ENVIRONMENTAL RESOLUTIONS, INC.

November 25, 2002
ERI 222903.W02

Mr. Gene N. Ortega
ExxonMobil Oil Corporation
2300 Clayton Road, Suite 1250
Concord, California 94520

Subject: Preferential Pathway Study and Work Plan for Off-Site Delineation at Former Exxon Service Station 7-0235, 2225 Telegraph Avenue, Oakland, California.

Mr. Ortega:

At the request of ExxonMobil Oil Corporation (ExxonMobil), Environmental Resolutions, Inc. (ERI) conducted a preferential pathway study and has prepared this work plan to install one groundwater monitoring well (MW6K) to delineate the extent of dissolved hydrocarbons in groundwater downgradient of the subject site. This document has been prepared pursuant to a directive from the Alameda County Health Care Services Agency (the County) dated September 11, 2002 (Attachment A). The letter also provided technical comments and requests for information, which have been addressed under separate cover.

BACKGROUND

The site is located on the southwestern corner of Telegraph Avenue and West Grand Avenue in Oakland, California, as shown on the Site Vicinity Map (Plate 1). The locations of existing underground storage tanks (USTs), dispenser islands, and other select site features are shown on the Generalized Site Plan (Plate 2).

ExxonMobil acquired responsibility for the environmental case at the site upon property transfer from Texaco Refining and Marketing, Inc. (Texaco) in March 1998. Groundwater monitoring wells MW6A through MW6I were installed by Texaco prior to ExxonMobil's purchase of the site. MW6A was destroyed in 1992. Wells MW6C and MW6D were converted to groundwater recovery wells RW3 and RW2, respectively, in 1990. Well RW3 was destroyed in 1991 and replaced in 1992 with RW3A. ERI installed monitoring well MW6J in April 2001. The locations of the current monitoring wells are shown on Plate 2.

PREFERENTIAL PATHWAY STUDY

ERI conducted an underground utility survey in the vicinity of the site in October 2002 to locate underground utilities that may provide preferential pathways for groundwater migration. The utility agencies that responded to ERI's request for information include the following: Pacific Gas and Electric (PG&E), City of Oakland Engineering Services Department, and East Bay Water. Underground gas, electric, sewer, water, and storm drain utilities exist in the vicinity of the site as shown on Plate 3. Depth to groundwater measurements collected during quarterly monitoring events at the site range from 9 to 14 feet below ground surface (bgs) (Table 1). Per individual agency policies, depths of gas, electric, and water trenches were not provided to ERI. The elevation of the sewer trench along Telegraph Avenue is estimated at 13 feet above mean sea level (msl). The maximum groundwater elevation recorded at the site is approximately 13 feet above msl.

The presence of underground utility lines in the vicinity of the site indicates that utility lines may be providing preferential pathways for groundwater migration when groundwater levels intersect the trenches. The estimated elevation of the sewer trench is in close proximity to the highest recorded groundwater elevation at the site, indicating that groundwater levels may intersect the sewer trench during periods of high groundwater elevation. Because gas, electric, and water trench depths were not provided, it is uncertain if groundwater levels are intersecting these utility trenches.

PROPOSED WORK

Quarterly groundwater monitoring data collected since 1996 indicates that dissolved hydrocarbons are not currently delineated downgradient of the site. Cumulative groundwater monitoring and sampling results are summarized in Table 1. Analytical laboratory results for samples collected during the fourth quarter 2002 sampling event (report in preparation) are shown on Plate 2. A rose diagram, depicting historical groundwater flow directions at the site, is provided on Plate 2. One additional monitoring well (MW6K) is proposed southeast of the site on Telegraph Avenue to evaluate groundwater conditions downgradient of the site, as shown on Plate 2. The location of the proposed well is contingent on approval of an encroachment permit by the City of Oakland (the City).

Installation of One Groundwater Monitoring Well

ERI will observe a licensed drilling contractor drill one soil boring using a hollow-stem drill rig, to a depth of approximately 25 feet bgs, and construct groundwater monitoring well MW6K in this boring. Well construction details for MW6K are illustrated on Plate 4. Work will be performed in accordance with a site-specific health and safety plan and ERI's standard field protocol (Attachment B).

Task 1 Pre-Drilling Activities

The pre-drilling tasks associated with this investigation include:

- Obtaining a well installation permit from the Alameda County Public Works Department, Water Resources Division (Public Works) for the installation of MW6K;
- Obtaining an encroachment permit from the City for the installation of MW6K in the City right-of-way;

- Notifying Underground Service Alert (USA) at least 48 hours before work is to begin. ERI will obtain the services of a private utility locator to survey and mark the drilling locations prior to the work, and will base the final drilling locations on this and other field conditions, including overhead obstructions and traffic conditions. After locating potential drilling locations, ERI will manually clear the borings following ExxonMobil pre-drilling protocol.

Task 2 Field Work

The field tasks associated with this investigation include:

- Retaining the services of a licensed well driller and observing the drilling of one soil boring (MW6K) and the conversion of the boring into a groundwater monitoring well;

- Collection of soil samples from the boring at 5-foot intervals, at obvious changes in lithology, and at the capillary fringe;

- Submittal of select soil samples to a California state-certified laboratory, under chain-of-custody protocol, for analysis of total petroleum hydrocarbons as gasoline (TPHg) using environmental protection agency (EPA) Method 8015B; total petroleum hydrocarbons as motor oil (TPHmo) using EPA Method 8015B with silica gel cleanup; methyl tertiary butyl ether (MTBE); and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8021B; and volatile organic compounds (VOCs) using EPA Method 8260B. Composite soil samples collected from soil cuttings generated during drilling activities will be analyzed for TPHg, TPHmo, BTEX, and VOCs (using the methods stated above), and total lead using EPA Method 6010B;

- Storage of drill cuttings on site in 55-gallon drums pending characterization and disposal. ERI will collect one composite soil sample (four brass sleeves) from the drums for laboratory analyses. Upon receipt of analytical laboratory results for the drummed soil, ERI will coordinate with ExxonMobil for the removal, transport, and disposal of the soil to an ExxonMobil approved disposal facility;

- Development of well MW6K by surging and overpumping. After development, depth to water measurements will be obtained from MW6K and other existing wells scheduled for quarterly sampling, and groundwater samples will be collected from the wells for analyses;

- Submittal of groundwater samples to a California state-certified laboratory for analyses of TPHg and TPHmo using EPA method 8015B, BTEX and MTBE using EPA Method 8021B, and VOCs using EPA Method 8260B;

- Storage of well development water on site in 55-gallon drums and coordination for the disposal of the well development water at an ExxonMobil-approved disposal facility.

Task 3 Report Preparation and Submittal

ERI will prepare and submit a report detailing the results of the field investigation. The report will include a description of field activities, laboratory analytical results of soil and groundwater samples collected during the investigation, and interpretation of analytical results and field activities.

DOCUMENT DISTRIBUTION

ERI recommends this work plan be forwarded to the following:

Mr. Don Hwang
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Mr. Chuck Headlee
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

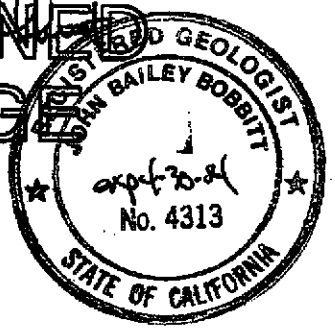
Mr. Joseph A. Aldridge
Valero Energy Corporation
685 West Third Street
Hanford, California 93230

Please contact Ms. Paula Sime, ERI's senior staff geologist for this site, at (415) 382-4324 with any questions regarding this work plan.

Sincerely,
Environmental Resolutions, Inc.

Paula Sime
Senior Staff Geologist

John B. Bobbitt
R.G. #4313



Attachments:

Table 1:	Cumulative Groundwater Monitoring and Sampling Data
Plate 1:	Site Vicinity Map
Plate 2:	Generalized Site Plan
Plate 3:	Utility Map
Plate 4:	Well Construction Details
Attachment A:	Alameda County Health Care Services Agency Letter, Dated September 11, 2002
Attachment B:	Standard Field Protocol

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California
(Page 1 of 7)

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHg	MTBE	B	T	E	X	TPHmo
(TOC)	Date	<.....	feet	.....>	<.....			µg/L			.....>
MW6B	11/26/96	NLPH	12.26	5.22	<50	<30	<0.5	<0.5	<0.5	<0.5	---
(17.48)	02/27/97	NLPH	11.73	5.75	<50	<30	<0.5	<0.5	<0.5	0.80	---
	05/21/97	NLPH	12.70	4.78	<50	<30	<0.5	<0.5	<0.5	<0.5	---
	08/18/97	NLPH	12.89	4.59	380	<30	4.3	<0.5	1.2	1.5	---
	03/13/98	NLPH	11.15	6.33	360	<6.2	93	4.9	4.1	12	---
	04/20/98	NLPH	11.49	5.99	110	5.5	19	1.3	1.5	3.9	---
(21.37)	07/21/98	NLPH	12.18	9.19	<50	8.7	0.84	0.59	<0.5	<0.5	---
	10/06/98	NLPH	12.70	8.67	190	6.0	2.4	0.56	0.51	1.2	---
	01/11/99	NLPH	12.48	8.89	50	3.9	1.2	<0.5	<0.5	0.95	---
	04/08/99	NLPH	11.52	9.85	85	14.0	4.4	<0.5	<0.5	<0.5	---
	07/19/99	NLPH	11.39	9.98	<50	<2.50	<0.5	<0.5	<0.5	<0.5	---
	07/27/99	NLPH	12.71	8.66	---	---	---	---	---	---	---
	10/25/99	NLPH	12.49	8.88	260	<2	2.3	<0.5	<0.5	<0.5	---
	01/27/00	NLPH	11.80	9.57	770	13	210	4.8	4.9	13	---
	04/03/00	NLPH	11.61	9.76	670	3.4	110	6.6	3.8	9.45	---
	07/05/00	NLPH	12.27	9.10	<50	2.1	0.89	<0.5	<0.5	<0.5	---
	10/04/00	NLPH	12.67	8.70	<50	54	<0.5	<0.5	<0.5	2	---
	10/05/00	---	---	---	---	---	---	---	---	---	<1,000
	01/04/01	NLPH	12.47	8.90	<50	35	<0.5	<0.5	<0.5	<0.5	---
	04/03/01	NLPH	11.81	9.56	<50	7.8	<0.5	<0.5	<0.5	<0.5	---
	07/05/01	NLPH	12.44	8.93	<50	3	<0.5	<0.5	<0.5	<0.5	---
	10/03/01	NLPH	12.52	8.85	310	10	2.1	<0.5	6.5	11.6	---
(21.09)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	11.25	9.84	710	21.8	99.5	4.40	3.30	7.40	---
	04/02/02	NLPH	11.72	9.37	<50.0	12.2	0.60	<0.50	<0.50	<0.50	<100
	07/01/02	NLPH	12.34	8.75	<50	10.7	<0.5	<0.5	<0.5	<0.5	<100b
	10/02/02	**NLPH**	**12.71**	**8.38**	**<50.0**	**10.9**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<100**
MW6E	11/26/96	NLPH	12.94	4.69	<50	<30	1.1	<0.5	<0.5	<0.5	---
(17.63)	02/27/97	NLPH	12.28	5.35	<50	<30	<0.5	<0.5	<0.5	<0.5	---
	05/21/97	NLPH	13.60	4.03	160	<5	10	1.4	5.5	4.8	---
	08/18/97	NLPH	13.75	3.88	66	<30	<0.5	<0.5	<0.5	<0.5	---
	03/13/98	NLPH	11.36	6.27	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
	04/20/98	NLPH	11.88	5.75	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
(21.58)	07/21/98	NLPH	13.10	8.48	1,200	<10	81	3.1	28	77	---
	10/06/98	NLPH	13.55	8.03	<50	6.6	1.4	0.51	<0.5	0.97	---
	01/11/99	NLPH	13.40	8.18	<50	5.1	<0.5	<0.5	<0.5	<0.5	---
	04/08/99	NLPH	12.04	9.54	<50	4.7	<0.5	<0.5	<0.5	<0.5	---
	07/19/99	NLPH	11.59	9.99	---	---	---	---	---	---	---

TABLE 1
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Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.	TPHg	MTBE	B	T	E	X	TPHmo
		<	feet	>	<			µg/L			>
MW6E (cont.)	07/27/99	NLPH	13.65	7.93	---	---	---	---	---	---	---
(21.58)	10/25/99	NLPH	13.52	8.06	<50	2.5	<0.5	<0.5	<0.5	<0.5	---
	01/27/00	NLPH	11.71	9.87	<50	2.3	<0.5	<0.5	<0.5	<0.5	---
	04/03/00	NLPH	12.11	9.47	<50	<2	0.51	<0.5	<0.5	<0.5	---
	07/05/00	NLPH	12.91	8.67	<50	<2	3.7	<0.5	<0.5	<0.5	---
	10/04/00	NLPH	13.35	8.23	<50	<2	4.1	<0.5	<0.5	<0.5	---
	10/05/00	---	---	---	---	---	---	---	---	---	<1,000
	01/04/01	NLPH	13.09	8.49	61	<2	11	<0.5	<0.5	<0.5	---
	04/03/01	NLPH	12.39	9.19	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	07/05/01	NLPH	13.21	8.37	210	<2	80	<0.5	0.94	2.3	---
	10/03/01	NLPH	13.30	8.28	<50	<2	2.8	<0.5	<0.5	<0.5	---
(21.24)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	10.11	11.13	<100	<0.5	<0.50	<0.50	<0.50	<0.50	---
	04/02/02	NLPH	12.11	9.13	<50.0	0.70	<0.50	<0.50	<0.50	<0.50	<100
	07/01/02	NLPH	12.46	8.78	56.0	<0.5	19.9	<0.5	<0.5	<0.5	<100b
	10/02/02	**NLPH**	**13.48**	**7.76**	**<50.0**	**0.8**	**0.5**	**<0.5**	**<0.5**	**<0.5**	**<100**
MW6F	11/26/96	NLPH	13.29	5.29	<50	<30	<0.5	<0.5	<0.5	<0.5	---
(18.58)	02/27/97	---	---	---	---	---	---	---	---	---	---
	05/21/97	NLPH	14.18	4.40	---	---	---	---	---	---	---
	08/18/97	NLPH	14.69	3.89	---	---	---	---	---	---	---
	03/13/98	NLPH	10.93	7.65	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
	04/20/98	NLPH	11.77	6.81	---	---	---	---	---	---	---
(22.51)	07/21/98	NLPH	13.62	8.89	---	---	---	---	---	---	---
	10/06/98	NLPH	13.52	8.99	---	---	---	---	---	---	---
	01/11/99	NLPH	14.06	8.45	---	---	---	---	---	---	---
	04/08/99	NLPH	11.86	10.65	---	---	---	---	---	---	---
	07/19/99	---	---	---	---	---	---	---	---	---	---
	07/27/99	Well Inaccessible		---	---	---	---	---	---	---	---
	10/25/99	NLPH	12.63	9.88	---	---	---	---	---	---	---
	01/27/00	NLPH	12.23	10.28	---	---	---	---	---	---	---
	04/03/00	NLPH	12.11	10.40	---	---	---	---	---	---	---
	07/05/00	NLPH	13.38	9.13	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/04/00	NLPH	14.02	8.49	<50	<2	<0.5	<0.5	<0.5	0.7	---
	10/05/00	---	---	---	---	---	---	---	---	---	<1,000
	01/04/01	NLPH	13.69	8.82	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	04/03/01	NLPH	12.55	9.96	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	07/05/01	NLPH	13.74	8.77	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/03/01	NLPH	13.82	8.69	<50	<2	<0.5	<0.5	<0.5	<0.5	---

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Oakland, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHg	MTBE	B	T	E	X	TPHmo
(TOC)	Date	<.....feet.....>			<.....µg/L.....>						
MW6F (cont.)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
(22.17)	01/02/02	NLPH	9.16	13.01	<100	<0.5	<0.50	<0.50	<0.50	<0.50	---
	04/02/02	NLPH	12.14	10.03	<50.0	<0.50	<0.50	<0.50	<0.50	<0.50	<100
	07/01/02	NLPH	13.46	8.71	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<100b
	10/02/02	**NLPH**	**14.19**	**7.98**	**<50.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<100**
MW6G	11/26/96	NLPH	11.12	5.70	<50	<30	<0.5	<0.5	<0.5	<0.5	---
(16.82)	02/27/97	---	---	---	---	---	---	---	---	---	---
	05/21/97	NLPH	11.76	5.06	---	---	---	---	---	---	---
	08/18/97	NLPH	12.23	4.59	---	---	---	---	---	---	---
	03/13/98	NLPH	9.13	7.69	<50	4.4	<0.5	<0.5	<0.5	<0.5	---
	04/20/98	NLPH	9.73	7.09	---	---	---	---	---	---	---
(20.72)	07/21/98	NLPH	11.15	9.57	---	---	---	---	---	---	---
	10/06/98	NLPH	11.91	8.81	---	---	---	---	---	---	---
	01/11/99	NLPH	12.00	8.72	---	---	---	---	---	---	---
	04/08/99	NLPH	10.04	10.68	---	---	---	---	---	---	---
	07/19/99	---	---	---	---	---	---	---	---	---	---
	07/27/99	NLPH	11.75	8.97	---	---	---	---	---	---	---
	10/25/99	NLPH	11.76	8.96	---	---	---	---	---	---	---
	01/27/00	NLPH	11.46	9.26	---	---	---	---	---	---	---
	04/03/00	NLPH	10.00	10.72	--	---	---	---	---	---	---
	07/05/00	NLPH	11.24	9.48	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/04/00	NLPH	11.88	8.84	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/05/00	---	---	---	---	---	---	---	---	---	<1,000
	01/04/01	NLPH	11.56	9.16	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	04/03/01	NLPH	10.45	10.27	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	07/05/01	NLPH	11.51	9.21	<50	<2	0.75	<0.5	<0.5	<0.5	---
	10/03/01	NLPH	11.63	9.09	<50	<2	<0.5	<0.5	<0.5	<0.5	---
(20.46)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	9.15	11.31	<100	1.8	<0.50	<0.50	<0.50	<0.50	---
	04/02/02	NLPH	10.19	10.27	<50.0	1.10	<0.50	<0.50	<0.50	<0.50	<100
	07/01/02	NLPH	11.35	9.11	<50	1.3	<0.5	<0.5	<0.5	<0.5	<100b
	10/02/02	**NLPH**	**11.99**	**8.47**	**<50.0**	**0.7**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<100**
MW6H	11/26/96	NLPH	11.87	4.71	1,200	<30	320	110	22	85	---
(16.58)	02/27/97	NLPH	11.58	5.00	1,800	<200	760	31	8.4	44	---
	05/21/97	NLPH	12.23	4.35	1,100	81	640	18	5.4	45	---
	08/18/97	NLPH	12.29	4.29	870	26	200	3.6	2.4	7.4	---
(20.47)	03/13/98	NLPH	11.44	5.14	5,300	<125	1,900	720	100	470	---

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Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.	TPHg	MTBE	B	T	E	X	TPHmo
		<	feet	>	<			µg/L			>
MW6F (cont.)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
(22.17)	01/02/02	NLPH	9.16	13.01	<100	<0.5	<0.50	<0.50	<0.50	<0.50	---
	04/02/02	NLPH	12.14	10.03	<50.0	<0.50	<0.50	<0.50	<0.50	<0.50	<100
	07/01/02	NLPH	13.46	8.71	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<100b
	10/02/02	**NLPH**	**14.19**	**7.98**	**<50.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<100**
MW6G	11/26/96	NLPH	11.12	5.70	<50	<30	<0.5	<0.5	<0.5	<0.5	---
(16.82)	02/27/97	---	---	---	---	---	---	---	---	---	---
	05/21/97	NLPH	11.76	5.06	---	---	---	---	---	---	---
	08/18/97	NLPH	12.23	4.59	---	---	---	---	---	---	---
	03/13/98	NLPH	9.13	7.69	<50	4.4	<0.5	<0.5	<0.5	<0.5	---
	04/20/98	NLPH	9.73	7.09	---	---	---	---	---	---	---
(20.72)	07/21/98	NLPH	11.15	9.57	---	---	---	---	---	---	---
	10/06/98	NLPH	11.91	8.81	---	---	---	---	---	---	---
	01/11/99	NLPH	12.00	8.72	---	---	---	---	---	---	---
	04/08/99	NLPH	10.04	10.68	---	---	---	---	---	---	---
	07/19/99	---	---	---	---	---	---	---	---	---	---
	07/27/99	NLPH	11.75	8.97	---	---	---	---	---	---	---
	10/25/99	NLPH	11.76	8.96	---	---	---	---	---	---	---
	01/27/00	NLPH	11.46	9.26	---	---	---	---	---	---	---
	04/03/00	NLPH	10.00	10.72	--	---	---	---	---	---	---
	07/05/00	NLPH	11.24	9.48	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/04/00	NLPH	11.88	8.84	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/05/00	---	---	---	---	---	---	---	---	---	<1,000
	01/04/01	NLPH	11.56	9.16	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	04/03/01	NLPH	10.45	10.27	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	07/05/01	NLPH	11.51	9.21	<50	<2	0.75	<0.5	<0.5	<0.5	---
	10/03/01	NLPH	11.63	9.09	<50	<2	<0.5	<0.5	<0.5	<0.5	---
(20.46)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	9.15	11.31	<100	1.8	<0.50	<0.50	<0.50	<0.50	---
	04/02/02	NLPH	10.19	10.27	<50.0	1.10	<0.50	<0.50	<0.50	<0.50	<100
	07/01/02	NLPH	11.35	9.11	<50	1.3	<0.5	<0.5	<0.5	<0.5	<100b
	10/02/02	**NLPH**	**11.99**	**8.47**	**<50.0**	**0.7**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<100**
MW6H	11/26/96	NLPH	11.87	4.71	1,200	<30	320	110	22	85	---
(16.58)	02/27/97	NLPH	11.58	5.00	1,800	<200	760	31	8.4	44	---
	05/21/97	NLPH	12.23	4.35	1,100	81	640	18	5.4	45	---
	08/18/97	NLPH	12.29	4.29	870	26	200	3.6	2.4	7.4	---
(20.47)	03/13/98	NLPH	11.44	5.14	5,300	<125	1,900	720	100	470	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.	TPHg	MTBE	B	T	E	X	TPHmo
		<	feet	>	<			µg/L			>
MW6H (cont.)	04/20/98	NLPH	11.58	5.00	6,000	2,700	1,500	600	91	440	---
(20.47)	07/21/98	NLPH	11.97	8.5	2,200	1,600	740	44	15	63	---
	10/06/98	NLPH	12.23	8.24	5,400	3,000	1,900	<25	<25	76	---
	01/11/99	NLPH	12.17	8.30	2,600	4,300	1,200	<12	<12	20	---
	04/08/99	NLPH	11.56	8.91	13,000	13,000	3,400	1,300	260	1,200	---
	07/19/99	NLPH	11.71	8.76	<2,000	6,920/8,520a	732	<20	<20	<20	---
	07/27/99	NLPH	12.39	8.08	---	---	---	---	---	---	---
	10/25/99	NLPH	12.16	8.31	700	4,000	360	1.1	0.68	2	---
	01/27/00	NLPH	11.60	8.87	9,100	7,600	2,400	840	150	670	---
	04/03/00	NLPH	11.62	8.85	12,000	8,800	2,800	1,100	230	1,020	---
	07/05/00	NLPH	11.93	8.54	12,000	8,000	1,200	56	13	92	---
	10/04/00	NLPH	12.16	8.31	4,400	8,400	1,500	23	12	80.6	---
	10/05/00	---	---	---	---	---	---	---	---	---	<1,000
	01/04/01	NLPH	12.03	8.44	2,300	3,800	880	15	6.4	33.9	---
	04/03/01	NLPH	11.73	8.74	7,800	5,100	2,000	730	140	590	---
	07/05/01	NLPH	11.98	8.49	2,300	3,200	630	25	10	40.8	---
	10/03/01	NLPH	12.1	8.37	1,400	550	270	5.6	4.2	11.6	---
(20.20)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	11.14	9.06	47,100	4,260	7,880	5,220	1,060	4,460	---
	04/02/02	NLPH	11.68	8.52	17,500	1,590	2,280	1,290	282	1,090	<500
	07/01/02	NLPH	11.97	8.23	5,370	1,910	1,170	200	44.0	158	<100b
	10/02/02	**NLPH**	**12.20**	**8.00**	**2,570**	**899**	**655**	**13.0**	**8.0**	**25.0**	**<100**
MW6I	11/26/96	NLPH	12.45	3.81	<50	<30	<0.5	<0.5	<0.5	<0.5	---
(16.26)	02/27/97	NLPH	12.24	4.02	<50	<30	<0.5	<0.5	<0.5	<0.5	---
	05/21/97	NLPH	12.82	3.44	<50	<30	<0.5	<0.5	<0.5	<0.5	---
	08/18/97	NLPH	12.81	3.45	<50	<30	<0.5	<0.5	<0.5	<0.5	---
	03/13/98	---	---	---	---	---	---	---	---	---	---
	04/20/98	NLPH	12.14	4.12	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
(20.24)	07/21/98	NLPH	12.59	7.65	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
	10/06/98	NLPH	12.81	7.43	---	---	---	---	---	---	---
	01/11/99	NLPH	12.74	7.50	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
	04/08/99	NLPH	11.93	8.31	---	---	---	---	---	---	---
	07/19/99	NLPH	11.75	8.49	281	17.6	35.4	9.1	7.4	30.7	---
	07/27/99	NLPH	12.95	7.29	---	---	---	---	---	---	---
	10/25/99	NLPH	12.79	7.45	---	---	---	---	---	---	---
	01/27/00	NLPH	12.06	8.18	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	04/03/00	NLPH	12.24	8.00	---	---	---	---	---	---	---
	07/05/00	NLPH	12.48	7.76	<50	<2	<0.5	<0.5	<0.5	<0.5	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.	TPHg	MTBE	B	T	E	X	TPHmo
		<.....feet.....>			<.....µg/L.....>						
MW6I (cont.)	10/04/00	---	---	---	---	---	---	---	---	---	---
(20.24)	10/05/00	---	---	---	---	---	---	---	---	---	<1,000
	01/04/01	NLPH	12.54	7.70	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	04/03/01	NLPH	12.32	7.92	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	07/05/01	NLPH	12.55	7.69	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/03/01	NLPH	12.67	7.57	<50	<2	<0.5	<0.5	<0.5	<0.5	---
(19.87)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	10.98	8.89	<100	<0.5	<0.50	<0.50	<0.50	<0.50	---
	04/02/02	NLPH	12.24	7.63	---	---	---	---	---	---	---
	07/01/02	NLPH	12.51	7.36	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<100b
	10/02/02	**NLPH**	**12.72**	**7.15**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
MW6J	07/05/01	NLPH	13.47	7.25	<50	<2	<0.5	<0.5	<0.5	<0.5	---
(20.72)	10/03/01	NLPH	13.57	7.15	<50	<2	<0.5	<0.5	<0.5	<0.5	---
(20.75)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	13.19	7.56	<100	<0.5	<0.50	<0.50	<0.50	<0.50	---
	04/02/02	NLPH	13.74	7.01	<50.0	1.00	0.80	<0.50	<0.50	0.80	<100
	07/01/02	NLPH	13.58	7.17	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<100b
	10/02/02	**NLPH**	**13.79**	**6.96**	**<50.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<100**
RW1	Not Monitored	6/16/92 through 10/6/98.									
(20.24)	01/11/99	NLPH	12.37	7.87	---	---	---	---	---	---	---
	04/08/99	NLPH	10.41	9.83	---	---	---	---	---	---	---
	07/19/99	---	---	---	---	---	---	---	---	---	---
	07/27/99	NLPH	12.76	7.48	---	---	---	---	---	---	---
	10/25/99	NLPH	12.50	7.74	---	---	---	---	---	---	---
	01/27/00	NLPH	12.11	8.13	---	---	---	---	---	---	---
	04/03/00	NLPH	12.07	8.17	---	---	---	---	---	---	---
	07/05/00	---	---	---	---	---	---	---	---	---	---
	10/04/00	---	---	---	---	---	---	---	---	---	---
	10/05/00	---	---	---	---	---	---	---	---	---	---
	01/04/01	NLPH	13.90	6.34	8,000	2,500	1,200	65	250	258	---
	04/03/01	NLPH	11.92	8.32	4,100	610	62	<2.5	18	61	---
	07/05/01	Not sampled: inaccessible			---	---	---	---	---	---	---
	10/03/01	NLPH	12.32	7.92	11,000	4,100	1,900	780	150	700	---
(20.43)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	10.85	9.58	32,000	7,760	358	2,270	894	4,820	---
	04/02/02	NLPH	11.72	8.71	4,220	922	172	22.5	106	340	<500

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California
(Page 6 of 7)

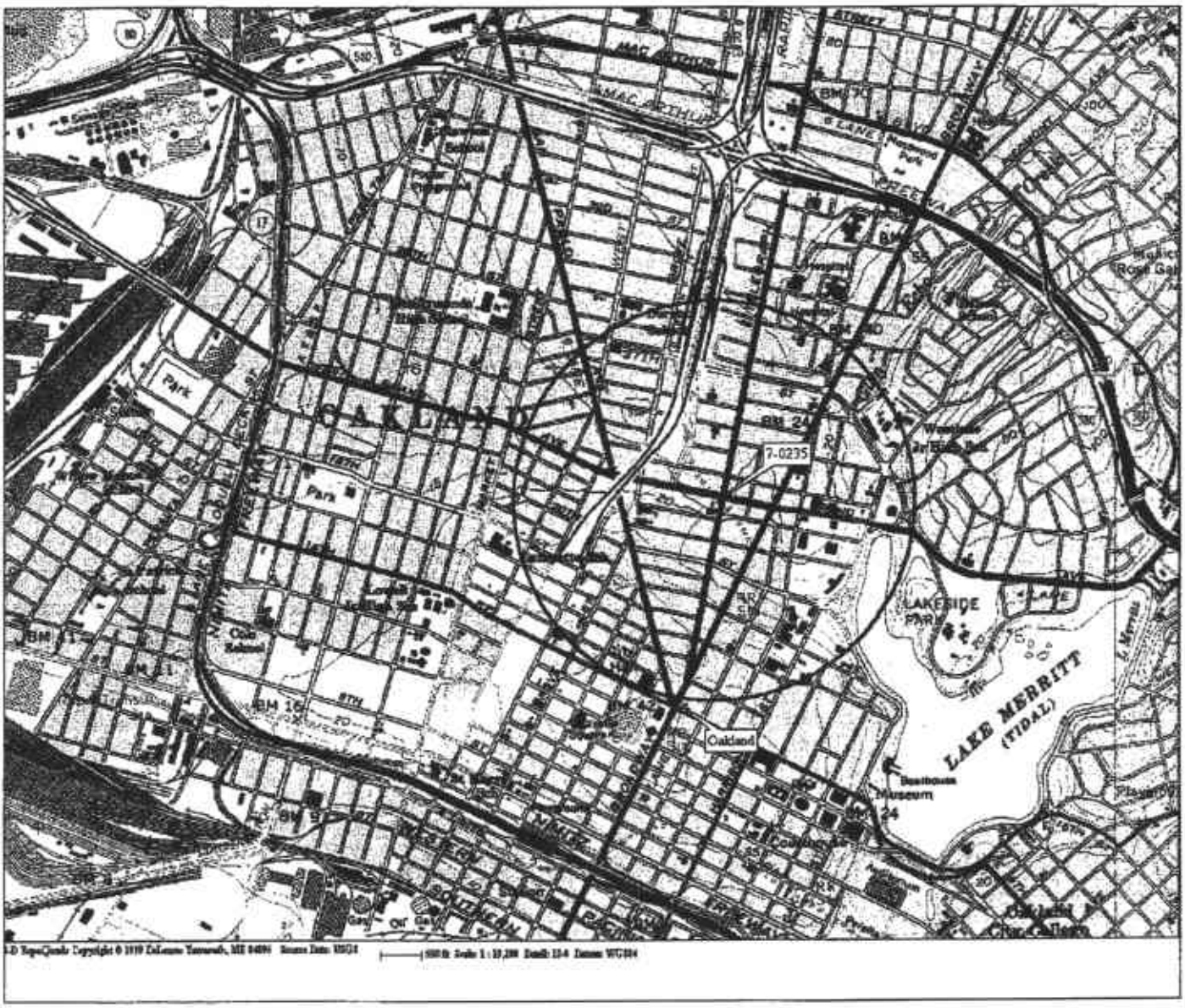
Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.	TPHg	MTBE	B	T	E	X	TPHmo
		<	feet	>	<			µg/L			>
RW1 (cont.)	07/01/02	NLPH	12.17	8.26	2,500	986	176	8.0	71.0	75.0	<100b
(20.43)	**10/02/02**	**NLPH**	**12.44**	**7.99**	**2,970**	**1,310**	**197**	**11.0**	**70.0**	**69.0**	**1,720**
RW2	Not Monitored 6/16/92 through 4/20/98.										
(20.44)	07/21/98	NLPH	12.65	7.79	3,500	170	240	100	41	96	---
	10/06/98	NLPH	13.06	7.38	3,200	200	120	48	56	120	---
	01/11/99	NLPH	12.88	7.56	3,300	350	150	17	35	40	---
	04/08/99	sheen	11.76	8.68	---	---	---	---	---	---	---
	07/19/99	NLPH	11.61	8.83	1,980	160/499a	44	4.16	22.3	11.6	---
	07/27/99	NLPH	13.26	7.18	---	---	---	---	---	---	---
	10/25/99	NLPH	12.96	7.48	1,800	440	51	<0.5	4.7	9.5	---
	01/27/00	NLPH	12.70	7.74	1,900	750	38	<2.5	4.8	10.4	---
	04/03/00	NLPH	11.97	8.47	2,100	300	28	2.4	1.4	0.73	---
	07/05/00	NLPH	12.50	7.94	2,300	230	20	<2.5	5.3	8	---
	10/04/00	NLPH	12.97	7.47	1,300	570	42	<2.5	15	17.7	---
	10/05/00	---	---	---	---	---	---	---	---	---	<1,000
	01/04/01	NLPH	13.71	6.73	1,000	380	33	<2.5	13	17.7	---
	04/03/01	NLPH	12.10	8.34	1,300	99	18	2.1	16	19.4	---
	07/05/01	Not sampled: inaccessible			---	---	---	---	---	---	---
	10/03/01	NLPH	12.8	7.64	1,900	240	35	4.4	34	105	---
(20.64)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	10.22	10.42	2,440	76.0	24.4	6.20	26.2	83.0	---
	04/02/02	NLPH	12.02	8.62	1,460	47.5	8.60	3.30	5.30	29.1	260
	07/01/02	NLPH	12.51	8.13	1,380	39.9	11.0	1.8	17.9	45.0	<100b
	10/02/02	**NLPH**	**12.91**	**7.73**	**720**	**46.9**	**5.5**	**1.7**	**3.7**	**11.9**	**<100**
RW3A	Not Monitored 6/16/92 through 4/20/98.										
(21.75)	07/21/98	NLPH	13.08	8.67	280	16	97	<1.2	<1.2	<1.2	---
	10/06/98	NLPH	13.72	8.03	78	26	26	0.89	<0.5	<0.5	---
	01/11/99	NLPH	12.00	9.75	1,000	230	490	5.0	<5.0	7.4	---
	04/08/99	NLPH	11.90	9.85	130	11	70	<1.0	<1.0	<1.0	---
	07/19/99	NLPH	11.75	10.00	989	16.4	393	6.40	5.70	15.0	---
	07/27/99	NLPH	13.68	8.07	---	---	---	---	---	---	---
	10/25/99	NLPH	13.61	8.14	150	19	53	<0.5	<0.5	<0.5	---
	01/27/00	NLPH	12.22	9.53	500	12	210	0.59	1.40	2.29	---
	04/03/00	NLPH	12.00	9.75	1,100	16	420	1.6	1.8	1.4	---
	07/05/00	NLPH	13.01	8.74	1,200	16	440	1.4	2.5	1.9	---
	10/04/00	NLPH	13.60	8.15	390	8.3	160	1.1	1.5	2.6	---
	10/05/00	---	---	---	---	---	---	---	---	---	<1,000

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California

Well ID # (TOC)	Sampling Date	SUBJ	DTW	Elev.	TPHg	MTBE	B	T	E	X	TPHmo
		<	feet	>	<		µg/L				>
RW3A (cont.)	01/04/01	NLPH	13.65	8.10	500	12	230	0.97	1.1	1.4	---
(21.75)	04/03/01	NLPH	12.30	9.45	710	7.5	290	<0.5	<0.5	<0.5	---
	07/05/01	NLPH	13.28	8.47	640	9	280	1.4	1.6	2.7	---
	10/03/01	NLPH	13.58	8.17	<50	12	21	<0.5	<0.5	<0.5	---
(21.89)	Nov-01	Well surveyed in compliance with AB 2886 requirements.									
	01/02/02	NLPH	10.80	11.09	<100	11.2	<0.50	<0.50	<0.50	<0.50	---
	04/02/02	NLPH	12.03	9.86	55.7	11.0	1.30	<0.50	<0.50	<0.50	<100
	07/01/02	NLPH	13.13	8.76	275	21.7	60.4	<0.5	2.4	4.2	<100b
	10/02/02	NLPH	13.70	8.19	138	11.1	53.4	<0.5	<0.5	0.7	114

Notes:

SUBJ	=	Results of subjective evaluation.
NLPH	=	No liquid-phase hydrocarbons present in well.
sheen	=	Liquid-phase hydrocarbon present as sheen.
TOC	=	Elevation of top of well casing; relative to mean sea level.
DTW	=	Depth to water.
Elev.	=	Elevation of groundwater surface; relative to mean sea level.
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method 5030/8015 (modified).
TPHmo	=	Total petroleum hydrocarbons as motor oil using EPA Method 8015B.
MTBE	=	Methyl tertiary butyl ether analyzed using EPA Method 8021B.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8021B.
<	=	Less than the indicated reporting limit shown by the laboratory.
---	=	Not measured/Not sampled.
µg/L	=	Micrograms per liter.
a	=	Analyzed using EPA Method 8260B.
b	=	TPHmo analyses performed outside of hold time.



FN 2229Topo

EXPLANATION

1/2-mile radius circle

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from a map
provided by
DeLorme 3-D TopoQuads

ENVIRONMENTAL RESOLUTIONS, INC.

SITE VICINITY MAP

FORMER EXXON SERVICE STATION 7-0235
2225 Telegraph Avenue
Oakland, California

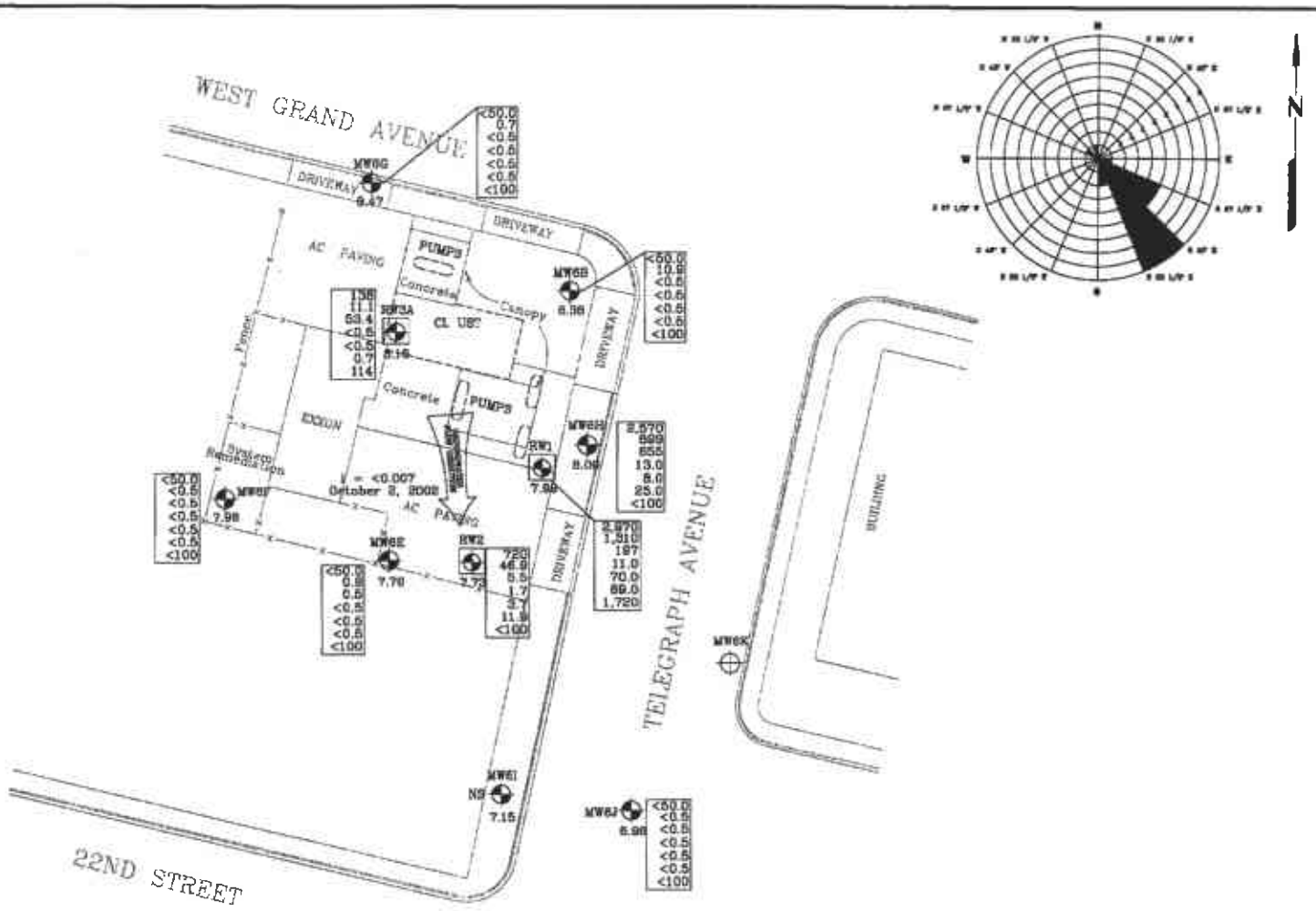
PROJECT NO.
2229

PLATE
1

Analyte Concentrations in ug/L
Sampled October 2, 2002

2,970	Total Petroleum Hydrocarbons as gasoline
1,310	Methyl Tertiary Butyl Ether
197	Benzene
11.0	Toluene
70.0	Ethylbenzene
69.0	Total Xylenes
1,720	Total Petroleum Hydrocarbons as motor oil (TPHmo)

< Less Than the Stated Laboratory Reporting Limit
ug/L Micrograms per Liter
NS Not Sampled



APPROXIMATE SCALE
0 40 80 Feet

FN 2229004a

i = Interpreted Hydraulic Gradient

ENVIRONMENTAL RESOLUTIONS, INC.

GENERALIZED SITE PLAN

FORMER
EXXON SERVICE STATION 7-0235
2225 Telegraph Avenue
Oakland, California

EXPLANATION

MW6J Groundwater Monitoring Well

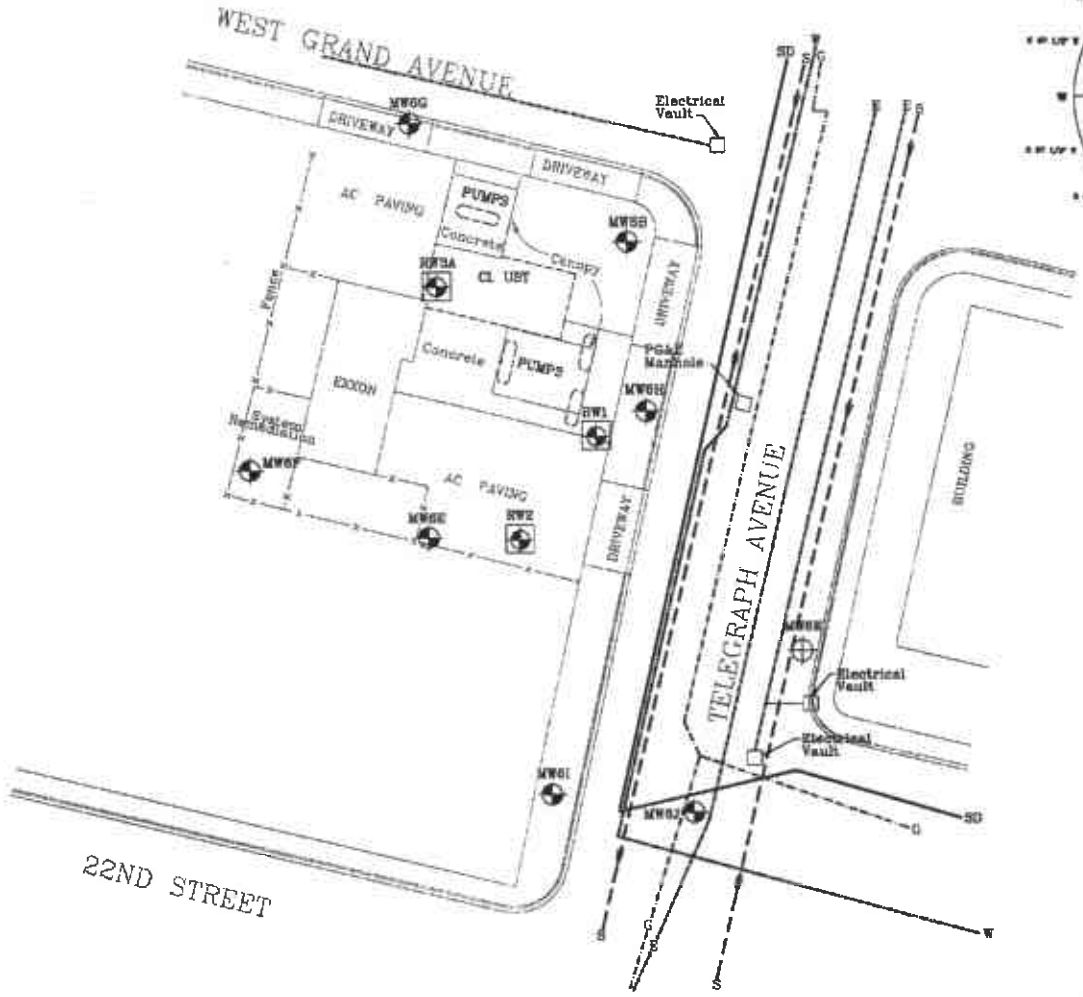
6.96 Groundwater elevation in feet; datum is mean sea level

RW3A Recovery Groundwater Monitoring Well

MW6K Proposed Groundwater Monitoring Well

PROJECT NO. 2229

PLATE 2



APPROXIMATE SCALE

0 40 80 Feet

FN 2229004a

Utility Legend
- Electric
- Gas
- Sewer
- Storm Drain
- Water

ENVIRONMENTAL RESOLUTIONS, INC.

UTILITY MAP

FORMER
EXXON SERVICE STATION 7-0235
2225 Telegraph Avenue
Oakland, California

EXPLANATION

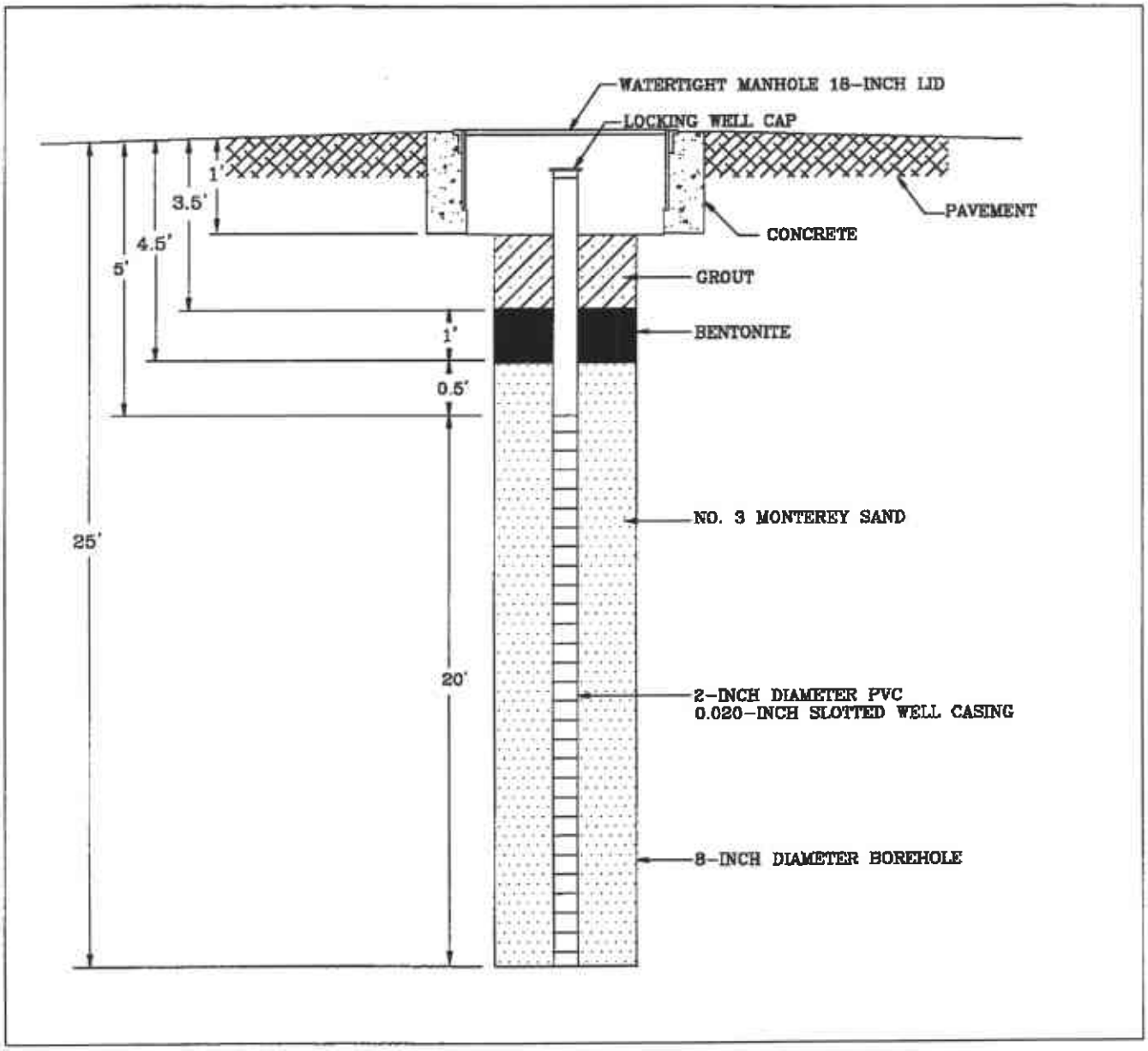
MW6J Groundwater Monitoring Well

MW6K Proposed Groundwater Monitoring Well

MW3A Recovery Groundwater Monitoring Well

PROJECT NO. 2229

PLATE 3



FN 2229gmw

NOT TO SCALE

ERI ENVIRONMENTAL RESOLUTIONS, INC.

WELL CONSTRUCTION DETAILS

FORMER EXXON SERVICE STATION 7-0235
2225 Telegraph Avenue
Oakland, California

PROJECT NO. 2229

PLATE 4

ATTACHMENT A

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY LETTER, DATED SEPTEMBER 11, 2002

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

September 11, 2002

Gene Ortega, Territory Manager Global Remediation – US Retail
ExxonMobil
Refining & Supply Co.
Global Remediation
2300 Clayton Rd., Suite 1250
Concord, CA 94520

Dear Mr. Ortega:

Subject: Fuel Leak Case No. RO0000358, Exxon #7-0235,
2225 Telegraph Ave., Oakland, CA

Alameda County Environmental Health staff reviewed "Well Installation Report ..." dated September 7, 2001; "Dual-Phase Extraction Pilot Test" dated October 19, 2001, and quarterly groundwater monitoring reports including "...2nd Quarter 2002", all prepared by Environmental Resolutions, Inc.

TECHNICAL COMMENTS

1) Conduit Study – The groundwater monitoring wells downgradient and closer to the former tank location and dispensers, MW6H, RW1, and RW2, found concentrations as high as 47,100 ug/l TPHG, 7,880 ug/l benzene and 7,760 ug/l MTBE, since 2001. Further downgradient groundwater monitoring wells, MW6I and MW6J, have almost always been NonDectable (ND) for all contaminants of concern. A conduit study is needed to determine if preferential pathways exist.
2) Site Characterization - The groundwater plume appears to be migrating off the eastside of the property. Submit a proposal for additional groundwater sampling to delineate the plume.

3) DPE Interim Remediation - "Dual-Phase Extraction (DPE) Pilot Test" dated October 19, 2001 determined that DPE was effective at this site. Submit your recommendation and specifications for DPE on a full scale.
4) Groundwater Monitoring - Include fuel oxygenates, Tertiary Amyl Methyl Ether (TAME), Ethyl Tertiary Butyl Ether (ETBE), Di-Isopropyl Ether (DIPE), Tertiary Butyl Alcohol (TBA), and Ethanol. Also, include lead scavengers, Ethylene Dibromide (EDB), Ethylene Dichloride (EDC). In your discussion of the results, provide recommendation as to whether these analyses should be continued.
5) Soil Sample Analyses for MW6A, MW6B, MW6C, MW6D (drilled June & July 1988) – Missing. Submit.

REQUEST FOR INFORMATION

You were previously requested to submit a "list of landowners" in a letter dated May 4, 1999. No response was found in our files. Enclosed is a copy of our letter. You must inform all current record owners of fee title to the site of proposed actions and certify to us that they have been informed. Please submit a "list of landowners".

TECHNICAL REPORT REQUEST

Please submit the following technical reports to the Alameda County Environmental Health (Attention: Don Hwang), according to the following schedule:

October 31, 2002 - Work Plan
October 31, 2002 - Quarterly Groundwater Monitoring Report, 3rd Quarter 2002
October 31, 2002 - Soil Sample Report for MW6A, MW6B, MW6C, MW6D
January 31, 2003 - Quarterly Groundwater Monitoring Report, 4th Quarter 2002
April 30, 2003 - Quarterly Groundwater Monitoring Report, 1st Quarter 2003
July 31, 2003 - Quarterly Groundwater Monitoring Report, 2nd Quarter 2003

If you have any questions, you may call me at 510/567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist
Local Oversight Program

c: Paula Sime, Environmental Resolutions, Inc., 73 Digital Dr., Novato, CA 94949-5791

File

ATTACHMENT B

ERI STANDARD FIELD PROTOCOL

FIELD PROTOCOL

Site Safety Plan

Field work is performed by ERI personnel in accordance with a site safety plan (SSP) developed for the site. The SSP describes the basic safety requirements for the subsurface investigation and the drilling of soil borings at the work site. The SSP is applicable to personnel and subcontractors of ERI. Personnel at the site are informed of the contents of the SSP before work begins. A copy of the SSP is kept at the work site and is available for reference by appropriate parties during the work. The ERI geologist acts as the Site Safety Officer.

Soil Borings and Sampling

Prior to drilling of borings and construction of wells, ERI acquires necessary permits from the appropriate agency(ies). ERI also contacts Underground Service Alert (USA) before drilling to help locate public utility lines at the site. ERI observes the driller hand-probe and hand-auger boring locations to a depth of approximately 4 feet below ground surface (bgs) and a diameter greater than the soil boring diameter before drilling to reduce the risk of damaging underground structures.

Soil borings are drilled with a B-57 (or similar) drill rig equipped with 8-inch diameter, hollow-stem augers. Auger flights and sampling equipment are steam-cleaned before use to minimize the possibility of crosshole contamination. The rinsate is containerized and stored on site. ERI coordinates with ExxonMobil for appropriate recycling or disposal of the rinsate.

Drilling is performed under the observation of a field geologist, and the earth materials in the borings are identified using visual and manual methods, and classified as drilling progresses using the Unified Soil Classification System. Soil borings will be drilled to approximately 25 feet bgs.

During drilling, soil samples are collected at 5-foot intervals, obvious changes in lithology, and just above the groundwater surface. Samples are collected with a California-modified, split-spoon sampler equipped with laboratory-cleaned brass sleeves. Samples are collected by advancing the auger to a point just above the sampling depth and driving the sampler into the soil. The sampler is driven 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows required to drive the sampler each successive 6-inch interval is counted and recorded to give an indication of soil consistency.

Soil samples are monitored with a photo-ionization detector (PID), which measures hydrocarbon concentrations in the ambient air or headspace above the soil sample. Field instruments such as the PID are useful for indicating relative levels of hydrocarbon vapors, but do not detect concentrations of hydrocarbons with the same precision as laboratory analyses. Soil samples selected for possible chemical analyses are sealed promptly with Teflon® tape and plastic caps. The samples are labeled and placed in iced storage for transport to the laboratory. Chain of Custody Records are initiated by the geologist in the field, updated throughout handling of the samples, and sent with the samples to the laboratory. Copies of these records are submitted with ERI's report. Cuttings generated during drilling are placed in 55-gallon drums and left at the site. ERI coordinates with ExxonMobil for disposal of the soil at an ExxonMobil-approved disposal facility.

Monitoring Well Construction

Monitoring wells are constructed in borings using thread-jointed, 2-inch inner diameter, Schedule 40 polyvinyl chloride (PVC) casing. No chemical cements, glues, or solvents are used in well construction. The screened portion of each well consists of factory-perforated casing with 0.020-inch wide slots. If unconfined aquifer conditions exist, the well screen is installed from the total depth of each well to approximately 10 feet above the uppermost water-bearing unit. If confined conditions exist, the uppermost water-bearing unit is screened exclusively. Unperforated casing is installed from the top of each screen to the ground surface. The annular space in the well is packed with number 3 sand to approximately 1 to 2 feet above the slotted interval. A bentonite plug is added above the sand pack to prevent cement from entering the well pack. The remaining annulus is backfilled to grade with a mixture of Portland cement.

The monitoring wells are protected with a traffic-rated steel utility box equipped with a galvanized sheet steel skirt. The box has a watertight seal to protect against surface-water infiltration. The design of this box discourages vandalism and reduces the possibility of accidental disturbance of the well.

Well Development

ERI waits a minimum of 24 hours before development of the monitoring wells to allow the grout to seal. The wells are developed with a surge block and pump. Well development continues until the discharge water is clear of silt and sand. Clay-size sediments derived from the screened portion of the formation cannot be eliminated by well development. ERI coordinates with ExxonMobil for disposal of the purged water.

Groundwater Sampling Protocol

The static water level and separate-phase product level, if present, in each well that contains water and/or separate-phase product are measured with an ORS Interface Probe, which is accurate to the nearest 0.01 foot. To calculate groundwater elevations and evaluate groundwater gradient, depth to water (DTW) levels are subtracted from top of casing elevations.

Groundwater samples collected for subjective evaluation are collected by lowering approximately half the length of a clean Teflon® or polypropylene bailer past the air-water interface (if possible) and collecting a sample from near the surface of the water in the well. The samples are checked for measurable free-phase hydrocarbons or sheen. If appropriate, free-phase hydrocarbons are removed from the well.

Before water samples are collected from the groundwater monitoring wells, the wells are purged until a minimum of three well casing volumes is purged and stabilization of the temperature, pH, and conductivity is 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:

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

r	=	radius of the well casing in feet.
h	=	column of water in the well in feet (depth to bottom - depth to water)
7.48	=	conversion constant from cubic feet to gallons
π	=	ratio of the circumference of a circle to its diameter

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

After purging, each well is allowed to recharge to at least 80% of the initial water level. Water samples from wells that do not recover at least 80% (due to slow recharging of the well) between purging and sampling are considered to be "grab samples". Water samples are collected with a new, disposable Teflon® or polypropylene bailer. The groundwater is carefully poured into selected sample containers (40-milliliter (ml) glass vials, 1,000-ml glass amber bottles, etc.), which are filled so as to produce a positive meniscus.

Depending on the required analysis, each sample container is preserved with hydrochloric acid, nitric acid, etc., or it is preservative free. The type of preservative used for each sample is specified on the Chain-of-Custody form.

Each vial and glass amber bottle is sealed with a cap containing a Teflon® septum, and subsequently examined for air bubbles to avoid headspace, which would allow volatilization to occur. The samples are promptly transported in iced storage in a thermally-insulated ice chest, accompanied by a Chain-of-Custody Record, to a California-certified laboratory.