

ENVIRONMENTAL RESOLUTIONS, INC.

DIGITAL  
COMMUNICATION  
JUL 24 PM 2:37

June 30, 1997  
ERI 200913.R10

Ms. Marla D. Guensler  
Exxon Company, U.S.A.  
2300 Clayton Road, Suite 640  
Concord, California 94520

Subject: Quarterly Groundwater Monitoring, Second Quarter 1997, 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 second quarter 1997 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 May 21, 1997, ERI measured depth to water (DTW) in monitoring wells MW2 through MW6 and MW8 and collected groundwater samples from all wells (excluding MW4) for laboratory analysis. No measurable liquid phase hydrocarbons were observed in the monitoring wells. ERI's groundwater sampling protocol is attached (Attachment A). ERI also measured dissolved oxygen concentrations in the wells on April 16, May 21, and June 5, 1997.

Based on DTW measurements the groundwater appears to flow south with a hydraulic gradient of 0.022 (Plate 2). Historical and recent monitoring data are summarized in Table 1.

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

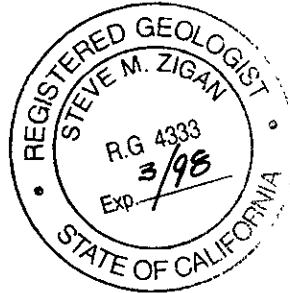
Groundwater samples were submitted to Sequoia Analytical Laboratories (California State Certification Number 1210) in Redwood City, California, under chain of custody protocol. The samples were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl tert-butyl ether (MTBE), total petroleum 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.



*Glenn L. Matteucci*  
Glenn L. Matteucci  
Senior Staff Geologist

*Steve M. Zigan*  
Steve M. Zigan  
R.G. 4333  
H.G. 133

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 1 of 7)

Well ID # (TOC)	Sampling Date	SUBJ <	DTW feet	Elev >	TEPHd <	TPHg	B	T parts per billion	E	X	MTBE >	DO <ppm>
MW1 (20 20)	3/15/91	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	---	---
	4/6/92	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	---	---
	3/9/93	NLPH	7.38	12.82	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	6/4/93	NLPH	8.55	11.65	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	9/2/93	NLPH	10.85	9.35	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/16/93	NLPH	12.43	7.77	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	2/4/94	NLPH	9.10	11.10	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	4/29/94	NLPH	8.45	11.75	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	9/20/94	NLPH	10.73	9.47	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	12/14/94	NLPH	7.35	12.85	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	3/27/95	NLPH	7.06	13.14	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	5/18/95	NLPH	7.32	12.88	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---
	8/8/95	NLPH	9.24	10.96	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	11/7/95	NLPH	10.74	9.46	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	2/29/96	NLPH	6.80	13.40	53	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	5/10/96	NLPH	8.13	12.07	150	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	8/20/96	NLPH	9.58	10.62	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
	10/17/96	---	---	---	---	---	---	---	---	---	---	9.50
	11/27/96	---	---	---	---	---	---	---	---	---	---	11.54
	12/6/96	NLPH	8.10	12.10	---	---	---	---	---	---	---	10.05
	1/19/97	Destroyed										
MW2 (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	---	---
	4/6/92	NR	9.09	10.06	---	---	---	---	---	---	---	---
	7/8/92	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	---	---
	3/9/93	sheen	9.71	9.44	---	---	---	---	---	---	---	---
	6/4/93	sheen	9.40	9.75	---	---	---	---	---	---	---	---
	09/02/93	sheen	10.46	8.69	3,700	11,000	210	18	260	59	2,500	---
	11/16/93 (M*)	NLPH	11.44	7.71	3,300	8,500	75	27	51	32	---	---
	2/4/94	NLPH	10.41	8.74	2,700	4,400	120	16	22	7.7	---	---
	4/29/94	NLPH	9.51	9.64	2,000	380	5.9	0.6	1.6	<0.5	---	---
MW2 (cont.)	9/20/94	NLPH	10.57	8.58	1,800**	19,000	190	29***	110	27***	---	---

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	E	X	MTBE >	DO < ppm >
(19 15)	12/14/94	sheen	8 90	10.25	---	---	---	---	---	---	---	---
	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
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	---	---
	5/18/95	NLPH	7 73	11 86	470#	1,000	<0 5	<0.5	4 1	0 94	---	---
	8/8/95	NLPH	8.81	10.78	580	1,600	12	<0 5	2 4	0.63	12	---
MW3 (cont ) (19 59)	11/7/95	NLPH	9.96	9.63	540	1,500	<2.5	2.9	<2.5	<2.5	26	---
	2/29/96	NLPH	8.47	11.12	680	1,000	<5.0	<5 0	<5 0	<5 0	<25	---
	5/10/96	NLPH	7.93	11.66	560	480	<1 0	<1 0	<1 0	<1 0	6 8	---



TABLE 1  
 CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA  
 Former Exxon Service Station 7-0236  
 6600 East 14th Street  
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 (Page 4 of 7)

Well ID # (TOC)	Sampling Date	SUBJ <	DTW feet	Elev. >	TEPIId <	TPHg	B	T	E	X	MTBE >	DO < ppm >	
							parts per billion						
(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	---	---	
	3/9/93	NLPH	10.27	6.68	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---	
	6/4/93	NLPH	11.35	5.60	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---	
	9/2/93	NLPH	13.15	3.80	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---	
	11/16/93	NLPH	14.35	2.60	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---	
	2/4/94	NLPH	11.83	5.12	60	<50	<0.5	<0.5	<0.5	<0.5	---	---	
	4/29/94	NLPH	11.15	5.80	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---	
	9/20/94	NLPH	12.79	4.16	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---	
	12/14/94	NLPH	9.95	7.00	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---	
	3/27/95	NLPH	9.09	7.86	<50	<50	<0.5	<0.5	<0.5	<0.5	---	---	
	5/18/95	NLPH	10.29	6.66	<50	<50	<0.5	4.6	0.65	2.8	---	---	
	8/8/95	NLPH	11.13	5.82	51	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---	
	11/7/95	NLPH	12.12	4.83	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---	
	Additional Analyses for general minerals and properties < **												
		2/29/96	NLPH	9.24	7.71	60	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---
		5/10/96	NLPH	10.71	6.24	<50	<50	<0.5	<0.5	<0.5	1.6	<2.5	---
		8/20/96	NLPH	11.45	5.50	---	---	---	---	---	---	---	---
		10/17/96	---	---	---	---	---	---	---	---	---	---	---
		11/27/96	---	---	---	---	---	---	---	---	---	---	---
		12/6/96	NLPH	10.70	6.25	90	62	1.2	6.5	1.7	11	<2.5	---
		1/17/97	---	---	---	---	---	---	---	---	---	---	---
(19.98)	2/25/97	NLPH	10.49	9.49	90	<50	1.4	2.4	0.95	7.4	<2.5	---	
	3/13/97	---	---	---	---	---	---	---	---	---	---	---	
	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	---	---	---	---	---	---	---	---	---	---	---	
MW6 (18.79)	04/06/92(II)	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	---	---	
MW6 (cont.) (18.79)	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	---	---	





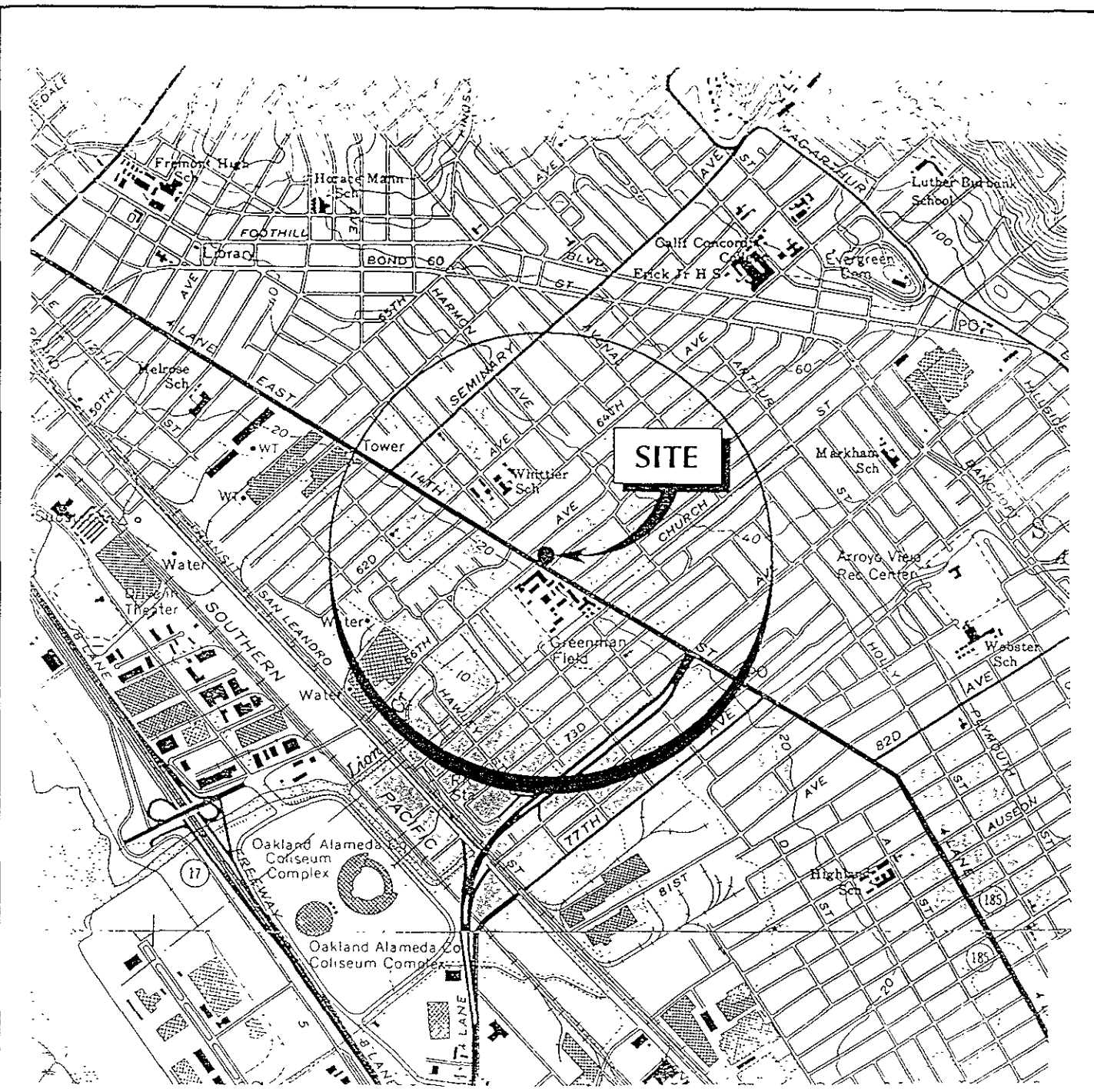


TABLE 1  
 CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA  
 Former Exxon Service Station 7-0236  
 6600 East 14th Street  
 Oakland, California  
 (Page 7 of 7)

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Notes:		
NLPH	=	Liquid-phase hydrocarbons not 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 tert-butyl ether analyzed using EPA method 5030/8020
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: MW-2, 03/15/91, Methylene chloride detected at 1 ppb MW-3, 03/15/91, Methylene chloride detected at 21 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
<*	=	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

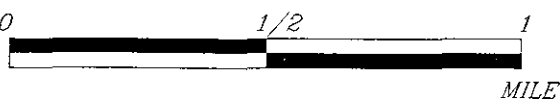
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20090001



APPROXIMATE SCALE

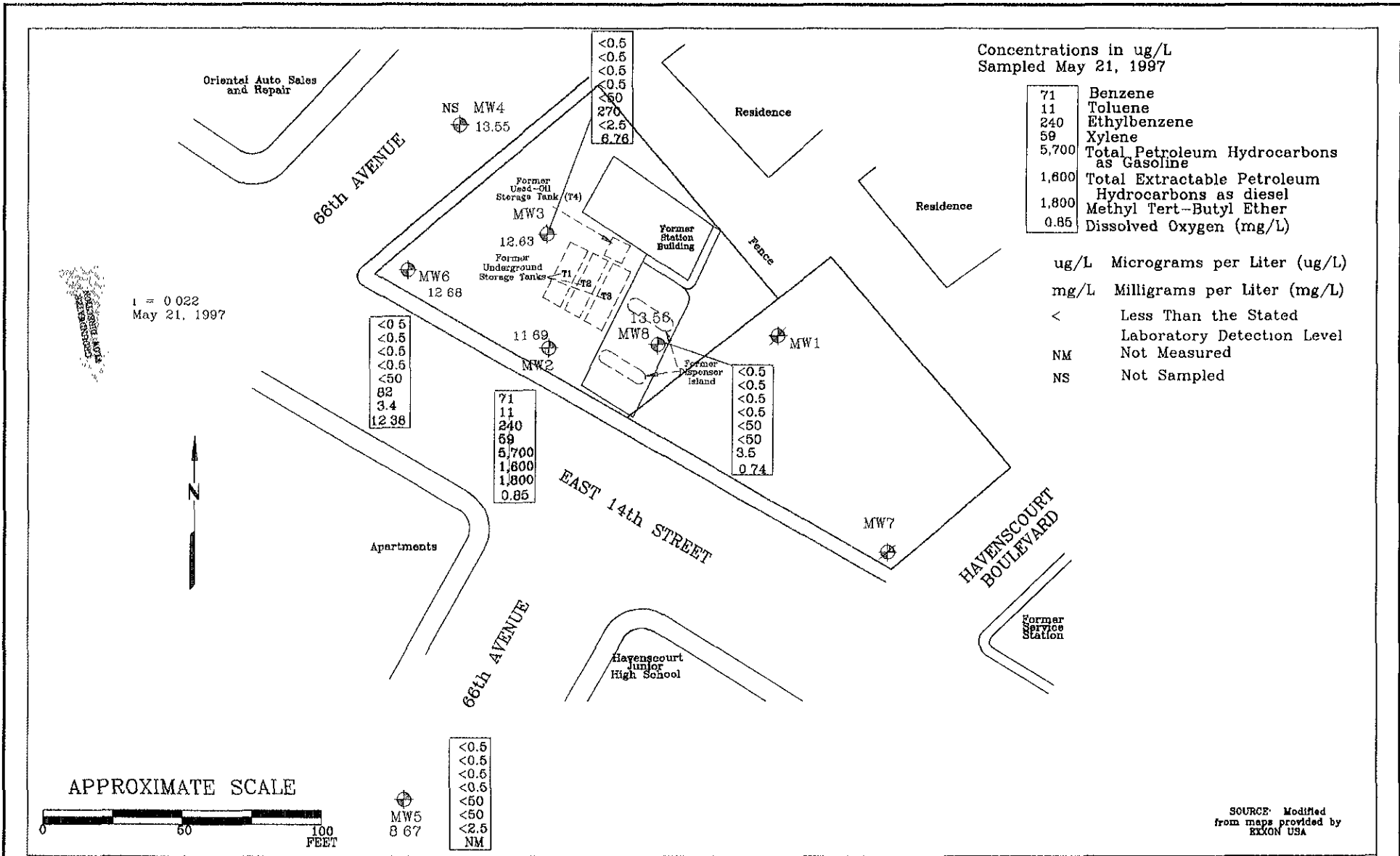


Source USGS 7.5 minute topographic quadrangle map Oakland East and San Leandro, Calif 1980

**PROJECT**    ERI 2009

**SITE VICINITY MAP**  
 FORMER EXXON SERVICE STATION 7-0236  
 6600 East 14th Street  
 Oakland, California

**PLATE**  
 1



**GENERALIZED SITE PLAN**

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

**EXPLANATION**

⊕ Groundwater Monitoring Well  
MW8 Groundwater elevation in feet above mean sea level  
⊙ Groundwater Monitoring Well (Destroyed)  
1 = Interpreted Groundwater Gradient

**PROJECT NO.**  
2009

**PLATE**  
2

05/13/1997

**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

Attention: Marc Briggs

QC Batch Number: GC0527970HBPÉXZ  
Instrument ID: GCHP5B

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript. W-9-MW8  
Matrix: LIQUID  
Analysis Method EPA 8015 Mod  
Lab Number: 9705B29-01

Sampled: 05/21/97  
Received: 05/22/97  
Extracted: 05/27/97  
Analyzed: 05/29/97  
Reported: 06/03/97

### 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	85

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

SEQUOIA ANALYTICAL - ELAP #1210

Kevin Follett  
Project Manager

JUN 13 1997



Environmental Resolutions  
74 Digital Drive, Suite 6  
Novato, CA 94949  
  
Attention: Marc Briggs  
QC Batch Number: GC060397BTEX06A  
Instrument ID: GCHP06

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-9-MW8  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9705B29-01


Sampled: 05/21/97  
Received: 05/22/97  
  
Analyzed: 06/03/97  
Reported: 06/03/97

**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	3.5
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	85

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

SEQUOIA ANALYTICAL - ELAP #1210

  
Kevin Follett  
Project Manager







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

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-9-MW6  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9705B29-02

Sampled: 05/21/97  
Received: 05/22/97  
Extracted: 05/27/97  
Analyzed: 05/29/97  
Reported: 06/03/97

Attention: Marc Briggs  
QC Batch Number: GC0527970HBPEXZ  
Instrument ID: GCHP5B

### Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	82
Chromatogram Pattern: Unidentified HC		C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	84

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

SEQUOIA ANALYTICAL - ELAP #1210

Kevin Follett  
Project Manager





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

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-9-MW6  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9705B29-02

Sampled: 05/21/97  
Received: 05/22/97  
Analyzed: 05/30/97  
Reported: 06/03/97

Attention: Marc Briggs  
QC Batch Number: GC053097BTEX06A  
Instrument ID: GCHP06

**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	3.4
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	73

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

**SEQUOIA ANALYTICAL** - ELAP #1210



Kevin Follett  
Project Manager





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Novato, CA 94949

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-11-MW5  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9705B29-03

Sampled: 05/21/97  
Received: 05/22/97  
Extracted: 05/27/97  
Analyzed: 05/29/97  
Reported: 06/03/97

Attention: Marc Briggs

QC Batch Number: GC0527970HBPEXZ  
Instrument ID: GCHP5B

### 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	86

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

SEQUOIA ANALYTICAL - ELAP #1210

Kevin Follett  
Project Manager





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

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-11-MW5  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9705B29-03

Sampled: 05/21/97  
Received: 05/22/97  
Analyzed: 06/02/97  
Reported: 06/03/97

Attention: Marc Briggs

QC Batch Number: GC060297BTEX07A  
Instrument ID: GCHP07

**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	90

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

SEQUOIA ANALYTICAL - ELAP #1210

Kevin Follett  
Project Manager





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

Attention: Marc Briggs

QC Batch Number: GC0527970HBPEXZ  
Instrument ID: GCHP5B

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-15-MW3  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9705829-04

Sampled: 05/21/97  
Received: 05/22/97  
Extracted: 05/27/97  
Analyzed: 05/29/97  
Reported: 06/03/97

### Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	270  C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	86

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

SEQUOIA ANALYTICAL - ELAP #1210

Kevin Follett  
Project Manager





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

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-15-MW3  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9705B29-04

Sampled: 05/21/97  
Received: 05/22/97  
Analyzed: 05/30/97  
Reported: 06/03/97

Attention: Marc Briggs

QC Batch Number: GC053097BTEX06A  
Instrument ID: GCHP06

**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	75

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

**SEQUOIA ANALYTICAL - ELAP #1210**



Kevin Follett  
Project Manager





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

Client Proj. ID: Exxon 7-0236, 200913X  
Sample Descript: W-11-MW2  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9705B29-05

Sampled: 05/21/97  
Received: 05/22/97  
Extracted: 05/27/97  
Analyzed: 05/29/97  
Reported: 06/03/97

Attention: Marc Briggs  
QC Batch Number: GC0527970HBPEXZ  
Instrument ID: GCHP5B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	1600
Chromatogram Pattern: Unidentified HC		C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50 150	91

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

SEQUOIA ANALYTICAL - ELAP #1210

Kevin Follett  
Project Manager





Environmental Resolutions
74 Digital Drive, Suite 6
Novato, CA 94949
Attention: Marc Briggs
QC Batch Number: GC060297BTEX07A
Instrument ID: GCHP07

Client Proj. ID: Exxon 7-0236, 200913X
Sample Descript: W-11-MW2
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9705B29-05

Sampled: 05/21/97
Received: 05/22/97
Analyzed: 06/02/97
Reported: 06/03/97

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 (5700), Methyl t-Butyl Ether (1800), Benzene (71), Toluene (11), Ethyl Benzene (240), Xylenes (Total) (59), Chromatogram Pattern: Gas, Surrogates (Control Limits % 70, 130; % Recovery 117).

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

SEQUOIA ANALYTICAL - ELAP #1210

Handwritten signature of Kevin Follett
Kevin Follett
Project Manager







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

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

Work Order #: 9705B29 01-05

Reported: Jun 10, 1997

**QUALITY CONTROL DATA REPORT**

<b>Analyte:</b>	Diesel
<b>QC Batch#:</b>	GC0527970HBPEXZ
<b>Analy. Method:</b>	EPA 8015M
<b>Prep. Method:</b>	EPA 3520

**Analyst:** G. Fish  
**MS/MSD #:** 9705B1801  
**Sample Conc.:** 120  
**Prepared Date:** 5/27/97  
**Analyzed Date:** 5/28/97  
**Instrument I.D.#:** GCHP5B  
**Conc. Spiked:** 1000 µg/L

**Result:** 1100  
**MS % Recovery:** 98

**Dup. Result:** 1100  
**MSD % Recov.:** 98

**RPD:** 0.0  
**RPD Limit:** 0-50

**LCS #:** BLK052797XS

**Prepared Date:** 5/27/97  
**Analyzed Date:** 5/28/97  
**Instrument I.D.#:** GCHP5B  
**Conc. Spiked:** 1000 µg/L

**LCS Result:** 910  
**LCS % Recov.:** 91

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

**SEQUOIA ANALYTICAL**

  
Kevin Follett  
Project Manager

**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.





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

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

Work Order #: 9705B29 01

Reported: Jun 10, 1997

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC060397BTEX06A	GC060397BTEX06A	GC060397BTEX06A	GC060397BTEX06A	GC060397BTEX06A
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. Porter	A. Porter	A. Porter	A. Porter	A. Porter
MS/MSD #:	9705E8149	9705E8149	9705E8149	9705E8149	9705E8149
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	6/3/97	6/3/97	6/3/97	6/3/97	6/3/97
Analyzed Date:	6/3/97	6/3/97	6/3/97	6/3/97	6/3/97
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	10	9.9	9.8	28	66
MS % Recovery:	100	99	98	93	110
Dup. Result:	11	10	10	30	69
MSD % Recov.:	110	100	100	100	115
RPD:	9.5	1.0	2.0	6.9	4.4
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK060397BSA	BLK060397BSA	BLK060397BSA	BLK060397BSA	BLK060397BSA
Prepared Date:	6/3/97	6/3/97	6/3/97	6/3/97	6/3/97
Analyzed Date:	6/3/97	6/3/97	6/3/97	6/3/97	6/3/97
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	11	11	10	30	69
LCS % Recov.:	110	110	100	100	115

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					

SEQUOIA ANALYTICAL

  
 Kevin Follett  
 Project Manager

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.

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

9705B29 EEE <2>



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

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

Work Order #: 9705B29 02, 04

Reported: Jun 10, 1997

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC053097BTEX06A	GC053097BTEX06A	GC053097BTEX06A	GC053097BTEX06A	GC053097BTEX06A
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:	R. Geckler	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	9705B2610	9705B2610	9705B2610	9705B2610	9705B2610
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	5/30/97	5/30/97	5/30/97	5/30/97	5/30/97
Analyzed Date:	5/30/97	5/30/97	5/30/97	5/30/97	5/30/97
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	9.8	9.8	9.9	29	67
MS % Recovery:	98	98	99	97	112
Dup. Result:	9.1	9.0	9.3	27	61
MSD % Recov.:	91	90	93	90	102
RPD:	7.4	8.5	6.3	7.1	9.4
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK053097BSA	BLK053097BSA	BLK053097BSA	BLK053097BSA	BLK053097BSA
Prepared Date:	5/30/97	5/30/97	5/30/97	5/30/97	5/30/97
Analyzed Date:	5/30/97	5/30/97	5/30/97	5/30/97	5/30/97
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	9.9	9.8	10	30	67
LCS % Recov.:	99	98	100	100	112

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					

SEQUOIA ANALYTICAL

*Kevin Follett*  
 Kevin Follett  
 Project Manager

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.

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

9705B29.EEE <3>





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

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

Work Order #: 9705B29 03, 05

Reported: Jun 10, 1997

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC060297BTEX07A	GC060297BTEX07A	GC060297BTEX07A	GC060297BTEX07A	GC060297BTEX07A
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. Porter	A. Porter	A Porter	A. Porter	A. Porter
MS/MSD #:	9705C3504	9705C3504	9705C3504	9705C3504	9705C3504
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	6/2/97	6/2/97	6/2/97	6/2/97	6/2/97
Analyzed Date:	6/2/97	6/2/97	6/2/97	6/2/97	6/2/97
Instrument I.D.#:	GCHP7	GCHP7	GCHP7	GCHP7	GCHP7
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	9.4	9.5	9.7	29	62
MS % Recovery:	94	95	97	97	103
Dup. Result:	9.6	9.7	10	30	64
MSD % Recov.:	96	97	100	100	107
RPD:	2.1	2.1	3.0	3.4	3.2
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK060297BSA	BLK060297BSA	BLK060297BSA	BLK060297BSA	BLK060297BSA
Prepared Date:	6/2/97	6/2/97	6/2/97	6/2/97	6/2/97
Analyzed Date:	6/2/97	6/2/97	6/2/97	6/2/97	6/2/97
Instrument I.D.#:	GCHP7	GCHP7	GCHP7	GCHP7	GCHP7
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	9.5	9.7	10	30	63
LCS % Recov.:	95	97	100	100	105

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					

SEQUOIA ANALYTICAL

*Kevin Follett*  
 Kevin Follett  
 Project Manager

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.

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

9705B29.EEE <4>



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: <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>6.639 East 14th Street</u>
Project #: <u>7-0236</u>	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>Marc Gurnster</u>	Phone #: <u>510 246 8776</u>	EXXON RAS #: <u>7-0236</u>
Sampled by (print): <u>Scott Graham</u>	Sampler's Signature: <u>Scott Graham</u>	<u>Oakland, Ca</u>
Shipment Method:	Air Bill #:	

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

ANALYSIS REQUIRED 9705B29

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	MBE	Temperature. <u>E 22</u>	
											Inbound Seal: Yes No	Outbound Seal: Yes No
W-9-MW/8	5/21/97	1500	Water	HCL 716	3	1	X			X		
W-9-MW/6		1515				2	X			X		
W-11-MW/5		1530				3	X			X		
W-15-MW/3		1545				4	X			X		
W-11-MW/2		1600				5	X			X		
W-9-MW/8		1505		ICE	2	1		X				
W-9-MW/6		1520				2		X				
W-11-MW/5		1535				3		X				
W-15-MW/3		1550				4		X				

RELINQUISHED BY / AFFILIATION	Date	Time	ACCEPTED / AFFILIATION	Date	Time	Additional Comments
<u>Scott Graham</u>	<u>5/22/97</u>	<u>3:35</u>	<u>AWMight / SEQ</u>	<u>5/22/97</u>	<u>3:35</u>	
<u>AWMight / SEQ</u>	<u>5/22/97</u>	<u>5:32</u>				
			<u>AWMight</u>	<u>5/22/97</u>	<u>1737</u>	

Pink - Client  
Yellow - Sequoia  
White - Sequoia

37





Sequoia  
Analytical

680 Chesapeake Drive	Redwood City, CA 94063	(415) 364-9600	FAX (415) 364-9233
404 N. Wiget Lane	Walnut Creek, CA 94598	(510) 988-9600	FAX (510) 988-9673
819 Striker Avenue, Suite 8	Sacramento, CA 95834	(916) 921-9600	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: 05/22/97

Lab Proj. ID. 9705B29

Reported: 06/03/97

### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 17 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Kevin Follett  
Project Manager

