ETIC
Engineering, Inc.

Work Plan for Subsurface Investigation

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

Prepared for

ExxonMobil Refining and Supply Company
P.O. Box 4032
2300 Clayton Road, Suite 1250
Concord, California 94524-4032

Prepared by

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Ted Moise
Project Manager

October 30, 2000
Date

Mark Peterson, C.E.G. #2085
Senior Geologist

REGISTERED GEOLOGIST
MARK C. PETERSON
No. 2085
CERTIFIED
ENGINEERING
GEOLOGIST
Exp. 3/31/02
STATE OF CALIFORNIA

10/31/00
Date

October 2000

SITE CONTACTS

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INTRODUCTION

At the request of ExxonMobil Refining and Supply Company (ExxonMobil), formerly Exxon Company, U.S.A. (Exxon), 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 at 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 letter request from the Alameda County Health Agency (ACHA) to Exxon dated 5 October 2000 (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 tanks 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.

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.

Four groundwater monitoring wells were installed in May 1992 (EA 1992) and monitored for petroleum hydrocarbons until June 1995. 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 are presented in Table 1 (EA 1995).

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 methyl t-butyl ether (MTBE). BTEX was not detected in any of the soil samples collected during the investigation. TPH-g was detected only in the sample collected at a depth of 5 feet bgs from boring B1, at a concentration of 1.0 mg/kg (equal to the laboratory detection limit). 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 during the investigation 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. Tables 2 and 3 summarize the analytical results for these soil and groundwater samples (EA 1999).

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, and MTBE, with the exception of 140 µg/L TPH-g, 7.2 µg\L xylenes, and 190 µg/L MTBE in sample 70210-2. These analytical results are summarized in Table 4.

Based upon these results, ETIC proposes to install three onsite groundwater monitoring wells in accordance with the scope of work presented below.

SCOPE OF WORK FOR SUBSURFACE INVESTIGATON

The hollow-stem auger drilling method is proposed for drilling three soil borings to collect discrete soil samples and install three groundwater monitoring wells. The locations of these proposed locations are presented in Figure 1. Borehole drilling, soil sampling, and well installation methods are described in Appendix B. All boreholes will be logged to the total depth explored.

The following data will be collected from each boring:

The boreholes will be logged to the total depth. Actual borehole depths will be dependent on lithology encountered in the field. If a continuous clay or clayey silt layer of greater than 5 foot thickness is encountered below groundwater, the boring will be terminated.

Selected soil samples will be collected from each boring for laboratory analysis. At least two soil samples will be collected from each boring, one from the vadose zone and one from the 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. Groundwater samples will be collected after the new wells are properly developed. Analytical results for groundwater samples will be presented in future quarterly monitoring reports.

Soil and water samples will be analyzed for TPH-g by modified EPA Method 8015 and for BTEX and MTBE by EPA Method 8021. MTBE detected by EPA Method 8021 will be confirmed by EPA Method 8260.

Selected soil samples may be analyzed for total organic carbon, moisture content, and grain size to aid in hydrogeologic and risk assessments.

REPORTING

The investigation results will be presented in a technical report. The 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.

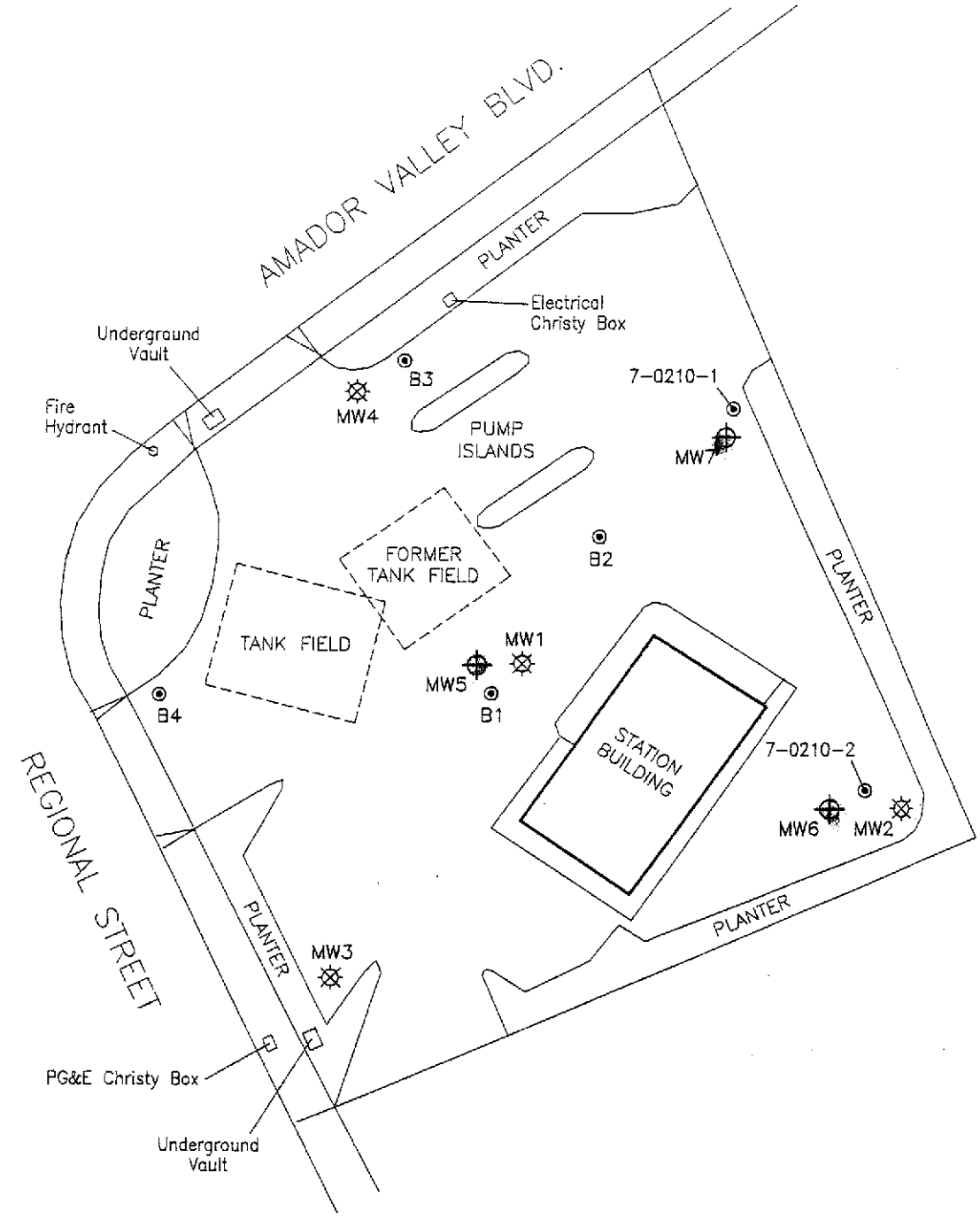
EA (EA Engineering, Science, and Technology). 1991. Report of Closure Sampling, Exxon Retail Site 7-0210, 7840 Amador Valley Boulevard, Dublin, California. EA, Lafayette, California.

EA (EA Engineering, Science, and Technology). 1992. Report of Well Installation, Exxon Retail Site 7-0210, 7840 Amador Valley Boulevard, Dublin, California. EA, Lafayette, California. August.

EA (EA Engineering, Science, and Technology). 1995. Report of Quarterly Sampling and Analysis and Case Closure, Exxon Retail Site 7-0210, 7840 Amador Valley Boulevard, Dublin, California. EA, Lafayette, California. August.

EA (EA Engineering, Science, and Technology). 1996. Letter regarding destruction of four groundwater monitoring wells at Exxon RS 7-0210, 7840 Amador Valley Boulevard, Dublin, California (permit number 96255). EA, Lafayette, California. 8 April.

EA (EA Engineering, Science, and Technology). 1999. Baseline Environmental Assessment, Exxon Retail Site 7-0210, 7840 Amador Valley Boulevard, Dublin, California. EA, Lafayette, California. January.



LEGEND

- PROPOSED GROUNDWATER MONITORING WELL LOCATION
- SOIL BORING / GROUNDWATER SAMPLING LOCATION
- DESTROYED GROUNDWATER MONITORING WELL

NOTE:
B1–B4 INSTALLED AND SAMPLED 12/98.
7–0210–1 AND 7–0210–2 INSTALLED AND SAMPLED 4/20/00

N

0 40

Scale (units)

MAP ADAPTED FROM EA ENGINEERING, SCIENCE, AND TECHNOLOGY DRAWING.

ETIC Engineering, Inc.

SITE PLAN
EXXON RS 7-0210
7840 AMADOR VALLEY BLVD., DUBLIN, CALIFORNIA

FIGURE: 1

FILENAME: SITEG600.DWG 10/09/00

TABLE 1 GAUGING DATA AND ANALYTICAL RESULTS, FORMER EXXON RS 7-0210, DUBLIN, CALIFORNIA, 1992-1995

Well No.	Date	Casing Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)	LPH Thickness (ft)	Concentration (µg/L)					
						Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-g	MTBE
MW1	05/21/92	96.32	14.45	81.87	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/10/93		12.22	84.10	0.00	3.1	<0.5	1.8	0.6	2,600	NA
	05/20/93		10.74	85.58	0.00	1.9	<0.5	1.8	<1.0	1,000	NA
	06/23/93		11.74	84.58	0.00	1.0	<0.5	1.2	<0.5	1,300	NA
	08/23/93		12.72	83.60	0.00	<0.5	<0.5	<0.5	0.8	80	NA
	10/25/93		13.99	82.33	0.00	<0.5	<0.5	0.8	1.3	140	NA
	02/16/94		14.90	81.42	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	04/16/94		14.49	81.83	0.00	<0.5 *	<0.5	<0.5	<0.5	190	NA
	07/26/94		15.11	81.21	0.00	<0.5 *	<0.5	<0.5	<0.5	130	NA
	10/05/94		15.69	80.63	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	01/04/95		14.66	81.66	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	06/12/95		10.08	86.24	0.00	<0.5	<0.5	<0.5	<0.5	<50	230
MW2	05/21/92	95.91	14.30	81.61	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/10/93		12.34	83.57	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	05/20/93		10.73	85.18	0.00	<0.5	<0.5	<0.5	<1.0	320	NA
	06/23/93		11.74	84.17	0.00	<0.5	<0.5	<0.5	<0.5	130	NA
	08/23/93		12.60	83.31	0.00	<0.5	<0.5	<0.5	1.1	140	NA
	10/25/93		13.86	82.05	0.00	<0.5	<0.5	0.5	2.4	75	NA
	02/16/94		14.73	81.18	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	04/16/94		14.33	81.58	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	07/26/94		14.96	80.95	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	10/05/94		15.49	80.42	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	01/04/95		14.44	81.47	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	06/12/95		10.10	85.81	0.00	<0.5	<0.5	<0.5	<0.5	<50	59
MW3	05/21/92	97.95	16.05	81.90	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/10/93		13.77	84.18	0.00	<0.5	<0.5	<0.5	0.7	<50	NA
	05/20/93		12.32	85.63	0.00	<0.5	<0.5	<0.5	<1.0	<50	NA
	06/23/93		13.34	84.61	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/23/93		14.30	83.65	0.00	2.3	1.2	1.4	4.1	<50	NA
	10/25/93		15.62	82.33	0.00	NS	NS	NS	NS	NS	NS
	02/16/94		16.48	81.47	0.00	NS	NS	NS	NS	NS	NS
	04/16/94		16.61	81.34	0.00	NS	NS	NS	NS	NS	NS
	07/26/94		16.72	81.23	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA

TABLE 1 GAUGING DATA AND ANALYTICAL RESULTS, FORMER EXXON RS 7-0210, DUBLIN, CALIFORNIA, 1992-1995

Well No.	Date	Casing Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)	LPH Thickness (ft)	Concentration (µg/L) Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-g	MTBE
MW3	10/05/94	97.95	17.33	80.62	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	01/04/95		16.29	81.66	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	06/12/95		11.67	86.28	0.00	<0.5	<0.5	<0.5	<0.5	<50	<2.5
MW4	05/21/92	96.69	14.59	82.10	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/10/93		12.30	84.39	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	05/20/93		10.75	85.94	0.00	1.4	1.0	<0.5	1.8	<50	NA
	06/23/93		11.78	84.91	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/23/93		12.82	83.87	0.00	<0.5	<0.5	<0.5	0.8	<50	NA
	10/25/93		14.10	82.59	0.00	NS	NS	NS	NS	NS	NS
	02/16/94		15.02	81.67	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	04/16/94		14.61	82.08	0.00	NS	NS	NS	NS	NS	NS
	07/26/94		15.23	81.46	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	10/05/94		15.85	80.84	0.00	<0.5	12	<0.5	<0.5	<50	NA
	01/04/95		14.84	81.85	0.00	<0.5	<0.5	<0.5	<0.5	<50	NA
	06/12/95		10.07	86.62	0.00	<0.5	<0.5	<0.5	<0.5	<50	<2.5
Trip Blank	06/12/95					<0.5	<0.5	<0.5	<0.5	<50	<2.5
Rinse Blank	06/12/95					<0.5	<0.5	<0.5	<0.5	<50	<2.5

* A peak eluting earlier than benzene, suspected to be methyl t-butyl ether (MTBE).
NA Not analyzed for this constituent.
NS Not sampled.
-- Measurement was not taken.
LPH Liquid-phase hydrocarbons.
TPH-g Total Petroleum Hydrocarbons as gasoline.
ft msl Feet relative to mean sea level.
µg/L Micrograms per liter.

Source: EA Engineering, 1995.

TABLE 2 SOIL SAMPLE ANALYTICAL RESULTS, FORMER EXXON RS 7-0210, 7840 AMADOR VALLEY BLVD., DUBLIN, CALIFORNIA, NOVEMBER AND DECEMBER 1998

Sample ID	Date	Sample Depth (ft bgs)	Concentration (mg/kg) Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-g	MTBE
B1	11/16/98	5	<0.0050	<0.0050	<0.0050	<0.0050	1.0	<0.025
	12/03/98	10-11	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
	12/03/98	15-16	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.78
B2	11/16/98	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
	12/03/98	10-11	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
	12/03/98	14-15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
B3	11/16/98	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
	12/03/98	10-11	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
	12/03/98	12-12.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
	12/03/98	19-20	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
B4	11/16/98	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
	12/03/98	8-9	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025
	12/03/98	15-16	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.025

ft bgs Feet below ground surface.
TPH-g Total Petroleum Hydrocarbons as gasoline.
MTBE Methyl t-butyl ether.
mg/kg Milligrams per kilogram.

Source: EA Engineering, 1999.

TABLE 3 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 4 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

StID 4103

October 5, 2000

Mr. Darin Rouse
ExxonMobil
2300 Clayton Road, Suite 1250
Concord, CA 94520

RE: MTBE Investigation at Exxon 7-0210, 7840 Amador Valley Blvd., Dublin, CA

Dear Mr. Rouse:

I have completed review of EA Engineering's January 1999 *Baseline Environmental Assessment* and ETIC Engineering's June 2000 *Valero Refining Company Investigation* reports, both prepared for the above referenced site. A total of six soil borings (B1 through B4, 7-0210-1, and 7-0210-2) were advanced in November 1998 and in April 2000 at the site to collect grab soil and/or groundwater samples for MTBE analysis. The soil samples were also analyzed for TPHg and BTEX constituents. Groundwater analytical results identified 4,000ppb MTBE in Boring B1 and 190ppb MTBE in Boring 70210-2.

Based on the above findings, the leaking underground storage tank case was re-opened (in the LOP program). When case closure was granted in early 1996, analysis of MTBE was not required.

At this time, a groundwater investigation is required to delineate the extent of the MTBE plume. A workplan for this phase of investigation is due within 60 days of the date of this letter, or **by November 18, 2000.** It is recommended that a minimum of two, if not three, groundwater monitoring wells be installed at the site.

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

eva chu
Hazardous Materials Specialist

email: Ted Moise (tmoise@eticeng.com)

Appendix B

Drilling Protocols

PROTOCOLS FOR WELL DRILLING, COMPLETION, DEVELOPMENT, AND SAMPLING

DRILLING

Prior to drilling, all boreholes will be cleared of underground utilities to a depth of at least 4 feet below ground surface (bgs) in "non-critical zones" and to 8 feet bgs in "critical zones". Critical zones are defined as locations that are within 10 feet from the furthest edge of any underground storage tank (UST), within 10 feet of the product dispenser islands, and the entire area between the UST field and the product dispenser islands. If only borings are being installed, an 8- to 12-inch-diameter circle will be cut in the surface cover at each boring location. If wells are being installed, a 10-inch circle to a 24-inch circle or a 2-foot by 2-foot square will be cut in the surface cover at each well location. A hole, greater than the diameter of the drilling tool being used, will then be cleared at each boring location, using a hand auger or vacuum excavation system. The vacuum system consists of a water lance, used to disturb native soil by injecting water into the soil, and a vacuum, used to remove the soil.

Boreholes are drilled with a truck-mounted rotary drill, using hollow-stem continuous-flight augers. The diameter of the augers is selected to provide an annular space between the boring wall and the well casing of no less than 2 inches.

All augers are pressure-washed or steam-cleaned before drilling begins and before each new borehole is drilled. All drill cuttings are either placed on and covered with plastic sheeting or contained in sealed 55-gallon drums. All fluids generated during cleaning of drilling equipment are contained in sealed 55-gallon drums. All waste generated during drilling activities is stored onsite until appropriate disposal is arranged. The drums are labeled with the site description (including owner's name) and date. The drill cuttings are disposed of at a proper facility based on results of soil sample analysis.

During drilling, an ETIC geologist generates a soil boring log for each borehole. The boring logs contain detailed geological information, including descriptions of the soils classified according to the Unified Soil Classification System (USCS), blow counts, organic vapor analyzer (OVA) readings, moisture content of the soils, and initial and static water levels.

SOIL SAMPLING

Soil samples are collected using a 2-inch-diameter by 18- or 24-inch-long modified California split-spoon sampler containing three or four 6-inch-long brass or stainless steel liners. The sampler and liners are scrubbed in potable water and Alconox or equivalent detergent and rinsed with potable water after use at each sampling interval.

At each sample depth, the sampler is driven 18 or 24 inches ahead of the augers into undisturbed soil. When the sampler is retrieved, either the lowermost or the middle sample liner is removed and the ends of the tube are covered with aluminum foil or Teflon tape and sealed with plastic caps. The soil-filled liner is labeled with the borehole number, sample depth, site location, date, and time. The samples are placed in zip-lock bags and stored in a cooler containing ice.

Soil from one of the liners is removed and placed in a sealed plastic bag. The soil is scanned with an OVA equipped with a flame ionization detector (FID), and the FID readings are noted on the soil

boring logs. The soil from the remaining liner(s) is examined and classified according to the Unified Soil Classification System.

Soil samples are delivered, under chain of custody, to a laboratory certified by the California Department of Health Services (DHS) for analyses.

WELL INSTALLATION

The boreholes are completed as groundwater monitoring wells, vapor extraction wells, groundwater extraction wells, or air sparging wells. The wells are typically constructed by installing Schedule 40 PVC flush-threaded casing through the inner opening of the auger. The screened interval consists of slotted casing of the appropriate slot size and length placed at depths depending on soil conditions encountered during drilling and the depth to groundwater. A threaded end plug or a slip cap secured with a stainless steel screw is placed on the bottom of the well.

A filter pack of clean sand of appropriate size is placed in the annular space around the well screen to approximately 1 to 2 feet above the top of the screen. The sand is placed through the inner opening of the augers as they are slowly removed. A transitional seal is completed above the sand pack by adding 1 to 2 feet of bentonite pellets and hydrating them with water. A surface seal is then created by placing neat cement grout containing less than 5 percent bentonite from the top of the bentonite seal to just below the ground surface.

The well is finished at the surface with a slightly raised, traffic-rated, watertight steel traffic box set in concrete. The traffic box is secured with bolts and the casing is further secured with a locking well cap.

WELL DEVELOPMENT

The wells are developed no less than 72 hours after completion. Development typically consists of surging the screened interval of the well with a flapper valve surge block of the same diameter as the well for approximately 15 minutes. The well is then purged with a vacuum truck and a dedicated PVC stinger or disposable tubing, an inertial pump, a submersible electric pump, a centrifugal pump, an air-lift pump, or a PVC bailer until at least 3 casing volumes are removed and the water is free of silt and apparent turbidity.

A record of the purging methods and volumes of water purged is maintained. All purge water is contained on the site in properly labeled 55-gallon drums. Purged water is transported to an appropriate treatment facility.

GROUNDWATER SAMPLING

The wells are sampled at least 48 hours after development. All samples are collected with a factory cleaned disposable bailer. The bailer is operated by hand using new rope or Teflon-coated stainless steel wire. The sampling personnel wear clean Nitrile gloves during sampling operations and while handling sample bottles.

The groundwater samples are emptied from the bailer directly into the sample bottles with a bottom-emptying device. The samples are collected in 40-ml glass VOA vials and/or 1-liter amber bottles with Teflon-lined septum caps as appropriate. The sample bottles contain appropriate

preservatives, typically hydrochloric acid. VOA vials are filled to the top of the bottle so that there are no air bubbles.

The sample bottles are labeled with the well number, date, location, sampler's initials, and preservative used. The sample vials are placed in an iced cooler for delivery to the laboratory for analysis. Standard chain-of-custody procedures are followed.