RO 2635

ExxonMobil
Refining & Supply Company
Global Remediation

4096 Piedmont Avenue #194
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Jennifer C. Sedlachek
Project Manager

ExxonMobil
Refining & Supply

August 29, 2005

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, California 94502

Subject: Fuel Leak Investigation Site No. RO0002635
Former Exxon RAS #7-4121, 10605 Foothill Boulevard, Oakland, California

Dear Mr. Chan:

Attached for your review and comment is a copy of the *Risk Assessment Work Plan* dated August 2005 for the above-referenced site. The work plan, prepared by ETIC Engineering, Inc. (ETIC) of Pleasant Hill, California, details the proposed scope of a risk assessment for the site as recommended in the subsurface investigation report dated July 2005. The risk assessment will be performed in support of case closure for the site.

Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached work plan is true and correct.

If you have any questions or comments, please contact me at 510.547.8196.

Sincerely,

Jennifer C. Sedlachek
Project Manager

Attachment: ETIC Risk Assessment Work Plan dated August 2005

c: w/ attachment:
Mr. Ken Phares – MacArthur Boulevard Associates, Oakland, California
Mr. Peter McIntyre – AEI Consultants

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

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July 18, 2005

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, California 94502

Subject: Fuel Leak Investigation Site No. RO0002635
Former Exxon RAS #7-4121, 10605 Foothill Boulevard, Oakland, California

Dear Mr. Chan:

Attached for your review and comment is a copy of the *Subsurface Investigation Report* dated July 2005 for the above-referenced site. The report, prepared by ETIC Engineering, Inc. (ETIC) of Pleasant Hill, California, details the installation of nine soil borings to further investigate soil and groundwater conditions. The work was performed in accordance with the ETIC *Work Plan for Additional Site Assessment* dated April 2005 that was approved by the Alameda County Health Care Services Agency (ACHCSA) in a letter dated May 19, 2005.

The ACHCSA also requested that ExxonMobil provide copies of any other reports pertaining to underground storage tank (UST) systems and any other assessment reports for the site. A summary of the file review is provided in ETIC's report. No additional environmental reports documenting the removal or investigation of USTs were found. Based on the available information, the site was vacant from approximately 1926 to approximately 1965 at which time it became a service station. Documents indicate that the service station was occupied by Enco Product Service Stations and Humble Oil & Refining Company. Exxon Company, U.S.A. (now ExxonMobil) leased the property from approximately 1975 to October 1981 when documents indicated that the lease was cancelled. Internal Exxon Company, U.S.A. correspondence dated June 15, 1982 documents that deactivation of the subject service station had been completed and that the USTs had been removed. Copies of the pertinent information are provided in ETIC's report.

Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached report is true and correct.

If you have any questions or comments, please contact me at 510.547.8196.

Sincerely,

Jennifer C. Sedlachek
Project Manager

Attachment: Subsurface Investigation Report dated July 2005

ETIC ENGINEERING

Monami Datta
Staff Geologist

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c: w/ attachment:
Mr. Ken Phares – MacArthur Boulevard Associates, Oakland, California
Mr. Peter McIntyre – AEI Consultants

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

Ro 2635

ETIC ENGINEERING

Risk Assessment Work Plan

Former Exxon Retail Site 7-4121
10605 Foothill Boulevard
Oakland, California

Prepared for

ExxonMobil Oil Corporation
4096 Piedmont Avenue #194
Oakland, California 94611

Prepared by

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

Sherris Prall — August 29, 2005

Sherris Prall
Project Manager — Date

Mark C. Peterson — 8/29/05

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

REGISTERED GEOLOGIST
MARK C. PETERSON
No. 2085
CERTIFIED ENGINEERING GEOLOGIST
Exp. 3/31/06
STATE OF CALIFORNIA

August 2005

SITE CONTACTS

Station Number:	Former Exxon Retail Site 7-4121
Station Address:	10605 Foothill Boulevard Oakland, California
ExxonMobil Project Manager:	Jennifer C. Sedlachek ExxonMobil Refining and Supply Company 4096 Piedmont Avenue #194 Oakland, California 94611 (510) 547-8196
Consultant to ExxonMobil:	ETIC Engineering, Inc. 2285 Morello Avenue Pleasant Hill, California 94523 (925) 602-4710
ETIC Project Manager:	Sherris Prall
Regulatory Oversight:	Barney Chan Alameda County Health Care Services Agency Environmental Health Services 1131 Harbor Bay Parkway Alameda, California 94502 (510) 567-6765

INTRODUCTION

At the request of ExxonMobil Oil Corporation (ExxonMobil), ETIC Engineering, Inc. (ETIC) has prepared this work plan for additional characterization and a risk assessment for former Exxon Retail Site (RS) 7-4121, located at 10605 Foothill Boulevard in Oakland, California (Figures 1 and 2). This work plan proposes the performance of a conduit study and well search, a characterization of the local hydrogeology and groundwater flow conditions, and the collection of additional soil and groundwater samples for further onsite delineation of soil and groundwater impacts. The work plan also proposes the collection of soil vapor samples for the performance of a human health risk assessment in preparation for case closure.

The performance of a human health risk assessment was recommended in the Subsurface Investigation Report dated July 2005 by ETIC (ETIC 2005). This work plan was prepared to comply with a letter from the Alameda County Health Care Services Agency (ACHCSA) dated 27 July 2005. This work plan is also responsive to discussions during the 10 August 2005 meeting among representatives of ExxonMobil, ETIC, the property owner, and AEI Consultants (AEI). A copy of the 27 July 2005 letter from the ACHCSA is provided in Appendix A.

SITE BACKGROUND

Former Exxon RS 7-4121 is currently a small landscaped area located at 10605 Foothill Boulevard, Oakland, California, on the south corner of the intersection of Foothill Boulevard and 106th Avenue (Figure 2). An aerial photo showing the site location and layout is shown in Figure 3. The property is currently owned by MacArthur Boulevard Associates and has a shopping center and a residential area nearby. According to internal Exxon Company, U.S.A. correspondence, the underground storage tanks (USTs) were removed from the site between 20 October 1981 and 15 June 1982.

According to the property owner, a commercial retail structure is currently proposed for the north corner of the site as outlined in Figure 4. The remainder of the site will consist of paved areas.

SUMMARY OF PREVIOUS INVESTIGATIONS

In December 1998, AEI performed a geophysical survey (magnetometry and ground-penetrating radar) to ascertain the presence of USTs at the site (AEI 2004). No underground anomalies indicative of remaining USTs were identified (AEI 2004). Also, an ACHCSA letter dated 22 March 2005 indicated that the UST system was removed from the site prior to December 1998.

In March 2004, AEI conducted a subsurface investigation at the site in order to collect soil and grab groundwater samples (AEI 2004). Four soil borings (SB-1 through SB-4) were advanced to depths of 8 feet below ground surface (bgs) (SB-3 and SB-4), 16 feet bgs (SB-1), and 22 feet bgs (SB-2) (AEI 2004). Total Petroleum Hydrocarbons as gasoline (TPH-g) was detected in soil samples at concentrations up to 1,000 milligrams per kilogram (mg/kg), Total Petroleum Hydrocarbons as diesel (TPH-d) was detected up to 590 mg/kg, benzene was detected in one soil sample (SB-1) at 0.55 mg/kg, and methyl tertiary butyl ether (MTBE) was not detected above laboratory reporting limits in any of the soil samples. TPH-g and TPH-d were detected in groundwater samples at

concentrations up to 7,000 micrograms per liter (µg/L) and 26,000 µg/L, respectively. Benzene was detected in groundwater samples at concentrations up to 250 µg/L, and MTBE was not detected above the laboratory reporting limit of 17 µg/L in any of the groundwater samples. Groundwater analytical results are shown on Figure 4 and soil and groundwater analytical results are provided in Tables 1 and 2.

In May 2005, ETIC conducted a subsurface investigation at the site to collect soil and groundwater samples (ETIC 2005). Nine soil borings (SB5-SB13) were advanced to approximately 25 feet bgs (Figures 2 and 4). TPH-g was detected in soil samples at concentrations up to 279 mg/kg, TPH-d was detected up to 10.6 mg/kg, benzene was detected at concentrations up to 1.58 mg/kg, and MTBE was not detected above laboratory reporting limits in any of the soil samples. TPH-g and TPH-d were detected in groundwater samples at concentrations up to 2,250 µg/L and 801 µg/L, respectively. Benzene was detected in groundwater samples at concentrations up to 75.7 µg/L, and MTBE was detected in the groundwater samples at concentrations up to 14.2 µg/L. Groundwater analytical results are shown on Figure 4 and soil and groundwater analytical results are provided in Tables 1 and 2.

REGIONAL GEOLOGY AND HYDROGEOLOGY

The site is located within the Coast Range Geomorphic Province on the eastern side of San Francisco Bay near the base of the western flank of the Diablo Range. The site is approximately 1,000 feet west of the Hayward Fault Zone through which traces of the Hayward Fault have been mapped. The site is underlain at depth by Jurassic-age volcanic and highly altered volcanic rock. Bedrock mapped near the site includes the Coast Range ophiolite which consists of basalts, diabase, and gabbro (Braymer 2000). Immediately west of the site are Holocene age alluvial fan and fluvial deposits which are mostly confined to narrow drainage valleys in the immediate area and spread out toward the west on the San Francisco Bay plain. The site is at an elevation of approximately 80 feet and the local topography slopes to the west toward San Francisco Bay (Figure 1).

The nearest surface water body to the site is the San Leandro Creek, located approximately 2,500 feet south of the site.

LOCAL GEOLOGY AND HYDROGEOLOGY

The geology and hydrogeology of the site have been evaluated using the boring logs from the previous site investigations. The majority of the native soils encountered during drilling generally consist of silty to sandy clay from ground surface to between 17 and 19 feet bgs and silty to clayey sand underlying the clay to approximately 25 feet bgs, the total depth explored. The exception is boring SB7, in which clayey sand interrupts the clay from approximately 10 to 16 feet bgs.

During the investigation in May 2005, depth to groundwater at the site was first encountered between approximately 18 and 20.5 feet bgs and stabilized at approximately 11-15 feet bgs (ETIC 2005).

utilities using a hand-auger or vacuum excavation system; however, it is expected that a deviation to this procedure will be granted.

- The borings will be continuously logged to total depth. The borings will be advanced to a depth of approximately 25 feet bgs. Groundwater samples will be collected from SB-14, SB-15, and SB-18. First groundwater is likely to occur between approximately 18 and 20.5 feet bgs according to the May 2005 investigation at the site (ETIC 2005). Drilling and sampling collection methods are described in Appendix B.

- Soil samples will be continually collected for the observation of soils. Selected soil samples will be submitted for laboratory analysis based on significant changes in the soil characteristics and/or field organic vapor analyzer measurements. For SB-16 and SB-17, at least one soil sample at every 5 foot interval will be submitted for laboratory analysis. Soil sampling collection methods are described in Appendix B.

- Groundwater samples will be collected using a bailer, peristaltic pump, or inertial pump. Small-diameter well casing with 0.010-inch slotted well screen or equivalent may be installed in the borings to facilitate the collection of a groundwater sample. Groundwater sampling collection methods are described in Appendix B.

Soil and groundwater samples will be analyzed for:

- TPH-g and TPH-d by EPA Method 8015B.
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B.
- MTBE by EPA Method 8260B.

Soil Gas Investigation

The following work will be conducted and data collected in order to evaluate human health risks resulting from potential exposure to hydrocarbons beneath the site. The risk assessment will include an analysis of the potential direct and indirect exposure pathways and will include a comparison of chemical concentrations of chemicals of concern to relevant environmental screening levels adopted by the Regional Water Quality Control Board (RWQCB 2005).

An advisory published by the Department of Toxic Substances Control and the Los Angeles Regional Water Quality Control Board (DTSC/LARWQCB 2003) will be used as a guideline for the collection of the soil gas samples proposed below. This work is proposed in order to comply with item 4 in the 27 July 2005 letter from the ACHCSA regarding soil vapor sampling.

ETIC proposes to conduct the following activities:

- Soil vapor probes will be advanced at the nine locations (1 through 9) shown on Figure 4 for the collection of soil gas samples. The proposed locations were selected based on the hydrocarbon concentrations beneath the site and on the location of the proposed commercial structure in the

north corner of the site (Figure 4). Descriptions and rationale for each boring location are provided in Table 3.

- The proposed boring locations shown on Figure 4 will be marked, Underground Service Alert will be contacted, and an independent utility line locator will clear the locations prior to the advancement of the borings as outlined in the Subsurface Clearance Survey Procedures in the protocols in Appendix B. As stated in the protocols, boring locations are generally cleared of utilities using a hand-auger or vacuum excavation system; however, it is expected that a deviation to this procedure will be granted.

- At each location, the soil vapor probes will be advanced to a depth of at least 5 feet bgs. At location 3, an additional soil vapor probe will be advanced to a depth of at least 10 feet bgs in order to examine the potential for vertical attenuation of hydrocarbons. The soil vapor probes will be advanced using a Strataprobe as part of an active soil vapor sampling system. Once a probe is advanced, it will be retracted slightly to expose the vapor sampling point. The advancement of the soil vapor probes is described in the Soil Vapor Survey Methodology by TEG in Appendix C.

- One soil gas sample will be collected from each soil vapor probe and analyzed using an onsite mobile laboratory. Once the validity of the samples is confirmed by the mobile laboratory, an additional sample will be collected in a 1-liter Summa canister for submission to an offsite laboratory for analysis. The collection of the soil gas samples is described in the Soil Vapor Survey Methodology by TEG in Appendix C.

- The previous investigations indicated that the majority of the subsurface is composed of clay to the total depth of the proposed vapor probes. If soil gas samples cannot be collected from a vapor probe due to "low-flow or no-flow" conditions, which can be caused by low permeable clays, then one or more attempts will be made to collect a soil vapor sample in the area of each soil vapor probe. If it becomes apparent that a soil vapor sample cannot be collected in a particular location, then a soil sample will be collected in lieu of a soil gas sample for purpose of the risk assessment as per the DTSC/LARWQCB guidelines (DTSC/LARWQCB 2003).

The soil gas samples will be analyzed by the onsite laboratory for:

- TPH-g and TPH-d by EPA Method 8260B.
- BTEX by EPA Method 8260B.
- MTBE by EPA Method 8260B.
- 1,1 Difluoroethane (as a tracer) by EPA Method 8260B.
- Oxygen using a gas chromatograph thermal conductivity detector.

The soil gas samples will be analyzed by the offsite laboratory for:

- TPH-g and TPH-d by EPA Method TO-3M.
- BTEX by EPA Method TO-15.

- MTBE by EPA Method TO-15.
- Oxygen by ASTM D1946.

SCHEDULE AND REPORTING

Completion of the field work is contingent on approval of this work plan by the ACHCSA and on receipt of approved permits. The report for the investigation and the results of the evaluation will be submitted within 90 days after the completion of the field work. ETIC will keep the ACHCSA informed of the status of the investigation.

REFERENCES

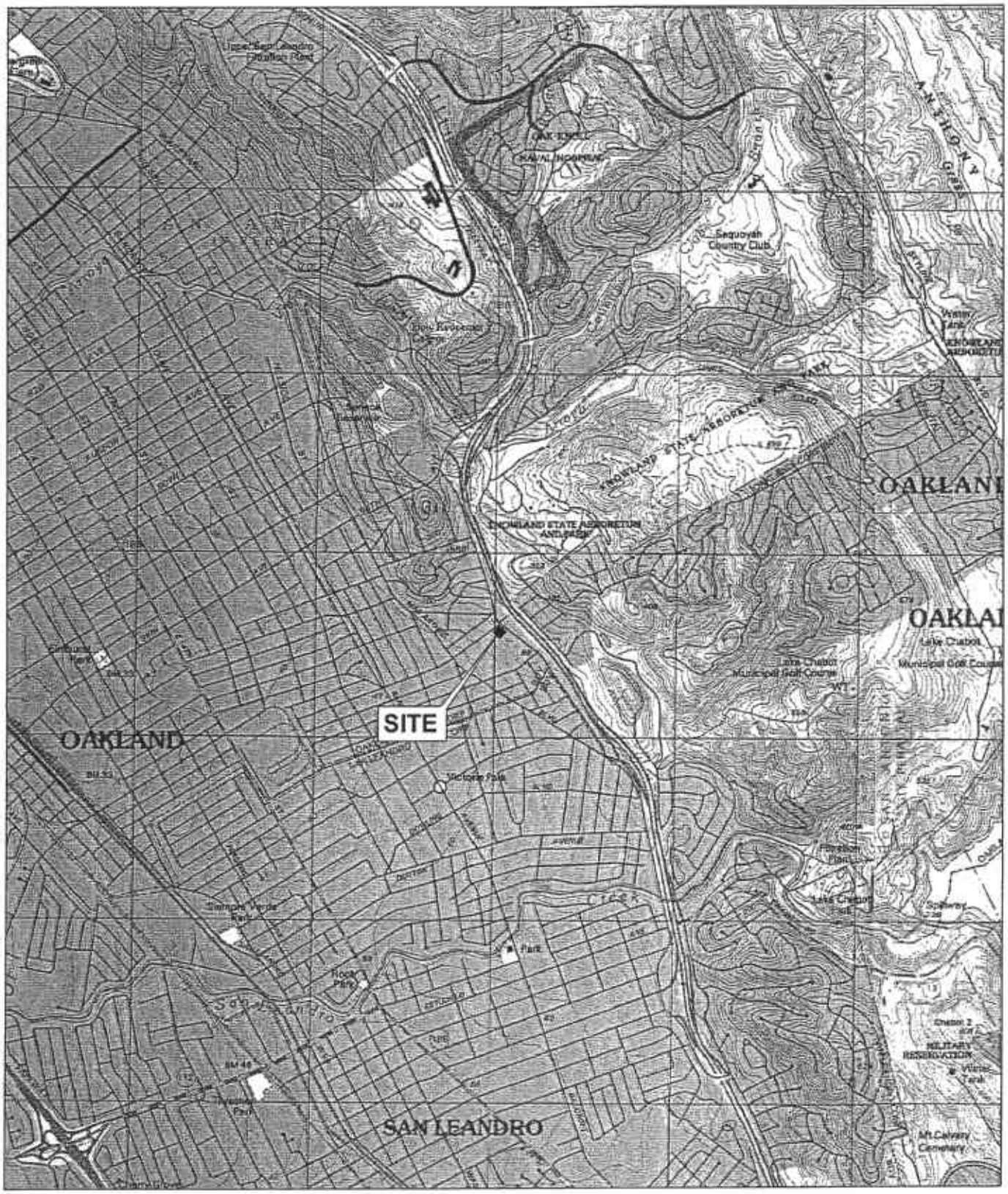
AEI (AEI Consultants). 2004. Phase II Subsurface Investigation Report, Project No. 8311, 10605 Foothill Boulevard, Oakland, California. AEI, Walnut Creek, California. 7 April.

Braymer, R.W. 2000. Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco Counties, California: United States Geological Survey, Miscellaneous Field Studies MF-2342, Version 1.0.

DTSC/LARWQCB (Department of Toxic Substances Control and California Regional Water Quality Control Board – Los Angeles Region). 2003. Advisory – Active Soil Gas Investigations. DTSC and LARWQCB, Glendale and Los Angeles, California. 28 January.

ETIC Engineering, Inc. (ETIC). 2005. Subsurface Investigation Report, Former Exxon Retail Site 7-4121, 10605 Foothill Boulevard, Oakland, California. ETIC, Pleasant Hill, California. July.

RWQCB (California Regional Water Quality Control Board). 2005. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. RWQCB, Oakland, California.



SOURCE: USGS Topography Map

0 2000

Scale (feet)

N

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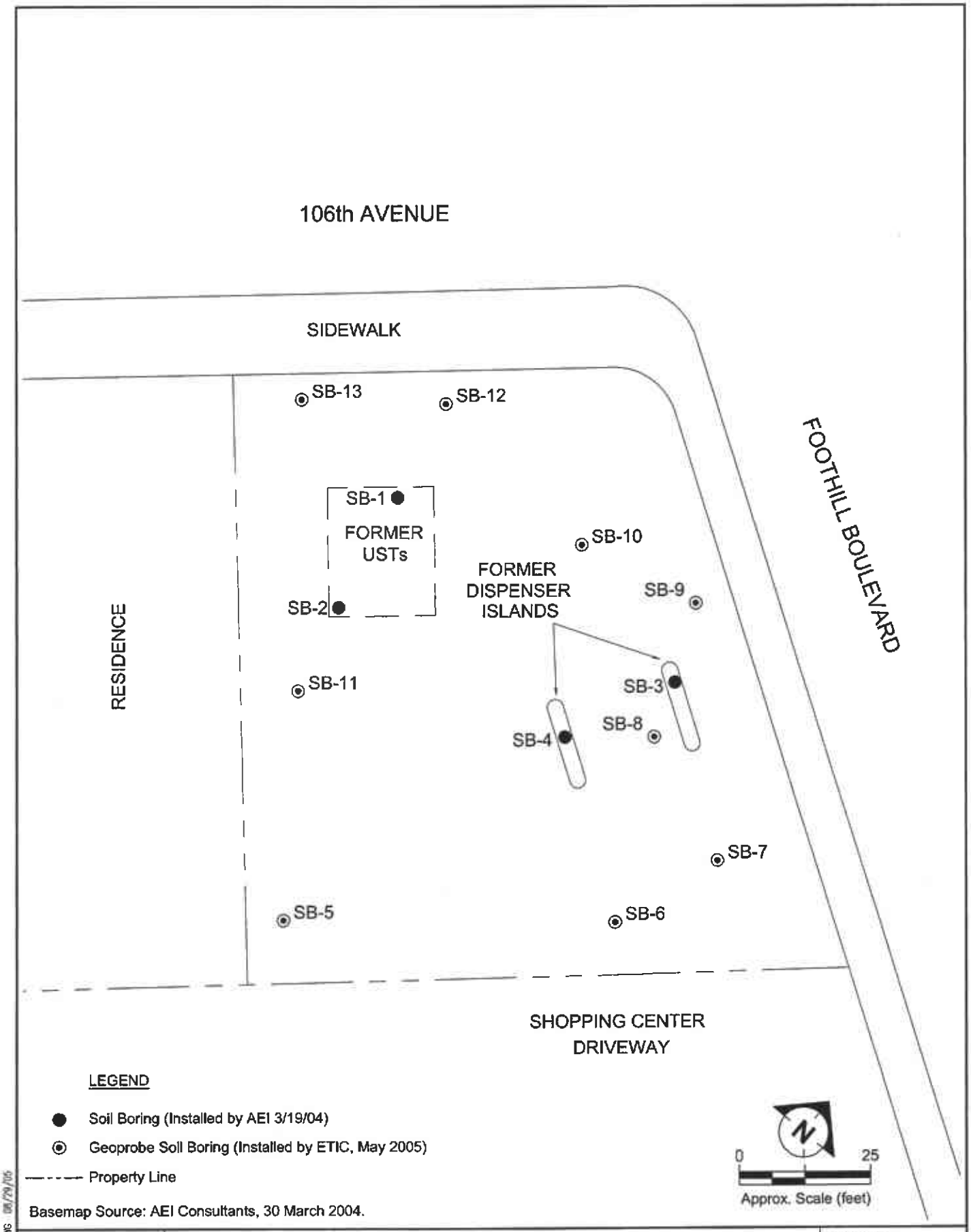
SITE LOCATION AND TOPOGRAPHY MAP
FORMER EXXON RS 7-4121
10605 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

FIGURE: 1

FILENAME: TOPO0405.DWG 04/15/05



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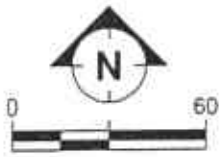
SITE PLAN
FORMER EXXON RS 7-4121
10605 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

FIGURE:
2

FILENAME: site0805.DWG 08/29/05

Photo Source: Terraserver USA



Scale (feet)
Approx.

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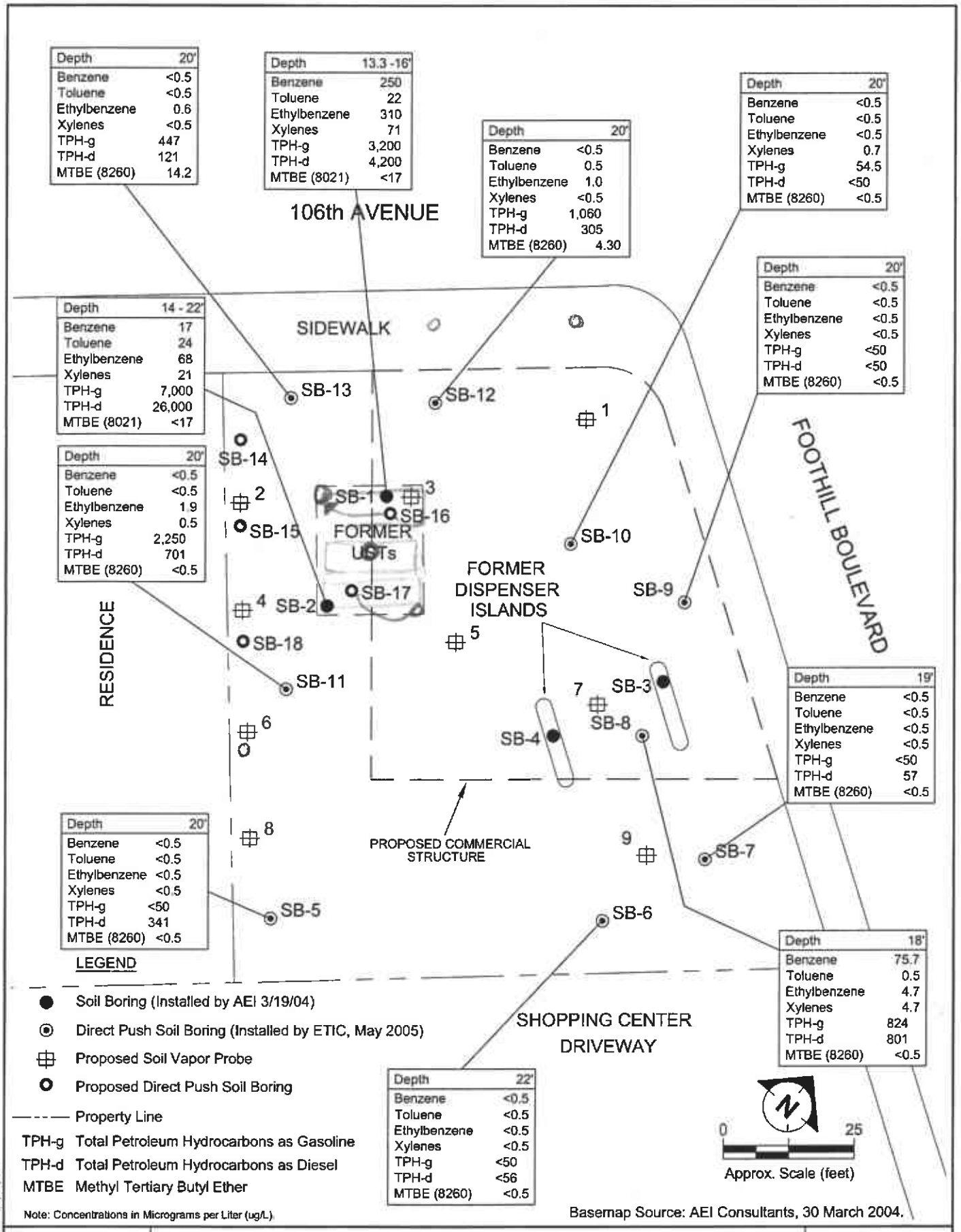
AERIAL PHOTOGRAPH OF SITE AND VICINITY
FORMER EXXON RS 7-4121
10605 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

FIGURE: 3

FILENAME: SITE0705.DWG 07/13/05



Note: Concentrations in Micrograms per Liter (ug/L)

Basemap Source: AEI Consultants, 30 March 2004.

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SITE PLAN SHOWING GROUNDWATER ANALYTICAL RESULTS
FORMER EXXON RS 7-4121
10605 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

FIGURE: 4

FILENAME: site0805.DWG 08/04/05

TABLE 1 SOIL SAMPLE ANALYTICAL RESULTS
FORMER EXXON RETAIL SITE 7-4121, 10605 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	Date	Depth (feet)	Concentration (mg/kg) Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	MTBE
SB-1	03/19/04	11	0.55	11	0.92	2.6	1,000	590	<2.5[a]
SB-2	03/19/04	18	<0.05	0.39	0.40	0.13	65	37	<0.5[a]
SB-3	03/19/04	5	<0.005	<0.005	<0.005	<0.005	<1.0	<1.0	<0.05[a]
SB-4	03/19/04	5	<0.005	<0.005	<0.005	<0.005	<1.0	2.1	<0.05[a]
SB5	05/26/05	5-5.5	<0.001	<0.005	<0.005	<0.005	<4.98	<10.1	<0.002
SB5	05/26/05	17.5-18	<0.001	<0.005	<0.005	<0.005	<4.97	<9.92	<0.002
SB5	05/26/05	24.5-25	<0.001	<0.005	<0.005	<0.005	<4.99	10.6	<0.002
SB6	05/26/05	5-5.5	<0.001	<0.005	<0.005	<0.005	<5.03	10.2	<0.002
SB6	05/26/05	19.5-20	<0.001	<0.005	<0.005	<0.005	<5.03	<10.1	<0.002
SB6	05/26/05	21.5-22	<0.001	<0.005	<0.005	<0.005	<4.96	<10	<0.002
SB6	05/26/05	24.5-25	<0.001	<0.005	<0.005	<0.005	<4.98	<10	<0.002
SB7	05/26/05	5-5.5	<0.001	<0.005	<0.005	<0.005	<5.02	<10.2	<0.002
SB7	05/26/05	18-18.5	<0.001	<0.005	<0.005	<0.005	<5	<10	<0.002
SB7	05/26/05	22.5-23	<0.001	<0.005	<0.005	<0.005	<4.96	<10	<0.002
SB7	05/26/05	24.5-25	<0.001	<0.005	<0.005	<0.005	<5.02	<10.2	<0.002
SB8	05/26/05	5-5.5	<0.001	<0.005	<0.005	<0.005	<4.97	<9.92	<0.002
SB8	05/26/05	17.5-18	0.0010[b]	<0.005	<0.005	<0.005	<4.96	<9.92	<0.002
SB8	05/26/05	21.5-22	0.0307	<0.005	0.0120	0.0205	11.2	<10	<0.002
SB8	05/26/05	24.5-25	0.0414	0.0153	0.0184	0.0197	10.2	<10	<0.002
SB9	05/27/05	5-5.5	<0.001	<0.005	<0.005	<0.005	<5.02	<9.80	<0.002
SB9	05/27/05	18-18.5	<0.001	<0.005	<0.005	<0.005	<5	<10	<0.002
SB9	05/27/05	19.5-20	<0.001	<0.005	<0.005	<0.005	<4.96	<10	<0.002
SB9	05/27/05	24.5-25	1.58	1.10	0.400	1.72	279	<9.88	<0.002

TABLE 1 SOIL SAMPLE ANALYTICAL RESULTS
FORMER EXXON RETAIL SITE 7-4121, 10605 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	Date	Depth (feet)	Concentration (mg/kg) Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	MTBE
SB10	05/27/05	5-5.5	<0.001	<0.005	<0.005	<0.005	<5.01	<9.92	<0.002
SB10	05/27/05	17.5-18	<0.001	<0.005	<0.005	<0.005	<5.03	<10	<0.002
SB10	05/27/05	24.5-25	<0.001	<0.005	<0.005	<0.005	<5.01	<10	<0.002
SB11	05/27/05	5-5.5	<0.001	<0.005	<0.005	<0.005	<4.99	<10.2	<0.002
SB11	05/27/05	18.5-19	<0.001	<0.005	<0.005	<0.005	<4.95	<10	<0.002
SB11	05/27/05	24.5-25	0.0082	<0.005	<0.005	0.0053	<4.98	<10	<0.002
SB12	05/27/05	5-5.5	<0.001	<0.005	<0.005	<0.005	<4.97	<10	<0.002
SB12	05/27/05	16.5-17	<0.001	<0.0051	<0.0051	<0.0051	<5.05	<9.88	<0.002
SB12	05/27/05	25.5-26	<0.001	<0.005	<0.005	<0.005	<4.98	<9.96	<0.002
SB13	05/27/05	5-5.5	<0.001	<0.005	<0.005	<0.005	<5.02	<9.92	<0.002
SB13	05/27/05	18.5-19	<0.001	<0.0051	<0.0051	<0.0051	<5.05	<9.92	<0.002
SB13	05/27/05	24.5-25	0.0011	<0.005	<0.005	<0.005	<4.95	<9.92	<0.002

a Methyl tertiary butyl ether by 8021B.
b Estimated value below report limit.

TPH-g Total Petroleum Hydrocarbons as gasoline by EPA Method 8015B.
TPH-d Total Petroleum Hydrocarbons as diesel by EPA Method 8015B.
MTBE Methyl tertiary butyl ether by EPA Method 8260B unless otherwise indicated.

mg/kg Milligrams per kilogram.

TABLE 2 GROUNDWATER SAMPLE ANALYTICAL RESULTS FOR TEMPORARY BORINGS
FORMER EXXON RETAIL SITE 7-4121, 10605 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

Boring ID	Date	Depth to Water (feet bgs)	Concentration (µg/L)						
			Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	MTBE
SB-1 W	03/19/04	13.3-16	250	22	310	71	3,200	4,200	<17[a]
SB-2 W	03/19/04	14-22	17	24	68	21	7,000	26,000	<17[a]
SB5	05/26/05	20[b]	<0.5	<0.5	<0.5	<0.5	<50	341	<0.5
SB6	05/26/05	22[b]	<0.5	<0.5	<0.5	<0.5	<50	<56	<0.5
SB7	05/26/05	19[b]	<0.5	<0.5	<0.5	<0.5	<50	57	<0.5
SB8	05/26/05	18[b]	75.7	0.5	4.7	4.7	824	801	<0.5
SB9	05/27/05	20[b]	<0.5	<0.5	<0.5	<0.5	<50	<50	<0.5
SB10	05/27/05	20[b]	<0.5	<0.5	<0.5	0.7	54.5	<50	<0.5
SB11	05/27/05	20[b]	<0.5	<0.5	1.9	0.5	2,250	701	<0.5
SB12	05/27/05	20[b]	<0.5	0.5	1.0	<0.5	1,060	305	4.30
SB13	05/27/05	20[b]	<0.5	<0.5	0.6	<0.5	447	121	14.2

a Methyl tertiary butyl ether by EPA Method 8021B.
b Depth of grab groundwater sample.

TPH-g Total Petroleum Hydrocarbons as gasoline.
TPH-d Total Petroleum Hydrocarbons as diesel.
MTBE Methyl tertiary butyl ether by EPA Method 8260B unless otherwise indicated.

µg/L Micrograms per liter.

TABLE 3 RATIONALE FOR PROPOSED BORINGS,
FORMER EXXON RETAIL SITE 7-4121,
10605 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

Proposed Location(s)	Rationale
SB-14, SB-15, SB-18	Located along the southwestern edge of the site near the residential properties for the collection of a groundwater sample.
SB-16, SB-17	Located within the area at the former USTs in the location of the planned commercial structure for the collection of soil samples.
1	Located in the north corner of the site in the location of the planned commercial structure for the collection of a soil gas sample.
2, 4, 6, 8	Located along the southwestern edge of the site near the residential properties for the collection of soil gas samples.
3	Located within the area at the former USTs in the location of the planned commercial structure for the collection of a soil gas sample.
5	Located near the center of the site in the location of the planned commercial structure for the collection of a soil gas sample.
7	Located near the former pump islands in the location of the planned commercial structure for the collection of a soil gas sample.
9	Located near the east corner of the site for the collection of a soil gas sample.

Appendix A

Regulatory Correspondence

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

July 27, 2005

Ms. Jennifer Sadlachek
ExxonMobil
4096 Piedmont Ave., #194
Oakland, CA 94611

Mr. Ken Phares
MacArthur Blvd. Associates
10700 MacArthur Blvd.
Oakland, CA 94605

Dear Ms. Sadlachek and Mr. Phares:

Subject: Fuel Leak Case RO0002635, Exxon #7-4121, 10605 Foothill Blvd., Oakland, CA 94605

Alameda County Environmental Health staff has received and reviewed the July 15, 2005 *Subsurface Investigation Report*, prepared by ETIC Engineering. This report details the results of soil and groundwater sampling from nine (9) borings advanced at the site in an attempt to determine the lateral and vertical extent of petroleum contamination from the former UST system. A previous investigation had detected soil and groundwater contamination in the vicinity of the former USTs, although the exact location of the UST system appears uncertain. We request that you address the following technical comments and submit the technical report requested below.

TECHNICAL COMMENTS

1. Conduit/Receptor Survey Study

   The purpose of the conduit study is to locate potential migration pathways and potential conduits and determine the probability of the plume encountering preferential pathways and conduits that could spread the contamination. The conduit study shall include a detailed well survey of all wells (monitoring and production wells: active, inactive, standby, destroyed (sealed with concrete), abandoned (improperly destroyed); and dewatering, drainage, and cathodic protection wells) within a ½ mile radius of the subject site. As part of your detailed well survey, please perform a background study of the historical land uses of the site and properties in the vicinity of the site. Use the results of your background study to determine the existence of unrecorded/unknown (abandoned) wells, such as agricultural and domestic wells, that can act as pathways for migration of contamination at and/or from your site. Please review historical maps such as Sanborn maps, aerial photos, etc., when performing the background study. Provide a map(s) showing the location of all wells identified in your study. Please also provide copies of Sanborn maps indicating the presence of "gas and oil".

2. Characterization of Local Hydrogeology and Groundwater Flow Conditions

   The purpose of this characterization is to understand the physical and geochemical characteristics of the subsurface, which may affect groundwater flow, the breakdown (fate),

migration (transport), and the distribution of contaminants through the subsurface. Additionally, factors such as water level fluctuations, gradient changes, local hydrogeology, groundwater extraction, and groundwater recharge activities (natural and artificial) can significantly alter groundwater flow conditions. We request that you properly characterize the hydrogeology and groundwater flow conditions in the vicinity of your site. We require that you prepare detailed cross-sections and determine the gradient for the site. Include soil concentrations and groundwater iso-concentration contours on your cross-section.

3. Contaminant Source Characterization

The purpose of contaminant source characterization is to determine the nature and extent of free product (liquid phase), petroleum saturated soils (residual phase), and hydrocarbons dissolved in groundwater (aqueous phase), and high concentrations of soil vapor (vapor phase) that will continue to increase the concentration and mass of the dissolved phase contaminant plume. Contaminant source characterization also includes characterization of dissolved phase contamination and an estimation of contaminant mass in the source area. We are concerned that soil contamination has not been adequately defined within the vicinity of the former USTs, which could leave a significant residual source of contamination. The lack of vertical delineation in SB-1 and the presence of elevated TPH in groundwater in SB-2 is of concern. In addition, the plume requires delineation towards the residence to the west and north towards 106th Ave. After completion of this characterization, an evaluation as to the need for permanent monitoring wells must be made.

4. Soil Vapor Sampling

We concur that soil vapor sampling would be useful to determine if vapor risk exists from residual contamination, however, it would be most appropriately done when site characterization is complete. Sampling in known areas of contamination and near receptors would typically be recommended.

TECHNICAL REPORT REQUEST

Please submit the following technical reports to our office according to the following schedule:

- August 29, 2005- Conduit/Receptor Survey study, hydrogeology characterization and work plan to further delineate soil and groundwater contamination.
- 30 days after the submittal of your soil and groundwater investigation report- Soil vapor sampling work plan

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. Title 23, CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from petroleum UST system, and require your compliance with this request.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following:

"I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

If you have any questions, please contact me at (510) 567-6765.

Sincerely,

Barney M. Chan
Hazardous Materials Specialist

C: files, D. Drogos
Ms. Sherris Prall, ETIC Engineering, 2285 Morello Ave., Pleasant Hill, CA 94523

7_26_05 10605 Foothill Blvd

Appendix B

Soil and Groundwater Investigation Field Protocols

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

SUBSURFACE CLEARANCE SURVEY PROCEDURES

Prior to drilling, the proposed locations of the borings will be marked with white paint. Underground Service Alert (USA) will be contacted prior to subsurface activities and a "ticket" will be issued for this investigation. USA members will mark underground utilities in the delineated areas using standard color code identifiers.

Once USA has marked the site, all proposed boreholes locations will be investigated by subsurface clearance surveys to identify possible buried hazards (e.g, pipelines, drums, tanks). Subsurface clearance surveys use several geophysical methods to locate shallow buried man-made objects. The geophysical methods include electromagnetic induction (EMI) profiling, ground penetrating radar (GPR), and/or magnetic surveying. The choice of methods depends on the target object and potential interference from surrounding features.

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, the entire area between the UST field and the product dispenser islands, and within 10 feet of any suspected underground line. An 8- to 12-inch-diameter circle will be cut in the surface cover at each boring 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 or air lance, used to disturb native soil by injecting water or air into the soil, and a vacuum, used to remove the soil.

SOIL CORING PROCEDURES

Soil samples are collected for visual description and chemical analysis using a direct driven single tube soil coring system. A hydraulic hammer drives sampling rods into the ground to collect continuous or discrete soil cores. 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 rods. Soil samples are collected in sleeves inside the sample barrel as the rods are advanced. After being driven 2 to 4 feet (depending on the sample interval and the length of the sample barrel), the rods are removed from the boreholes. The sleeves containing the soil samples are removed from the sample barrel, and can then be preserved for chemical analyses or used for visual identification. Samples to be preserved for chemical analyses are sealed with Teflon tape and caps, and placed in a cooler with ice. The soil is scanned with a flame ionization detector or a photo-ionization detector. After adding new sleeves, the drive sampler and rods are then lowered back into the boreholes to the previous depth and the process is repeated until the desired depth is reached.

All drive casing, sample barrels, rods, and tools are cleaned with Alconox or equivalent detergent and deionized water. All soil is contained in drums or stockpiles for later disposal.

GROUNDWATER SAMPLING PROCEDURES

After the targeted water-bearing zone has been penetrated, the drive casing, sample barrels and rods are pulled up to allow groundwater to flow into the boreholes. Small-diameter well casing with 0.010-inch slotted well screen or equivalent may be installed in the boreholes to facilitate the collection of groundwater samples. 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 chemical analysis.

BOREHOLES GROUTING

Once the soil and water sampling is completed, boreholes will be abandoned with a neat cement grout. The grout is pumped through a tube positioned at the bottom of the boreholes.

Appendix C

Soil Gas Investigation Field Protocols

SOIL VAPOR SURVEY METHODOLOGY

DTSC Protocols

Active Soil Vapor Sampling System

TEG's low-dead volume soil vapor sampling system has been inspected, endorsed, and is favored by all regulatory agencies who have seen it, including the EPA and CA DTSC. The design eliminates the risk of air leakage down the soil vapor probe, ensures sample collection from the tip, and greatly facilitates decontamination procedures.

Probe Construction

TEG's soil vapor probes are constructed of 1 inch outer diameter chrom-moly steel, equipped with a steel drop off tip. The Strataprobe can use a larger diameter probe if needed. Nominal lengths are 4 feet and additional lengths may be added to one another to achieve the required sampling depth. An inert 1/8 inch tube runs through the center of the probe and is attached to the sampling port with a stainless steel post run fitting.

Probe Insertion

The probe is driven into the ground with an electric rotary hammer, or with the Strataprobe. After inserted to the desired depth, the probe is retracted slightly, which opens the tip and exposes the vapor sampling port. This design prevents clogging of the sampling port and cross-contamination from soils during insertion. Once the probe rod is placed, the sample can be collected after waiting twenty minutes for equilibration.

Soil Gas Sampling

Soil vapor is withdrawn from the inert tubing using a calibrated syringe connected via an on-off valve. A purge volume test is conducted by sampling at the first soil vapor location three times after sequentially collecting and discarding one, three, and seven dead volumes of soil vapor gas to flush the sample tubing and fill it with in-situ soil vapor. The purge volume used prior to the sample yielding the highest analytical value is used for all subsequent sampling. After purging, the next 20cc to 50cc of soil vapor are withdrawn in the syringe, plugged, and immediately transferred to the mobile lab for analysis within the required holding time. During sampling, a leak check gas is used to confirm that the sample train and probe rod is tight and leak free. Additional soil vapor may be collected and stored in gas-tight containers (e.g. Summa canisters) as desired.

Flushing & Decontamination Procedures

To minimize the potential for cross-contamination between sites, all external probe parts are cleaned of excess dirt and moisture prior to insertion. The internal inert tubing and sampling syringes are flushed with large volumes of ambient air between samples or discarded as required. If water, dirt, or any material is observed in the tubing, the tubing is discarded and replaced with fresh tubing.

DTSC Protocols

Analytical Methodology

Soil vapor samples collected from each probe will be transferred directly to the on-site mobile laboratory and analyzed immediately. There will be minimal lag time between sample collection and analysis, ensuring that the integrity of the sample is maintained.

Samples will be analyzed on a gas chromatograph equipped with capillary columns and a combination of mass spectrometer (GC/MS), TCD, and FID detectors as needed. This combination of columns and detectors ensures compound separation, recognition, and detection at the required levels.

These detectors enable on-site analysis for petroleum hydrocarbons, volatile aromatics (BTEX), and volatile organic compounds (e.g. DCE, TCE, PCE, vinyl chloride) using EPA approved analytical methodology outlined in methods 8260B and 8015m. Output signals from each detector are processed by computer chromatography software and the results entered into a laboratory computer for on-site processing.

Daily instrument Calibration

Daily continuing calibration is performed at the start of each day by injecting and analyzing a mid-range calibration standard. Acceptable continuing calibration agreement: +/- 15% to 25% to the calibration curve, depending on the compound.

Blanks & Duplicates

Blanks are analyzed at the start of each day and more often as appropriate depending upon the measured concentrations. Typically, when high sample values are encountered, additional blanks may be analyzed. Duplicate samples are analyzed as needed or as requested by the client or regulatory agency.

Compound Confirmation

A MS (mass spectrometer) detector is used for absolute compound identification of VOCs. Also, a surrogate compound is added to each sample during analysis to confirm that the chromatographic retention times have not shifted during the course of the day and that surrogate recovery is adequate showing proper instrument operation and integrity.

Health and Safety - Training and Medical Monitoring Programs

In order to reduce potential employee exposure to hazardous materials and reduce the risk of injury incurred during the normal performance of work, TEG maintains active participation of personnel in a Injury and Illness Prevention Program (IIPP). Each TEG employee that performs work in a laboratory or in the field, is required to have completed a 40-hour training session in accordance with 29 CFR 1910.120. The Health and Safety Officer coordinates all aspects of training and maintaining the Injury and Illness Prevention program, including, but not limited to:

-- annual physical examination of field personnel (including an initial baseline exam upon hiring)
-- health, safety and hazardous material training
-- first aid and Cardio-Pulmonary Resuscitation (CPR) training
-- safety equipment inventory and purchasing
-- review of health and safety procedures, exposure limits, and plans for each project.

Work procedures and required safety conditions are determined on the basis of anticipated work, environmental conditions and levels of toxic chemicals at a given site. Consultation with client safety personnel or representatives is undertaken to determine potential health hazards to workers at that site. Each TEG employee participates in all pre-job safety meetings at each job site.