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**ENVIRONMENTAL RESOLUTIONS, INC.**

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March 11, 1998  
ERI 200913.R13

Ms. Marla D. Guensler  
Exxon Company, U.S.A.  
P.O. Box 4032  
Concord, California 94524-4032

Subject: Quarterly Groundwater Monitoring, First Quarter 1998, Former Exxon Service Station 7-0236, 6600 East 14th Street, Oakland, California.

Ms. Guensler:

At the request of Exxon Company, U.S.A. (Exxon), Environmental Resolutions, Inc. (ERI) performed the first quarter 1998 groundwater monitoring event at the subject site (Plate 1). The purpose of quarterly monitoring is to evaluate fluctuations in dissolved hydrocarbon concentrations in groundwater and groundwater flow direction and gradient.

#### **GROUNDWATER MONITORING AND SAMPLING**

On January 16, 1998, ERI measured depth to water (DTW) and dissolved oxygen readings in monitoring wells MW2, MW4 through MW6, and MW8 and collected groundwater samples from groundwater wells MW2, MW4 through MW6, and MW8 for laboratory analysis. Monitoring well MW3 was not accessible. Monitoring wells MW1 and MW7 were previously destroyed. No measurable liquid phase hydrocarbons were observed in the monitoring wells. Oxygen Releasing Compound (ORC) is installed in wells MW2, MW3, and MW6. ERI's groundwater sampling protocol is attached (Attachment A).

Based on DTW measurements the groundwater appears to flow southwest with a hydraulic gradient of 0.036 (Plate 2). Historical and recent monitoring data are summarized in Table 1.

#### **LABORATORY ANALYSES AND RESULTS**

Groundwater samples were submitted to Sequoia Analytical Laboratories (California State Certification Number 1210) in Redwood City, California, under chain of custody protocol. The samples were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl tertiary-butyl ether (MTBE), total petroleum hydrocarbons as gasoline (TPHg), and total extractable petroleum hydrocarbons as diesel (TEPHd) using the methods listed in the notes in Table 1. The laboratory analysis reports and chain of custody records are attached (Attachment B). Cumulative results of laboratory analysis of groundwater samples are summarized in Table 1. The results of analyses of groundwater samples collected during the recent sampling event are shown on Plate 2.

## 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 and any reliance on this report by third parties shall be at such party's sole risk.

If you have any questions or comments regarding this report, please call (415) 382-5994.

Sincerely,  
Environmental Resolutions, Inc.

*Susan B. Shallenberger*  
for Scott R. Graham  
Scott R. Graham  
Environmental Technician



Keith A. Romstad  
Branch Manager

Enclosures: Table 1: Cumulative Groundwater Monitoring and Sampling Data  
Plate 1: Site Vicinity Map  
Plate 2: Generalized Site Plan  
Attachment A: Groundwater Sampling Protocol  
Attachment B: Laboratory Reports and Chain of Custody Record



**TABLE 1**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**

Former Exxon Service Station 7-0236

6600 East 14th Street

Oakland, California

(Page 2 of 7)

Well ID # (TOC)	Sampling Date	SUBJ <	DTW feet	Elev. >	TEPHd <	TPHg	B	T parts per billion	E	X	MTBE >	DO < ppm >
MW2 (cont.) (19.15)	09/20/94	NLPH	10.57	8.58	1,800**	19,000	190	29***	110	27***	---	---
	12/14/94	sheen	8.90	10.25	---	---	---	---	---	---	---	---
	3/27/95	NLPH	7.72	11.43	1,700	6,300	210	15	250	43	---	---
	5/18/95	sheen	8.65	10.50	2,000#	6,000	180	9.9	220	55	---	---
	8/8/95	NLPH	9.67	9.48	2,700	5,300	110	<20	120	<20	36,000	---
	11/7/95	NLPH	10.49	8.66	1,800	6,400	120	11	95	38	24,000	---
		Additional Analyses for general minerals and properties <*										
	2/29/96	NLPH	8.45	10.70	2,500	<5,000	120	<50	120	<50	25,000	---
	5/10/96	NLPH	9.02	10.13	2,300	11,000	210	120	210	140	26,000	---
	8/20/96	NLPH	10.08	9.07	---	---	---	---	---	---	---	---
	10/17/96	---	---	---	---	---	---	---	---	---	---	7.75
	11/27/96	---	---	---	---	---	---	---	---	---	---	6.28
	12/6/96	NLPH	10.21	8.94	1,700	5,800	170	<25	38	<25	<125	5.21
(22.19)	1/17/97	NLPH	---	---	---	---	---	---	---	---	---	3.67
	2/25/97	NLPH	8.15	14.04	1,500	5,900	110	14	310	52	4,400	2.71
	3/13/97	---	---	---	---	---	---	---	---	---	---	2.46
	4/16/97	---	---	---	---	---	---	---	---	---	---	1.00
	5/21/97	NLPH	10.50	11.69	1,600	5,700	71	11	240	59	1,800	0.85
	6/5/97	---	---	---	---	---	---	---	---	---	---	2.18
	7/11/97	---	---	---	---	---	---	---	---	---	---	1.87
	8/6/97	NLPH	10.80	11.39	1,600	4,100	40	5.2	49	17	(1,900)	1.51
	9/23/97	---	---	---	---	---	---	---	---	---	---	2.36
	10/7/97	NLPH	11.08	11.11	1,200	280	1.2	2.4	<0.5	1.1	230	1.56
	12/24/97	---	---	---	---	---	---	---	---	---	---	1.23
	1/16/98	NLPH	7.29	14.90	1,200	3,500	190	14	110	31	3,000	1.18
MW3 (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	---	---
	4/6/92	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	---	---
	3/9/93	sheen	9.05	10.54	---	---	---	---	---	---	---	---
	6/4/93	sheen	8.43	11.16	---	---	---	---	---	---	---	---
	9/2/93	NLPH	10.22	9.37	690	840	2.7	3.6	5.4	2.9	---	---
	11/16/93	NLPH	11.44	8.15	310	650	<0.5	11	7.7	2.4	---	---
	2/4/94	NLPH	9.27	10.32	340	870	0.6	14	1.2	0.8	---	---
	4/29/94	NLPH	8.10	11.49	290	790	<0.5	<0.5	0.8	1	---	---
	9/20/94	NLPH	10.10	9.49	91**	1,900	<0.5	<0.5	11	4.4	---	---
	12/14/94	NLPH	8.00	11.59	190	1,700	17	22	<0.5	<0.5	---	---
	3/27/95	NLPH	7.23	12.36	1,100	1,500	5	3.1	6.3	3.6	---	---





TABLE 1  
 CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA  
 Former Exxon Service Station 7-0236  
 6600 East 14th Street  
 Oakland, California  
 (Page 5 of 7)

Well ID # (TOC)	Sampling Date	SUBJ <	DTW feet	Elev. >	TEPHd <	TPHg	parts per billion				MTBE >	DO <ppm>
							B	T	E	X		
MW5 (cont.) (19.98)	4/16/97	---	---	---	---	---	---	---	---	---	---	---
	5/21/97	NLPH	11.31	8.67	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	6/5/97	---	---	---	---	---	---	---	---	---	---	---
	7/11/97	---	---	---	---	---	---	---	---	---	---	---
	8/6/97	NLPH	11.78	8.20	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	9/23/97	---	---	---	---	---	---	---	---	---	---	---
	10/7/97	NLPH	12.26	7.72	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	12/24/97	---	---	---	---	---	---	---	---	---	---	---
	1/16/98	NLPH	8.87	11.11	<50	<50	<0.5	<0.5	<0.5	0.64	<2.5	---
MW6 (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	---	---
	3/9/93	NLPH	8.26	10.53	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	6/4/93	NLPH	8.90	9.89	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	9/2/93	NLPH	9.92	8.87	60	<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/16/93	NLPH	10.65	8.14	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	2/4/94	NLPH	9.26	9.53	80	<50	<0.5	<0.5	<0.5	<0.5	---	---
	4/29/94	NLPH	8.33	10.46	110	<50	<0.5	<0.5	<0.5	<0.5	---	---
	9/20/94	NLPH	9.23	9.56	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	12/14/94	sheen	7.87	10.92	---	---	---	---	---	---	---	---
	3/27/95	NLPH	7.63	11.16	54	56	<0.5	<0.5	<0.5	<0.50	---	---
	5/18/95	NLPH	8.00	10.79	71	56	<0.5	<0.5	<0.5	<0.5	---	---
	8/8/95	NLPH	8.92	9.87	60	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	11/7/95	NLPH	9.77	9.02	<50	<50	<0.5	<0.5	<0.5	<0.5	4.7	---
	2/29/96	NLPH	7.67	11.12	64	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	5/10/96	NLPH	8.33	10.46	110	<50	<0.5	<0.5	<0.5	<0.5	5.4	---
	8/20/96	NLPH	9.16	9.63	---	---	---	---	---	---	---	---
	10/17/96	---	---	---	---	---	---	---	---	---	---	10.58
	11/27/96	---	---	---	---	---	---	---	---	---	---	14.17
	12/6/96	NLPH	8.55	10.24	68	<50	<0.5	<0.5	<0.5	<0.5	3.9	10.33
(21.84)	1/17/97	---	---	---	---	---	---	---	---	---	---	11.71
	2/25/97	NLPH	8.42	13.42	67	<50	<0.5	<0.5	<0.5	<0.5	6.8	10.94
	3/13/97	---	---	---	---	---	---	---	---	---	---	8.88
	4/16/97	---	---	---	---	---	---	---	---	---	---	15.20
	5/21/97	NLPH	9.16	12.68	82	<50	<0.5	<0.5	<0.5	<0.5	3.4	12.38
	6/5/97	---	---	---	---	---	---	---	---	---	---	10.99
	7/11/97	---	---	---	---	---	---	---	---	---	---	10.13
	8/6/97	NLPH	9.82	12.02	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	9.05

TABLE 1  
 CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA  
 Former Exxon Service Station 7-0236  
 6600 East 14th Street  
 Oakland, California  
 (Page 6 of 7)

Well ID # (TOC)	Sampling Date	SUBJ <	DTW feet	Elev. >	TEPHd <	TPHg	parts per billion					DO <ppm>
							B	T	E	X	MTBE >	
MW6 (cont.) (21.84)	9/23/97	---	---	---	---	---	---	---	---	---	---	---
	10/7/97	NLPH	9.85	11.99	89	<50	<0.5	<0.5	<0.5	<0.5	---	6.22
	12/24/97	---	---	---	---	---	---	---	---	---	---	9.68
	1/16/98	NLPH	5.50	16.34	93	<50	<0.5	<0.5	<0.5	<0.5	---	2.78
MW7 (19.23)	4/6/92	NR	8.34	10.89	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	7/8/92	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*	---	---	---	---	---	---	---	---	---	---	---
	6/4/93	NLPH	8.68	10.55	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	9/2/93	NLPH	10.80	8.43	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/16/93	NLPH	12.38	6.85	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	2/4/94	NLPH	9.28	9.95	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	4/29/94	NLPH	9.19	10.04	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	9/20/94	NLPH	10.85	8.38	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	12/14/94	NLPH	8.44	10.79	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	3/27/95	NLPH	7.54	11.69	280	<50	<0.5	<0.5	<0.5	<0.5	---	---
	5/18/95	NLPH	8.11	11.12	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	8/8/95	NLPH	9.48	9.75	52	<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/17/95	NLPH	10.83	8.40	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	2/29/96	NLPH	7.70	11.53	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	5/10/96	NLPH	8.76	10.47	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	8/20/96	NLPH	9.91	9.32	<50	<50	<0.5	<0.5	<0.5	2.1	<2.5	---
	10/17/96	---	---	---	---	---	---	---	<0.5	<0.5	<2.5	---
	11/27/96	---	---	---	---	---	---	---	---	---	---	1.48
	12/6/96	NLPH	8.90	10.33	---	---	---	---	---	---	---	2.71
1/19/97	Destroyed	---	---	---	---	---	---	---	---	---	8.90	
MW8 (22.60)	1/17/97	---	---	---	---	---	---	---	---	---	---	---
	2/25/97	NLPH	7.93	14.67	<50	69	<0.5	<0.5	<0.5	<0.5	---	1.39
	3/13/97	---	---	---	---	---	---	---	---	---	30	1.82
	4/16/97	---	---	---	---	---	---	---	---	---	---	1.58
	5/21/97	NLPH	9.04	13.56	<50	<50	<0.5	<0.5	<0.5	<0.5	---	0.81
	6/5/97	---	---	---	---	---	---	---	---	---	3.5	0.74
	7/11/97	---	---	---	---	---	---	---	---	---	---	0.55
	8/6/97	NLPH	9.90	12.70	<50	<50	<0.5	<0.5	<0.5	<0.5	---	0.85
	9/23/97	---	---	---	---	---	---	---	---	<2.5	---	0.77
	10/7/97	NLPH	10.23	12.37	<50	100	1.1	<0.5	<0.5	<0.5	---	0.75
											4.9	0.82



**TABLE 1  
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**

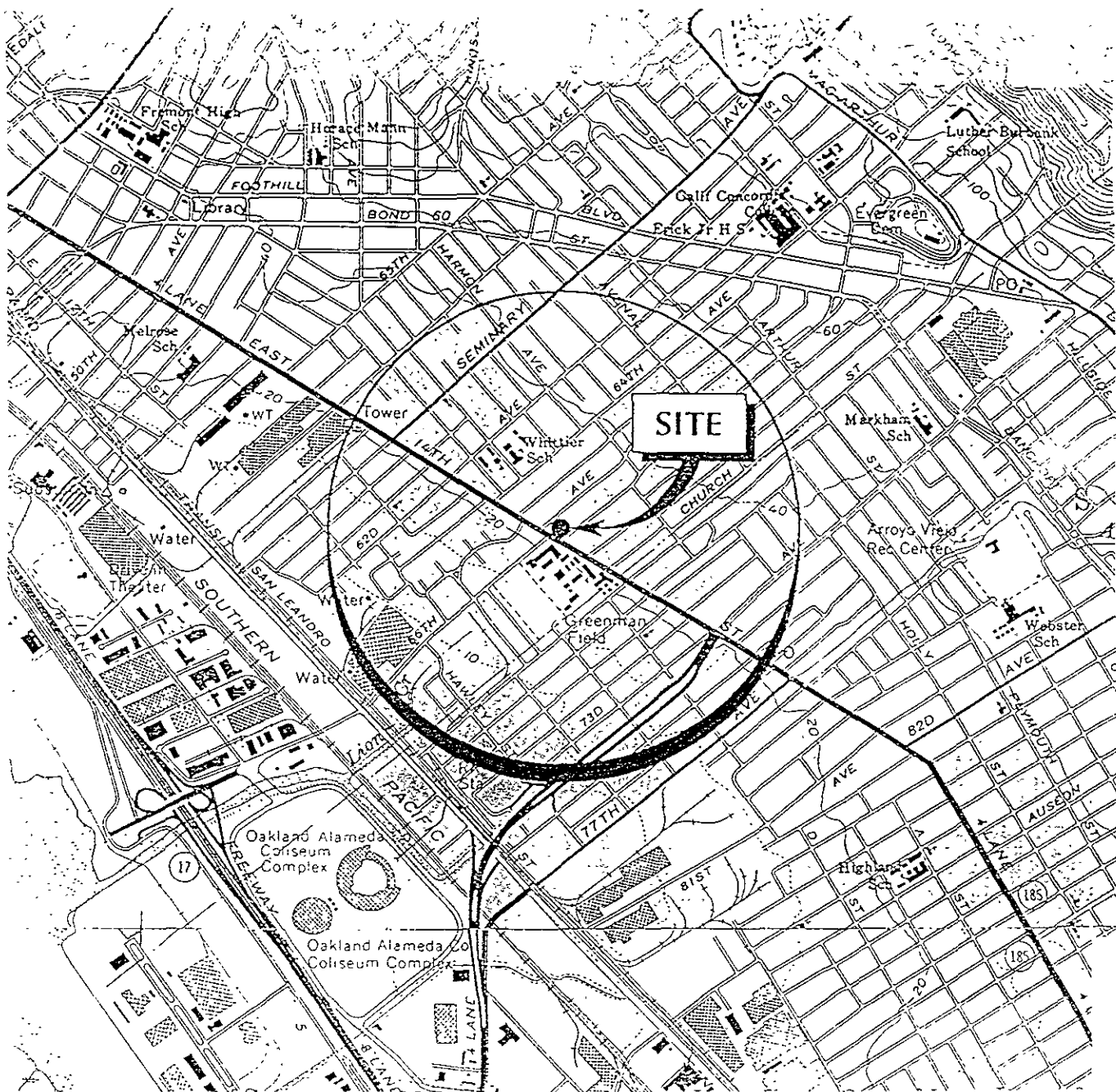
Former Exxon Service Station 7-0236  
6600 East 14th Street  
Oakland, California

(Page 7 of 7)

Well ID # (TOC)	Sampling Date	SUBJ <	DTW feet	Elev >	TEPHd <	TPHg	B	T	E	X	MTBE >	DO <ppm>
parts per billion												
MW8 (cont.)	12/24/97	---	---	---	---	---	---	---	---	---	---	0.86
(22.60)	1/16/98	NLPH	4.39	18.21	81	180	2.8	<0.5	<0.5	0.92	9.6	0.94

Notes:

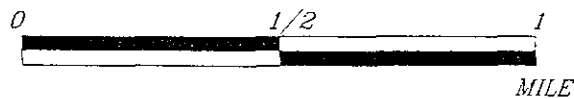
- NLPH = No liquid-phase hydrocarbons present in well
- TOC = Elevation of top of well casing; relative to mean sea level (MSL) in feet
- SUBJ = Results of subjective evaluation
- sheen = Liquid-phase hydrocarbons present as a sheen
- NR = Not recorded
- DTW = Depth to water
- Elev. = Elevation of groundwater; relative to mean sea level
- TPHg = Total petroleum hydrocarbons as gasoline analyzed using EPA method 5030/8015 (modified)
- TEPHd = Total extractable petroleum hydrocarbons as diesel analyzed using EPA method 5030/8015 (modified)
- BTEX = Benzene, toluene, ethylbenzene, total xylene isomers analyzed using EPA method 5030/8020
- MTBE = Methyl tertiary-butyl ether analyzed using EPA method 5030/8020
- ( ) = MTBE analyzed using EPA method 8260
- DO = Dissolved oxygen
- < = Less than the laboratory detection limit
- = Not sampled/Not measured
- \*\* = Lighter hydrocarbons contribute to diesel range quantitation
- \*\*\* = Results obtained past technical holding time (10/08/94) due to dilution requirements
- C = High boiling point hydrocarbons are present in sample.
- D = Sample pattern does not match diesel standard pattern
- H = EPA Method 8010 compounds not detected at or above their respective laboratory detection limits  
 Exceptions: MW2, 03/15/91, Methylene chloride detected at 1 ppb  
 MW3, 03/15/91, Methylene chloride detected at 21 ppb
- M\* = A compound suspected to be methyl tertiary-butyl ether was present
- T = Total Oil and Grease (TOG) using Standard Method 5520 not detected at or above the laboratory detection limit of 5,000 ppb.
- < \* = Less than stated laboratory detection limits except 490 ppm bicarbonate, 37 ppm calcium, 31 ppm chloride, 390 ppm hardness, 790 ppb iron, 60 ppm magnesium, 4,700 ppb manganese, 1.1 ppm sodium, 61 ppm sulfate, 540 ppm TDS, 730 umhos/cm conductivity, pH = 6.9
- < \*\* = Less than stated laboratory detection limits except 200 ppm bicarbonate, 23 ppm calcium, 21 ppm chloride, 78 ppb copper, 190 ppm hardness, 49,000 ppb iron, 44 ppm magnesium, 4,200 ppb manganese, 3.9 ppm potassium, 52 ppm sodium, 60 ppm sulfate, 390 ppm TDS
- ppm = Parts per million



20090001



APPROXIMATE SCALE



Source U.S.G.S 75 minute topographic quadrangle map Oakland East and San Leandro, Calif. 1980



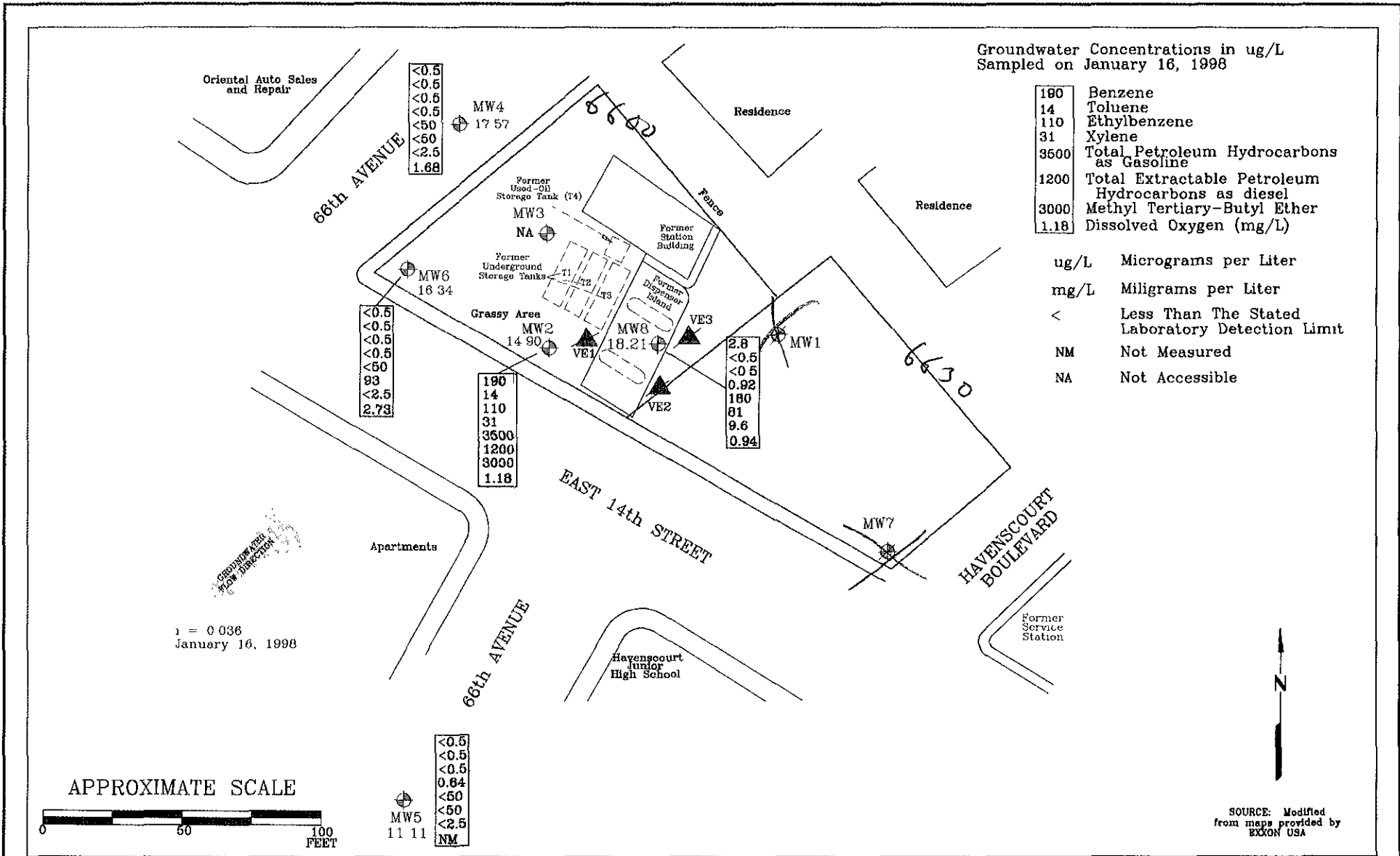
PROJECT ERI 2009

**SITE VICINITY MAP**

FORMER EXXON SERVICE STATION 7-0236  
 6600 East 14th Street  
 Oakland, California

PLATE

1



FN 20090002



**GENERALIZED SITE PLAN**

FORMER  
EXXON SERVICE STATION 7-0236  
6600 East 14th Street  
Oakland, California

**EXPLANATION**

- MW8 Groundwater Monitoring Well
- MW7 Groundwater Monitoring Well (Destroyed)
- VE3 Vapor Extraction Well (Destroyed)

**PROJECT NO.**

2009

**PLATE**

2

February 18, 1998

**ATTACHMENT 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 MMC Interface Probe, 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.

Groundwater samples collected for subjective evaluation are collected by gently lowering approximately half the length of a clean Teflon® bailer past the air-water interface (if possible) and collecting a sample from near the surface of the water in the well. The samples are checked for measurable free-phase hydrocarbons or sheen. Any free-phase hydrocarbons are 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 is obtained, or until a minimum of three well casing volumes are purged. 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 =  $r^2h(7.48)$  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 one well casing volume = well casing volumes removed.

After purging, each well is allowed to recharge to at least 80% of the initial water level. Water samples from wells that do not recover at least 80% (due to slow recharging of the well) between purging and sampling are considered to be "grab samples". Water samples are collected with a new, disposable Teflon® bailer. The groundwater is 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® 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.

**ATTACHMENT B**

**LABORATORY REPORTS  
AND CHAIN OF CUSTODY RECORD**



Environmental Resolutions  
74 Digital Drive, Suite 6  
Novato, CA 94949

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-5-MW4  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9801971-01

Sampled: 01/16/98  
Received: 01/19/98  
Extracted: 01/21/98  
Analyzed: 01/22/98  
Reported: 02/03/98

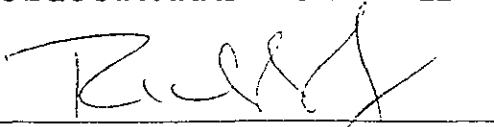
QC Batch Number: GC0121980HBPEXA  
Instrument ID: GCHP4B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern:	50	N.D.
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	80

Analytes reported as N.D. were not present above the stated limit of detection

SEQUOIA ANALYTICAL - ELAP #1210

  
Richard Herling  
Project Manager

**RECEIVED**  
FEB 09 1998





Environmental Resolutions 74 Digital Drive, Suite 6 Novato, CA 94949	Client Proj. ID: Exxon 7-0236, 200913X Sample Descript: W-5-MW4 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9801971-01	Sampled: 01/16/98 Received: 01/19/98 Analyzed: 01/28/98 Reported: 02/03/98
----------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------

QC Batch Number: GC012898BTEX03A  
Instrument ID: GCHP3

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	84

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Richard Herling  
Project Manager







Environmental Resolutions  
74 Digital Drive , Suite 6  
Novato, CA 94949

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-8-MW5  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9801971-02

Sampled: 01/16/98  
Received: 01/19/98  
Extracted: 01/21/98  
Analyzed: 01/22/98  
Reported: 02/03/98

Attention: Marc Briggs

QC Batch Number: GC0121980HBPEXA  
Instrument ID: GCHP4A

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern:	50	N.D.
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	78

Analytes reported as N.D. were not present above the stated limit of detection

**SEQUOIA ANALYTICAL** - ELAP #1210

Richard Herling  
Project Manager





Environmental Resolutions 74 Digital Drive, Suite 6 Novato, CA 94949	Client Proj. ID: Exxon 7-0236, 200913X Sample Descript: W-8-MW5 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9801971-02	Sampled: 01/16/98 Received: 01/19/98 Analyzed: 01/28/98 Reported: 02/03/98
----------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------

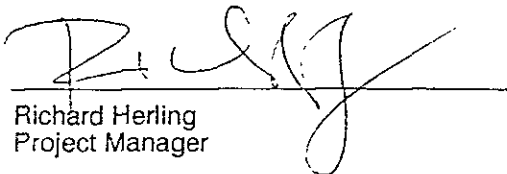
QC Batch Number: GC012898BTEX03A  
Instrument ID: GCHP3

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	0.64
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	84

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL - ELAP #1210**

  
Richard Herling  
Project Manager





Environmental Resolutions 74 Digital Drive, Suite 6 Novato, CA 94949	Client Proj. ID: Exxon 7-0236, 200913X Sample Descript: W-8-MW6 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9801971-03	Sampled: 01/16/98 Received: 01/19/98 Extracted: 01/21/98 Analyzed: 01/22/98 Reported: 02/03/98
----------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------

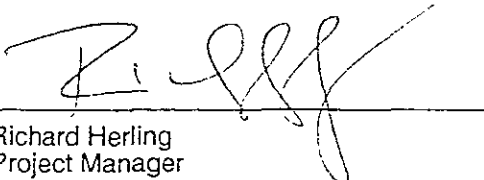
QC Batch Number: GC0121980HBPEXA  
Instrument ID: GCHP4A

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC Discrete Peak	50	93  C9-C24 @C12
Surrogates n-Pentacosane (C25)	Control Limits % 50                      150	% Recovery 80

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210



Richard Herling  
Project Manager





Environmental Resolutions  
74 Digital Drive, Suite 6  
Novato, CA 94949

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-8-MW6  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9801971-03

Sampled: 01/16/98  
Received: 01/19/98  
Analyzed: 01/28/98  
Reported: 02/03/98

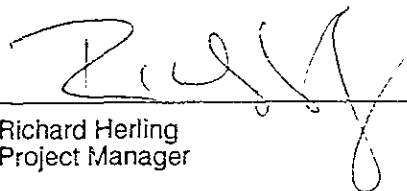
QC Batch Number: GC012898BTEX03A  
Instrument ID: GCHP3

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	81

Analytes reported as N D were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL - ELAP #1210**



Richard Herling  
Project Manager





Environmental Resolutions Client Proj. ID: Exxon 7-0236, 200913X Sampled: 01/16/98  
74 Digital Drive, Suite 6 Sample Descript: W-5-MW8 Received: 01/19/98  
Novato, CA 94949 Matrix: LIQUID Extracted: 01/21/98  
Attention: Marc Briggs Analysis Method: EPA 8015 Mod Analyzed: 01/22/98  
Lab Number: 9801971-04 Reported: 02/03/98  
QC Batch Number: GC0121980HBPEXA  
Instrument ID: GCHP4A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	81
Chromatogram Pattern: Unidentified HC		C9-C24
Surrogates	Control Limits %	% Recovery
n-Pentacosane (C25)	50 150	82

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling  
Project Manager





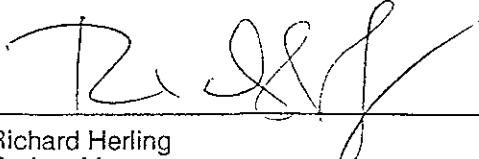
Environmental Resolutions	Client Proj. ID: Exxon 7-0236, 200913X	Sampled: 01/16/98
74 Digital Drive, Suite 6	Sample Descript: W-5-MW8	Received: 01/19/98
Novato, CA 94949	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 01/28/98
Attention: Marc Briggs	Lab Number: 9801971-04	Reported: 02/03/98
QC Batch Number: GC012898BTEX03A		
Instrument ID: GCHP3		

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	180
Methyl t-Butyl Ether	2.5	9.6
Benzene	0.50	2.8
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	0.92
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	82

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL - ELAP #1210**

  
Richard Herling  
Project Manager





Environmental Resolutions  
74 Digital Drive, Suite 6  
Novato, CA 94949

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-17-MW2  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9801971-05

Sampled: 01/16/98  
Received: 01/19/98  
Extracted: 01/21/98  
Analyzed: 01/22/98  
Reported: 02/03/98

Attention: Marc Briggs

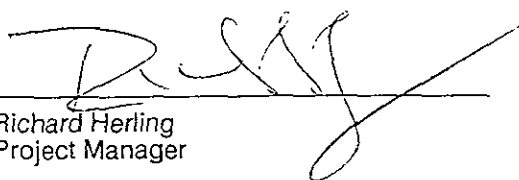
QC Batch Number: GC0121980HBPEXA  
Instrument ID: GCHP4A

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	1200
Chromatogram Pattern: Unidentified HC		C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	87

Analytes reported as N D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL - ELAP #1210**

  
Richard Herling  
Project Manager





Environmental Resolutions Client Proj. ID: Exxon 7-0236, 200913X Sampled: 01/16/98
74 Digital Drive, Suite 6 Sample Descript: W-17-MW2 Received: 01/19/98
Novato, CA 94949 Matrix: LIQUID
Attention: Marc Briggs Analysis Method: 8015Mod/8020 Analyzed: 01/28/98
Lab Number: 9801971-05 Reported: 02/03/98

QC Batch Number: GC012898BTEX03A
Instrument ID: GCHP3

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Table with 3 columns: Analyte, Detection Limit ug/L, Sample Results ug/L. Rows include TPPH as Gas (500, 3500), Methyl t-Butyl Ether (25, 3000), Benzene (5.0, 190), Toluene (5.0, 14), Ethyl Benzene (5.0, 110), Xylenes (Total) (5.0, 31), Chromatogram Pattern (Gas), Surrogates (Control Limits % 70, 130; % Recovery 93).

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager







# Sequoia Analytical

680 Chesapeake Drive  
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Sacramento, CA 95834

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FAX (510) 988-9673  
FAX (916) 921-0100

Environmental Resolutions  
74 Digital Drive, Ste. 6  
Novato, CA 94949  
Attention: Marc Briggs

Client Project ID: Exxon 7-0236, 200913X  
Matrix: Liquid

Work Order #: 9801971 01-05

Reported: Feb 4, 1998

## QUALITY CONTROL DATA REPORT

<b>Analyte:</b>	Diesel
<b>QC Batch#:</b>	GC0121980HBPEXA
<b>Analy. Method:</b>	EPA 8015M
<b>Prep. Method:</b>	EPA 3510

**Analyst:** G. Fish  
**MS/MSD #:** 980197101  
**Sample Conc.:** N.D.  
**Prepared Date:** 1/21/98  
**Analyzed Date:** 1/22/98  
**Instrument I.D.#:** GCHP4B  
**Conc. Spiked:** 1000 µg/L

**Result:** 860  
**MS % Recovery:** 86

**Dup. Result:** 750  
**MSD % Recov.:** 75

**RPD:** 14  
**RPD Limit:** 0-50

**LCS #:** BLK012198

**Prepared Date:** 1/21/98  
**Analyzed Date:** 1/22/98  
**Instrument I.D.#:** GCHP4B  
**Conc. Spiked:** 1000 µg/L

**LCS Result:** 730  
**LCS % Recov.:** 73

<b>MS/MSD</b>	50-150
<b>LCS</b>	60-140
<b>Control Limits</b>	

**Please Note:**  
 The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

  
 Richard Herling  
 Project Manager

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

9801971.EEE <1>





# Sequoia Analytical

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FAX (510) 988-9673  
FAX (916) 921-0100

Environmental Resolutions  
74 Digital Drive, Ste. 6  
Novato, CA 94949  
Attention: Marc Briggs

Client Project ID: Exxon 7-0236, 200913X  
Matrix: Liquid

Work Order #: 9801971 01-05

Reported: Feb 4, 1998

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC012898BTEX03A	GC012898BTEX03A	GC012898BTEX03A	GC012898BTEX03A	GC012898BTEX03A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	A. Miraftab	A. Miraftab	A. Miraftab	A. Miraftab	A. Miraftab
MS/MSD #:	980196701	980196701	980196701	980196701	980196701
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	1/28/98	1/28/98	1/28/98	1/28/98	1/28/98
Analyzed Date:	1/28/98	1/28/98	1/28/98	1/28/98	1/28/98
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	8.9	8.9	9.1	28	55
MS % Recovery:	89	89	91	93	92
Dup. Result:	9.0	9.1	9.3	28	56
MSD % Recov.:	90	91	93	93	93
RPD:	1.1	2.2	2.2	0.0	1.8
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK012898	BLK012898	BLK012898	BLK012898	BLK012898
Prepared Date:	1/28/98	1/28/98	1/28/98	1/28/98	1/28/98
Analyzed Date:	1/28/98	1/28/98	1/28/98	1/28/98	1/28/98
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	9.0	9.0	9.3	28	56
LCS % Recov.:	90	90	93	93	93

MS/MSD	60-140	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130	70-130
Control Limits					

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

Richard Herling  
Project Manager

\*\* MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9801971.EEE <2>





Sequoia Analytical  
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Redwood City, CA 94063  
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# EXXON COMPANY, U.S.A.

P.O. Box 2180, Houston, TX 77002-7426

## CHAIN OF CUSTODY

Consultant's Name: <u>Environmental Resolutions Inc.</u>		Page <u>1</u> of <u>2</u>
Address: <u>74 Digital Dr Suite G Novato Ca 94949</u>		Site Location: <u>6630 E 19th Street</u>
Project #:	Consultant Project #: <u>200913x</u>	Consultant Work Release #: <u>19432502</u>
Project Contact: <u>Marc Briggs</u>	Phone #: <u>415 382 9105</u>	Laboratory Work Release #:
EXXON Contact: <u>Marla Gienster</u>	Phone #: <u>510 246 8776</u>	EXXON RAS #: <u>7-0236</u>
Sampled by (print): <u>Scott Graham</u>	Sampler's Signature: <u>[Signature]</u>	<u>Oakland, Ca</u>
Shipment Method:	Air Bill #:	

TAT:  24 hr  48 hr  72 hr  96 hr  Standard (10 day)

ANALYSIS REQUIRED 9801971 5 19 12

Sample Description	Collection Date	Collection Time	Matrix Soil/Water/Air	Prsv	# of Cont.	Sequoia's Sample #	TPH/Gas	TPH/	TRPH	Temperature: _____	
							BTEX/ 8015/ 8020	Diesel EPA 8015	S.M. 5520		Inbound Seal: Yes No Outbound Seal: Yes No
<u>W-5-MW4</u>	<u>1/16/98</u>	<u>1140</u>	<u>Water</u>	<u>HCL JLF</u>	<u>3</u>	<u>01</u>	<u>X</u>			<u>MTBE</u>	
<u>W-8-MW5</u>	<u>/</u>	<u>1155</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>02</u>	<u>X</u>				
<u>W-8-MW6</u>	<u>/</u>	<u>1210</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>03</u>	<u>X</u>				
<u>W-5-MW8</u>	<u>/</u>	<u>1225</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>04</u>	<u>X</u>				
<u>W-17-MW2</u>	<u>/</u>	<u>1305</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>05</u>	<u>X</u>				

RELINQUISHED BY / AFFILIATION	Date	Time	ACCEPTED / AFFILIATION	Date	Time	Additional Comments
<u>[Signature]</u>	<u>1/19/98</u>	<u>10:50</u>	<u>[Signature]</u>	<u>1/19</u>	<u>1050</u>	
<u>[Signature]</u>	<u>1/19/98</u>		<u>[Signature]</u>	<u>1/19</u>	<u>1219</u>	

Pink - Client

Yellow - Sequoia

White - Sequoia



Sequoia Analytical

680 Chesapeake Dr.

Redwood City, CA 94063

(415) 364-9600 • FAX (415) 364-9233

# EXXON COMPANY, U.S.A.

P.O. Box 2180, Houston, TX 77002-7426

## CHAIN OF CUSTODY

Consultant's Name: Environmental Resolutions Inc Page 2 of 2

Address: 74 Digital Dr Suite G Novato Ca 94949 Site Location: 6630 E. 14th Street

Project #: \_\_\_\_\_ Consultant Project #: 200913X Consultant Work Release #: 19432502

Project Contact: Marc Briggs Phone #: 415 382 9105 Laboratory Work Release #: \_\_\_\_\_

EXXON Contact: Marla Guensler Phone #: 510 246 8776 EXXON RAS #: 7-0236

Sampled by (print): Scott Graham Sampler's Signature: [Signature] Oakland, Ca

Shipment Method: \_\_\_\_\_ Air Bill #: \_\_\_\_\_

TAT:  24 hr  48 hr  72 hr  96 hr  Standard (10 day) ANALYSIS REQUIRED 9801971 5 19 12

Sample Description	Collection Date	Collection Time	Matrix Soil/Water/Air	Prsv	# of Cont.	Sequoia's Sample #	TPH/Gas BTEX/ 8015/ 8020	TPH/ Diesel EPA 8015	TRPH S.M. 5520	Temperature: _____	
										Inbound Seal: Yes No	Outbound Seal: Yes No
W-5-MW4	1/16/98	1145	Water	ICE	2	01		X			
W-8-MW5	/	1200	/	/	/	02		X			
W-8-MW6	/	1215	/	/	/	03		X			
W-5-MW8	/	1230	/	/	/	04		X			
W-17-MW2	/	1310	/	/	/	05		X			

RELINQUISHED BY / AFFILIATION	Date	Time	ACCEPTED / AFFILIATION	Date	Time	Additional Comments
<u>[Signature]</u>	<u>1/19/98</u>	<u>10:50</u>	<u>[Signature] / Sequoia</u>	<u>1/19</u>	<u>12:50</u>	
<u>[Signature] / Sequoia</u>	<u>1/19/98</u>					
			<u>[Signature]</u>	<u>1/19</u>	<u>12:19</u>	

Pink - Client

Yellow - Sequoia

White - Sequoia



Sequoia  
Analytical

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FAX (510) 988-9673  
FAX (916) 921-0100

Environmental Resolutions  
74 Digital Drive, Suite 6  
Novato, CA 94949  
Attention: Marc Briggs

Client Proj. ID: Exxon 7-0236, 200913X

Received: 01/19/98

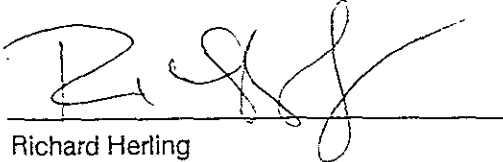
Lab Proj. ID: 9801971

Reported: 02/03/98

## LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 15 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL



---

Richard Herling  
Project Manager

