RO 2424

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Gene Ortega
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ExxonMobil
Refining & Supply

April 19, 2002

APR 23 2002

Ms. Eva Chu
Alameda County Health Agency
Division of Environmental Protection
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: Former Exxon RAS #7-0210/7840 Amador Valley Boulevard, Dublin, California

Dear Ms. Chu:

Attached for your review and comment is a copy of the *Work Plan for Offsite Subsurface Investigation* dated April 2002 for the above-referenced site. The work plan was prepared by ETIC Engineering, Inc. of Pleasant Hill, California, in response to a request from the Alameda County Health Agency to ExxonMobil Refining and Supply Company in a letter dated February 11, 2002.

If you have any questions or comments, please contact me at (925) 246-8747.

Sincerely,

Gene N. Ortega
Territory Manager

Attachment: ETIC Work Plan for Offsite Subsurface Investigation dated April 2002

c: w/attachment:
Mr. Joseph Aldridge - Valero Energy Corporation

c: w/o attachment:
Ms. Christa Marting - ETIC Engineering, Inc.

RO-2424

ETIC
Engineering, Inc.

APR 23 2002

Work Plan for Offsite Subsurface Investigation

Former Exxon Retail Site 7-0210
7840 Amador Valley Boulevard
Dublin, California

Prepared for

ExxonMobil Refining and Supply Company
2300 Clayton Road, Suite 1250
Concord, California 94520

Prepared by

ETIC Engineering, Inc.
2285 Morello Avenue
Pleasant Hill, California 94523
(925) 602-4710

Ted Moise
Project Manager

4/18/02
Date

Heidi Dieffenbach-Carle
Heidi Dieffenbach-Carle, R.G. #6793
Senior Geologist

April 18, 2002
Date

REGISTERED GEOLOGIST
HEIDI L. DIEFFENBACH-CARLE
No. 6793
exp 03/31/04
STATE OF CALIFORNIA

April 2002

SITE CONTACTS

Station Number:	Former Exxon Retail Site 7-0210
Station Address:	7840 Amador Valley Boulevard Dublin, California
ExxonMobil Project Manager:	Gene N. Ortega ExxonMobil Refining and Supply Company 2300 Clayton Road, Suite 1250 Concord, California 94520 (925) 246-8747
Consultant to ExxonMobil:	ETIC Engineering, Inc. 2285 Morello Avenue Pleasant Hill, California 94523 (925) 602-4710
ETIC Project Manager:	Ted Moise
Regulatory Oversight:	Eva Chu Alameda County Health Agency Division of Environmental Protection Department of Environmental Health 1131 Harbor Bay Parkway, 2nd Floor Alameda, California 94502 (510) 567-6700

INTRODUCTION

At the request of ExxonMobil Refining and Supply Company (ExxonMobil), ETIC Engineering, Inc. (ETIC) has prepared this work plan for the investigation of petroleum hydrocarbon and methyl t-butyl ether (MTBE) impacts to soil and groundwater offsite of former Exxon Retail Site (RS) 7-0210, located at 7840 Amador Valley Boulevard, Dublin, California. This work plan has been prepared in response to a request from the Alameda County Health Agency (ACHA) to ExxonMobil in a letter dated 11 February 2002 (Appendix A).

SITE BACKGROUND, STATUS, AND BRIEF HISTORY

Former Exxon RS 7-0210 was owned and operated by Texaco until 1988, when it was purchased by Exxon. In February 1990, Exxon replaced product dispensers and installed a vapor recovery system. In October 1991, Exxon replaced three 8,000-gallon single-walled steel underground storage tanks (USTs) with the existing three 12,000-gallon double-walled fiberglass-reinforced plastic (FRP) tanks. The piping was also upgraded to double-walled FRP. The locations of the present and former tank fields are indicated in Figure 1. Two 1/4-inch holes were found in the bottom of the regular unleaded tank and one 1/2-inch hole was found in the bottom of the extra unleaded tank when the tanks were removed (EA 1991).

Closure samples were collected from native soils beneath the single-walled steel USTs and at the sidewalls of the tank pit when the tanks were replaced in October 1991 (EA 1991). A maximum concentration of Total Petroleum Hydrocarbons as gasoline (TPH-g) of 1,000 mg/kg and benzene concentration of 1.2 mg/kg were measured in samples collected from the bottom of the southeastern corner of the tank field. Additional soils were excavated down to groundwater (16 feet below ground surface [bgs]), where soil samples were collected; a maximum TPH-g concentration of 300 mg/kg and benzene concentration of 0.68 mg/kg were measured in the sample collected 16 feet bgs in the southeastern corner of the tank field. The analytical results are summarized in Table 1.

Four groundwater monitoring wells were installed in May 1992 (EA 1992) and monitored for petroleum hydrocarbons until June 1995. Well construction details are presented in Table 2. These monitoring wells were destroyed in April 1996 (EA 1996). Monitoring well destruction was authorized by the Alameda County Health Agency Department of Environmental Health and the Regional Water Quality Control Board in a March 1996 site closure letter to Exxon (ACHA 1996). The locations of these former wells are presented in Figure 1. The analytical results for groundwater samples collected from these wells (EA 1995) are presented in Table 3.

A Baseline Environmental Assessment report was prepared by EA Engineering, Science, and Technology in January 1999 documenting soil and groundwater samples collected from soil borings B1-B4, which were analyzed for TPH-g, for benzene, toluene, ethylbenzene, and xylenes (BTEX), and for MTBE. TPH-g and BTEX were not detected in any of the soil samples collected during the investigation. Total Petroleum Hydrocarbons as diesel (TPH-d) was detected in the 5-foot samples collected from B1-B4 at a maximum concentration of 2.1 mg/kg. MTBE was detected only in the sample collected from B1 at a depth of 15-16 feet bgs, at a concentration of 0.78 mg/kg.

BTEX and TPH-g were not detected above laboratory detection limits in any of the groundwater samples collected from borings B1-B4 with the exception of toluene (1.7 µg/L) and TPH-g

(100 µg/L), detected in the sample collected from B1. MTBE was detected by EPA Method 8260 at a concentration of 4,000 µg/L in the groundwater sample collected from B1 and at a concentration of 19 µg/L in the sample collected from B2. The analytical results for these soil and groundwater samples (EA 1999) are summarized in Tables 1 and 4, respectively.

A letter report was prepared by ETIC presenting analytical results of split samples collected on behalf of ExxonMobil Refining and Supply Company during the Valero Energy Corporation subsurface investigation at the site on 20 April 2000. Soil borings 70210-1 and 70210-2 were advanced to collect groundwater samples. The locations of these soil borings are presented in Figure 1. These groundwater samples did not contain detectable concentrations of TPH-g, BTEX, or MTBE, with the exception of 140 µg/L TPH-g, 7.2 µg/L total xylenes, and 190 µg/L MTBE in sample 70210-2 (ETIC 2000). These analytical results are summarized in Table 5.

On 14 November and 15 November 2000, three soil borings, MW5-MW7, were drilled to approximately 25 feet bgs. The borings were completed as 2-inch-diameter groundwater monitoring wells. Well construction details are summarized in Table 2. TPH-g, benzene, and toluene were not detected in any of the soil samples at concentrations above laboratory method detection limits. Ethylbenzene was detected at a concentration of 0.0033 mg/kg in MW5 (9.5-10 feet). Ethylbenzene was not detected in samples from MW6 and MW7. Xylenes were detected at concentrations of 0.0038 mg/kg in MW5 (9.5-10 feet) and 0.001 mg/kg in MW6 (13-13.5 feet). Xylenes were not detected above laboratory detection limits in MW7. MTBE was detected at concentrations of 0.023 mg/kg in MW5 (13-13.5 feet) and 0.018 mg/kg in MW6 (13-13.5 feet) using EPA Method 8021B. MTBE was not detected in these samples above reported detection limits using EPA Method 8260B. MTBE was not detected in samples from MW7 (ETIC 2001). The analytical results are summarized in Table 1.

Wells MW5-MW7 have been sampled quarterly from November 2000 to the present. During the fourth quarter 2001 groundwater sampling event, the maximum concentrations of MTBE (8260), TPH-d, and TPH-g were detected in samples collected from MW5, at 420, 86, and 70 µg/L, respectively. Benzene has never been detected above laboratory detection limits in the three existing wells at the site (ETIC 2002). Groundwater analytical results are summarized in Table 3.

PROPOSED SCOPE OF WORK FOR SUBSURFACE INVESTIGATION

Direct push technology is proposed for drilling four offsite soil borings to collect depth discrete soil and groundwater samples. Prior to field work, the appropriate permits from the Zone 7 Water Agency will be obtained, and an offsite access agreement will be established with the offsite property owners. The locations of the proposed borings will be downgradient of the site, as presented in Figure 1. Direct push technology and soil and water sampling methods are described in Appendix B. All boreholes will be logged to the total depth explored. Actual borehole depths will be dependent on lithology encountered in the field, but boreholes will be terminated in the fine-grained unit encountered at approximately 25 feet bgs in onsite borings. If the lithology encountered prevents the advancement of the direct push equipment the borehole will be discontinued.

Selected soil samples will be collected from each boring for laboratory analysis. At least two samples will be collected from each boring, one from the vadose zone at a depth that approximates the highest historical groundwater elevation, and one from the current capillary fringe zone.

Additional soil samples may be collected for laboratory analysis based on significant lithologic changes and/or field organic vapor analyzer (OVA) measurements. Depth discrete groundwater samples will be collected from the sand zones of each of the proposed borehole locations and at any significant lithological changes. Soil and groundwater samples will be analyzed for TPH-g and TPH-d by EPA Method 8015, for BTEX by EPA Method 8021, and for MTBE and the oxygenates ethanol, t-butanol, di-isopropyl ether, ethyl t-butyl ether, and t-amyl methyl ether and the additives ethylene dibromide and 1,2-dichloroethane by EPA Method 8260.

In addition to the above-mentioned borings, local agencies will be contacted to obtain available information on the location, depth, grade, and construction (including backfill material) of the utilities in the vicinity of the site. Based on utility information obtained and data collected from the above-proposed soil and groundwater investigation, utilities will be evaluated to the greatest extent practicable for their potential as pathways for migration of fuel constituents from the site, as requested by the ACHA in correspondence sent to ExxonMobil dated 1 March 2002 (Appendix A).

SCHEDULING AND REPORTING

As the proposed scope of field work is exclusively offsite, field work will be scheduled as soon as an offsite access agreement is established with the property owner. A technical report documenting field activities and results will be submitted 90 days after completing field work. This technical report will include a summary of the investigation results, boring logs, analytical results, and site maps presenting the analytical data.

REFERENCES

ACHA (Alameda County Health Agency). 1996. Letter regarding well decommission at Exxon Service Station 7-0210, 7840 Amador Valley Blvd., Dublin 94568. ACHA, Department of Environmental Health, Alameda, California. 18 March.

EA (EA Engineering, Science, and Technology). 1991. Report of Closure Sampling, Exxon Retail Site 7-0210, 7840 Amador Valley Boulevard, Dublin, California. EA, Lafayette, California.

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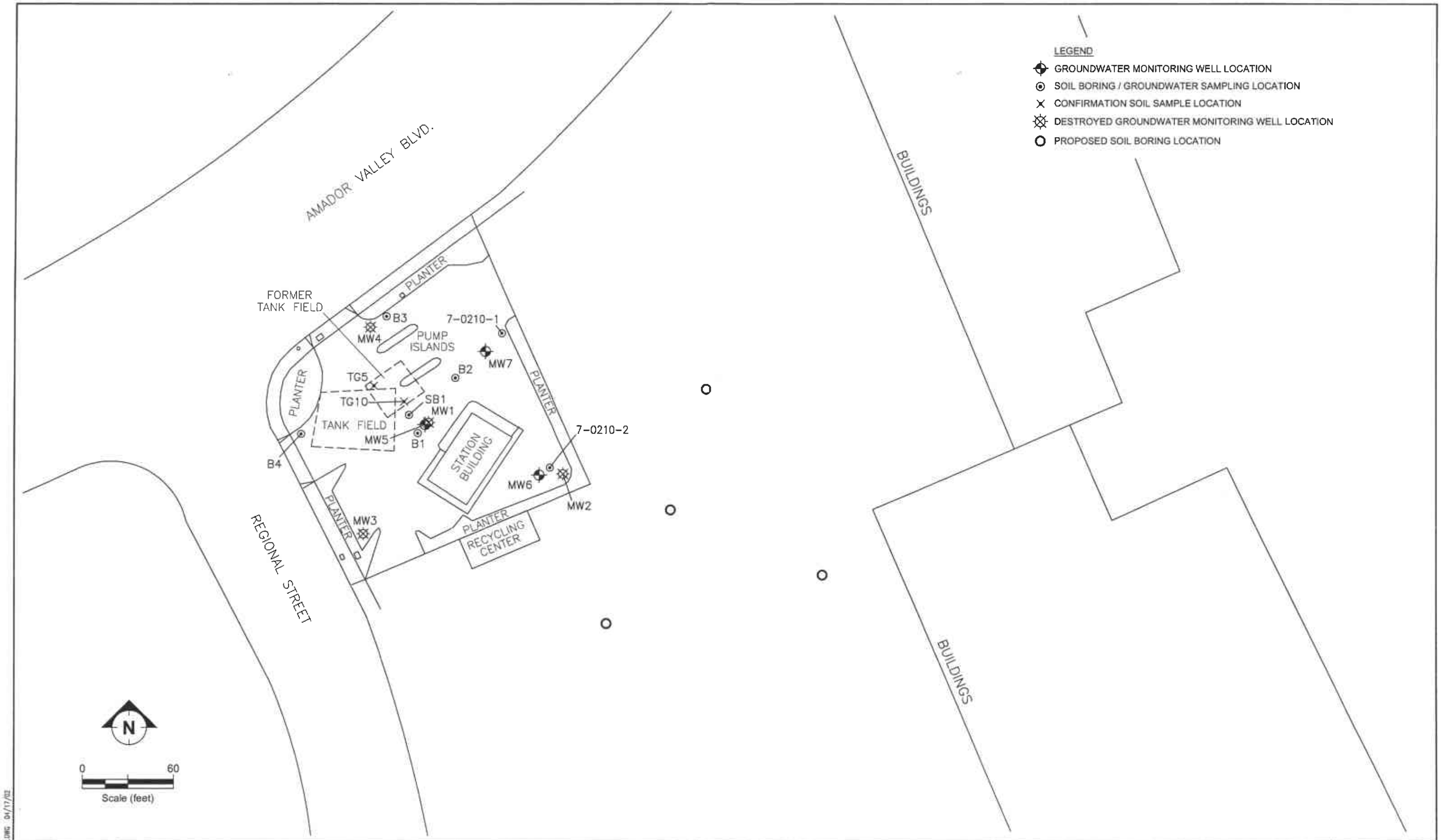
ETIC (ETIC Engineering, Inc.). 2002. Report of Groundwater Monitoring, Fourth Quarter 2001, Former Exxon Retail Site 7-0210, 7840 Amador Valley Boulevard, Dublin, California. ETIC, Pleasant Hill, California. February.



FILENAME: OFFSITE0402.DWG 04/17/02

ETIC Engineering, Inc.

SITE PLAN SHOWING PROPOSED SOIL BORING LOCATIONS
FORMER EXXON RS 7-0210
7840 AMADOR VALLEY BLVD.
DUBLIN, CALIFORNIA

FIGURE: 1

TABLE 1 HISTORICAL SOIL SAMPLE ANALYTICAL RESULTS, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

Sample ID	Date	Sample Depth (ft bgs)	Concentration (mg/kg)									
			Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-g	TPH-d	MTBE	MTBE 8260B	Organic lead	TOC (%)
SB-1	10/16/91	5.5-6	<0.001	<0.001	<0.001	<0.001	<0.2	NA	NA	NA	NA	NA
		10-10.5	<0.001	<0.001	<0.001	<0.001	<0.2	NA	NA	NA	NA	NA
		15.5-16	0.045	0.15	0.67	2	69	NA	NA	NA	NA	NA
TG1	10/30/91	12	<0.005	<0.005	0.009	0.007	<1.0	NA	NA	NA	NA	NA
TG2	10/30/91	13	0.25	0.75	3.2	14	440	<5.0	NA	NA	NA	NA
TG3	10/30/91	15	0.023	0.074	0.064	0.21	7.5	NA	NA	NA	NA	NA
TG4	10/30/91	14	1.2	8.8	17	98	1,000	<5.0	NA	NA	NA	NA
TG5	10/30/91	15	0.025	<0.005	0.037	0.044	13	NA	NA	NA	NA	NA
TG6	10/30/91	14	0.046	<0.005	0.13	0.075	21	<5.0	NA	NA	NA	NA
TG7	10/30/91	13	<0.005	<0.005	<0.005	0.038	<1.0	NA	NA	NA	NA	NA
TG8	10/30/91	15	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
TG9	10/30/91	16	0.68	0.69	5.7	21	300	NA	NA	NA	NA	NA
TG10	10/30/91	16	0.01	<0.005	0.052	0.13	2.8	NA	NA	NA	NA	NA
TG11	10/30/91	16	<0.005	<0.005	<0.005	<0.005	<1.0	<5.0	NA	NA	NA	NA
PL1	10/30/91	2.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
PL2	10/30/91	2.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
PL3	10/30/91	2.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
PL4	10/30/91	2.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
PL5	10/30/91	2.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
PL6	10/30/91	2.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
NP1	10/31/00	14	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
NP2	10/31/00	14	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
NP3	10/31/00	14	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
NP4	10/31/00	14	<0.005	<0.005	<0.005	<0.005	<1.0	NA	NA	NA	NA	NA
MW1	5/14/92	10.5-11	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	NA	NA	0.25	NA
		14-14.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	NA	NA	0.2	NA
MW2	5/13/92	11-11.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	NA	NA	NA	NA
		14.5-15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	NA	NA	NA	NA
MW3	5/13/92	11-11.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	NA	NA	NA	NA
		15.5-16	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	NA	NA	NA	NA

TABLE 1 HISTORICAL SOIL SAMPLE ANALYTICAL RESULTS, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

Sample ID	Date	Sample Depth (ft bgs)	Concentration (mg/kg)									
			Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-g	TPH-d	MTBE	MTBE 8260B	Organic lead	TOC (%)
MW4	5/14/92	11-11.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	NA	NA	NA	NA
		14.5-15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	NA	NA	NA	NA
B1	11/16/98	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	1.1	<0.025	NA	NA	NA
	12/03/98	10-11	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	<0.025	NA	NA	NA
	12/03/98	15-16	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	0.78	NA	NA	NA
B2	11/16/98	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	1.1	<0.025	NA	NA	NA
	12/03/98	10-11	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	<0.025	NA	NA	NA
	12/03/98	14-15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	<0.025	NA	NA	NA
B3	11/16/98	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	2.1	<0.025	NA	NA	NA
	12/03/98	10-11	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	<0.025	NA	NA	NA
	12/03/98	12-12.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	<0.025	NA	NA	NA
	12/03/98	19-20	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	<0.025	NA	NA	NA
B4	11/16/98	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	1.3	<0.025	NA	NA	NA
	12/03/98	8-9	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	<0.025	NA	NA	NA
	12/03/98	15-16	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	NA	<0.025	NA	NA	NA
MW5	11/15/00	9.5-10	<0.001	<0.001	0.0033	0.0038	<1.0	NA	<0.001	NA	NA	NA
		13-13.5	<0.001	<0.001	<0.001	<0.001	<1.0	NA	0.023	<0.01	NA	NA
MW6	11/14/00	10-10.5	<0.001	<0.001	<0.001	<0.001	<1.0	NA	<0.001	NA	NA	0.257
		13-13.5	<0.001	<0.001	<0.001	0.001	<1.0	NA	0.018	<0.01	NA	NA
MW7	11/14/00	10-10.5	<0.001	<0.001	<0.001	<0.001	<1.0	NA	<0.001	NA	NA	NA
		13.5-14	<0.001	<0.001	<0.001	<0.001	<1.0	NA	<0.001	NA	NA	NA

ft bgs	Feet below ground surface.
TPH-g	Total Petroleum Hydrocarbons as gasoline.
TPH-d	Total Petroleum Hydrocarbons as diesel.
TOC	Total organic carbon.
MTBE	Methyl t-butyl ether.
mg/kg	Milligrams per kilogram.
NA	Not analyzed.

TABLE 2 WELL CONSTRUCTION DETAILS, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

Well Number		Well Installation Date	Elevation TOC (feet)	Casing Material	Total Depth (feet)	Well Depth (feet)	Borehole Diameter (inches)	Casing Diameter (inches)	Screened Interval (feet)	Slot Size (inches)	Filter Pack Interval (feet)	Filter Pack Material
MW1	a	04/14/92	96.32	PVC	26.5	24.75	10.25	4	11-24	0.010	10-25	--
MW2	a	05/13/92	95.91	PVC	26	25	10.25	4	10-25	0.010	9.5-26	--
MW3	a	05/14/92	97.95	PVC	28	27.75	10.25	4	12.5-27.5	0.010	11-28	--
MW4	a	05/14/92	96.69	PVC	26.5	25	10.25	4	12-25	0.010	11-26	--
MW5	b	11/15/00	352.95	PVC	25	25	8.25	2	10-25	0.020	7-25	#3 sand
MW6	b	11/14/00	352.69	PVC	27	25	8.25	2	10-25	0.020	8-27	#3 sand
MW7	b	11/14/00	351.87	PVC	26	25	8.25	2	10-25	0.020	7-25	#3 sand

a Well was destroyed April 1996.
b Elevation is based on the Alameda Benchmark AM-STW. Elevation = 344.17 feet.
PVC Polyvinyl chloride.
TOC Top of casing.
-- Information not available.

TABLE 3 GROUNDWATER MONITORING DATA, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

Well Number	Date	Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	LPH Thickness (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPH-g (µg/L)	TPH-d (µg/L)	MTBE (µg/L)	Other Oxygenates and Additives (µg/L)
MW1	05/21/92	96.32	14.45	81.87	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW1	02/10/93	96.32	12.22	84.10	0.00	3.1	<0.5	1.8	0.6	2,600		NA	
MW1	05/20/93	96.32	10.74	85.58	0.00	1.9	<0.5	1.8	<1.0	1,000		NA	
MW1	06/23/93	96.32	11.74	84.58	0.00	1.0	<0.5	1.2	<0.5	1,300		NA	
MW1	08/23/93	96.32	12.72	83.60	0.00	<0.5	<0.5	<0.5	0.8	80		NA	
MW1	10/25/93	96.32	13.99	82.33	0.00	<0.5	<0.5	0.8	1.3	140		NA	
MW1	02/16/94	96.32	14.90	81.42	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW1	04/16/94	96.32	14.49	81.83	0.00	<0.5[b]	<0.5	<0.5	<0.5	190		NA	
MW1	07/26/94	96.32	15.11	81.21	0.00	<0.5[b]	<0.5	<0.5	<0.5	130		NA	
MW1	10/05/94	96.32	15.69	80.63	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW1	01/04/95	96.32	14.66	81.66	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW1	06/12/95	96.32	10.08	86.24	0.00	<0.5	<0.5	<0.5	<0.5	<50		230	
MW1			Well destroyed April 1996.										
MW2	05/21/92	95.91	14.30	81.61	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW2	02/10/93	95.91	12.34	83.57	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW2	05/20/93	95.91	10.73	85.18	0.00	<0.5	<0.5	<0.5	<1.0	320		NA	
MW2	06/23/93	95.91	11.74	84.17	0.00	<0.5	<0.5	<0.5	<0.5	130		NA	
MW2	08/23/93	95.91	12.60	83.31	0.00	<0.5	<0.5	<0.5	1.1	140		NA	
MW2	10/25/93	95.91	13.86	82.05	0.00	<0.5	<0.5	0.5	2.4	75		NA	
MW2	02/16/94	95.91	14.73	81.18	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW2	04/16/94	95.91	14.33	81.58	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW2	07/26/94	95.91	14.96	80.95	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW2	10/05/94	95.91	15.49	80.42	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW2	01/04/95	95.91	14.44	81.47	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	

TABLE 3 GROUNDWATER MONITORING DATA, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

Well Number	Date	Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	LPH Thickness (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPH-g (µg/L)	TPH-d (µg/L)	MTBE (µg/L)	Other Oxygenates and Additives (µg/L)
MW2	06/12/95	95.91	10.10	85.81	0.00	<0.5	<0.5	<0.5	<0.5	<50		59	
MW2			Well destroyed April 1996.										
MW3	05/21/92	97.95	16.05	81.90	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW3	02/10/93	97.95	13.77	84.18	0.00	<0.5	<0.5	<0.5	0.7	<50		NA	
MW3	05/20/93	97.95	12.32	85.63	0.00	<0.5	<0.5	<0.5	<1.0	<50		NA	
MW3	06/23/93	97.95	13.34	84.61	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW3	08/23/93	97.95	14.30	83.65	0.00	2.3	1.2	1.4	4.1	<50		NA	
MW3	10/25/93	97.95	15.62	82.33	0.00	NS	NS	NS	NS	NS		NS	
MW3	02/16/94	97.95	16.48	81.47	0.00	NS	NS	NS	NS	NS		NS	
MW3	04/16/94	97.95	16.61	81.34	0.00	NS	NS	NS	NS	NS		NS	
MW3	07/26/94	97.95	16.72	81.23	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW3	10/05/94	97.95	17.33	80.62	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW3	01/04/95	97.95	16.29	81.66	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW3	06/12/95	97.95	11.67	86.28	0.00	<0.5	<0.5	<0.5	<0.5	<50		<2.5	
MW3			Well destroyed April 1996.										
MW4	05/21/92	96.69	14.59	82.10	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW4	02/10/93	96.69	12.30	84.39	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW4	05/20/93	96.69	10.75	85.94	0.00	1.4	1.0	<0.5	1.8	<50		NA	
MW4	06/23/93	96.69	11.78	84.91	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW4	08/23/93	96.69	12.82	83.87	0.00	<0.5	<0.5	<0.5	0.8	<50		NA	
MW4	10/25/93	96.69	14.10	82.59	0.00	NS	NS	NS	NS	NS		NS	
MW4	02/16/94	96.69	15.02	81.67	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW4	04/16/94	96.69	14.61	82.08	0.00	NS	NS	NS	NS	NS		NS	

TABLE 3 GROUNDWATER MONITORING DATA, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

Well Number	Date	Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	LPH Thickness (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPH-g (µg/L)	TPH-d (µg/L)	MTBE (µg/L)	Other Oxygenates and Additives (µg/L)
MW4	07/26/94	96.69	15.23	81.46	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW4	10/05/94	96.69	15.85	80.84	0.00	<0.5	12	<0.5	<0.5	<50		NA	
MW4	01/04/95	96.69	14.84	81.85	0.00	<0.5	<0.5	<0.5	<0.5	<50		NA	
MW4	06/12/95	96.69	10.07	86.62	0.00	<0.5	<0.5	<0.5	<0.5	<50		<2.5	
MW4			Well destroyed April 1996.										
MW5	06/15/00	STATION OPERATIONS TRANSFERRED TO VALERO ENERGY CORPORATION											
MW5	11/17/00	352.93	13.51	339.42	0.00	<0.5	<0.5	<0.5	2.46	240		1,500	
MW5	11/17/00	352.93										1,600[a]	
MW5	02/02/01	352.93	13.81	339.12	0.00	<0.5	<0.5	<0.5	<0.5	110		1,400	
MW5	02/02/01	352.93										1,200[a]	
MW5	05/09/01	352.93	12.20	340.73	0.00	<0.5	<0.5	<0.5	<0.5	<50		770[a]	ND[c]
MW5	09/12/01	352.93	13.84	339.09	0.00	<0.5	<0.5	<0.5	<0.5	100		760	NA
MW5	09/12/01	352.93										800[a]	
MW5	11/05/01	352.95	14.14	338.81	0.00	<0.5	<0.5	<0.5	0.61	70	86	510	NA
MW5	11/05/01	352.95										420[a]	
MW6	06/15/00	STATION OPERATIONS TRANSFERRED TO VALERO ENERGY CORPORATION											
MW6	11/17/00	352.66	13.47	339.19	0.00	<0.5	<0.5	<0.5	<0.5	<50		270	
MW6	11/17/00	352.66										260[a]	
MW6	02/02/01	352.66	13.79	338.87	0.00	<0.5	<0.5	<0.5	<0.5	<50		160	
MW6	02/02/01	352.66										130[a]	
MW6	05/09/01	352.66	12.25	340.41	0.00	<0.5	<0.5	<0.5	<0.5	<50		760[a]	ND[c]
MW6	09/12/01	352.66	13.83	338.83	0.00	<0.5	<0.5	<0.5	<0.5	<50		680	NA
MW6	09/12/01	352.66										740[a]	

TABLE 3 GROUNDWATER MONITORING DATA, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

Well Number	Date	Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	LPH Thickness (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPH-g (µg/L)	TPH-d (µg/L)	MTBE (µg/L)	Other Oxygenates and Additives (µg/L)
MW6	11/05/01	352.69	14.11	338.58	0.00	<0.5	<0.5	<0.5	<0.5	<50	<50	390	NA
MW6	11/05/01	352.69										320[a]	
MW7	06/15/00	STATION OPERATIONS TRANSFERRED TO VALERO ENERGY CORPORATION											
MW7	11/17/00	351.86	12.44	339.42	0.00	<0.5	<0.5	<0.5	<0.5	<50		<0.5	
MW7	02/02/01	351.86	12.74	339.12	0.00	<0.5	<0.5	<0.5	<0.5	<50		<0.5	
MW7	05/09/01	351.86	11.15	340.71	0.00	<0.5	<0.5	<0.5	<0.5	<50		<5[a]	ND[c]
MW7	09/12/01	351.86	12.74	339.12	0.00	<0.5	<0.5	<0.5	<0.5	<50		<0.5	NA
MW7	11/05/01	351.87	13.07	338.80	0.00	<0.5	<0.5	<0.5	<0.5	<50	50	<0.5	NA

a Analysis by EPA Method 8260.

b A peak eluting earlier than benzene, suspected to be MTBE.

c Other oxygenates and additives include diisopropyl ether, t-butyl alcohol, tert-amyl methyl ether, tert-butyl ethyl ether, 1,2-dibromoethane, and 1,2-dichloroethane.

LPH Liquid-phase hydrocarbons.

TPH-g Total Petroleum Hydrocarbons as gasoline.

TPH-d Total Petroleum Hydrocarbons as diesel.

MTBE Methyl tertiary butyl ether.

NA Not analyzed.

ND Not detected.

NS Not sampled.

µg/L Micrograms per liter.

TABLE 4 GROUNDWATER SAMPLE ANALYTICAL RESULTS, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BLVD., DUBLIN, CALIFORNIA, DECEMBER 1998

Sample ID	Date	Concentration (ug/L)					
		Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-g	MTBE
B1	12/03/98	<0.5	1.7	<0.5	<0.5	100	3,500 4,000 a
B2	12/03/98	<0.5	<0.5	<0.5	<0.5	<50	28 19 a
B3	12/03/98	<0.5	<0.5	<0.5	<0.5	<50	<2.5
B4	12/03/98	<0.5	<0.5	<0.5	<0.5	<50	<2.5

a Confirmatory value, by EPA Method 8260.
TPH-g Total Petroleum Hydrocarbons as gasoline.
MTBE Methyl t-butyl ether.
ug/L Micrograms per liter.
Source: EA Engineering, 1999.

TABLE 5 GROUNDWATER ANALYTICAL RESULTS, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA, APRIL 2000

Sample Designation	Date	Depth (feet)	Concentration (µg/L) Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	MTBE
70210-1, 10	04/20/00	10	<1	<1	<1	<1	<50	1 <5*
70210-2, 11	04/20/00	11	<1	<1	<1	7.2	140	200 190*

TPH-g	Total Petroleum Hydrocarbons as gasoline.
MTBE	Methyl-t-butyl ether.
µg/L	Micrograms per liter.
*	Confirmatory result; analysis by EPA Method 8260B.

Appendix A

Regulatory Correspondence

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

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

RO0002424

February 11, 2002

Mr. Gene Ortega
Exxon/Mobil
P.O. Box 4032
Concord, CA 94524-4032

RE: Offsite Investigation at 7840 Amador Valley Blvd, Dublin, CA

Dear Mr. Ortega:

I have completed review of the case file to determine if closure is warranted at this time for the above referenced site. Groundwater analytical data continue to reveal approximately 800ppb MTBE in wells MW-5 and MW-6. It has not been demonstrated that the plume is currently stable and not migrating. Before the case can be close, it must be demonstrated that the plume is stable and no preferential pathways exist for the migration of contaminants.

At this time, an offsite investigation is required. Geoprobe borings may be advanced at various downgradient locations for the collection of depth discrete groundwater samples. Boring logs from previous investigations reveal intermittent sand lenses beneath the site. Groundwater samples should be collected at changes in lithology. A work plan for the offsite investigation is due within 60 days of the date of this letter, **or by April 22, 2002.**

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

email: Ted Moise

exxon0210-9

From: "Chu, Eva, Env. Health" <EChu@co.alameda.ca.us>
To: "'Ortega, Gene'" <gene.n.ortega@exxon.com>
Date: 3/1/02 3:26PM
Subject: Exxon 7-0210 at 7840 Amador Valley Blvd, Dublin

Hi Gene,

Just completed review of 4th quarter 2001 monitoring report. Please have groundwater analyzed for other ether oxygenates, TBA, and 1,1, DCA using Method 8260 next sampling event.

Even though groundwater concentrations are decreasing, an offsite investigation is still necessary to confirm that the plume is stable, limited in length, and that no preferential pathways (conduits, underground creeks, etc) exist for the migration of contaminants.

If you have any questions, please call.

evachu

Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502
(510) 567-6762
(510) 337-9335 fax

CC: "'Moise, Ted'" <tmoise@eticeng.com>

Appendix B

Drilling Protocols

PROTOCOLS FOR INSTALLATION, SAMPLING, AND ABANDONMENT OF DUAL TUBE DIRECT PUSH BORINGS

SOIL CORING PROCEDURES

Prior to drilling, all boreholes are cleared by hand auger, shovel, or posthole digger to 5 to 8 feet below ground surface.

Soil and groundwater samples are collected for lithologic and chemical analysis using a direct driven dual tube soil coring system. A hydraulic hammer drives sampling rods into the ground to collect continuous soil cores. Two nested sampling rods are driven simultaneously: small-diameter inner sampling rods are used to obtain and retrieve the soil cores; the larger diameter (approximately 2-inch OD) outer rods serve as temporary drive casing.

As the rods are advanced, soil is driven into an approximately 1.5-inch-diameter sample barrel that is attached to the end of the inner rods. Soil samples are collected in sleeves inside the sample barrel as both rods are advanced. The use of outer rods prevents sloughing of the formation while the inner rods are withdrawn from the hole. This ensures that the drive sampler will always be sampling soil from the desired interval, rather than potentially contaminated soil that has sloughed in from higher up in the hole.

After being driven 3 feet, the inner rods are removed from the borehole. The sleeves containing the soil samples are removed from the inner sample barrel, and can then be preserved for chemical analyses or used for lithologic identification. The soil-filled liner is labeled with the bore number, sample depth, site location, date, and time. The samples are placed in bags and stored in a cooler containing ice. This process is repeated until the desired depth is reached.

When the sampler is retrieved, either the lowermost or middle sample liner is removed and the ends of the tube are covered with aluminum foil or a Teflon liner and sealed with plastic caps. Soil from one of the liners is placed in a plastic bag. The soil is scanned with a flame ionization detector (FID) or a photo-ionization detector (PID).

All drive casing, inner sample barrels, inner rods, and tools are cleaned with Alconox or equivalent detergent and deionized water. All rinsate from the cleaning is contained in 55-gallon drums at the project site.

GROUNDWATER SAMPLING PROCEDURES

After the targeted water-bearing zone has been penetrated, the sample barrel and inner rods are removed from the borehole, and the drive casing is pulled up approximately 0.5 to 2 feet to allow groundwater to flow into the borehole. Small-diameter well casing with 0.010-inch slotted well screen or equivalent may be installed in the borehole to facilitate the collection of groundwater samples. Threaded sections of PVC are lowered into the borehole inside the drive casing. The drive casing is then pulled up to expose the slotted interval of the PVC. Groundwater samples may then be collected with a bailer, peristaltic pump, bladder pump or inertial pump until adequate sample volume is obtained.

Groundwater samples are preserved, stored in an ice-filled cooler, and are delivered, under chain-of-custody, to a laboratory certified by the California Department of Health Services (DHS) for hazardous materials analysis.

BOREHOLE GROUTING

On completion of soil and water sampling, boreholes will be abandoned with a neat cement grout. The grout is pumped through a grouting tube positioned at the bottom of the boreholes prior to withdrawing the outer rods.