

**EXXON** COMPANY, U.S.A.

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MARKETING DEPARTMENT • ENVIRONMENTAL ENGINEERING

MARLA D. GUENSLER  
SENIOR ENGINEER

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ENVIRONMENTAL  
PROTECTION  
98 AUG -9 PM 11:19

EDW

July 28, 1998

Mr. Barney Chan  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway, #250  
Alameda, California 94502-6577

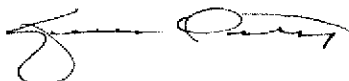
**RE: Former Exxon RAS #7-3006/720 High Street, Oakland, California.**

Dear Mr. Chan:

Attached for your review and comment is a report entitled *Quarterly Groundwater Monitoring and Remediation Status Report, Second Quarter 1998*, dated July 31, 1998, for the above referenced site. The report was prepared by Environmental Resolutions, Inc. (ERI) of Novato, California, and details the results of groundwater monitoring and sampling and remedial activities at the subject site.

If you have any questions or comments, please contact me at (925) 246-8776.

Sincerely,



Marla D. Guensler  
Senior Engineer

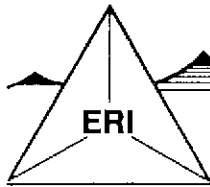
MDG/tjm

Attachment: ERI's Quarterly Groundwater Monitoring and Remediation Status Report, Second Quarter 1998, dated July 31, 1998

cc: w/attachment  
Mr. Stephen Hill - California Regional Water Quality Control Board - San Francisco Bay Region

w/o attachment  
Mr. Mark S. Dockum - ERI





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**ENVIRONMENTAL RESOLUTIONS, INC.**

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July 31, 1998  
ERI 201011.R16

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

#136

**Subject:** Quarterly Groundwater Monitoring and Remediation Status Report, Second Quarter 1998, Former Exxon Service Station 7-3006, 720 High Street, Oakland, California.

Ms. Guensler:

At the request of Exxon Company, U.S.A. (Exxon), Environmental Resolutions, Inc. (ERI) performed remedial activities and groundwater monitoring for the second quarter 1998 at the subject site (Plate 1). The purpose of ongoing remedial activities is to remove residual hydrocarbons from soil and dissolved hydrocarbons from groundwater. The purpose of quarterly monitoring is to evaluate hydrocarbon concentrations in groundwater, the capture zone caused by groundwater pumping, and the effectiveness of remedial actions.

**GROUNDWATER MONITORING AND SAMPLING**

On June 23, 1998, ERI measured the depth to water (DTW) and collected groundwater samples for laboratory analysis from monitoring wells MW1 through MW4, and MW6 through MW15. Monitoring well MW5 was previously destroyed. ERI's groundwater sampling protocol is attached (Attachment A).

Due to ongoing air sparge/soil vapor extraction (AS/SVE) remediation activities, groundwater elevations and gradient may not be indicative of actual conditions.

**Laboratory Analyses and Results**

Groundwater samples were submitted to Sequoia Analytical (California State Certification Number 1210) in Redwood City, California, under chain of custody protocol. The samples were analyzed for total purgeable petroleum hydrocarbons as gasoline (TPPHg), benzene, toluene, ethyl benzene, total xylenes (BTEX), methyl tertiary butyl ether (MTBE), and total extractable petroleum hydrocarbons as diesel (TEPHd). The specific methods of analysis are listed in the notes in Table 1. The results of analysis are tabulated in Table 1 and are shown on Plate 2. The laboratory analysis reports and chain of custody records are attached (Attachment B).

## SOIL AND GROUNDWATER REMEDIATION

### Air Sparging/Soil Vapor Extraction

ERI initiated operation of the AS/SVE system in August, 1996, utilizing the thermal/catalytic oxidizer. Cumulative operational and performance data are presented in Table 2. Copies of the Reports of Laboratory Analysis and Chain of Custody Records for soil vapor-extraction system samples collected during the reporting period are attached (Attachment B).

The AS/SVE system currently consists of six AS wells for air injection and vadose wells for SVE within an on-site interceptor trench, a water knock-out tank, a Thermtch VAC-25 thermal/catalytic oxidizer, a Gast air compressor, and a propane tank for supplemental fuel. The AS/SVE system is operated in a continuous mode within the trench.

### Groundwater Extraction And Treatment

The groundwater remediation system (GRS) is designed to treat separate-phase and dissolved hydrocarbons in groundwater extracted from the interceptor trench beneath the site. Pneumatic pumps are installed in extraction wells RW2 and RW5 to recover groundwater from the interceptor trench. Subsurface and above-ground collection piping are used to transfer extracted groundwater to a holding tank. A transfer pump and poly-vinyl chloride (PVC) piping are used to direct the water stream from the holding tank through water filters, an air stripper, and subsequently through liquid-phase granular activated carbon (GAC) canisters connected in series. The treated groundwater is discharged to the sanitary sewer regulated by East Bay Municipal Utilities District (EBMUD).

Between April 7, 1998, and June 24, 1998, the system recovered 98,738 gallons of groundwater from beneath the site. System flow rates, total volume extracted, and influent, intermediate, and effluent sample concentrations are presented in Table 3.

## SUMMARY AND STATUS OF INVESTIGATION

Based on data collected to date, it appears the AS/SVE system and GRS are removing residual hydrocarbons in soil and dissolved hydrocarbons in groundwater. ERI estimates approximately 1 pound (less than one gallon) of residual hydrocarbons were removed by the AS/SVE system during the reporting period, and approximately 3,151 pounds (approximately 517 gallons) since start-up. The estimated amount of hydrocarbons removed by the system was performed in accordance with the ERI standard operation procedures included in Attachment C. ERI estimates approximately 1 pound (less than one gallon) of dissolved hydrocarbons were removed by the GRS from April 7, 1998 to May 5, 1998, and approximately 9 pounds (approximately 2 gallons) since start up. ERI will continue to operate the remedial systems, monitor, and sample groundwater at the site during the third quarter 1998.

## LIMITATIONS

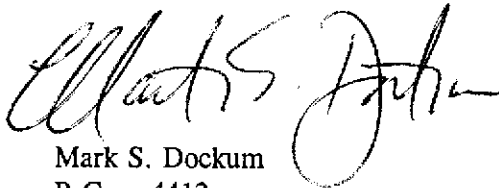
This report was prepared in accordance with generally accepted standards of environmental practice in California at the time this investigation was performed. This report has been prepared for Exxon and any reliance on this report by third parties shall be at such party's sole risk.

If you have any questions or comments regarding this report, please call (415) 382-5991.

Sincerely,  
Environmental Resolutions, Inc.



Scott R. Graham  
Staff Geologist



Mark S. Dockum  
R.G. 4412  
C.E.G. 1675

Enclosures: Table 1: Cumulative Groundwater Monitoring and Sampling Data  
Table 2: Cumulative Hydrocarbon Removal and Emissions for Soil Vapor Extraction System  
Table 3: Operation and Performance Data for Groundwater Remediation System  
  
Plate 1: Site Vicinity Map  
Plate 2: Generalized Site Plan  
  
Attachment A: Groundwater Sampling Protocol  
Attachment B: Laboratory Analysis Reports and Chain of Custody Records  
Attachment C: ERI SOP-25 "Hydrocarbons Removed from a Vadose Well"







TABLE 1  
 CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA  
 Former Exxon Service Station 7-3006  
 720 High Street  
 Oakland, California  
 (Page 4 of 8)

Well ID # (TOC)	Sampling Date	SUBJ <	DTW feet	Elev. >	TPHg <	B	T	E	X	MTBE	TEPHd	VOCs >	
													Micrograms per liter (ug/L)
MW8 (cont.) (13.45)	9/29/94	Sheen	9.76	3.69									
	10/25/94	Sheen	10.05	3.40									
	11/30/94	NM	7.68	5.77									
	12/27/94	Sheen	7.11	6.34									
	2/6/95	Sheen	5.39	8.06									
	6/7/95	Sheen	7.53	5.92									
	9/18/95	Sheen	9.84	3.61									
	11/1/95	Sheen	10.47	2.98									
	2/14/96	Sheen	8.27	5.18									
	6/19/96	Sheen	6.88	6.57									
	9/24/96	Sheen	10.13	3.32									
	12/11/96	Sheen	8.53	4.92									
	3/19/97	Sheen	9.09	4.36									
	6/4/97	Sheen	9.52	3.93									
	9/2/97	NLPH	9.72	3.73	20,000	57	<50	850	660	<50	8,000	ND	
	12/2/97	NLPH	8.83	4.62	6,900	83	<10	<10	100	130	2,700	NA	
	3/24/98	NLPH	6.52	6.93	10,000	190	<25	470	330	<125	2,900	NA	
6/23/98	NLPH	9.02	4.43	10,000	140	<10	460	260	<50	3,700	NA		
MW9 (14.64)	1/20/94	NM	NM	---									
	02/02-03/94	NM	NM	---									
	3/10/94	NLPH	6.90	7.74									
	4/22/94	NLPH	7.38	7.26									
	05/10-11/94	NLPH	6.96	7.68									
	6/27/94	NLPH	7.65	6.99									
	8/31/94	NLPH	8.87	5.77									
	9/29/94	NLPH	9.19	5.45	<50	<0.5	<0.5	<0.5	<0.5	NA	<50	NA	
	10/25/94	NLPH	9.66	4.98	<50	<0.5	<0.5	<0.5	<0.5	NA	<50	NA	
	11/30/94	NM	8.38	6.26									
	12/27/94	NLPH	7.29	7.35									
	2/6/95	NLPH	5.74	8.90	<50	<0.5	<0.5	<0.5	<0.5	NA	56	NA	
	6/7/95	NLPH	8.33	6.31	<50	<0.5	<0.5	<0.5	<0.5	<2.5	72	NA	
	9/18/95	NLPH	9.28	5.36	<50	<0.5	<0.5	<0.5	<0.5	<2.5	60	NA	
	11/1/95	NLPH	10.09	4.55	<50	<0.5	<0.5	<0.5	<0.5	<2.5	61	NA	
	2/14/96	NLPH	6.26	8.38	<50	<0.5	<0.5	<0.5	<0.5	<2.5	83	NA	
	6/19/96	NLPH	6.68	7.96	<50	<0.5	<0.5	<0.5	<0.5	<2.5	68	NA	
				Additional Analysis EHCss		<50							
	9/24/96	NLPH	9.72	4.92	<50	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	
	12/11/96	NLPH	8.11	6.53	<50	<0.5	<0.5	<0.5	<0.5	<2.5	91	NA	
3/19/97	NLPH	7.72	6.92	<50	0.83	<0.5	<0.5	<0.5	<2.5	140	NA		
6/4/97	NLPH	8.87	5.77	<50	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA		
9/2/97	NLPH	9.44	5.20	<50	<0.5	<0.5	<0.5	<0.5	<2.5	140	NA		
12/2/97	NLPH	8.43	6.21	<50	<0.5	<0.5	<0.5	<0.5	<2.5	71	NA		
3/24/98	NLPH	5.84	8.80	<50	<0.5	<0.5	<0.5	<0.5	<2.5	62	NA		
6/23/98	NLPH	7.81	6.83	<50	<0.5	<0.5	<0.5	<0.5	<2.5	69	NA		
MW10 (14.05)	1/20/94	NLPH	8.40	5.65									
	02/02-03/94	NLPH	8.00	6.05	<50	<0.5	1	<0.5	1.8	NA	<50	NA	
	3/10/94	NLPH	7.56	6.49									
	4/22/94	NLPH	7.35	6.70									
	05/10-11/94	NLPH	7.06	6.99	<50	<0.5	<0.5	<0.5	<0.5	NA	<50	NA	
	6/27/94	NLPH	7.59	6.46									
	8/31/94	NLPH	8.73	5.32									
	9/29/94	NLPH	9.07	4.98	<50	<0.5	<0.5	<0.5	<0.5	NA	<50	NA	
	10/25/94	NLPH	9.41	4.64	<50	<0.5	<0.5	<0.5	<0.5	NA	<50	NA	
	11/30/94	NM	7.62	6.43									
	12/27/94	NLPH	7.01	7.04									
	2/6/95	NLPH	5.60	8.45	<50	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	
	6/7/95	NLPH	7.12	6.93	<50	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	
9/18/95	NLPH	8.54	5.51	<50	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA		





TABLE 2  
 CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR  
 SOIL VAPOR EXTRACTION SYSTEM  
 Former Exxon Service Station 7-3006  
 720 High Street  
 Oakland, California  
 Page 4 of 5

DATE	SAMPLE ID	TEMP deg F	PRESS in H2O	AIR FLOW cu ft/min	HC In ppmv	HC Eff ppmv	HC In Conc* mg/cu M	LB HC for Period	LB HC Cumulative	Benzene In Conc* mg/cu M	LB Benzene per Period	LB Benzene Cumulative	LB Benzene Emitted per Day
3/12/97				50.4	62	0.7	262						
3/19/97				52.5	33	1	140						
3/26/97				50.4	35	1	148						
4/2/97	A-INF			52.5			170	22.56	2,767.7	4.0	< 0.243	< 42.9	
	A-EFF						< 10			< 0.10			< 0.0005
4/9/97				52.5	40	1	169						
4/16/97				52.5	58	3	245						
4/23/97				52.5	30	1	127						
4/30/97				52.5	30	2	127						
5/8/97	A-INF			46.2			340	40.67	2,808.4	4.8	0.702	< 43.6	
	A-EFF						< 10			< 0.10			< 0.0004
5/14/97				46.2	80	1	339						
5/21/97				46.2	20	1	85						
5/28/97				42	42	0	178						
6/4/97	A-INF			42			360	37.41	2,845.8	2.9	0.411	< 44.0	
	A-EFF						< 10			< 0.10			< 0.0004
6/11/97				42	40	0	169						
6/18/97				37.8	38	0	161						
6/25/97				39.9	36	0	152						
7/2/97	A-INF			39.9			350	36.54	2,882.3	5.4	0.427	< 44.4	
	A-EFF						< 10			< 0.10			< 0.0004
7/9/97				48.3	29.4	0	124						
7/18/97				58.8	14.7	0	62						
7/22/97				58.8	54.2	0	229						
7/30/97				52.5	36.1	0	153						
8/7/97	A-INF			52.5			160	38.07	2,920.4	< 0.50	< 0.440	< 44.9	
	A-EFF						13			< 0.10			< 0.0005
8/11/97				52.5	19.1	0	81						
8/20/97				39.9	13.1	0	55						
8/27/97				37.8	20.0	0	85						
9/3/97	A-INF			37.8			400	30.61	2,951.0	< 1.0	< 0.082	< 44.9	
	A-EFF						< 10			< 0.10			< 0.0003
9/10/97				29.4	800	4.0	3386						
9/17/97				37.8	131	1.1	554						
9/24/97				42	40	0	169						
10/8/97	A-INF			42			200	37.61	2,988.6	3.1	0.257	< 45.2	
	A-EFF						< 10			< 0.10			< 0.0004
10/15/97				46.2	50	0.9	212						
10/22/97				42	50	1.5	212						
10/30/97				37.8	30	0	127						
11/5/97				39.9	65	7.6	275						
11/12/97	A-INF			42			880	71.25	3,059.9	< 0.10	< 0.211	< 45.4	
	A-EFF						< 10			< 0.10			< 0.0004
11/20/97				37.8	33	3.2	138						
11/25/97				29.4	56	3.0	237						
12/3/97	A-INF			52.5			NA			NA	NA	NA	
	A-EFF						< 10			< 0.10			< 0.0005
12/10/97				42	19	0.5	80						
12/17/97				46.2	16	0.6	68						
12/23/97				46.2	13	0.0	55						
12/29/97	A-INF			42			51	82.48	3,142.3	< 0.10	< 0.018	< 45.4	
	A-EFF						< 10			< 0.10			< 0.0004
1/6/98	A-INF			42			70	1.82	3,144.2	2.1	< 0.033	< 45.5	
	A-EFF						< 10			< 0.1			< 0.0004
1/13/98				50.4	6	1.0	25						
1/20/98				44.1	4	1.3	17						

TABLE 2  
 CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR  
 SOIL VAPOR EXTRACTION SYSTEM  
 Former Exxon Service Station 7-3006  
 720 High Street  
 Oakland, California  
 Page 5 of 5

DATE	SAMPLE ID	TEMP deg F	PRESS in H2O	AIR FLOW cu ft/min	HC Inf ppmv	HC Eff ppmv	HC Inf Conc* mg/cu M	LB HC for Period	LB HC Cumulative	Benzene Inf Conc* mg/cu M	LB Benzene per Period	LB Benzene Cumulative	LB Benzene Emitted per Day
2/3/98	System down due to chart recorder problem												
2/10/98	Restart system												
2/10/98	A-INF			31.5			< 10	< 3.69	< 3,147.9	1.1	0.148	< 45.6	
	A-EFF						< 10			< 0.1			< 0.0003
2/18/98				31.5	0.5	0.0	2						
2/23/98				37.8	0.6	0.1	3						
3/11/98	A-INF			46.2			< 10	< 1.01	< 3,148.9	1.5	0.131	< 45.7	
	A-EFF						< 10			< 0.1			< 0.0004
3/17/98				39.9	1.6	3.4	7						
3/20/98	System down due to control fault												
3/23/98	Restart system												
3/23/98				42	6.2	1.9	26						
3/30/98				39.9	0.4	0.8	2						
4/7/98				42	1.4	1.1	6						
4/17/98				29.4	1.4	1.7	6						
4/21/98	A-INF			21			10	< 1.24	< 3,150.1	0.26	0.109	< 45.9	
	A-EFF						< 10			< 0.1			< 0.0002
5/5/98	A-INF			21			< 10	< 0.26	< 3,150.4	< 0.1	< 0.007	< 45.9	
	A-EFF						< 10			< 0.1			< 0.0002
6/2/98	A-INF			21			18	0.74	< 3,151.1	< 0.1	< 0.003	< 45.9	
	A-EFF						< 10			< 0.1			< 0.0002
6/9/98				21	1.9	1.1	8						
6/17/98				23.1	1.7	0.9	7						
6/24/98				23.1	2.1	0.8	9						

Notes:

A-INF	= Air Influent	A-INF1	= Air Influent before stripper	HC	= Hydrocarbon
A-INT	= Air Intermediate	A-INF2	= Air Influent after stripper	ug/l	= micrograms per liter
A-EFF	= Air Effluent			mg/cuM	= milligrams per cubic meter
NA	= Not Analyzed			lb	= pounds
cu. ft/min	= cubic feet per minute			acfm	= actual cubic feet per minute
ppmv	= parts per million by volume			<	= less than the laboratory method detection limit

\*If value is below laboratory detection limit, detection limit value is used.  
 \*Values calculated using ERI SOP-25 "Hydrocarbons Removed from a Vadose Well" (Attachment C)

**TABLE 3  
OPERATION AND PERFORMANCE DATA FOR  
GROUNDWATER REMEDIATION SYSTEM**

Former Exxon Service Station 7-3006

720 High Street

Oakland, California

Page 1 of 7

Revised 7/23/98

Date	Total Flow [gal]	Average Flowrate [gpd]	Sample ID	Analytical Data						TPHg Removed		Benzene Removed	
				TPHg [ug/l]	B [ug/l]	T [ug/l]	E [ug/l]	X [ug/l]	Arsenic [mg/l]	Per Period [lb]	Cumulative [lb]	Per Period [lb]	Cumulative [lb]
1/9/95	0		W-INF	3400	630	190	100	460	NA				
	--	--	W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
	--	--	W-EFF	<50	<0.5	<0.5	<0.5	<0.5	0.0076				
1/10/95	--	--	--	--	--	--	--	--	--				
1/11/95	795	398	--	--	--	--	--	--	--				
1/13/95	1,065	135	System shut down pending EBMUD arsenic revision (discharge limit of 0.0012 ppm)										
1/23/95	1,065	0	--	--	--	--	--	--	--				
2/13/95	1,065	0	--	--	--	--	--	--	--				
2/14/95	1,065	0	--	--	--	--	--	--	--				
2/17/95	1,065	0	--	--	--	--	--	--	--				
2/27/95	1,065	0	--	--	--	--	--	--	--				
3/7/95	1,065	0	EBMUD arsenic revision (discharge limit of 0.05 ppm)										
3/13/95	10,800	1,623	W-INF	110	7.4	0.5	0.53	6	NA	0.1581	0.1581	0.0287	0.0287
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	<0.005				
3/21/95	11,660	108	W-INF	<50	4.5	<0.5	<0.5	5.5	NA	0.0006	0.1587	0.0000	0.0288
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	0.0059				
			System shut down - 55-gallon liquid phase carbon canister (leak)										
3/30/95	11,760	11	Replaced one 55-gallon liquid phase carbon canister (leak)										
4/4/95	11,760		Replaced one 55-gallon liquid phase carbon canister (leak) - Started system										
4/4/95	12,660	180	W-INF	220	66	11	4.8	16	NA	0.0011	0.1598	0.0003	0.0291
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	0.0096				
4/12/95	53,200	5,068	W-INF	770	110	19	<5.0	160	NA	0.1674	0.3273	0.0298	0.0588
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	<0.005				
4/19/95	73,710	2,930	W-INF	400	47	5.4	<0.5	40	NA	0.1001	0.4274	0.0134	0.0723
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	0.0055				
4/26/95	82,820	1,301	W-INF	1500	190	44	12	150	NA	0.0722	0.4996	0.0090	0.0813
			W-INT	200	31	3.2	<0.5	15	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	0.008				
5/9/95	83,750	72	Replaced two 55-gallon liquid phase carbon canisters (leaks)										
5/26/95	97,840	829	W-INF	680	210	16	5.8	28	NA	0.1366	0.6362	0.0251	0.1063
			W-INT	<50	0.94	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
6/6/95			Added two 55-gallon liquid phase carbon canisters in series										
6/6/95			Replaced one 55-gallon liquid phase carbon canister (leak)										
6/8/95			W-INF	2800	660	300	54	340	NA				

**TABLE 2**  
**CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR**  
**SOIL VAPOR EXTRACTION SYSTEM**  
Former Exxon Service Station 7-3006  
720 High Street  
Oakland, California  
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DATE	SAMPLE ID	TEMP deg F	PRESS in H2O	AIR FLOW cu ft/min	HC Inf ppmv	HC Eff ppmv	HC Inf Conc* mg/cu M	LB HC for Period	LB HC Cumulative	Benzene Inf Conc* mg/cu M	LB Benzene per Period	LB Benzene Cumulative	LB Benzene Emitted per Day
10/13/95	A-INF	70		168			2000	444.04	1,075.5	100	16.838	< 30.8	
	A-INT						< 10			< 0.05			
	A-EFF						< 10			< 0.05			< 0.0008
10/26/95	Replaced 2 ea x 500 lb canisters = 1000 lbs of carbon												
10/26/95		70		168	165	0	751	269.69	1,345.2				
11/6/95	Replaced 2 ea x 500 lb canisters = 1000 lbs of carbon												
11/20/95	A-INF1	70		170			180	176.60	1,521.8	3.6	1.038	< 31.9	
11/20/95	A-INF2						82			2			
	A-INT						< 10			< 0.1			
	A-EFF						< 10			< 0.1			< 0.0015
11/26/95	System down												
12/4/95	Restart system	70		168	18.5	0.5	84	12.03	1,533.8				
12/18/95	A-INF	70		151			4600	469.45	2,003.3	50	10.105	< 42.0	
	A-INT						< 10			< 0.1			
	A-EFF						< 10			< 0.1			< 0.0014
1/2/96		70		147	51.7	8.2	235	485.04	2,488.3				
1/3/96	Shut system down, pending carbon change out												
1/8/96	changed out three carbon beds, #1, #2, #3												
1/8/96		70		151.2	105.4	0	480	28.72	2,517.0				
1/16/96	A-INF	70		142.8	62.3	0	180	7.50	2,524.5	< 0.1	< 0.000	< 42.0	
	A-EFF									< 0.1			< 0.0013
1/30/96		70		147	50.4	0	230	37.28	2,561.8				
2/14/96	A-INF	72		147	39.7	0	< 10	< 0.49	2,562.3	0.16	0.049	< 42.0	
	A-EFF						< 10			< 0.1			< 0.0013
2/27/96		70		136.5	1	0	5	1.20	2,563.5				
3/12/96	A-INF	70		136.5	2.2	0	< 10	< 1.25	2,564.8	< 0.1	< 0.045	< 42.1	
	A-EFF						< 10			< 0.1			< 0.0012
3/25/96	A-INF	70		147	2.4	0	< 10	< 1.65	2,566.4	< 0.1	< 0.017	< 42.1	
	A-EFF						< 10			< 0.1			< 0.0013
3/25/96	System shutdown to install Thermtech VAC-25 thermal/catalytic oxidizer												
8/5/96	Start-up system utilizing Thermtech VAC-25 thermal/catalytic oxidizer												
8/15/96	A-INF			110			410			4.7			
	A-EFF						< 10			< 0.05			< 0.0005
8/29/96				42	45.8	1.1	194	28.84	2,595.2				
9/6/96	A-INF			42			150	5.19	2,600.4	< 0.1	< 0.360	< 42.5	
	A-EFF						< 10			< 0.1			< 0.0004
9/9/96				42	96	4.4	406	3.15	2,603.6				
9/24/96				44.1	141	5.1	597	29.07	2,632.7				
10/3/96	A-INF			42			1300	32.98	2,665.6	< 1	< 0.056	< 42.5	
	A-EFF						< 10			< 0.1			< 0.0004
10/9/96				42	173	4.5	732	22.98	2,688.6				
10/14/96				44.1	105	4.4	444	11.37	2,700.0				
10/21/96				42	89.2	4.5	378	11.12	2,711.1				
10/30/96				42	58.3	0.7	247	10.59	2,721.7				
11/6/96	System down, unable to restart due to reset failure												
1/17/97	Replaced Thermcouple, restarted unit												
1/31/97	A-INF			10.5			< 10	0.13	2,721.8	0.14	0.002	< 42.5	
	A-EFF						< 10			< 0.05			< 0.0000
2/6/97	A-INF			42			86	0.68	2,722.5	2.2	0.017	< 42.5	
	A-EFF						< 10			< 0.10			< 0.0004
2/14/97				42	25	2	106	2.89	2,725.4				
2/18/97				42	95	0.8	402	3.83	2,729.2				
2/28/97				42	53	0	224	11.81	2,741.0				
3/5/97	A-INF			42			210	4.09	2,745.1	< 0.10	< 0.117	< 42.6	
	A-EFF						< 10			< 0.10			< 0.0004

**TABLE 2**  
**CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR**  
**SOIL VAPOR EXTRACTION SYSTEM**  
Former Exxon Service Station 7-3006  
720 High Street  
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2010DATA.XLS  
Revision: 7/31/98

DATE	SAMPLE ID	TEMP deg F	PRESS in H2O	AIR FLOW cu ft/min	HC Inf ppmv	HC Eff ppmv	HC Inf Conc* mg/cu M	LB HC for Period	LB HC Cumulative	Benzene Inf Conc* mg/cu M	LB Benzene per Period	LB Benzene Cumulative	LB Benzene Emitted per Day	
1/9/95	A-INF	70		160			210			39				
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1				
1/10/95	A-INF	70		160			110	2.30	2.3	22	0.438	0.4		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0014	
1/11/95	A-INF	70		160			70	1.29	3.6	12	0.244	0.7		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0014	
1/12/95	A-INF	70		160			< 10	< 0.57	4.2	< 0.1	< 0.087	< 0.8		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0014	
1/13/95	A-INF	70		160			< 10	< 0.14	4.3	< 0.1	< 0.001	< 0.8		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0014	
1/14/95	A-INF	70		160			< 10	< 0.14	4.5	< 0.1	< 0.001	< 0.8		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0014	
1/15/95	A-INF	70		158			< 10	< 0.14	4.6	< 0.1	< 0.001	< 0.8		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0014	
1/16/95	A-INF	70		151			< 10	< 0.14	4.7	< 0.1	< 0.001	< 0.8		
	A-INT						10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0014	
1/17/95	A-INF	70		155			< 10	< 0.14	4.9	0.13	0.002	< 0.8		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0014	
1/18/95	A-INF	70		155			100	0.77	5.6	12	0.084	< 0.9		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0014	
1/19/95		70		155	15	0	68	1.17	6.8					
1/20/95		70		155	14.4	0	66	0.93	7.7					
2/1/95	A-INF	70		147			39	13.19	20.9	3.5	1.471	< 2.3		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0013	
2/14/95		70		147										
2/17/95		70		155	9	0	41	8.67	29.6					
2/27/95		70		151										
3/13/95	A-INF	70		176			< 10	< 14.21	43.8	0.42	1.137	< 3.5		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0016	
3/31/95		70		116	2.3	0	10	2.01	45.8					
4/4/95		70		84	129	0.8	587	76.68	122.5					
4/12/95	A-INF	70		176			95	24.88	147.4	6.4	1.616	< 5.1		
	A-INT						< 10			0.38				
	A-EFF						< 10			< 0.1			< 0.0016	
4/19/95	A-INF	70		109			210	13.65	161.0	7.6	0.627	< 5.7		
	A-INT						47			12				
	A-EFF						< 10			< 0.1			< 0.0010	
4/20/95	Replaced 2 ea x 500 lb canisters = 1000 lbs of Carbon													
4/26/95	A-INF	70		84			400	18.49	179.5	9.1	0.640	< 6.4		
	A-INT						< 10			< 0.1				
	A-EFF						< 10			< 0.1			< 0.0008	
5/1/95	Installed third 500 lb canister in series													



TABLE 1  
 CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA  
 Former Exxon Service Station 7-3006  
 720 High Street  
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Well ID # (TOC)	Sampling Date	SUBJ <	DTW feet	Elev. > <	TPHg	B	T	E	X	MTBE	TEPHd	VOCs >
Micrograms per liter (ug/L)												
MW14 (cont.) (15.18)	12/11/96	NLPH	9.09	6.09	1,100	<2.0	<2.0	<2.0	3.3	<10	2,100*	ND
		Additional Analysis EHCss		750								
	3/19/97	NLPH	7.99	7.19	690	0.65	1.7	2.5	8.3	<2.5	1,400	ND
		Additional Analysis EHCss		470								
	6/4/97	NLPH	9.30	5.88	730	<1.2	<1.2	3.5	5.3	<2.5	1,500	ND
		Additional Analysis EHCss		590								
	9/2/97	NLPH	9.92	5.26	910	<5.0	<5.0	<5.0	5.9	<5.0	1,900	ND
		Additional Analysis EHCss		1,300								
	12/2/97	NLPH	9.13	6.05	570	0.85	<0.5	<0.5	1.7	<2.5	1,200	NA
3/24/98	NLPH	8.52	6.66	650	1.7	<1.0	<1.0	2.3	5.7	1,300	NA	
6/23/98	NLPH	8.69	6.49	470	<0.5	1.5	1.1	3.0	<2.5	1,100	NA	
MW15 (13.73)	1/20/94	NLPH	7.48	6.25								
	02/02-03/94	NLPH	7.30	6.43	4,300	24	6.7	170	26	NA	1,200	NA
	3/10/94	NLPH	7.32	6.41								
	4/22/94	NLPH	6.67	7.06								
	05/10-11/94	NLPH	5.81	7.92	3,900	16	<0.5	150	13	NA	1,400	NA
	6/27/94	NLPH	6.14	7.59								
	8/31/94	NLPH	7.20	6.53								
	9/29/94	NLPH	7.76	5.97	2,500	51	15	48	3.6	NA	420	NA
	10/25/94	Sheen	8.19	5.54								
	11/30/94	NM	8.57	5.16								
	12/27/94	NLPH	6.49	7.24								
	2/6/95	Sheen	4.97	8.76								
	6/7/95	Sheen	7.14	6.59								
	9/18/95	Sheen	9.00	4.73								
	11/1/95	Sheen	10.67	3.06								
	2/14/96	Sheen	7.27	6.46								
	6/19/96	Sheen	6.65	7.08								
	9/24/96	Sheen	9.45	4.28								
	12/11/96	Sheen	7.77	5.96								
	3/19/97	Sheen	8.15	5.58								
	6/4/97	Sheen	8.62	5.11								
	9/2/97	NLPH	9.04	4.69	1,100	19	<2.0	11	4.9	23	480	NA
	12/2/97	NLPH	8.43	5.30	1,700	20	<5.0	11	<5.0	58	600	NA
3/24/98	NLPH	6.35	7.38	2,100	570	<20	<20	<20	<100	450	NA	
6/23/98	NLPH	7.79	5.94	2,300	440	<5.0	30	<5.0	<25	570	NA	



**TABLE 1**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 7-3006  
720 High Street  
Oakland, California  
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Well ID # (TOC)	Sampling Date	SUBJ <	DTW feet	Elev. > <	TPHg	B	T	E	X	MTBE	TEPHd	VOCs >
											Micrograms per liter (ug/L)	
Notes:												
SUBJ	=	Results of subjective evaluation, liquid-phase hydrocarbon thickness (HT) in feet										
NLPH	=	No liquid-phase hydrocarbons present in well										
TOC	=	Elevation of top of well casing; relative to mean sea level										
DTW	=	Depth to water										
Elev.	=	Elevation of groundwater. If liquid-phase hydrocarbons present, elevation adjusted using TOC - [DTW - (PT x 0.8)].										
[ ]	=	amount recovered										
gal.	=	gallons										
c.	=	cups										
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA method 5030/8015 (modified).										
BTEX	=	Benzene, Toluene, Ethylbenzene, and total Xylenes analyzed using EPA method 5030/8020.										
TEPHd	=	Total extractable petroleum hydrocarbons as diesel analyzed using EPA method 3510/8015 (modified).										
MTBE	=	Methyl tertiary butyl ether analyzed using EPA method 5030/8020.										
VOCs	=	Volatile organic compounds/purgeable halocarbons analyzed using EPA method 601.										
TOG	=	Total oil and grease analyzed using Standard Method 5520.										
EHCss	=	Extractable Hydrocarbons as Stoddard Solvent analyzed using EPA method 8015.										
NR	=	No liquid-phase hydrocarbons removed from well										
NM	=	Not Measured										
ND	=	Not Detected at or above the laboratory method detection limits										
NA	=	Not Analyzed										
---	=	Not Applicable										
<	=	Less than the indicated detection limit shown by the laboratory										
l	=	A peak eluting earlier than benzene and suspected to be methyl tertiary butyl ether was present										
*	=	TEPH note: Analyst notes samples resemble paint thinner more than Stoddard Solvent										

TABLE 2  
 CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR  
 SOIL VAPOR EXTRACTION SYSTEM  
 Former Exxon Service Station 7-3006  
 720 High Street  
 Oakland, California  
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DATE	SAMPLE ID	TEMP deg F	PRESS in H2O	AIR FLOW cu ft/min	HC Inf pprmv	HC Eff ppmv	HC Inf Conc* mg/cu M	LB HC for Period	LB HC Cumulative	Benzene Inf Conc* mg/cu M	LB Benzene per Period	LB Benzene Cumulative	LB Benzene Emitted per Day
5/1/95	A-INF A-INT A-EFF	70		168			Insufficient sample for analyses < 10 < 10			< 0.1 < 0.1			< 0.0015
5/15/95		70		84									
5/19/95	A-INF A-INT A-EFF	70		105			140 < 10 < 10	52.68	232.2	3.5 < 0.1 < 0.1	1.229	< 7.6	< 0.0009
6/6/95	A-INF A-INT A-EFF	70		178			36 < 10 < 10	20.12	252.3	0.22 0.1 < 0.1	0.535	< 8.1	< 0.0016
6/8/95		70		164									
6/23/95	System Down - hydrocarbon vapor detector shut down												
6/27/95	Replaced one 500 lb carbon canister - restarted system												
6/27/95	A-INF A-INT A-EFF	70		164			440 < 10 < 10	62.10	314.4	4.9 < 0.1 < 0.1	0.668	< 8.8	< 0.0015
7/3/95	A-EFF						< 10			< 0.1			
7/10/95	Replaced one 500 lb carbon canister												
7/10/95	A-INF A-INT A-EFF	70		168			230 120 < 10	64.89	379.3	2.8 2.8 < 0.1	0.746	< 9.5	< 0.0015
7/19/95	Replaced 2 ea x 500 lb canisters = 1000 lbs of Carbon												
7/25/95	Collect samples and shut system down pending results												
7/25/95	A-INF A-INT A-EFF	70		205			67 < 100 < 10	37.29	416.6	< 0.5 < 1 < 0.1	< 0.414	< 9.9	< 0.0018
7/28/95	System down - could not restart												
7/31/95	Restart system												
7/31/95	A-INF A-INT A-EFF	70		164			500 12 < 10	18.78	435.4	14 < 0.1 < 0.1	0.480	< 10.4	< 0.0015
8/9/95	Replaced one 500 lb carbon canister												
8/15/95	System down - Remove hydrocarbon vapor detector and send to manufacture for calibration												
9/11/95	Replaced hydrocarbon vapor detector - Restarted system												
9/13/95	System Down - hydrocarbon vapor detector shut down												
9/18/95	Replaced 2 ea x 500 lb canisters = 1000 lbs of carbon												
9/18/95	A-INF A-INT A-EFF	70		164			980 < 10 < 10	196.08	631.5	13 < 0.1 < 0.1	3.577	< 14.0	< 0.0015
9/20/95	System Down - hydrocarbon vapor detector shut down												
9/25/95	Restarted system												
9/25/95	A-INF A-INT A-EFF	70		164			NA NA NA			2.4 < 0.1 < 0.1			
10/13/95	Replaced 2 ea x 500 lb canisters = 1000 lbs of carbon												

**TABLE 3**  
**OPERATION AND PERFORMANCE DATA FOR**  
**GROUNDWATER REMEDIATION SYSTEM**

Former Exxon Service Station 7-3006  
 720 High Street  
 Oakland, California  
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Date	Total Flow [gal]	Average Flowrate [gpd]	Sample ID	Analytical Data						TPH Removed		Benzene Removed	
				TPHg [ug/l]	B [ug/l]	T [ug/l]	E [ug/l]	X [ug/l]	Arsenic [mg/l]	Per Period [lb]	Cumulative [lb]	Per Period [lb]	Cumulative [lb]
6/27/95	125,010	849	W-INT1	<50	<0.5	<0.5	<0.5	<0.5	NA	0.5871	1.2233	0.2165	0.3228
			W-INT2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF1	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INF1	4500	1700	99	35	220	NA				
			W-INF2	810	420	20	7.9	58	NA				
			W-INT1	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INT2	<50	0.53	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
7/10/95	131,370	489	Replaced two 55-gallon liquid phase carbon canisters						0.1700	1.3933	0.0621	0.3850	
7/11/95	131,690	320	W-INF1	1600	530	15	<10	59					NA
			W-INF2	630	270	7.0	<5.0	25					NA
			W-INT1	<50	<0.5	<0.5	<0.5	<0.5					NA
			W-INT2	<50	<0.5	<0.5	<0.5	<0.5					NA
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5					0.041
Additional Analyses: ND Purgeable Volatile Organics, ND Priority Pollutant Metals, except for 12 ppb nickel and 8.0 ppb zinc													
7/25/95	141,550	704	System down pending results of air samples										
7/28/95	System Down - Could not Restart												
7/31/95	Restart System												
8/15/95	System Down - Remove hydrocarbon vapor detector and send to manufacturer for calibration												
9/11/95	Replaced hydrocarbon vapor detector - Restarted System												
9/13/95	System Down - hydrocarbon vapor detector shut down												
9/18/95	Restart System												
9/18/95	148,550	244	W-INF1	1900	590	33	16	120	NA	0.2462	1.6395	0.0788	0.4637
			W-INF2	490	150	7.6	3.1	30	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
9/20/95	System Down - hydrocarbon vapor detector shut down												
9/25/95	Restart System												

**TABLE 3  
OPERATION AND PERFORMANCE DATA FOR  
GROUNDWATER REMEDIATION SYSTEM**

Former Exxon Service Station 7-3006  
720 High Street  
Oakland, California  
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Date	Total Flow [gal]	Average Flowrate [gpd]	Sample ID	Analytical Data						TPHg Removed		Benzene Removed	
				TPHg [ug/l]	B [ug/l]	T [ug/l]	E [ug/l]	X [ug/l]	Arsenic [mg/l]	Per Period [lb]	Cumulative [lb]	Per Period [lb]	Cumulative [lb]
9/28/95			System Down - hydrocarbon vapor detector shut down										
10/13/95	151,380	113	W-INF1	4900	1400	310	120	480	NA	0.0803	1.7197	0.0235	0.4872
			W-INF2	780	230	49	15	72	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	0.0079				
			Additional Analyses: ND Purgeable Volatile Organics										
10/26/95	154,143	213											
11/6/95	157,906	342											
11/20/95	159,664	126	W-INF1	630	140	<5.0	6.9	22	NA	0.1911	1.9108	0.0532	0.5404
			W-INF2	230	36	1.6	2.2	7.6	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
11/27/95			System Down										
11/29/95	160,361	77	Restart System										
12/4/95	161,442	216											
12/18/95	168,304	490	W-INF1	8900	1100	240	130	2200	NA	0.3435	2.2543	0.0447	0.5851
			W-INF2	3900	380	85	60	890	NA				
			W-INT	<50	1.3	<0.5	<0.5	5.1	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
1/2/96	171,770	231											
1/8/96	173,707	323											
1/16/96	178,573	608	W-INF	490	53	1.8	3.9	35	NA	0.4023	2.6566	0.0494	0.6345
			W-INF2	150	8.1	<0.5	0.61	6.8	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
1/30/96	190,030	818											
2/14/96	202,610	839	W-INF1	840	220	25	<2.5	36	NA	0.1334	2.7900	0.0274	0.6619
			W-INF2	410	96	10	1.1	23	NA				
			W-INT	<50	0.58	1.8	<0.5	2.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
2/27/96	216,100	1,038											
3/12/96	SYSTEM DOWN UPON ARRIVAL												
3/12/96	216,590	35	W-INF1	1700	410	110	26	130	NA	0.1481	2.9381	0.0367	0.6986
			W-INF2	420	94	24	5.9	33	NA				
			W-INT	<50	0.53	<0.5	<0.5	<0.5	NA				

**TABLE 3  
OPERATION AND PERFORMANCE DATA FOR  
GROUNDWATER REMEDIATION SYSTEM**

Former Exxon Service Station 7-3006

720 High Street

Oakland, California

Page 4 of 7

Date	Total Flow [gal]	Average Flowrate [gpd]	Sample ID	Analytical Data						TPHg Removed		Benzene Removed	
				TPHg [ug/l]	B [ug/l]	T [ug/l]	E [ug/l]	X [ug/l]	Arsenic [mg/l]	Per Period [lb]	Cumulative [lb]	Per Period [lb]	Cumulative [lb]
3/25/96	217,460	67	W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA	0.0065	2.9446	0.0015	0.7002
			W-INF1	100	6.6	<0.5	<0.5	7	NA				
			W-INF2	<50	3.9	<0.5	<0.5	1.5	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
3/25/96	System shutdown, removal of blower/carbon to thermal oxidizer												
7/22/96	Start-up remediation system												
7/22/96	219,802	20	W-INF1	3100	330	53	180	630	NA	0.0313	2.9759	0.0033	0.7034
			W-INF2	2500	330	41	140	480	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
8/1/96	System down on arrival, unable to obtain emission flow rate and samples. Notified BAAQMD												
8/1/96	247,305	2,750											
8/9/96			W-INF1	1500	550	6.0	12	69	NA				
			W-INF2	240	71	0.91	1.3	9.2	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
8/15/96	252,600	378											
8/29/96	256,508	279											
9/6/96	258,828	290	W-INF1	<50	<0.5	<0.5	<0.5	<0.5	NA	0.5128	3.4887	0.0538	0.7573
			W-INF2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
9/20/96	260,063	88											
9/24/96	262,422	590											
10/3/96	263,150	81											
10/14/96	263,232	7	System down, air compressor, unable to obtain samples. Notified EBMUD										
1/2/97	263,232		Replaced compressor, restarted unit										
1/31/97	290,045	925	W-INF	5,500	1,700	580	120	740	NA	0.6208	4.1095	0.1902	0.9475
			W-INT1	190	39	12	2.1	13	NA				
			W-INT2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
2/6/97	313,800	3,959	W-INF1	5,100	910	160	45	910	NA	1.0504	5.1600	0.2586	1.2061
			W-INT2	570	62	12	2.9	86	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
2/14/97	323,820	1,253											
2/18/97	327,856	1,009											
2/28/97	335,480	762											
3/5/97	340,178	940	W-INF1	980	100	5.0	2.1	54	NA	0.6690	5.8290	0.1111	1.3172
			W-INF2	<50	0.81	<0.5	<0.5	<0.5	NA				
			W-INT1	<50	<0.5	<0.5	<0.5	<0.5	NA				

**TABLE 3  
OPERATION AND PERFORMANCE DATA FOR  
GROUNDWATER REMEDIATION SYSTEM**

Former Exxon Service Station 7-3006

720 High Street

Oakland, California

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Date	Total Flow [gal]	Average Flowrate [gpd]	Sample ID	Analytical Data						TPHg Removed		Benzene Removed	
				TPHg [ug/l]	B [ug/l]	T [ug/l]	E [ug/l]	X [ug/l]	Arsenic [mg/l]	Per Period [lb]	Cumulative [lb]	Per Period [lb]	Cumulative [lb]
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
3/12/97	344,977	686											
3/19/97	346,176	171											
3/26/97	346,927	107											
4/2/97	351,729	686	W-INF	430	120	1.8	5.3	19	NA	0.0679	5.8969	0.0106	1.3278
			W-INT1	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
4/9/97	356,009	611											
4/16/97	358,700	384											
4/23/97			System down on arrival										
4/30/97	361,241	182											
5/8/97	365,440	525											
5/14/97	368,270	472	System down, bad float on air stripper										
5/21/97	370,444	311	W-INF	1,300	360	<5.0	16	21	NA	0.1351	6.0320	0.0375	1.3653
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
			System down, bad float on air stripper										
5/28/97	372,219	254	System down, bad float on air stripper										
6/4/97			Replaced float, restarted system										
6/4/97	375,230	430	W-INF1	1,600	510	5.8	17	16	NA	0.0579	6.0899	0.0174	1.3827
			W-INF2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
6/11/97	378,550	474	System down, faulty transfer pump										
7/22/97			Restarted system										
7/22/97	379,120	14	W-INF1	1,300	520	6.2	6.2	34	NA	0.0466	6.1365	0.0165	1.3992
			W-INF2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
7/29/97	379,315	28											
8/7/97	385,510	688	W-INF1	1,400	400	13	21	52	NA	0.0720	6.2085	0.0245	1.4238
			W-INF2	<50	2.0	<0.5	<0.5	<0.5	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
8/13/97	388,390	480											
8/20/97	391,380	427											
8/27/97	393,545	309											
9/3/97	395,744	314											
9/10/97	397,402	237	W-INF1	<50	<0.5	<0.5	<0.5	<0.5	NA	0.0719	6.2804	0.0199	1.4436
			W-INF2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				

**TABLE 3**  
**OPERATION AND PERFORMANCE DATA FOR**  
**GROUNDWATER REMEDIATION SYSTEM**

Former Exxon Service Station 7-3006

720 High Street  
Oakland, California

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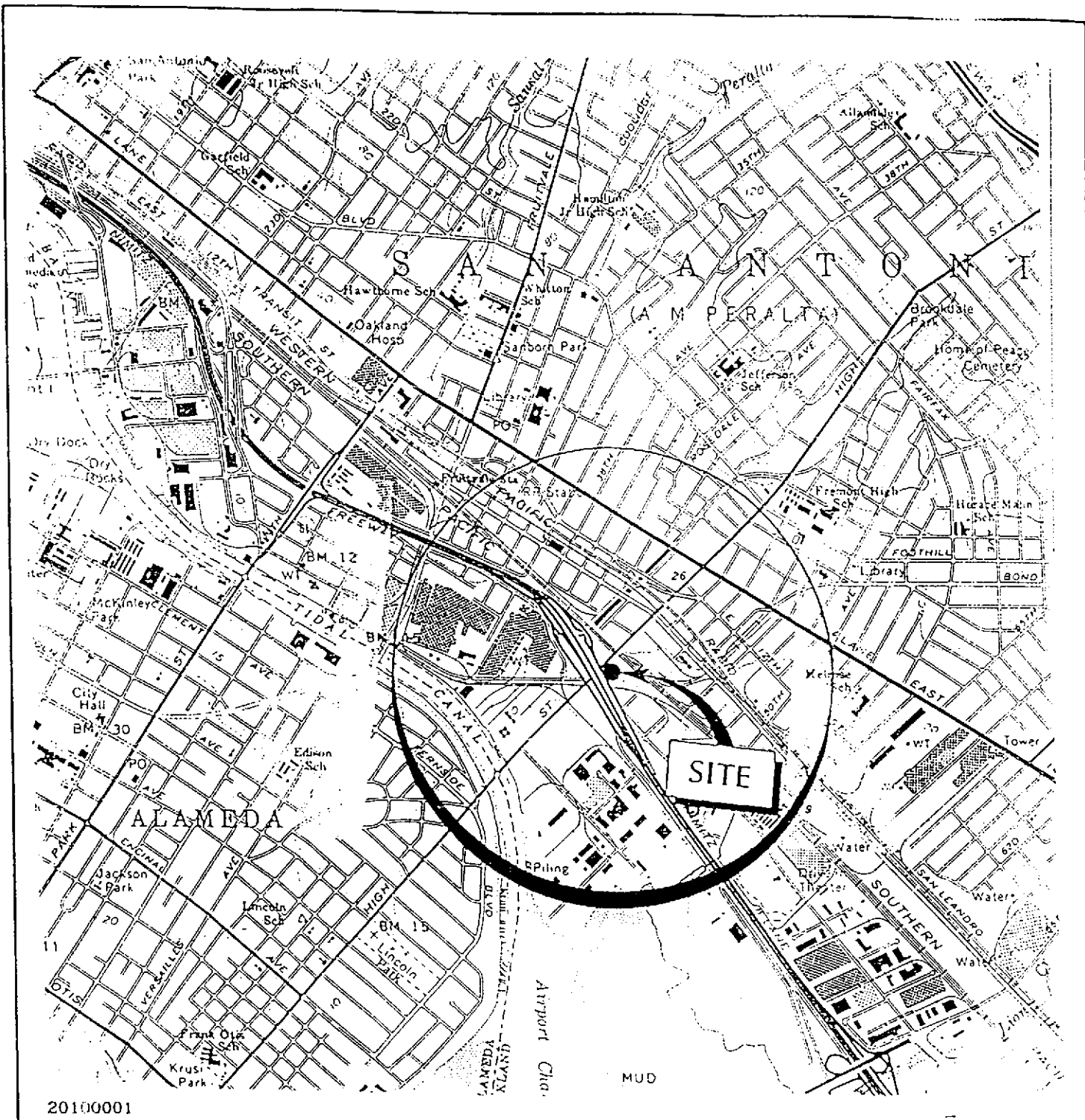
Date	Total Flow [gal]	Average Flowrate [gpd]	Sample ID	Analytical Data						TPHg Removed		Benzene Removed	
				TPHg [ug/l]	B [ug/l]	T [ug/l]	E [ug/l]	X [ug/l]	Arsenic [mg/l]	Per Period [lb]	Cumulative [lb]	Per Period [lb]	Cumulative [lb]
9/17/97	399,232	261											
9/24/97	400,746	216											
10/8/97	403,527	199	W-INF1	<50	0.53	<0.5	<0.5	<0.5	NA	0.0026	6.2829	0.00003	1.4437
			W-INF2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
10/15/97	403,935	58											
10/22/97	406,161	318											
10/30/97	407,795	204											
11/5/97	408,668	146											
11/12/97	410,116	207											
11/20/97	413,391	409											
11/25/97	415,500	422											
12/2/97	421,667	881	W-INF1	660	180	10	8.2	13	NA	0.0537	6.3367	0.0137	1.4573
			W-INF2	410	110	5.3	5.3	8.9	NA				
			W-INT1	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INT2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
12/3/97	422,595	928											
12/10/97	429,205	944											
12/17/97	436,179	996											
12/23/97	441,533	892											
12/29/97	445,796	711											
1/6/98			System down,high water. Restarted system										
1/6/98	449,395	450	W-INF1	1,600	640	25	<10	36	NA	0.2614	6.5981	0.0949	1.5522
			W-INF2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INT1	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-INT2	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
1/13/98	455,054	808											
1/20/98	463,576	1,217											
2/3/98	478,169	1,042	W-INF1	1,800	780	66	40	580	NA	0.4081	7.0062	0.1705	1.7226
			W-INF2	530	180	12	6.4	110	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
2/10/98	481,638	496											
2/18/98	497,659	2,003											
2/23/98	499,350	338											
3/11/98			System down,high water. Restarted system										
3/11/98	542,708	2,710	W-INF1	2,000	670	24	9.6	220	NA	1.0231	8.0293	0.3904	2.1130
			W-INF2	130	2.6	0.65	<0.5	4.3	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				

**TABLE 3**  
**OPERATION AND PERFORMANCE DATA FOR**  
**GROUNDWATER REMEDIATION SYSTEM**  
 Former Exxon Service Station 7-3006  
 720 High Street  
 Oakland, California  
 Page 7 of 7

Date	Total Flow [gal]	Average Flowrate [gpd]	Sample ID	Analytical Data						TPHg Removed		Benzene Removed	
				TPHg [ug/l]	B [ug/l]	T [ug/l]	E [ug/l]	X [ug/l]	Arsenic [mg/l]	Per Period [lb]	Cumulative [lb]	Per Period [lb]	Cumulative [lb]
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
3/23/98			System down due to solinoid										
4/7/98			Replaced solinoid and restarted system										
4/7/98	547,022	160	W-INF1	2,100	380	65	76	350	NA	0.0738	8.1031	0.0756	2.1886
			W-INF2	130	2.6	0.65	<0.5	4.3	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
4/17/98	583,780	3,676											
4/21/98	585,720	485											
4/28/98	598,920	1,886											
5/5/98	606,610	1,099	W-INF1	2,300	380	27	26	390	NA	1.0938	9.1968	0.1889	2.3775
			W-INF2	130	2.6	0.65	<0.5	4.3	NA				
			W-INT	<50	<0.5	<0.5	<0.5	<0.5	NA				
			W-EFF	<50	<0.5	<0.5	<0.5	<0.5	NA				
5/12/98	613,920	1,044											
5/19/98	621,120	1,029											
5/28/98	628,580	829											
6/2/98	634,760	1,236	Samples were collected but inadvertently not analyzed by the laboratory.										
6/9/98	635,740	140											
6/17/98	642,810	884											
6/24/98	645,760	421											

W-INF	W-INF1 = water influent before stripper or before tank	B = Benzene	NA = Not applicable
	W-INF2 = water influent after stripper or after filters	T = Toluene	NS = Not sampled
W-INT	W-INT1 W-INT2 = water intermediate samples	E = Ethylbenzene	ND = Not detected
W-EFF	W-EFF1 W-EFF2 = water effluent samples	X = Total Xylenes	
TPHg	= Total petroleum hydrocarbons as gasoline	<	= less than the laboratory method detection limit
gpd	= gallons per day	ug/L	= micrograms per liter
gal	= gallons	mg/L	= milligrams per liter

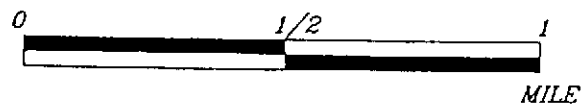




20100001



APPROXIMATE SCALE



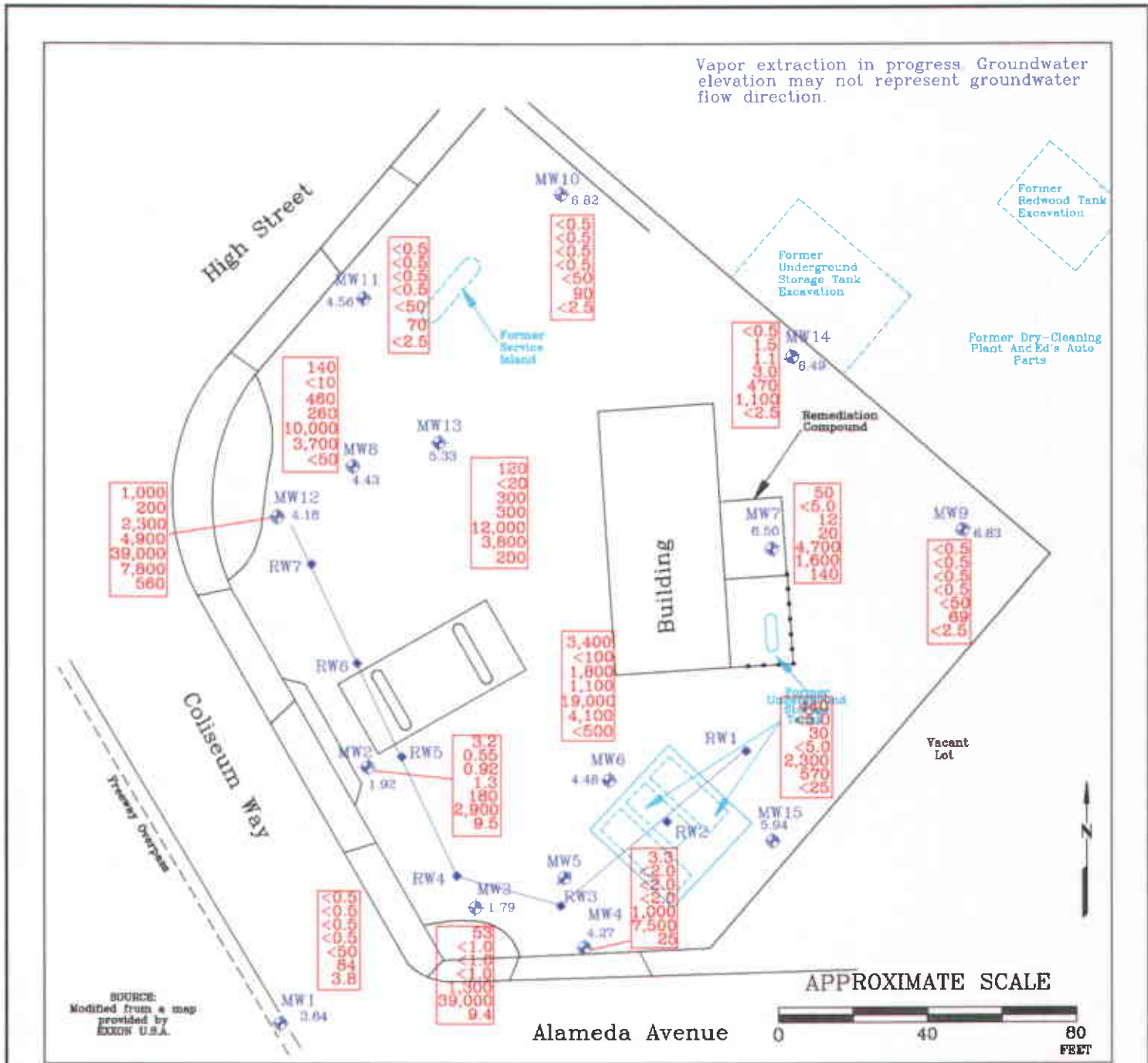
Source: U.S.G.S. 7.5 minute topographic quadrangle map Oakland/San Leandro, California Photorevised 1980



PROJECT ERI 2010

**SITE VICINITY MAP**  
 FORMER EXXON SERVICE STATION 7-3006  
 720 High Street  
 Oakland, California

**PLATE**  
 1



FN 20100002

**EXPLANATION**

- MW15  
5.94 Groundwater Monitoring Well
- Groundwater Elevation in feet above mean sea level
- MW5  
Groundwater Monitoring Well (Destroyed)
- RW7  
Recovery Monitoring Well
- Interceptor Trench

Groundwater Concentrations in ug/L  
Sampled June 23, 1998

- 1,000 Benzene
- 200 Toluene
- 2,300 Ethylbenzene
- 4,900 Xylenes
- 39,000 Total Petroleum Hydrocarbons as gasoline
- 7,800 Total Extractable Petroleum Hydrocarbons as diesel
- 560 Methyl Tertiary Butyl Ether
- < Less Than the Stated Laboratory Detection Level
- ug/L Micrograms per Liter



**GENERALIZED SITE PLAN**

FORMER EXXON SERVICE STATION 7-3006  
720 High Street  
Oakland, California

PROJECT NO.

2010

PLATE

2

July 15, 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 flow direction and gradient, depth to water (DTW) levels are subtracted from wellhead elevations.

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. 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:

One well casing volume in gallons =  $\pi r^2 h (7.48)$  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
- $\pi$  = ratio of the circumference of a circle to it's diameter

gallons of water purged/gallons in one 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 new, disposable Teflon bailer, 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.

**ATTACHMENT B**  
**LABORATORY ANALYSIS REPORTS**  
**AND CHAIN OF CUSTODY RECORDS**



Environmental Resolutions 74 Digital Drive, Suite 6 Novato, CA 94949 Attention: Marc Briggs	Client Proj. ID: Exxon 7-3006, 201013X Sample Descript: W-8-MW10 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F55-01	Sampled: 06/23/98 Received: 06/24/98 Extracted: 06/30/98 Analyzed: 07/06/98 Reported: 07/08/98
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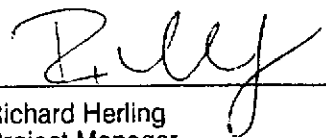
QC Batch Number: GC0630980HBPEXZ  
Instrument ID: GCHP5B

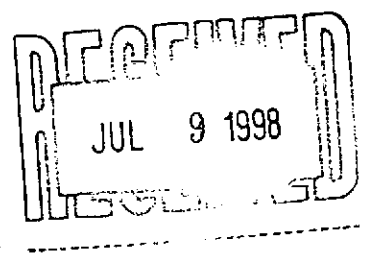
**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	90 C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50                      150	% Recovery 91

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 7-3006, 201013X Sample Descript: W-8-MW10 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9806F55-01	Sampled: 06/23/98 Received: 06/24/98 Analyzed: 06/29/98 Reported: 07/08/98
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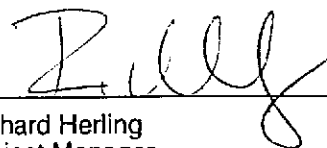
QC Batch Number: GC062998BTEX02A  
Instrument ID: GCHP02

**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	83

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 Attention: Marc Briggs	Client Proj. ID: Exxon 7-3006, 201013X Sample Descript: W-10-MW11 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F55-02	Sampled: 06/23/98 Received: 06/24/98 Extracted: 06/30/98 Analyzed: 07/06/98 Reported: 07/08/98
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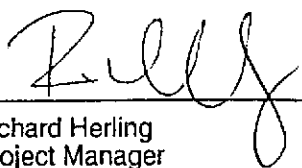
QC Batch Number: GC0630980HBPEXZ  
Instrument ID: GCHP5B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	70
		C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	101

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 7-3006, 201013X Sample Descript: W-10-MW11 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9806F55-02	Sampled: 06/23/98 Received: 06/24/98 Analyzed: 06/30/98 Reported: 07/08/98
Attention: Marc Briggs		

QC Batch Number: GC063098BTEX21A  
Instrument ID: GCHP21

**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	127

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 7-3006, 201013X  
Sample Descript: W-18-MW9  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9806F55-03

Sampled: 06/23/98  
Received: 06/24/98  
Extracted: 06/30/98  
Analyzed: 07/06/98  
Reported: 07/08/98

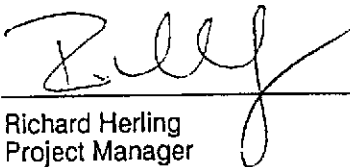
QC Batch Number: GC0630980HBPEXZ  
Instrument ID: GCHP5B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	69 C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	99

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 7-3006, 201013X Sample Descript: W-18-MW9 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9806F55-03	Sampled: 06/23/98 Received: 06/24/98  Analyzed: 06/29/98 Reported: 07/08/98
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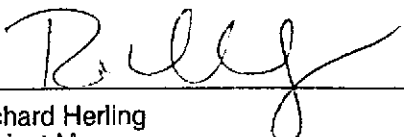
QC Batch Number: GC062998BTEX02A  
Instrument ID: GCHP02

**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	85

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
Richard Herling  
Project Manager





# Sequoia Analytical

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

Attention: Marc Briggs

Client Proj. ID: Exxon 7-3006, 201013X  
Sample Descript: W-10-MW1  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9806F55-04

Sampled: 06/23/98  
Received: 06/24/98  
Extracted: 06/30/98  
Analyzed: 07/06/98  
Reported: 07/08/98

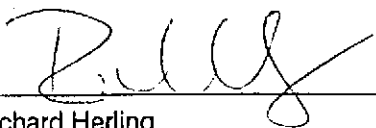
GC Batch Number: GC0630980HBPEXZ  
Instrument ID: GCHP5B

## Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	84 C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	88

Analyses 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

Attention: Marc Briggs

Client Proj. ID: Exxon 7-3006, 201013X  
Sample Descript: W-10-MW1  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9806F55-04

Sampled: 06/23/98  
Received: 06/24/98  
Analyzed: 06/30/98  
Reported: 07/08/98

QC Batch Number: GC063098BTEX21A  
Instrument ID: GCHP21

**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	3.8
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	128

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

Attention: Marc Briggs

Client Proj. ID: Exxon 7-3006, 201013X  
Sample Descript: W-13-MW4  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9806F55-05

Sampled: 06/23/98  
Received: 06/24/98  
Extracted: 06/30/98  
Analyzed: 07/07/98  
Reported: 07/08/98

QC Batch Number: GC0630980HBPEXZ  
Instrument ID: GCHP4A

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	500	7500
Chromatogram Pattern: Weathered Diesel		C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50 150	151 Q

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

**SEQUOIA ANALYTICAL - ELAP #1210**

*Richard Herling*  
\_\_\_\_\_  
Richard Herling  
Project Manager



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

Client Proj. ID: Exxon 7-3006, 201013X  
Sample Descript: W-13-MW4  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9806F55-05

Sampled: 06/23/98  
Received: 06/24/98  
Analyzed: 07/02/98  
Reported: 07/08/98

Attention: Marc Briggs

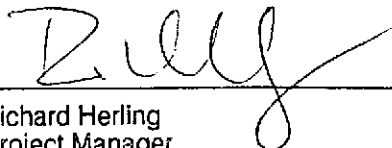
QC Batch Number: GC070298BTEX21A  
Instrument ID: GCHP21

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	200	1000
Methyl t-Butyl Ether	10	25
Benzene	2.0	3.3
Toluene	2.0	N.D.
Ethyl Benzene	2.0	N.D.
Xylenes (Total)	2.0	N.D.
Chromatogram Pattern: Gas & Unidentified HC		C6-C12
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70	130
		107

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 7-3006, 201013X Sample Descript: W-11-MW14 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F55-06	Sampled: 06/23/98 Received: 06/24/98 Extracted: 06/30/98 Analyzed: 07/01/98 Reported: 07/08/98
Attention: Marc Briggs		

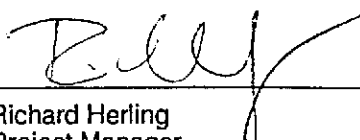
QC Batch Number: GC0630980HBPEXC  
Instrument ID: GCHP4A

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	1100 C9-C24
<b>Surrogates</b> n-Pentacosane (C25)	<b>Control Limits %</b> 50                      150	<b>% Recovery</b> 143

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 7-3006, 201013X Sample Descript: W-11-MW14 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9806F55-06	Sampled: 06/23/98 Received: 06/24/98 Analyzed: 07/02/98 Reported: 07/08/98
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QC Batch Number: GC070298BTEX02A  
Instrument ID: GCHP02

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	470
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	1.5
Ethyl Benzene	0.50	1.1
Xylenes (Total)	0.50	3.0
Chromatogram Pattern: Unidentified HC		C6-C12

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	100

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 7-3006, 201013X Sample Descript: W-9-MW15 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F55-07	Sampled: 06/23/98 Received: 06/24/98 Extracted: 07/01/98 Analyzed: 07/02/98 Reported: 07/08/98
Attention: Marc Briggs		


QC Batch Number: GC0701980HBPEXC  
Instrument ID: GCHP5B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	570 C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	97

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 7-3006, 201013X Sample Descript: W-9-MW15 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9806F55-07	Sampled: 06/23/98 Received: 06/24/98 Analyzed: 06/30/98 Reported: 07/08/98
Attention: Marc Briggs		

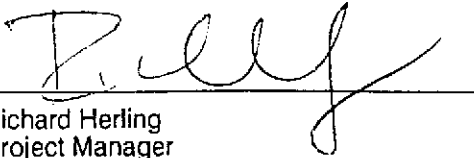
QC Batch Number: GC063098BTEX21A  
Instrument ID: GCHP21

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	2300
Methyl t-Butyl Ether	25	N.D.
Benzene	5.0	440
Toluene	5.0	N.D.
Ethyl Benzene	5.0	30
Xylenes (Total)	5.0	N.D.
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	140 Q

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 7-3006, 201013X Sample Descript: W-12-MW3 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F55-08	Sampled: 06/23/98 Received: 06/24/98 Extracted: 07/01/98 Analyzed: 07/06/98 Reported: 07/08/98
Attention: Marc Briggs		

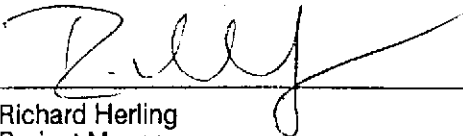
QC Batch Number: GC0701980HBPEXC  
Instrument ID: GCHP4B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Weathered Diesel	2500	39000 C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50                      150	% Recovery Q

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 7-3006, 201013X  
Sample Descript: W-12-MW3  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9806F55-08

Sampled: 06/23/98  
Received: 06/24/98  
Analyzed: 06/30/98  
Reported: 07/08/98

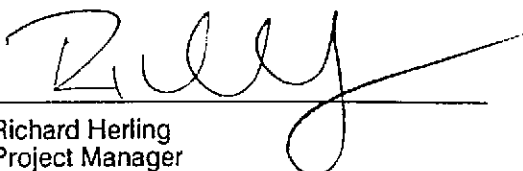
QC Batch Number: GC063098BTEX21A  
Instrument ID: GCHP21

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	100	1300
Methyl t-Butyl Ether	5.0	9.4
Benzene	1.0	53
Toluene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Xylenes (Total)	1.0	N.D.
Chromatogram Pattern: Gas & Unidentified HC		>C10
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	133 Q

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 7-3006, 201013X Sample Descript: W-9-MW7 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F55-09	Sampled: 06/23/98 Received: 06/24/98 Extracted: 07/01/98 Analyzed: 07/02/98 Reported: 07/08/98
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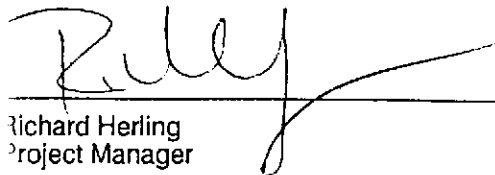
QC Batch Number: GC0701980HBPEXC  
Instrument ID: GCHP5B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

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

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 7-3006, 201013X  
Sample Descript: W-9-MW7  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9806F55-09

Sampled: 06/23/98  
Received: 06/24/98  
Analyzed: 07/01/98  
Reported: 07/08/98

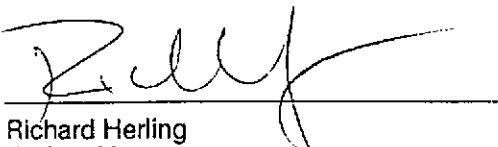
QC Batch Number: GC070198BTEX17A  
Instrument ID: GCHP17

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	4700
Methyl t-Butyl Ether	25	140
Benzene	5.0	50
Toluene	5.0	N.D.
Ethyl Benzene	5.0	12
Xylenes (Total)	5.0	20
Chromatogram Pattern: Unidentified HC		C6-C12
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	156 Q

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 7-3006, 201013X Sample Descript: W-9-MW13 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F55-10	Sampled: 06/23/98 Received: 06/24/98 Extracted: 07/01/98 Analyzed: 07/06/98 Reported: 07/08/98
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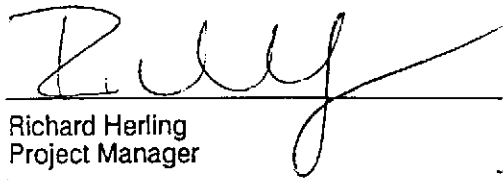
QC Batch Number: GC0701980HBPEXC  
Instrument ID: GCHP4B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	200	3800 C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	95

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 7-3006, 201013X Sample Descript: W-9-MW13 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9806F55-10	Sampled: 06/23/98 Received: 06/24/98 Analyzed: 06/29/98 Reported: 07/08/98
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QC Batch Number: GC062998BTEX02A  
Instrument ID: GCHP02

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

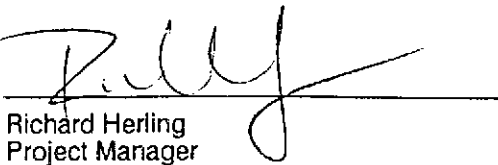
Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	2000	12000
Methyl t-Butyl Ether	100	200
Benzene	20	120
Toluene	20	N.D.
Ethyl Benzene	20	300
Xylenes (Total)	20	300
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	101

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 Attention: Marc Briggs	Client Proj. ID: Exxon 7-3006, 201013X Sample Descript: W-12-MW2 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F55-11	Sampled: 06/23/98 Received: 06/24/98 Extracted: 07/02/98 Analyzed: 07/07/98 Reported: 07/08/98
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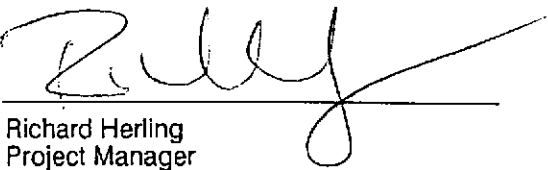
QC Batch Number: GC0702980HBPEXA  
Instrument ID: GCHP4A

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Weathered Diesel	100 C9-C13	2900 & C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50                      150	% Recovery 116

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 7-3006, 201013X Sample Descript: W-12-MW2 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9806F55-11	Sampled: 06/23/98 Received: 06/24/98 Analyzed: 06/29/98 Reported: 07/08/98
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QC Batch Number: GC062998BTEX03A  
Instrument ID: GCHP03

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

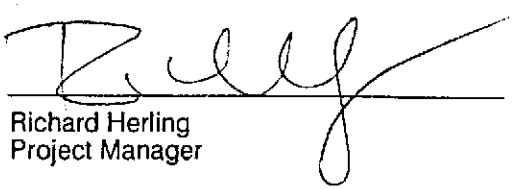
Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	180
Methyl t-Butyl Ether	2.5	9.5
Benzene	0.50	3.2
Toluene	0.50	0.55
Ethyl Benzene	0.50	0.92
Xylenes (Total)	0.50	1.3
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	99

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 7-3006, 201013X  
Sample Descript: W-22-MW8  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9806F57-12

Sampled: 06/23/98  
Received: 06/24/98  
Extracted: 07/02/98  
Analyzed: 07/07/98  
Reported: 07/08/98

QC Batch Number: GC0702980HBPEXA  
Instrument ID: GCHP4A

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	200	3700  C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50                      150	% Recovery 90

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 7-3006, 201013X Sample Descript: W-22-MW8 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9806F57-12	Sampled: 06/23/98 Received: 06/24/98 Analyzed: 06/30/98 Reported: 07/08/98
Attention: Marc Briggs		

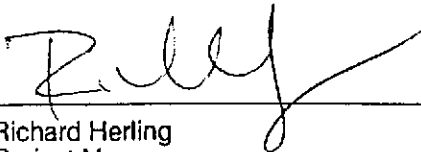
QC Batch Number: GC063098BTEX17A  
Instrument ID: GCHP17

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	1000	10000
Methyl t-Butyl Ether	50	N.D.
Benzene	10	140
Toluene	10	N.D.
Ethyl Benzene	10	460
Xylenes (Total)	10	260
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	175 Q

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 7-3006, 201013X Sample Descript: W-30-MW6 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F57-13	Sampled: 06/23/98 Received: 06/24/98 Extracted: 07/02/98 Analyzed: 07/07/98 Reported: 07/08/98
Attention: Marc Briggs		

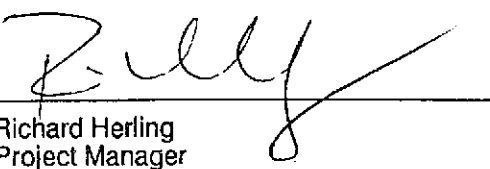
QC Batch Number: GC0702980HBPEXA  
Instrument ID: GCHP4A

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	200	4100 C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50                      150	% Recovery 101

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 7-3006, 201013X Sample Descript: W-30-MW6 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9806F57-13	Sampled: 06/23/98 Received: 06/24/98 Analyzed: 06/29/98 Reported: 07/08/98
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QC Batch Number: GC062998BTEX21A  
Instrument ID: GCHP21

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

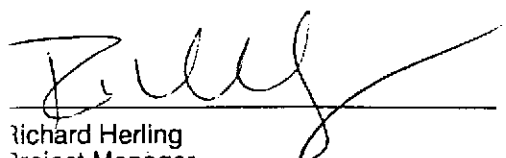
Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10000	19000
Methyl t-Butyl Ether	500	N.D.
Benzene	100	3400
Toluene	100	N.D.
Ethyl Benzene	100	1800
Xylenes (Total)	100	1100
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70      130	115

Analyses 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 7-3006, 201013X Sample Descript: W-8-MW12 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9806F57-14	Sampled: 06/23/98 Received: 06/24/98 Extracted: 07/02/98 Analyzed: 07/06/98 Reported: 07/08/98
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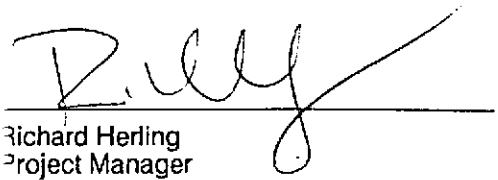
QC Batch Number: GC0702980HBPEXA  
Instrument ID: GCHP5A

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	200	7800 C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50                      150	244 Q

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 7-3006, 201013X  
 Sample Descript: W-8-MW12  
 Matrix: LIQUID  
 Analysis Method: 8015Mod/8020  
 Lab Number: 9806F57-14

Sampled: 06/23/98  
 Received: 06/24/98  
 Analyzed: 06/29/98  
 Reported: 07/08/98

QC Batch Number: GC062998BTEX21A  
 Instrument ID: GCHP21

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

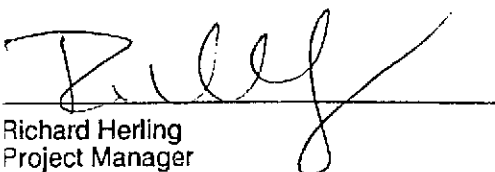
Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	2000	39000
Methyl t-Butyl Ether	100	560
Benzene	20	1000
Toluene	20	200
Ethyl Benzene	20	2300
Xylenes (Total)	20	4900
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70      130	108

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

SEQUOIA ANALYTICAL - ELAP #1210

  
 Richard Herling  
 Project Manager



# Sequoia Analytical

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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F55-01-05

Reported: Jul 8, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8015A  
Analyst: A. Porter

ANALYTE Diesel

QC Batch #: GC0630980HBPEXZ

Sample No.: 9806D25-1

Date Prepared: 6/30/98

Date Analyzed: 7/6/98

Instrument I.D.#: GCHP5A

Sample Conc., ug/L: 180

Conc. Spiked, ug/L: 1000

Matrix Spike, ug/L: 960

% Recovery: 78

**Matrix**

Spike Duplicate, ug/L: 890

% Recovery: 71

Relative % Difference: 9.4

RPD Control Limits: 0-50

LCS Batch#: BLK063098ZS

Date Prepared: 6/30/98

Date Analyzed: 7/6/98

Instrument I.D.#: GCHP5A

Conc. Spiked, ug/L: 1000

Recovery, ug/L: 690

LCS % Recovery: 69

Percent Recovery Control Limits:

MS/MSD 50-150

LCS 60-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

**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



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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F55-06

Reported: Jul 8, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8015A  
Analyst: G. Wardle

ANALYTE Diesel

QC Batch #: GC0630980HBPEXC

Sample No.: DW9806E82-1

Date Prepared: 6/30/98

Date Analyzed: 7/1/98

Instrument I.D.#: GCHP4A

Sample Conc., ug/L: 380

Conc. Spiked, ug/L: 1000

Matrix Spike, ug/L: 1200

% Recovery: 82

### Matrix

Spike Duplicate, ug/L: 1200

% Recovery: 82

Relative % Difference: 0.0

RPD Control Limits: 0-50

LCS Batch#: BLK063098CS

Date Prepared: 6/30/98

Date Analyzed: 7/1/98

Instrument I.D.#: GCHP4A

Conc. Spiked, ug/L: 1000

Recovery, ug/L: 750

LCS % Recovery: 75

Percent Recovery Control Limits:

MS/MSD 50-150

LCS 60-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

### 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



# Sequoia Analytical

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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F55-02,04,07,08

Reported: Jul 8, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8020  
Analyst: N. Herrera

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
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QC Batch #: GC063098BTEX21A

Sample No.: GW9806H03-12

Date Prepared:	6/30/98	6/30/98	6/30/98	6/30/98
Date Analyzed:	6/30/98	6/30/98	6/30/98	6/30/98
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	11	10	10	31
% Recovery:	106	100	100	102
Matrix Spike Duplicate, ug/L:	11	11	11	33
% Recovery:	110	110	110	110
Relative % Difference:	3.7	9.5	9.5	7.5
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#: GWBLK063098ABS

Date Prepared:	6/30/98	6/30/98	6/30/98	6/30/98
Date Analyzed:	6/30/98	6/30/98	6/30/98	6/30/98
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	11	10	10	31
LCS % Recovery:	110	100	100	103

Percent Recovery Control Limits:

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

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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



# Sequoia Analytical

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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F55-07-10

Reported: Jul 8, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8015A  
Analyst: G. Wardle

ANALYTE Diesel

QC Batch #: GC0701980HBPEXC

Sample No.: 9806J42-6  
Date Prepared: 7/1/98  
Date Analyzed: 7/1/98  
Instrument I.D.#: GCHP5B

Sample Conc., ug/L: 500  
Conc. Spiked, ug/L: 1000

Matrix Spike, ug/L: 1400  
% Recovery: 90

Matrix  
Spike Duplicate, ug/L: 1200  
% Recovery: 70

Relative % Difference: 25

RPD Control Limits: 0-50

LCS Batch#: BLK070198C

Date Prepared: 7/1/98  
Date Analyzed: 7/1/98  
Instrument I.D.#: GCHP5B

Conc. Spiked, ug/L: 1000

Recovery, ug/L: 780  
LCS % Recovery: 78

Percent Recovery Control Limits:

MS/MSD 50-150  
LCS 60-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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





# Sequoia Analytical

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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F55-11  
9806F57-12-14

Reported: Jul 8, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8015A  
Analyst: A. Porter

ANALYTE Diesel

QC Batch #: GC0702980HBPEXA

Sample No.: 9806F57-14

Date Prepared: 7/2/98

Date Analyzed: 7/6/98

Instrument I.D.#: GCHP5A

Sample Conc., ug/L: 7800

Conc. Spiked, ug/L: 1000

Matrix Spike, ug/L: 7200

% Recovery: -60

**Matrix**

Spike Duplicate, ug/L: 7000

% Recovery: -80

Relative % Difference: 29

RPD Control Limits: 0-50

THE SAMPLE, MS AND MSD WERE  
ALL RUN AT A 4X DILUTION.

LCS Batch#: BLK070298AS

Date Prepared: 7/2/98

Date Analyzed: 7/6/98

Instrument I.D.#: GCHP5A

Conc. Spiked, ug/L: 1000

Recovery, ug/L: 730

LCS % Recovery: 73

Percent Recovery Control Limits:

MS/MSD 50-150

LCS 60-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

**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*  
Richard Herling  
Project Manager





# Sequoia Analytical

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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F55-01,03,10

Reported: Jul 2, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8015  
Analyst: N. Herrera

ANALYTE Gasoline

QC Batch #: GC062998BTEX02A

Sample No.: GW9806E08-1  
Date Prepared: 6/29/98  
Date Analyzed: 6/29/98  
Instrument I.D.#: GCHP02

Sample Conc., ug/L: N.D.  
Conc. Spiked, ug/L: 250

Matrix Spike, ug/L: 220  
% Recovery: 88

Matrix  
Spike Duplicate, ug/L: 210  
% Recovery: 84

Relative % Difference: 4.7

RPD Control Limits: 0-25

LCS Batch#: GWBLK062998ABS

Date Prepared: 6/29/98  
Date Analyzed: 6/29/98  
Instrument I.D.#: GCHP02

Conc. Spiked, ug/L: 250

LCS Recovery, ug/L: 240  
LCS % Recovery: 96

Percent Recovery Control Limits:

MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

**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*  
Richard Herling  
Project Manager





# Sequoia Analytical

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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F55-05

Reported: Jul 8, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8020  
Analyst: N. Herrera

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
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QC Batch #: GC070298STEX21A

Sample No.: GW9806G68-8

Date Prepared:	7/2/98	7/2/98	7/2/98	7/2/98
Date Analyzed:	7/2/98	7/2/98	7/2/98	7/2/98
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	11	10	11	31
% Recovery:	109	105	107	103
<b>Matrix</b>				
Spike Duplicate, ug/L:	11	11	11	31
% Recovery:	110	106	106	103
Relative % Difference:	0.91	0.95	0.94	0.0
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#: GWBLK070298ABS

Date Prepared:	7/2/98	7/2/98	7/2/98	7/2/98
Date Analyzed:	7/2/98	7/2/98	7/2/98	7/2/98
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	10	9.8	9.9	29
LCS % Recovery:	103	98	99	97

Percent Recovery Control Limits:

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

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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*  
Richard Herling  
Project Manager





# Sequoia Analytical

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Environmental Resolutions 74 Digital Drive, Suite 6 Novato, CA 94949 Attention: Marc Briggs	Client Project ID: Exxon 7-3006, 201013X	QC Sample Group: 9806F55-06	Reported: Jul 8, 1998
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## QUALITY CONTROL DATA REPORT

Matrix:	Liquid			
Method:	EPA 8020			
Analyst:	N. Herrera			
ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes

QC Batch #: GC070298BTEX02A

Sample No.: GW9806G68-10

Date Prepared:	7/2/98	7/2/98	7/2/98	7/2/98
Date Analyzed:	7/2/98	7/2/98	7/2/98	7/2/98
Instrument I.D.#:	GCHP02	GCHP02	GCHP02	GCHP02
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	10	9.6	9.5	28
% Recovery:	102	96	95	93
Matrix Spike Duplicate, ug/L:	9.9	9.3	9.3	27
% Recovery:	99	93	93	90
Relative % Difference:	3.0	3.2	2.1	3.3
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#: GWBLK070298ABS

Date Prepared:	7/2/98	7/2/98	7/2/98	7/2/98
Date Analyzed:	7/2/98	7/2/98	7/2/98	7/2/98
Instrument I.D.#:	GCHP02	GCHP02	GCHP02	GCHP02
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	11	9.9	9.9	29
LCS % Recovery:	106	99	99	97

Percent Recovery Control Limits:

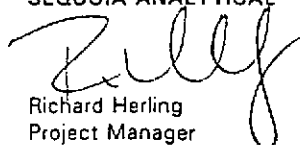
MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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



# Sequoia Analytical

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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F55-09

Reported: Jul 8, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8015  
Analyst:

**ANALYTE** Gasoline

QC Batch #: GC07019SBTEX17A

Sample No.: GW9806F55-01

Date Prepared: 7/1/98

Date Analyzed: 7/198

Instrument I.D.#: GCHP17

Sample Conc., ug/L: N.D.

Conc. Spiked, ug/L: 250

Matrix Spike, ug/L: 220

% Recovery: 88

**Matrix**

Spike Duplicate, ug/L: 220

% Recovery: 88

Relative % Difference: 0.0

RPD Control Limits: 0-25

LCS Batch#: GWBLK070198AS

Date Prepared: 7/1/98

Date Analyzed: 7/198

Instrument I.D.#: GCHP17

Conc. Spiked, ug/L: 250

LCS Recovery, ug/L: 21

LCS % Recovery: 8.4

Percent Recovery Control Limits:

MS/MSD 60-140

LCS 70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

**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*  
Richard Herling  
Project Manager



# Sequoia Analytical

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Environmental Resolutions 74 Digital Drive, Suite 6 Novato, CA 94949 Attention: Marc Briggs	Client Project ID: Exxon 7-3006, 201013X	QC Sample Group: 9806F55-11	Reported: Jul 8, 1998
--	--	-----------------------------	-----------------------

## QUALITY CONTROL DATA REPORT

Matrix:	Liquid
Method:	EPA 8015
Analyst:	N. Herrera
<b>ANALYTE</b>	<b>Gasoline</b>

QC Batch #: GC062998BTEX03A

Sample No.: GW9806H08-2

Date Prepared: 6/29/98

Date Analyzed: 6/29/98

Instrument I.D.#: GCHP03

Sample Conc., ug/L: N.D.

Conc. Spiked, ug/L: 250

Matrix Spike, ug/L: 230

% Recovery: 92

Matrix

Spike Duplicate, ug/L: 220

% Recovery: 88

Relative % Difference: 4.4

RPD Control Limits: 0-25

LCS Batch#: GWBLK062998ABS

Date Prepared: 6/29/98

Date Analyzed: 6/29/98

Instrument I.D.#: GCHP03

Conc. Spiked, ug/L: 250

LCS Recovery, ug/L: 200

LCS % Recovery: 80

Percent Recovery Control Limits:

MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

**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*  
Richard Herling  
Project Manager



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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F57-12

Reported: Jul 8, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8020  
Analyst: N. Herrera

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
---------	---------	---------	--------------	---------

QC Batch #: GC063098BTEX17A

Sample No.: GW9806H03-12

Date Prepared:	6/30/98	6/30/98	6/30/98	6/30/98
Date Analyzed:	6/30/98	6/30/98	6/30/98	6/30/98
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	9.3	8.9	10	27
% Recovery:	93	89	100	90
Matrix				
Spike Duplicate, ug/L:	9.2	8.7	10	26
% Recovery:	92	87	100	87
Relative % Difference:	1.1	2.3	0.0	3.4
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#: GWBLK063098ABS

Date Prepared:	6/30/98	6/30/98	6/30/98	6/30/98
Date Analyzed:	6/30/98	6/30/98	6/30/98	6/30/98
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	9.2	8.6	9.8	26
LCS % Recovery:	92	86	98	87

Percent Recovery Control Limits:

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

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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*  
Richard Herling  
Project Manager



# Sequoia Analytical

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

Client Project ID: Exxon 7-3006, 201013X

QC Sample Group: 9806F57-13,14

Reported: Jul 8, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8015  
Analyst: N. Herrera

ANALYTE Gasoline

QC Batch #: GC062998BTEX21A

Sample No.: GW9806E08-2

Date Prepared: 6/29/98

Date Analyzed: 6/29/98

Instrument I.D.#: GCHP21

Sample Conc., ug/L: N.D.

Conc. Spiked, ug/L: 250

Matrix Spike, ug/L: 230

% Recovery: 92

Matrix

Spike Duplicate, ug/L: 230

% Recovery: 92

Relative % Difference: 0.0

RPD Control Limits: 0-25

LCS Batch#: GWBLK062998ABS

Date Prepared: 6/29/98

Date Analyzed: 6/29/98

Instrument I.D.#: GCHP21

Conc. Spiked, ug/L: 250

LCS Recovery, ug/L: 220

LCS % Recovery: 88

Percent Recovery Control Limits:

MS/MSD 60-140

LCS 70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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





Sequoia Analytical  
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# 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 6, NOVATO, CA 94949		Site Location: 720 HIGH ST.
Project #:	Consultant Project #: 201013X	Consultant Work Release #: 19432503
Project Contact: MARC BRIGGS	Phone #: (415) 382-5991	Laboratory Work Release #:
EXXON Contact: MARLA CUENSER	Phone #: (510) 246-8776	EXXON RAS #: 7-3006
Sampled by (print): PAUL BLANK	Sampler's Signature: <i>Paul D. Blank</i>	OAKLAND
Shipment Method:	Air Bill #:	

TAT:  24 hr  48 hr  72 hr  96 hr  Standard (10 day)      ANALYSIS REQUIRED 98061F55/F57

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	MTBE 8020	Temperature: _____
W-9-MW13	6-23-98	1435/1440	WATER	100/114	5	10	X	X		X	
W-12-MW2		1445/1450			↓	11	X	X		X	§ 24 I
W-22-MW8		1455/1500			4	12	X	X		X	
W-30-MW6		1505/1510			5	13	X	X		X	
W-8-MW12	↓	1515/1520	↓	↓	↓	14	X	X		X	

RELINQUISHED BY / AFFILIATION	Date	Time	ACCEPTED / AFFILIATION	Date	Time	Additional Comments
<i>Paul D. Blank</i>	6.24.98	1215	<i>Paul D. Blank</i>	6.24	1215	
<i>[Signature]</i>	6.24.98		<i>[Signature]</i>	6/24/98	1215	

Pink - Client  
Yellow - Sequoia  
White - Sequoia



Sequoia  
Analytical

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

Client Proj. ID: Exxon 7-3006, 201013X

Received: 06/24/98

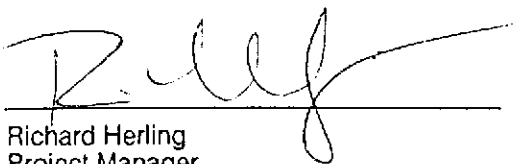
Lab Proj. ID: 9806F55

Reported: 07/08/98

### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 44 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





Sequoia  
Analytical

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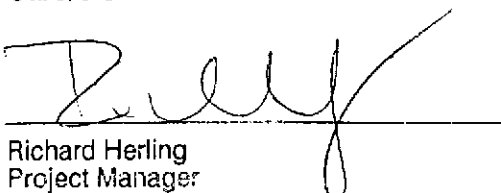
FAX (650) 364-9233  
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FAX (916) 921-0100  
FAX (707) 792-0342

Environmental Resolutions 74 Digital Drive, Suite 6 Novato, CA 94949 Attention: Marc Briggs	Client Proj. ID: Exxon 7-3006, 201013X Lab Proj. ID: 9806F57	Received: 06/24/98 Reported: 07/08/98
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### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 44 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



Environmental Resolutions 74 Digital Drive, Suite 6 Novato, CA 94949	Client Proj. ID: Exxon 7-3006, 2010-11X Sample Descript: W-INF1 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9805328-01	Sampled: 05/05/98 Received: 05/06/98  Analyzed: 05/11/98 Reported: 05/14/98
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QC Batch Number: GC051198BTEX06A  
Instrument ID: GCHP06

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

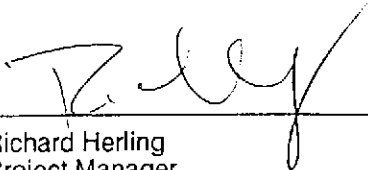
Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	2300
Benzene	5.0	380
Toluene	5.0	27
Ethyl Benzene	5.0	26
Xylenes (Total)	5.0	390
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	119

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 7-3006, 2010-11X Sample Descript: W-INF2 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9805328-02	Sampled: 05/05/98 Received: 05/06/98  Analyzed: 05/12/98 Reported: 05/14/98
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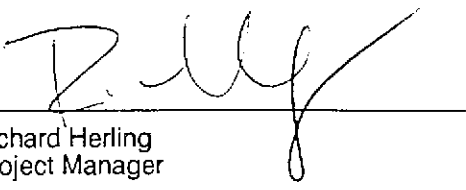
QC Batch Number: GC051298BTEX21A  
Instrument ID: GCHP21

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	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	89

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 7-3006, 2010-11X Sample Descript: W-EFF Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9805328-03	Sampled: 05/05/98 Received: 05/06/98  Analyzed: 05/11/98 Reported: 05/14/98
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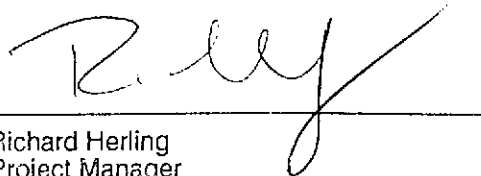
QC Batch Number: GC051198BTEX06A  
Instrument ID: GCHP06

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	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	104

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 7-3006, 2010-11X Sample Descript: W-INT Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9805328-04	Sampled: 05/05/98 Received: 05/06/98  Analyzed: 05/11/98 Reported: 05/14/98
--	--	---


QC Batch Number: GC051198BTEX06A  
Instrument ID: GCHP06

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	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	107

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
Richard Herling  
Project Manager



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

Client Project ID: Exxon 7-3006, 2010-11X

QC Sample Group: 9805328-02

Reported: Jul 23, 1998

**QUALITY CONTROL DATA REPORT**

Matrix: Liquid  
Method: EPA 8015/8020  
Analyst: C. Demartini

ANALYTE Gasoline

QC Batch #: GC051298BTEX21A

Sample No.: GW9805222-2

Date Prepared: 5/12/98  
Date Analyzed: 5/12/98  
Instrument I.D.#: GCHP3

Sample Conc., ug/L: N.D.  
Conc. Spiked, ug/L: 250

Matrix Spike, ug/L: 240  
% Recovery: 96

Matrix  
Spike Duplicate, ug/L: 250  
% Recovery: 100

Relative % Difference: 4.1

RPD Control Limits: 0-25

LCS Batch#: AWBLK051298A

Date Prepared: 5/12/98  
Date Analyzed: 5/12/98  
Instrument I.D.#: GCHP21

Conc. Spiked, ug/L: 250

LCS Recovery, ug/L: 260  
LCS % Recovery: 104

Percent Recovery Control Limits:


MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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



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

Client Project ID: Exxon 7-3006, 2010-11X

QC Sample Group: 9805328-01,03,04

Reported: Jul 23, 1998

**QUALITY CONTROL DATA REPORT**

Matrix: Liquid  
Method: EPA 8015/8020  
Analyst: G. Peshina

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline
---------	---------	---------	--------------	---------	----------

QC Batch #: GC051198BTEX06A

Sample No.: GW9805157-2

Date Prepared:	5/11/98	5/11/98	5/11/98	5/11/98	5/11/98
Date Analyzed:	5/11/98	5/11/98	5/11/98	5/11/98	5/11/98
Instrument I.D.#:	GCHP06	GCHP06	GCHP06	GCHP06	GCHP06
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30	60
Matrix Spike, ug/L:	10	10	10	31	40
% Recovery:	100	100	100	103	67
Matrix					
Spike Duplicate, ug/L:	10	10	10	31	40
% Recovery:	100	100	100	103	67
Relative % Difference:	0.0	0.0	0.0	0.0	0.0
RPD Control Limits:	0-25	0-25	0-25	0-25	0-25

LCS Batch#: GWBLK051198A

Date Prepared:	5/11/98	5/11/98	5/11/98	5/11/98	5/11/98
Date Analyzed:	5/11/98	5/11/98	5/11/98	5/11/98	5/11/98
Instrument I.D.#:	GCHP06	GCHP06	GCHP06	GCHP06	GCHP06
Conc. Spiked, ug/L:	10	10	10	30	60
LCS Recovery, ug/L:	9.1	9.0	9.0	27	44
LCS % Recovery:	91	90	90	90	73

Percent Recovery Control Limits:

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

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

**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





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(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 1 of 1

Address:		Site Location: <u>720 High St, Oakland, CA</u>
Project #: <u>2010-117</u>	Consultant Project #: <u>2010-117</u>	Consultant Work Release #: <u>19432503</u>
Project Contact: <u>Marc Briggs</u>	Phone #: <u>(415) 382-9105</u>	Laboratory Work Release #:
EXXON Contact: <u>Marla Guenster</u>	Phone #: <u>(925) 246-8776</u>	EXXON RAS #: <u>3006</u>
Sampled by (print): <u>DAVID ARNOAL</u>	Sampler's Signature: <u>[Signature]</u>	
Shipment Method:	Air Bill #:	

TAT:  24 hr  48 hr  72 hr  96 hr  Standard (10 day) ANALYSIS REQUIRED 9805328

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	TRPII S.M. 5520	Temperature: _____	
										Inbound Seal: Yes No	Outbound Seal: Yes No
W-INF 1	5/5	1:00	water	HCl	1	1	X				
W-INF 2	5/5	1:00	water	HCl	1	2	X				
W-EFF	5/5	1:00	water	HCl	1	3	X				
W-INT	5/5	1:00	water	HCl	1	4	X				
A-INF	5/5	1:00	Air		1		X				
A-EFF	5/5	1:00	Air		1		X				

RELINQUISHED BY / AFFILIATION	Date	Time	ACCEPTED / AFFILIATION	Date	Time	Additional Comments
<u>[Signature]</u>	5/6	10:40	Sequoia Analytical	5/6	10:40	
<u>[Signature]</u>	5/6/98		Jenni Downs	5/6	1314	

Pink - Client  
Yellow - Sequoia  
White - Sequoia





Sequoia  
Analytical

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FAX (650) 364-9233  
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FAX (916) 921-0100  
FAX (707) 792-0342

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

Client Proj. ID: Exxon 7-3006, 2010-11X

Received: 05/06/98

Lab Proj. ID: 9805328

Reported: 05/14/98

### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 8 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





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

Client Proj. ID: Exxon 7-3006, 2010-11X  
Sample Descript: A-INF  
Matrix: AIR  
Analysis Method: 8015Mod/8020  
Lab Number: 9805246-01

Sampled: 05/05/98  
Received: 05/06/98  
Analyzed: 05/08/98  
Reported: 05/15/98

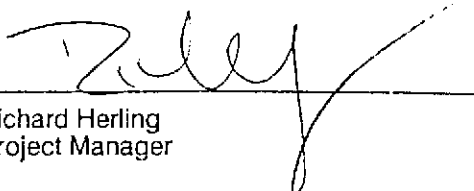
QC Batch Number: GC050898BTEX17A  
Instrument ID: GCHP17

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	94

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 7-3006, 2010-11X Sample Descript: A-EFF Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9805246-02	Sampled: 05/05/98 Received: 05/06/98 Analyzed: 05/08/98 Reported: 05/15/98
--	---	---

QC Batch Number: GC050898BTEX17A  
Instrument ID: GCHP17

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	86

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
Richard Herling  
Project Manager



# Sequoia Analytical

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

Client Project ID: Exxon 7-3006, 2010-11X

QC Sample Group: 9805246-01,02

Reported: Jul 23, 1998

## QUALITY CONTROL DATA REPORT

Matrix: Liquid  
Method: EPA 8015/8020  
Analyst: D. Jirsa

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX as TPH
---------	---------	---------	--------------	---------	-------------

QC Batch #: GC050898BTEX17A

Sample No.: GW9805126-1

Date Prepared:	5/8/98	5/8/98	5/8/98	5/8/98	5/8/98
Date Analyzed:	5/8/98	5/8/98	5/8/98	5/8/98	5/8/98
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17	GCHP17
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30	60
Matrix Spike, ug/L:	10	10	11	29	46
% Recovery:	100	100	110	97	77
<b>Matrix</b>					
Spike Duplicate, ug/L:	10	10	9.1	31	47
% Recovery:	100	100	91	103	78
Relative % Difference:	0.0	0.0	19	6.0	1.3
RPD Control Limits:	0-25	0-25	0-25	0-25	0-25

LCS Batch#: GAWBLK050898A

Date Prepared:	5/8/98	5/8/98	5/8/98	5/8/98	5/8/98
Date Analyzed:	5/8/98	5/8/98	5/8/98	5/8/98	5/8/98
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked, ug/L:	10	10	10	30	60
LCS Recovery, ug/L:	9.3	9.4	9.3	28	43
LCS % Recovery:	93	94	93	93	72

Percent Recovery Control Limits:

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

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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





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**EXXON COMPANY, U.S.A.**  
P.O. Box 2180, Houston, TX 77002-7426  
**CHAIN OF CUSTODY**

Page 1 of 1

Consultant's Name: Environmental Resolutions Inc

Address:

Project #: 2010-117

Project Contact: Marc Briggs

EXXON Contact: Maria Guenster

Sampled by (print): DAVID ARNDAL

Shipment Method:

Consultant Project #: 2010-117

Phone #: (415) 382-9105

Phone #: (925) 246-8776

Sampler's Signature: [Signature]

Air Bill #:

Site Location: 720 High St, Oakland, CA

Consultant Work Release #: 19432503

Laboratory Work Release #:

EXXON RAS #: 5006

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

ANALYSIS REQUIRED 9805246

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-INF 1	5/5	1:00	water	HCl	1		X							
W-INF 2	5/5	1:00	water	HCl	1		A							
W-EFF	5/5	1:00	water	HCl	1		X							
W-INT	5/5	1:00	water	HCl	1		X							
A-INF	5/5	1:00	Air		1		X							
A-EFF	5/5	1:00	Air		1		X							

RELINQUISHED BY / AFFILIATION	Date	Time	ACCEPTED / AFFILIATION	Date	Time	Additional Comments
<u>[Signature]</u>	5/6	10:40	<u>Sequoia Analytical</u>	5/6	10:40	
<u>[Signature]</u>	5/6/96		<u>[Signature]</u>	5/6	1314	

Pink - Client

Yellow - Sequoia

White - Sequoia



Sequoia  
Analytical

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(707) 792-1865

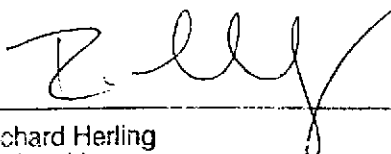
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FAX (707) 792-0342

Environmental Resolutions 74 Digital Drive, Suite 6 Novato, CA 94949 Attention: Marc Briggs	Client Proj. ID: Exxon 7-3006, 2010-11X Lab Proj. ID: 9805246	Received: 05/06/98 Reported: 05/15/98
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### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 5 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



**ATTACHMENT C**

**ERI SOP-25 "HYDROCARBONS REMOVED  
FROM A VADOSE WELL"**

**HYDROCARBON REMOVED  
FROM A VADOSE WELL  
SOP-25**

Rev: 10/0

**POUNDS OF HYDROCARBON IN AN VAPOR  
STREAM**

INPUT DATA:

- 1) Vapor flow rate acfm (usually by Pitot tube)
- 2) Vapor pressure at the flow measuring device (in inches of H<sub>2</sub>O) (use {-} for vacuum)
- 3) Vapor temperature at the flow measuring device.
- 4) Hydrocarbon content of vapor (usually in mg/M<sup>3</sup>) for ppmv you need molecular weight.
- 5) Length of time (usually hours) over which flow rate occurred)

From periodic measurements, a calculation of total pounds of hydrocarbons removed from a well or from a system are calculated. The input data listed above are measured at a point in time. To calculate quantities removed, some assumptions must be made about what was happening between measurements. The following assumptions will be used for the sake of consistency:

ASSUMPTIONS:

- 1) Vapor flow for the period equals the average of the initial and final reading for the period.
- 2) Pressure and temperature for the entire period will be the final reading.
- 3) Hydrocarbon concentration for the period equals the average of the initial and final reading.
- 4) The hours of operation can be taken from an hour meter, an electric meter or will be assumed to be equal to the time between measurements.
- 5) If the unit is found down - try to determine how many hours it did operate and use the data taken for the previous period to make the calculations. Restart the unit and then take data to start the next period.

SAMPLE DATA AND CALCULATIONS

Date	Time	Temp deg F	Press in H <sub>2</sub> O	HC conc mg/M <sup>3</sup>	Vapor flow acfm	Calc. lb. rem.
1/6/95	11:00	70	-46	2000	120	
1/7/95	13:00	55	-50	1350	90	
1/8/95	10:00	80	-13	750	100	7.4

Calculate the pounds of hydrocarbon removed from the system during the basis period from 13:00 (1:00 pm) on the 7th to 10 am on the 8th. Pressure and temperature of the measurements (at the flow meter) must be corrected to the P and T used to report the HC concentration (which are P = 1 atm and T = 70 deg F). 1 atm = 14.7psia, 760 mm Hg, or 407 in H<sub>2</sub>O. T<sub>abs</sub> = 460 + T deg F

Hours of operation = 21, T = 80, P = -13, HC = (1350+750)/2 = 1050 mg/M<sup>3</sup>. Flow = 95

$$21 \times 60 \times 95 \times \frac{(460+70)}{(460+80)} \times \frac{(407-13)}{407} \times \frac{28.3}{1000} \times \frac{1050}{1000} \times \frac{1}{454} = 7.4 \text{ lb}$$

$$\frac{\text{hr}}{\text{basis}} \times \frac{\text{min}}{\text{hr}} \times \frac{\text{cu ft}}{\text{min}} \times T_{\text{Corr}} \times P_{\text{Corr}} \times \frac{\text{M}^3}{\text{cu ft}} \times \frac{\text{g}}{\text{M}^3} \times \frac{\text{lb}}{\text{g}} = \frac{\text{lb}}{\text{basis}}$$

$$21 \times 60 \times 95 \times 0.98 \times 0.97 \times 0.0283 \times 1.050 \times 1/454 = 7.4 \text{ lb.}$$

cumulative lbs. (the running total) = the sum of all the previous periods.

Note: If results are given in ppm, an assumption about the molecular weight of the hydrocarbon must be made to get mg/M<sup>3</sup>. ppmv x molecular wt. /24.1 = mg/M<sup>3</sup>. (Use 102 for gasoline)