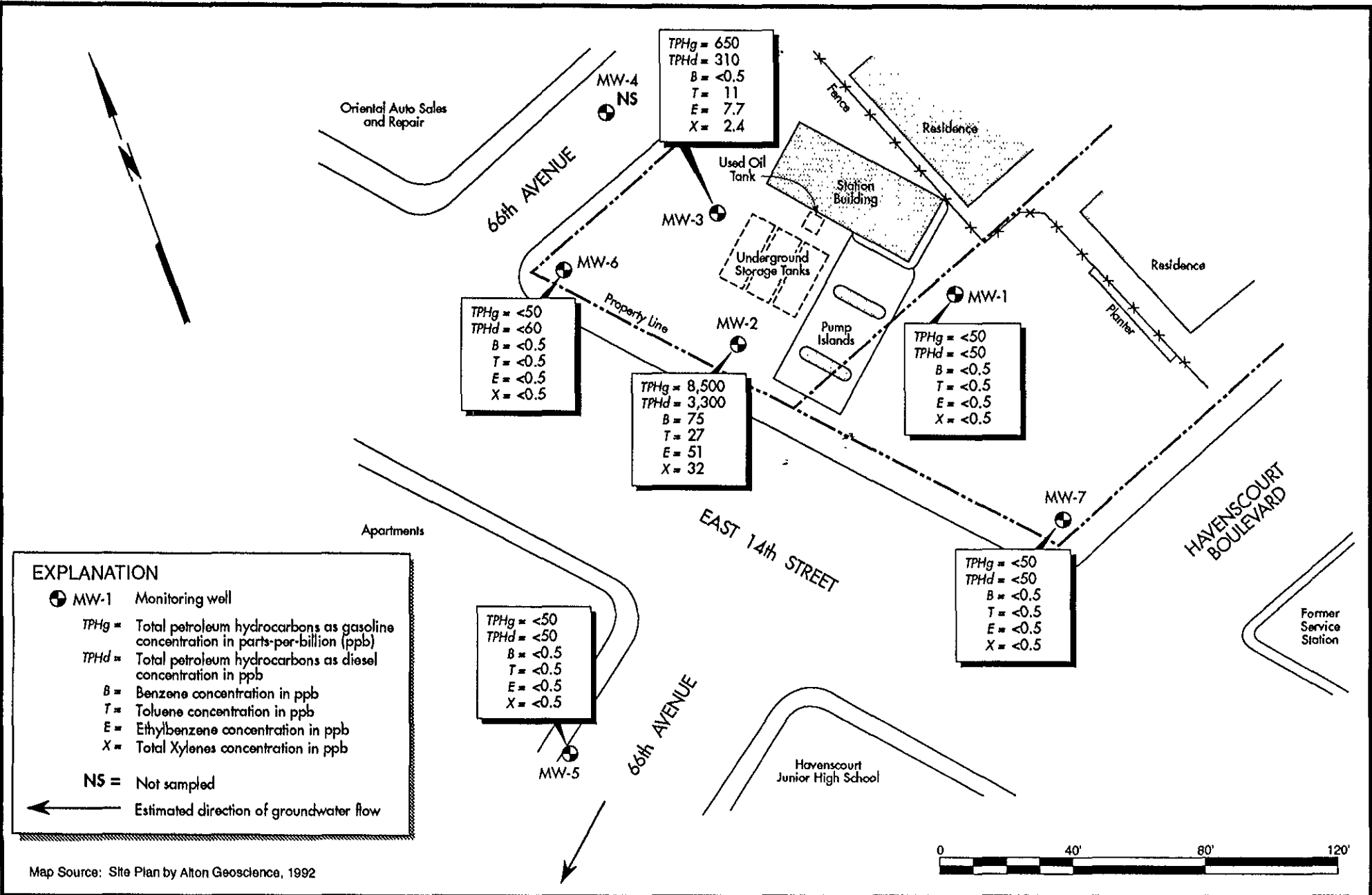


**RESNA**

PROJECT NO. 170079.01     12/93

**POTENTIOMETRIC SURFACE MAP**  
 November 16, 1993  
 Exxon Service Station No. 7-0236t  
 6630 East 14th Street, Oakland, California

PLATE  
**2**



**EXPLANATION**

⊕ MW-1 Monitoring well

TPHg = Total petroleum hydrocarbons as gasoline concentration in parts-per-billion (ppb)

TPHd = Total petroleum hydrocarbons as diesel concentration in ppb

B = Benzene concentration in ppb

T = Toluene concentration in ppb

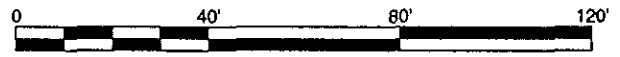
E = Ethylbenzene concentration in ppb

X = Total Xylenes concentration in ppb

NS = Not sampled

← Estimated direction of groundwater flow

Map Source: Site Plan by Alton Geoscience, 1992



**TABLE 1**  
**CUMULATIVE GROUNDWATER MONITORING DATA**  
 Exxon Service Station No. 7-0236  
 6630 East 14th  
 Oakland, California  
 (Page 1 of 3)

Well ID# (TOC)	Sampling Date	SUBJ ←-----	DTW ft -----	Elev.-W ----->	TPHd ←-----	TPHg -----	B ppb -----	T -----	E -----	X ----->
MW-1 (20.20)	03/15/91	NR	7.44	12.76	---	<50	<0.3	0.5	0.3	1.3
	01/15/92 (H,T)	NR	10.60	9.60	<300	<50	<0.5	0.7	<0.5	0.9
	03/23/92 (H,T)	NR	6.38	13.82	<50	<50	<0.5	<0.5	<0.5	<0.5
	04/06/92	NR	7.55	12.65	---	---	---	---	---	---
	07/08/92 (H,T)	NR	9.85	10.35	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/13/92 (H,T)	NR	12.95	7.25	<50	<50	<0.5	<0.5	<0.5	<0.5
	03/09/93	NP	7.38	12.82	<50	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	NP	8.55	11.65	<50	<50	<0.5	<0.5	<0.5	<0.5
	09/02/93	NP	10.85	9.35	<50	<50	<0.5	<0.5	<0.5	<0.5
11/16/93	NP	12.43	7.77	<50	<50	<0.5	<0.5	<0.5	<0.5	
MW-2 (19.15)	03/15/91 (H,T)	NR	9.05	10.10	120	1,700	190	2.6	12	64
	01/15/92 (H,T)	NR	11.60	7.55	1,000	6,800	81	<10	320	170
	03/23/92 (H,T)	NR	9.42	9.73	3,000	7,100	740	30	810	490
	04/06/92	NR	9.09	10.06	---	---	---	---	---	---
	07/08/92	NR	10.08	9.07	2,100	7,000	250	14	300	160
	10/13/92	NR	12.06	7.09	1,900	3,200	97	2.6	97	53
	03/09/93	sheen	9.71	9.44	---	---	---	---	---	---
	06/04/93	sheen	9.40	9.75	---	---	---	---	---	---
	09/02/93 (M)	sheen	10.46	8.69	3,700	11,000	210	18	260	59
11/16/93 (M*)	NP	11.44	7.71	3,300	8,500	75	27	51	32	
MW-3 (19.59)	03/15/91 (H,T)	NR	7.84	11.75	160	3,100	2.2	1.9	100	84
	01/15/92 (H,T)	NR	10.30	9.29	<300	250	0.7	6.8	1.5	1.5
	03/23/92 (H,T)	NR	6.84	12.75	440	640	<0.5	12	25	6.5
	04/06/92	NR	7.84	11.75	---	---	---	---	---	---
	07/08/92 (H,T)	NR	8.63	10.96	960	2,900	<0.5	2.6	12	63.7
	10/13/92 (H)	NR	12.10	7.49	400	1,100	5.5	<0.5	4.6	1.1
	03/09/93	sheen	9.05	10.54	---	---	---	---	---	---
	06/04/93	sheen	8.43	11.16	---	---	---	---	---	---
	09/02/93	NP	10.22	9.37	690	840	2.7	3.6	5.4	2.9
11/16/93	NP	11.44	8.15	310	650	<0.5	11	7.7	2.4	
MW-4 (19.46)	04/06/92	NR	7.76	11.70	<50	<50	<0.5	<0.5	<0.5	<0.5
	07/08/92	NR	9.56	9.90	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/13/92	NR	12.09	7.37	<80	<50	<0.5	<0.5	<0.5	<0.5
	03/09/93	NP	7.53	11.93	<50	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	NP	8.50	10.96	<50	<50	<0.5	<0.5	<0.5	<0.5
	09/02/93	NP	10.30	9.16	<50	<50	<0.5	<0.5	<0.5	0.5
	11/16/93 *	---	---	---	---	---	---	---	---	---

See notes on page 3 of 3



**TABLE 1**  
**CUMULATIVE GROUNDWATER MONITORING DATA**  
 Exxon Service Station No. 7-0236  
 6630 East 14th  
 Oakland, California  
 (Page 2 of 3)

Well ID# (TOC)	Sampling Date	SUBJ	DTW ft	Elev.-W	TPHd	TPHg	B ppb	T	E	X
MW-5 (16.95)	04/06/92	NR	10.66	6.29	<50	<50	<0.5	<0.5	<0.5	<0.5
	07/08/92 *	---	---	---	---	---	---	---	---	---
	10/13/92	NR	15.02	1.93	<50	69	<0.5	<0.5	<0.5	<0.5
	03/09/93	NP	10.27	6.68	<50	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	NP	11.35	5.60	<50	<50	<0.5	<0.5	<0.5	<0.5
	09/02/93	NP	13.15	3.80	<50	<50	<0.5	<0.5	<0.5	<0.5
	11/16/93	NP	14.35	2.60	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-6 (18.79)	04/06/92 (H)	NR	8.29	10.50	<50	<50	<0.5	<0.5	<0.5	<0.5
	07/08/92 (H,T)	NR	9.22	9.57	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/13/92	NR	11.51	7.28	<50	<50	<0.5	<0.5	<0.5	<0.5
	03/09/93	NP	8.26	10.53	<50	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	NP	8.90	9.89	<50	<50	<0.5	<0.5	<0.5	<0.5
	09/02/93	NP	9.92	8.87	60	<50	<0.5	<0.5	<0.5	<0.5
	11/16/93	NP	10.65	8.14	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-7 (19.23)	04/06/92	NR	8.34	10.89	<50	<50	<0.5	<0.5	<0.5	<0.5
	07/08/92	NR	10.30	8.93	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/13/92	NR	12.91	6.32	94	670	0.8	<0.5	<0.5	2.5
	03/09/93 *	---	---	---	---	---	---	---	---	---
	06/04/93	NP	8.68	10.55	<50	<50	<0.5	<0.5	<0.5	<0.5
	09/02/93	NP	10.80	8.43	<50	<50	<0.5	<0.5	<0.5	<0.5
	11/16/93	NP	12.38	6.85	<50	<50	<0.5	<0.5	<0.5	<0.5

See notes on page 3 of 3

**TABLE 1**  
**CUMULATIVE GROUNDWATER MONITORING DATA**  
Exxon Service Station No. 7-0236  
6630 East 14th  
Oakland, California  
(Page 3 of 3)

Notes:

- ft = Feet
- SUBJ = Results of subjective evaluation, separate phase product thickness (PT) in feet
  - NP = separate phase product not present in well
  - sheen = separate phase product present as a sheen
  - emulsion = separate phase product present as an emulsion
  - NR = not recorded
- TOC = Elevation of top of well casing; datum is mean sea level
- DTW = Depth to water
- Elev.-W = Elevation of groundwater; datum is mean sea level  
Elev.-W = TOC - (DTW + (PT \* 0.8))
- ppb = Parts-per-billion
- TPHg = Total petroleum hydrocarbons as gasoline
- TPHd = Total petroleum hydrocarbons as diesel
- B = Benzene
- T = Toluene
- E = Ethylbenzene
- X = Total xylene isomers
- < = Less than the indicated detection limit established by the laboratory
- = Not sampled / not measured
- \* = Well not accessible : well obstructed / wellhead cover damaged / well paved over
- H = EPA Method 8010 compounds not detected at or above their respective laboratory detection limits  
Exceptions: MW-2, 03/15/91, Methylene chloride detected at 1 ppb  
MW-3, 03/15/91, Methylene chloride detected at 21 ppb
- M = Methyl tert-butyl ether detected at approximately 2,500 ppb
- M\* = A compound suspected to be Methyl tert-butyl ether was present
- T = Total Oil and Grease (TOG) using EPA Method 5520 not detected at or above the laboratory detection limit of 5,000 ppb.

**APPENDIX A**  
**GROUNDWATER SAMPLING PROTOCOL**

## GROUNDWATER SAMPLING PROTOCOL

The static water level and separate phase product level, if present, in each well that contained water and/or separate phase product are measured with a ORS Interface Probe Model No. 106801, which is accurate to the nearest 0.01 foot. To calculate groundwater elevations and evaluate groundwater gradient, depth to water (DTW) levels are subtracted from wellhead elevations and corrected for product thickness, when necessary, by multiplying product thickness (PT) by a correction factor 0.8 and subtracting from the DTW level (Adjusted DTW = DTW - [PT x 0.8])

Water samples collected for subjective evaluation are collected by gently lowering approximately half the length of a clean Teflon<sup>®</sup> bailer past the air-water interface (if possible) and collecting a sample from near the surface of the water in the well. The samples were checked for measurable separate phase hydrocarbon product or sheen. Any separate phase product is removed from the well.

Before water samples are collected from the groundwater monitoring wells, the wells are purged until stabilization of the temperature, pH, and conductivity are obtained. Approximately three to four well casing volumes are purged before those characteristics stabilized. Water samples from the wells that do not obtain stability of the temperature, pH, and conductivity are considered to be "grab samples". The quantity of water purged from each well is calculated as follows:

1 well casing volume =  $\pi r^2 h (7.48)$  where:

- r = radius of the well casing in feet
- h = column of water in the well in feet (depth to bottom - depth to water)
- 7.48 = conversion constant from cubic feet to gallons

gallons of water purged/gallons in 1 well casing volume = well casing volumes removed.

After purging, each well was allowed to recharge to at least 80% of the initial water level. Water samples from wells that do not recover to at least 80% (due to slow recharging of the well) between purging and sampling are considered to be "grab samples". Water samples were collected with a Teflon bailer which had been cleaned with Alconox<sup>®</sup> and deionized water, and were carefully poured into 40-milliliter (ml) glass vials, which are filled so as to produce a positive meniscus. Each vial is preserved with hydrochloric acid, sealed with a cap containing a Teflon<sup>®</sup> septum, and subsequently examined for air bubbles to avoid headspace which would allow volatilization to occur. The samples are promptly transported in iced storage in a thermally-insulated ice chest, accompanied by a Chain of Custody Record, to a California-certified laboratory.

**APPENDIX B**

**REPORT OF LABORATORY ANALYSIS  
AND CHAIN OF CUSTODY RECORD**

November 24, 1993

Mr. Mark Frye  
RESNA  
73 Digital Dr.  
Novato, CA 94949

RE: PACE Project No. 431117.510  
Client Reference: Exxon 7-0236 (EE)

Dear Mr. Frye:

Enclosed is the report of laboratory analyses for samples received November 17, 1993.

Per your instruction on 11/24/93, the client sample identification on this report matches the sample container label identification.

Please note a peak eluting earlier than Benzene and suspected to be methyl tert butyl ether was present in your sample W-11-MW 2.

Footnotes are given at the end of the report.

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

Sincerely,

*Stephanie Matzo*

Stephanie Matzo  
Project Manager

Enclosures



# REPORT OF LABORATORY ANALYSIS

RESNA  
73 Digital Dr.  
Novato, CA 94949

November 24, 1993  
PACE Project Number: 431117510

Attn: Mr. Mark Frye

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193575  
Date Collected: 11/16/93  
Date Received: 11/17/93  
Client Sample ID: W-14-MW 5

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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## ORGANIC ANALYSIS

### PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	11/22/93
Purgeable Fuels, as Gasoline (EPA 8015M) <sup>4</sup>	ug/L	50	ND	11/22/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	11/22/93
Benzene	ug/L	0.5	ND	11/22/93
Toluene	ug/L	0.5	ND	11/22/93
Ethylbenzene	ug/L	0.5	ND	11/22/93
Xylenes, Total	ug/L	0.5	ND	11/22/93

Mr. Mark Frye  
 Page 2

November 24, 1993  
 PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193591  
 Date Collected: 11/16/93  
 Date Received: 11/17/93  
 Client Sample ID: W-10-MW 6

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	11/20/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	11/20/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	11/20/93
Benzene	ug/L	0.5	ND	11/20/93
Toluene	ug/L	0.5	ND	11/20/93
Ethylbenzene	ug/L	0.5	ND	11/20/93
Xylenes, Total	ug/L	0.5	ND	11/20/93





# REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye  
Page 3

November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193605  
Date Collected: 11/16/93  
Date Received: 11/17/93  
Client Sample ID: W-12-MW 7

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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## ORGANIC ANALYSIS

### PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	11/20/93
Purgeable Fuels, as Gasoline (EPA 8015M) ug/L	50	ND		11/20/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	11/20/93
Benzene ug/L	0.5	ND		11/20/93
Toluene ug/L	0.5	ND		11/20/93
Ethylbenzene ug/L	0.5	ND		11/20/93
Xylenes, Total ug/L	0.5	ND		11/20/93



# REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye  
Page 4

November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193621  
Date Collected: 11/16/93  
Date Received: 11/17/93  
Client Sample ID: W-12-MW 1

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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## ORGANIC ANALYSIS

### PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	11/21/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	11/21/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	11/21/93
Benzene	ug/L	0.5	ND	11/21/93
Toluene	ug/L	0.5	ND	11/21/93
Ethylbenzene	ug/L	0.5	ND	11/21/93
Xylenes, Total	ug/L	0.5	ND	11/21/93



# REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye  
Page 5

November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193630  
 Date Collected: 11/16/93  
 Date Received: 11/17/93  
 Client Sample ID: W-11-MW 2

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	11/22/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	1000	8500	11/22/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	11/22/93
Benzene	ug/L	0.5	75	11/22/93
Toluene	ug/L	0.5	27	11/22/93
Ethylbenzene	ug/L	0.5	51	11/22/93
Xylenes, Total	ug/L	0.5	32	11/22/93



# REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye  
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November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193648  
Date Collected: 11/16/93  
Date Received: 11/17/93  
Client Sample ID: W-11-MW 3  
Parameter

Units                      MDL                      DATE ANALYZED

## ORGANIC ANALYSIS

### PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	11/22/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	650	11/22/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	11/22/93
Benzene	ug/L	0.5	ND	11/22/93
Toluene	ug/L	0.5	11	11/22/93
Ethylbenzene	ug/L	0.5	7.7	11/22/93
Xylenes, Total	ug/L	0.5	2.4	11/22/93



# REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye  
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November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193656  
Date Collected: 11/16/93  
Date Received: 11/17/93  
Client Sample ID: W-14-MW 5

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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## ORGANIC ANALYSIS

EXTRACTABLE FUELS EPA 3510/8015	-			
Extractable Fuels, as Diesel	mg/L	0.05	ND	11/22/93
Date Extracted			11/19/93	

**REPORT OF LABORATORY ANALYSIS**

Mr. Mark Frye  
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November 24, 1993  
 PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193664  
 Date Collected: 11/16/93  
 Date Received: 11/17/93  
 Client Sample ID: W-10-MW 6  
 Parameter

Units                      MDL                      DATE ANALYZED

ORGANIC ANALYSIS

EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.05	ND	11/22/93
Date Extracted			11/19/93	



# REPORT OF LABORATORY ANALYSIS

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November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193672  
Date Collected: 11/16/93  
Date Received: 11/17/93  
Client Sample ID: W-12-MW 7

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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## ORGANIC ANALYSIS

EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.05	ND	11/22/93
Date Extracted			11/19/93	



# REPORT OF LABORATORY ANALYSIS

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November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193680  
Date Collected: 11/16/93  
Date Received: 11/17/93  
Client Sample ID: W-12-MW 1

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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## ORGANIC ANALYSIS

EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.05	ND	11/22/93
Date Extracted			11/19/93	





# REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye  
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November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193699  
Date Collected: 11/16/93  
Date Received: 11/17/93  
Client Sample ID: W-11-MW 2

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
------------------	--------------	------------	----------------------

## ORGANIC ANALYSIS

EXTRACTABLE FUELS EPA 3510/8015			
Extractable Fuels, as Diesel	mg/L	0.05	3.3(H)
Date Extracted			11/22/93

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November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PACE Sample Number: 70 0193702  
Date Collected: 11/16/93  
Date Received: 11/17/93  
Client Sample ID: W-11-MW 3

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
------------------	--------------	------------	----------------------

ORGANIC ANALYSIS

EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.05	0.31	11/22/93
Date Extracted			11/19/93	

These data have been reviewed and are approved for release.

*Darrell C. Cain*  
Darrell C. Cain  
Regional Director

Mr. Mark Frye  
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FOOTNOTES  
for pages 1 through 12

November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

MDL Method Detection Limit  
ND Not detected at or above the MDL.  
(H) Hydrocarbons greater than C22 present.



# REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

EXTRACTABLE FUELS EPA 3510/8015

Batch: 70 26580

Samples: 70 0193656, 70 0193664, 70 0193672, 70 0193680, 70 0193699  
70 0193702

### METHOD BLANK:

Parameter	Units	MDL	Method Blank
Extractable Fuels, as Diesel	mg/L	0.05	ND

### LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Extractable Fuels, as Diesel	mg/L	0.05	1.00	68%	75%	9%

Mr. Mark Frye  
 Page 15

QUALITY CONTROL DATA

November 24, 1993  
 PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PURGEABLE FUELS AND AROMATICS

Batch: 70 26563  
 Samples: 70 0193591

METHOD BLANK:

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

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference	Dupl		
			Value	Recv	Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000	95%	99%	4%
Benzene	ug/L	0.5	40.0	82%	89%	8%
Toluene	ug/L	0.5	40.0	90%	91%	1%
Ethylbenzene	ug/L	0.5	40.0	93%	87%	6%
Xylenes, Total	ug/L	0.5	120	94%	87%	7%

Mr. Mark Frye  
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QUALITY CONTROL DATA

November 24, 1993  
 PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PURGEABLE FUELS AND AROMATICS

Batch: 70 26566

Samples: 70 0193605, 70 0193621, 70 0193630, 70 0193648

METHOD BLANK:

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

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference	Dupl		
			Value	Recv	Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000	99%	94%	5%
Benzene	ug/L	0.5	40.0	78%	83%	6%
Toluene	ug/L	0.5	40.0	84%	90%	6%
Ethylbenzene	ug/L	0.5	40.0	90%	95%	5%
Xylenes, Total	ug/L	0.5	120	93%	97%	4%

Mr. Mark Frye  
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QUALITY CONTROL DATA

November 24, 1993  
 PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

PURGEABLE FUELS AND AROMATICS

Batch: 70 26592  
 Samples: 70 0193575

METHOD BLANK:

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

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference	Dupl		
			Value	Recv	Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000	98%	87%	11%
Benzene	ug/L	0.5	40	99%	104%	4%
Toluene	ug/L	0.5	40	105%	104%	0%
Ethylbenzene	ug/L	0.5	40	105%	103%	1%
Xylenes, Total	ug/L	0.5	120	108%	103%	4%



# REPORT OF LABORATORY ANALYSIS

Mr. Mark Frye  
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FOOTNOTES  
for pages 14 through 17

November 24, 1993  
PACE Project Number: 431117510

Client Reference: Exxon 7-0236 (EE)

MDL      Method Detection Limit  
ND        Not detected at or above the MDL.  
RPD      Relative Percent Difference





EXXON COMPANY, U.S.A.  
 P.O. Box 4415, Houston, TX 77210-4415  
 CHAIN OF CUSTODY

431117.50



2 of 2  
 Novato, CA, 11 Digital Drive, 94949  
 (415) 883-6100



Huntington Beach, CA, 5702 Bolsa Avenue, 92649  
 (714) 892-2565

Consultant's Name: **RESNA IND** Page      of     

Address: **73 DIGITAL DR. NOVATO CA 94949** Site Location: **OAKLAND CA**

Project #: **170079-01** Consultant Project #: **170079-01** Consultant Work Release #: **09300640**

Project Contact: **MARK FRYE** Phone #: **(415) 382-7400** <sup>(415)</sup> FAX #: **382-7415** Laboratory Work Release #:

EXXON Contact: **MARIA GUENSLER**  EE  C&M Phone #: Fax #: EXXON RAS #: **7-0236**

Sampled by (print): **JEFF ANDREWS** Sampler's Signature: *Jeff Andrews*

Shipment Method: Air Bill #: Shipment Date:

Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	PACE Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	TPPH EPA 418.1	ANALYSIS REQUIRED										Sample Condition as Received Temperature °C <b>CLIENT</b> Cooler # <b>COURIER</b> Inbound Seal Yes No Outbound Seal Yes No				
																			COMMENTS				
W-14-MW5	11/6/93 11:15			2	19365.4	/	/																
W-10-MW6	13:19			2	19366.4	/	/																
W-12-MW7	13:29			2	19367.2	/	/																
W-12-MW1	13:40			2	19368.0	/	/																
W-11-MW2	15:10			2	19369.9	/	/																
W-11-MW1	11/6/93 15:50			2	19370.2	/	/																

Bottles Labelled W-11-MW  
 From this line

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time	Additional Comments
<i>Jeff Andrews</i>	11-17-93	16:40	Sandra Briones Pace	11/17/93	16:40	per m. Frye on 11/24/93, use ID's as labelled; see "comments" above. <b>ADD PACE</b>



EXXON COMPANY, U.S.A.

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

CHAIN OF CUSTODY

13117.310

1062  
 Novato, CA, 11 Digital Drive, 94949  
 (415) 883-6100

Huntington Beach, CA, 5702 Bolsa Avenue, 92649  
 (714) 892-2565

Page      of     

Consultant's Name: RESNA IND.

Address: 73 DIGITAL DR. NOVATO CA 94949

Site Location: OAKLAND CA

Project #: 170079-01

Consultant Project #: 170079-01

Consultant Work Release #: 09300640

Project Contact: MARK FRYE

Phone #: 415 382-7400 Fax #: 415-382-7415

Laboratory Work Release #:

EXXON Contact: MARIA GUENSER  EE  C&M

Phone #: Fax #

EXXON RAS #: 7-0236

Sampled by (print): JEFF ANDREWS

Sampler's Signature: [Signature]

Shipment Method:

Air Bill #:

Shipment Date:

TAT:  24 hr  48 hr  72 hr  Standard (5 day)

ANALYSIS REQUIRED

Sample Condition as Received  
 Temperature ° C: Client  
 Cooler #: COUPLER  
 Inbound Seal Yes N.  
 Outbound Seal Yes No

Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	PACE Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	TRPH EPA 418.1	Hold								
W-14-MW 5 Rinsate	11-16-93 11:15		HCL	1	19356.7	/			/								
W-14-MW 5	11:15			3	19357.5	/			/								
W-10-MW 6 Rinsate	13:10			1	19358.3	/			/								
W-10-MW 6	13:10			3	19359.1	/			/								
W-12-MW 7	13:25			3	19360.5	/			/								
W-12-MW 1 Rinsate	13:40			1	19361.3	/			/								
W-12-MW 1	13:40			3	19362.7	/			/								
W-11-MW 2	15:10			3	19363.0	/			/								
W-11-MW 3	11-16-93 15:30		HCL	3	19364.8	/			/								

COMMENTS

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time	Additional Comments
<u>[Signature]</u>	<u>11-17-93</u>	<u>16:40</u>	<u>Sandra Briones Pace</u>	<u>11/17/93</u>	<u>16:40</u>	

10/4