

**ExxonMobil**  
**Refining & Supply Company**  
Global Remediation

4096 Piedmont Avenue #194  
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jennifer.c.sedlachek@exxonmobil.com

RO2635 M  
Jennifer C. Sedlachek  
Project Manager

**ExxonMobil**  
Refining & Supply

April 19, 2005

Mr. Amir K. Gholami  
Alameda County Health Care Services Agency  
Environmental Health Services  
1131 Harbor Bay Parkway  
Alameda, California 94502

w.p.

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

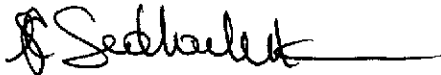
Dear Mr. Gholami:

Attached for your review and comment is a copy of the *Work Plan for Additional Site Assessment* dated April 2005 for the above-referenced site. The work plan was prepared by ETIC Engineering, Inc. (ETIC) of Pleasant Hill, California, in response to a letter from the Alameda County Health Care Services Agency to ExxonMobil Refining and Supply Company (ExxonMobil) dated March 22, 2005. The work plan proposes the installation of nine soil borings to further investigate soil and groundwater conditions at the site.

Upon information and belief, I declare, under penalty of perjury, that the information contained in the 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: Work Plan for Additional Site Assessment dated April 2005

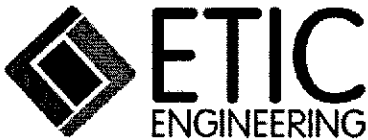
c: w/ attachment:  
Mr. Ken Phares – MacArthur Boulevard Associates, Oakland, California

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

RECEIVED

APR 22 2005

ENVIRONMENTAL HEALTH SERVICES



RECEIVED  
APR 22 2005  
ENVIRONMENTAL HEALTH SERVICES

102635

## Work Plan for Additional Site Assessment

**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

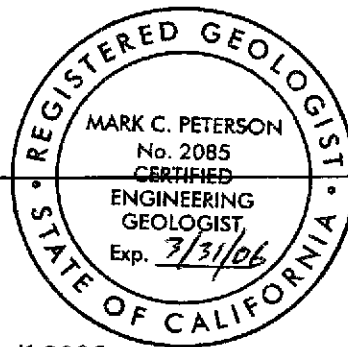
ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, California 94523  
(925) 602-4710

for Sherris Prall  
Project Manager

4/18/05

Date

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



4/18/05

Date

April 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: Amir K. Gholami  
Alameda County  
Health Care Services Agency  
Environmental Health Services  
1131 Harbor Bay Parkway  
Alameda, California 94502  
(510) 567-6876

## INTRODUCTION

At the request of ExxonMobil Oil Corporation (ExxonMobil), ETIC Engineering, Inc. (ETIC) has prepared this *Work Plan for Additional Site Assessment* for former Exxon Retail Site (RS) 7-4121, located at 10605 Foothill Boulevard in Oakland, California (Figure 1). This work plan was prepared in response to a letter from the Alameda County Health Care Services Agency (ACHCSA) dated 22 March 2005 requesting an investigation to further assess impacts to soil and groundwater at the site. Correspondence from the ACHCSA is provided in Appendix A.

## SITE BACKGROUND

Former Exxon RS 7-4121 is currently a vacant lot located at 10605 Foothill Boulevard, on the southeast corner of the intersection of Foothill Boulevard and 106<sup>th</sup> Avenue (Figure 2). The property is currently owned by MacArthur Boulevard Associates and surrounded by a shopping center and a residential area.

In December 1998, AEI Consultants (AEI) performed a geophysical survey (magnetometry and ground-penetrating radar) to ascertain the presence of underground storage tanks (USTs) at the site (AEI 2004). No underground anomalies indicative of remaining USTs were identified (AEI 2004). Also, the ACHCSA letter dated 22 March 2005 (Appendix A) 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. 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 t-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 ( $\mu\text{g/L}$ ) and 26,000  $\mu\text{g/L}$ , respectively. Benzene was detected in groundwater samples at concentrations up to 250  $\mu\text{g/L}$ , and MTBE was not detected above the laboratory reporting limit of 17  $\mu\text{g/L}$  in any of the groundwater samples. Soil and groundwater analytical results (Tables 1 and 2) and analytical documentation from AEI's Phase II Subsurface Investigation Report (AEI 2004) are provided in Appendix B.

## PROPOSED SCOPE OF WORK

To provide definition of the extent of petroleum hydrocarbons at the site, ETIC proposes the installation of nine temporary soil borings for the collection of soil and groundwater samples at the locations shown in Figure 2. The proposed scope of work for the installation of the soil borings is outlined below.

- The appropriate boring permits will be acquired from the ACHCSA.
- ETIC personnel will mark the proposed boring locations as indicated in Figure 2. The locations

will be appropriately marked for Underground Service Alert (USA), and USA will be contacted at least 72 hours prior to drilling. A utility line locator will be subcontracted by ETIC to clear the marked boring locations for drilling. If a marked boring location is over or adjacent to a utility line, ETIC personnel will mark another nearby location, which will be screened by the utility line locator to clear the location for drilling.

- The single-tube direct-push method will be used to install nine temporary soil borings. Installation and sample collection methods are described in the field protocols in Appendix C.
- The borings will be continuously logged to total depths. The borings will be advanced until first groundwater is encountered. First groundwater is likely to occur at depths of approximately 10 to 15 feet bgs. Actual boring depths will be dependent on conditions encountered in the field.
- Selected soil samples will be submitted for laboratory analysis based on significant changes in the soil characteristics and/or field organic vapor analyzer measurements.
- Grab groundwater samples will be collected from the borings in the first water bearing zone. 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 to facilitate the collection of groundwater samples.

Soil and groundwater samples selected for analysis will be analyzed for:

- TPH-g by EPA Method 8015.
- TPH-d by EPA Method 8015.
- Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8021.
- MTBE by EPA Method 8260.

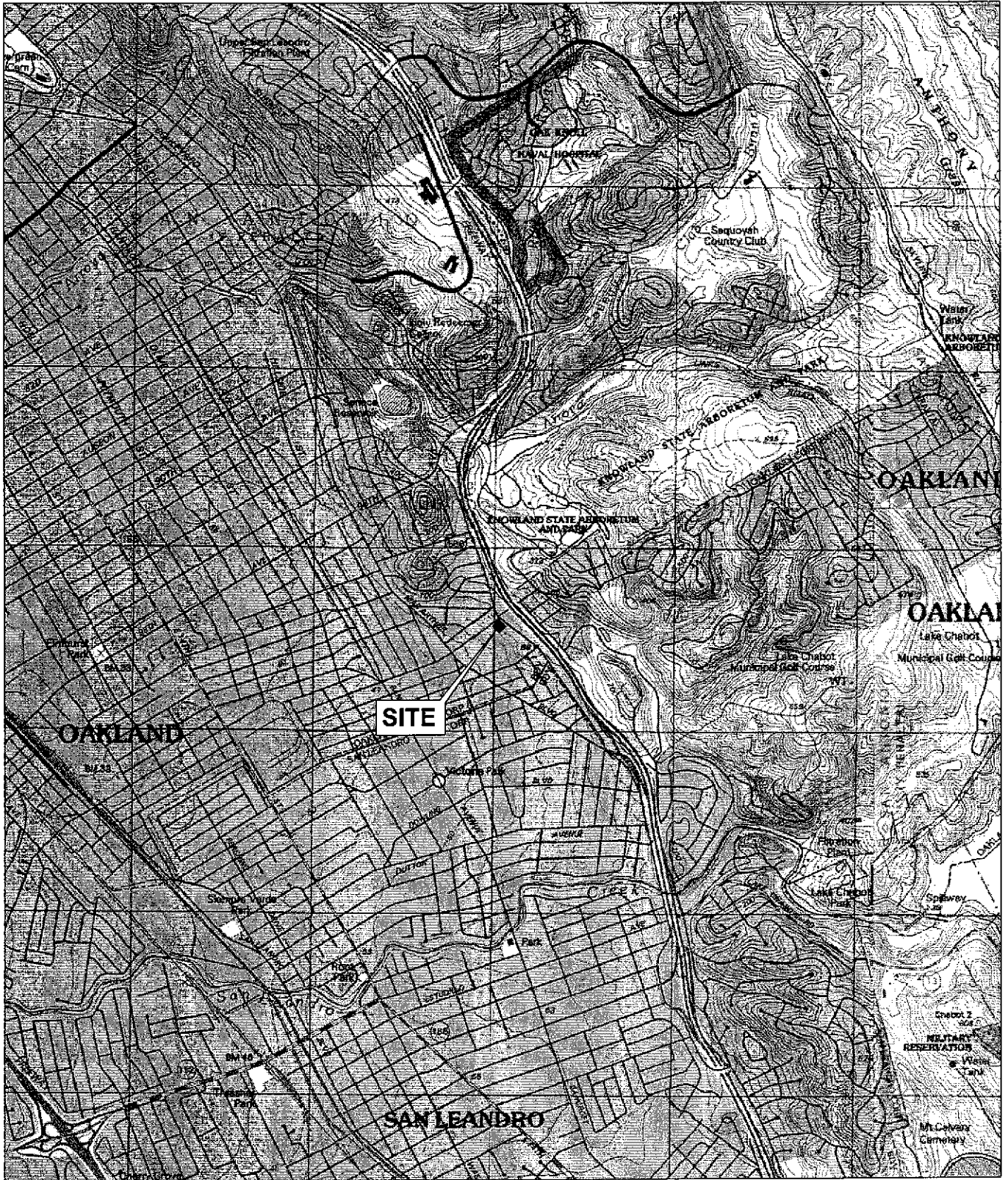
The ACHCSA letter dated 22 March 2005 also requested that copies of any environmental reports pertaining to the USTs at this site be submitted. ExxonMobil's database has been checked and no environmental files are on record. This indicates that the site was not an open environmental case when ExxonMobil divested the property in 1988. A historical records search will be performed to determine if any additional information is available. If any additional information is available, the results of the file search will be included in the report documenting the investigation proposed in this work plan.

## **SCHEDULE AND REPORTING**

Completion of the field work is contingent upon approval of this work plan by the ACHCSA. The report for the investigation will be submitted to the ACHCSA 90 days after the field work is completed. The report will include recommendations for additional site work if warranted.

## REFERENCES

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



SOURCE: USGS Topography Map



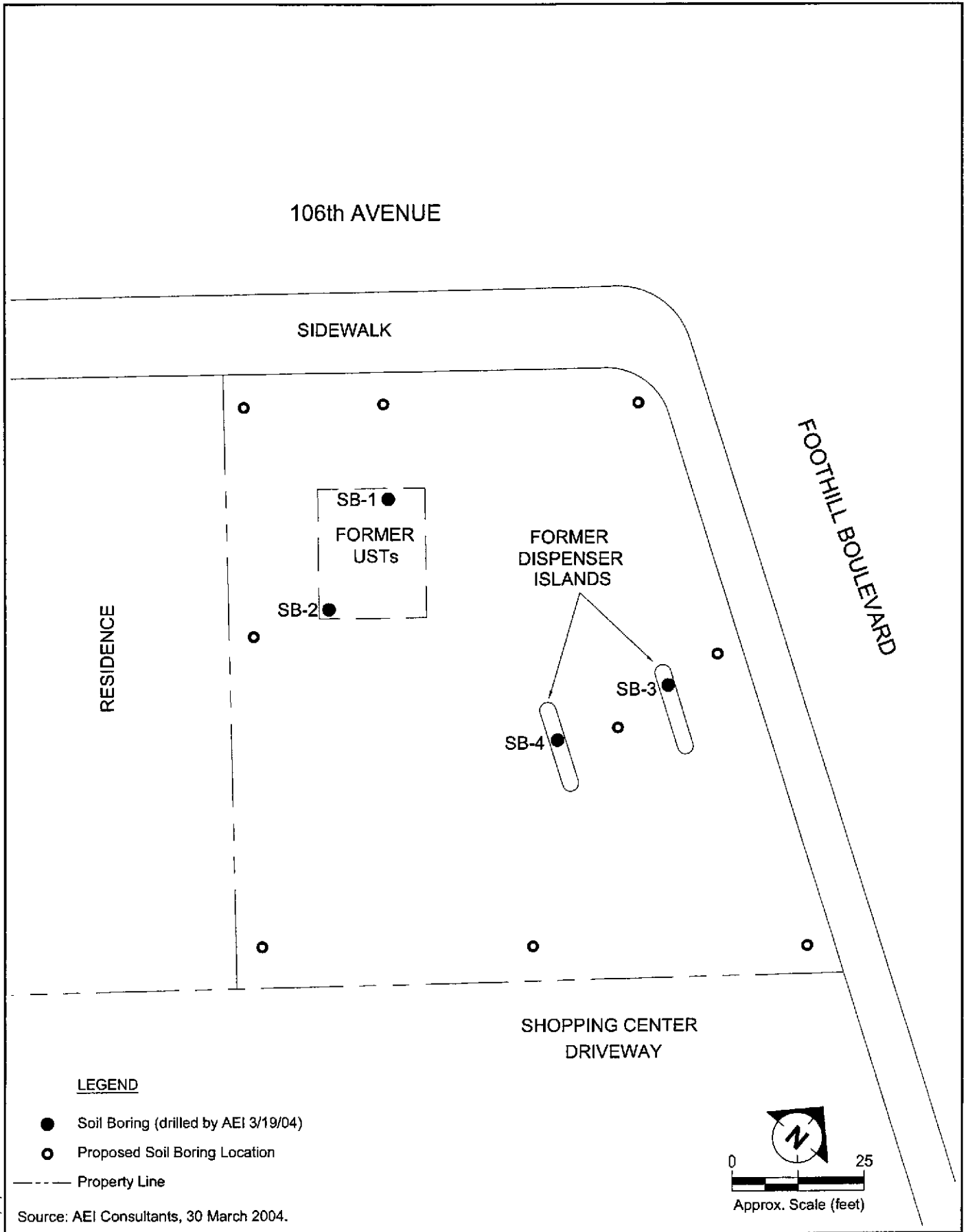
FILENAME: TOP00405.DWG 04/15/05



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

FIGURE:

1



FILENAME: site0405.DWG 4/15/05



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

FIGURE:

**2**



**Appendix A**

**Regulatory Correspondence**



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

**March 22, 2005**

Jennifer C. Sadlachek  
Exxonmobil  
4096 Piedmont Ave., # 194  
Oakland, CA 94611

Ken Phares  
MacArthur Blvd Associates  
10700 MacArthur Blvd.  
Oakland, Ca 94605

**Re: Fuel Leak Investigation, Site No. RO0002635, EXXON #7-4121, 10605 Foothill  
Blvd., Oakland, CA 94605**

Dear Ms. Sadlachek and Mr. Phares:

Alameda County Environmental Health (ACEH) staff reviewed a report dated April 7, 2004 indicating a release from your former gasoline underground storage tank (UST) system removed from your property prior to December 1998. This office subsequently listed the subject site on our database of fuel leak sites. Our office acts as the lead agency to oversee the investigation and cleanup of petroleum hydrocarbon releases.

#### **TECHNICAL COMMENTS**

We have recently reviewed the information in our file and determined that up to 1,000 ppm TPHG, 590 ppm TPHD, and 0.55 ppm Benzene were detected in soil. Up to 7,000 ppb TPHG, 26,000 ppb TPHD, 250 ppb Benzene, and up to 17 ppb MTBE were detected in groundwater. Per our meeting this afternoon a soil and groundwater investigation is necessary at this site to progress toward case closure.

Please define the extent of soil and groundwater at your site. This type of investigation usually involves drilling soil borings and collecting soil and groundwater samples for chemical analyses. Groundwater monitoring wells may be needed and groundwater sampled to properly characterize groundwater contamination. Other options for additional investigation may be appropriate to define contamination at your site.

Please submit a work plan detailing your proposal to define the extent of soil and groundwater contamination by **April 22, 2005**.

The case file for the subject site contains one report "phase II site investigation", dated April 7, 2004, prepared by AEI Consultants. We request that you submit copies of any other reports pertaining to any USTs systems that are/were present at this site and/or environmental contamination related reports by **April 22, 2005**.

## TECHNICAL REPORT REQUEST

Please submit the following technical reports to Alameda County Department of Environmental Health (Attention: Amir K. Gholami):

**April 22, 2005** Work Plan

**April 22, 2005** Copies of any other reports pertaining to any USTs systems that are/were present at this site and/or environmental contamination related reports

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a 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.

## 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.

## LANDOWNER NOTIFICATION REQUIREMENTS

Pursuant to California Health & Safety Code Section 25297.15, the active or primary responsible party for a fuel leak case must inform all current property owners of the site of cleanup actions or requests for closure. Furthermore, ACEH may not consider any cleanup proposals or requests for case closure without assurance that this notification requirement has been met. Additionally, the active or primary responsible party is required to forward to ACEH a complete mailing list of all record fee title holders to the site.

At this time we require that you submit a complete mailing list of all record fee title owners of the site by **April 22, 2005**, which states, at a minimum, the following:

A. *In accordance with section 25297.15(a) of Chapter 6.7 of the Health & Safety Code, I, (name of primary responsible party), certify that the following is a complete list of current record fee title owners and their mailing addresses for the above site:*

- OR -

B. *In accordance with section 25297.15(a) of Chapter 6.7 of the Health & Safety Code, I, (name of primary responsible party), certify that I am the sole landowner for the above site.*

*(Note: Complete item A if there are multiple site landowners. If you are the sole site landowner, skip item A and complete item B.)*

## **PROFESSIONAL CERTIFICATION**

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.

## **AGENCY OVERSIGHT**

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

If you have any questions, please do not hesitate to call me at 510-567-6876.

Sincerely,

Amir K. Gholami, REHS  
Hazardous Materials Specialist

C: Peter McIntyre, AEI Consultants, 2500 Camino Diablo, Suite  
200, Walnut Creek, CA 94597 Tremont Road, Dixon, CA 95620  
D. Drogos, A. Gholami

**Appendix B**

**Analytical Results and Analytical Documentation**  
**(From AEI's Phase II Subsurface Investigation Report dated 7 April 2004)**

**Table 1**  
**Soil Sample Analytical Data**

Sample ID	Date	TPH-g	TPH-d	MTBE	Benzene	Toluene	E'benzene	Xylenes
		mg/kg <i>EPA method 8015Cm</i>	mg/kg					
SB-1 11'	3/19/04	1000	590	<2.5	0.55	11	0.92	2.6
SB-2 18'	3/19/04	65	37	<0.50	<0.050	0.39	0.40	0.13
SB-3 5'	3/19/04	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005
SB-4 5'	3/19/04	<1.0	2.1	<0.05	<0.005	<0.005	<0.005	<0.005
RL		1	1	0.05	0.005	0.005	0.005	0.005

TPH-g = total petroleum hydrocarbons as gasoline

TPH-d = total petroleum hydrocarbons as diesel

mg/kg = milligrams per kilogram

RL = laboratory reporting limit (with no dilution) - see laboratory reports for sample specific dilution factors

MTBE = methyl tert-butyl ether

E'benzene = ethylbenzene

- = Sample not analyzed by this method

**Table 2**  
**Groundwater Sample Analytical Data**

Sample ID	Date	TPH-g	TPH-d	MTBE	Benzene	Toluene	E'benzene	Xylenes
		$\mu\text{g/l}$ <i>EPA method 8015Cm</i>	$\mu\text{g/l}$					
SB-1 W	3/19/04	3200	4200	<17	250	22	310	71
SB-2 W	3/19/04	7000	26000	<17	17	24	68	21
RL		50	50	5.0	0.5	0.5	0.5	0.5

TPH-g = total petroleum hydrocarbons as gasoline

TPH-d = total petroleum hydrocarbons as diesel

$\mu\text{g/l}$  = micrograms per liter

RL = reporting limit (with no dilution) - see laboratory reports for sample specific dilution factors

MTBE = methyl tert-butyl ether

E'benzene = ethylbenzene

- = Sample not analyzed by this method



**McC Campbell Analytical, Inc.**

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
Website: www.mcccampbell.com E-mail: mau@mcccampbell.com

All Environmental, Inc. 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #8311; Jay	Date Sampled: 03/19/04
		Date Received: 03/19/04
	Client Contact: Peter McIntyre	Date Reported: 03/26/04
	Client P.O.:	Date Completed: 03/26/04

WorkOrder: 0403331

March 26, 2004

Dear Peter:

Enclosed are:

- 1). the results of 6 analyzed samples from your #8311; Jay project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager





# McC Campbell Analytical, Inc.

110 2nd Avenue South, P.O. Box 700, Pacheco, CA 94553-0700  
 Telephone: 925-798-1620 Fax: 925-798-1622  
 Website: www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc.  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #8311; Jay	Date Sampled: 03/19/04
	Client Contact: Peter McIntyre	Date Received: 03/19/04
	Client P.O.:	Date Extracted: 03/25/04
		Date Analyzed: 03/25/04

## Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\*

Extraction method: SW5070B

Analytical methods: SW8021B/8015Cm

Work Order: 0403331

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
013A	SB-1 W	W	3200.a	ND<17	250	22	310	71	3.3	---
014A	SB-2 W	W	7000.a,h,i	ND<17	17	24	68	21	3.3	---

Reporting Limit for DF=1.	W	50	5.0	0.5	0.5	0.5	0.5	0.5	1	µg/L
ND means not detected at or above the reporting limit	S	NA	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L. soil/sludge/solid samples in mg/kg, wipe samples in ug/wipe. product/oil/non-aqueous liquid samples in mg/L.

\* cluttered chromatogram; sample peak coelutes with surrogate peak.

\* The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant (aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than -2 vol % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas); m) no recognizable pattern.

*AR* Angela Rydelius, Lab Manager



# McC Campbell Analytical, Inc.

102nd Avenue Susan #07, Pacifico, CA 94553-3560  
 Telephone 925-798-1620 Fax 925-798-1622  
 Website www.mccampbell.com E-mail main@mccampbell.com

All Environmental, Inc.  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #8311: Jay	Date Sampled: 03/19/04
		Date Received: 03/19/04
	Client Contact: Peter McIntyre	Date Extracted: 03/19/04
	Client P.O.:	Date Analyzed: 03/21/04

### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\*

Extraction method: SW5030B

Analytical methods: SW6021B/8015Cm

Work Order: 0403331

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
002A	SB-1 11'	S	1000.b.m	ND<2.5	0.55	11.	0.92	2.6	50	---
008A	SB-2 18'	S	65.b.m	ND<0.50	ND<0.050	0.39	0.40	0.13	10	91.2
010A	SB-3 5'	S	ND	ND	ND	ND	ND	ND	1	89.2
011A	SB-4 5'	S	ND	ND	ND	ND	ND	ND	1	85.2

Reporting Limit for DF=1. ND means not detected at or above the reporting limit	W	NA	NA	NA	NA	NA	NA	NA	1	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	0.005	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in µg/L. soil/sludge/solid samples in mg/kg. wipe samples in µg/wipe. product/oil/non-aqueous liquid samples in mg/L.

# clustered chromatogram: sample peak coelutes with surrogate peak.

The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible shcen/product is present; i) liquid sample that contains greater than -2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas); m) no recognizable pattern.

DHS Certification No. 1644

*AR* Angela Rydelius, Lab Manager



McC Campbell Analytical, Inc.

110 2nd Avenue South, #D7 Pacheco, CA 94553-1360  
Telephone: 925-798-1620 Fax: 925-798-1622  
Website: www.mcccampbell.com E-mail: main@mcccampbell.com

All Environmental, Inc. 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #8311: Jay	Date Sampled: 03/19/04
		Date Received: 03/19/04
	Client Contact: Peter McIntyre	Date Extracted: 03/19/04
	Client P.O.:	Date Analyzed: 03/22/04

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel\*

EXTRACTION METHOD: SW7510C			ANALYTICAL METHODS: SW8015C			Work Order: 0403331	
Lab ID	Client ID	Matrix	TPH(d)	DF	% SS		
0403331-013B	SB-1 W	W	4200.d.b.g	1	98.0		
0403331-014B	SB-2 W	W	26,000.d.b.h.i	10	119		

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLCL / SPLP / TCLP extracts are reported in µg/L.

# cluttered chromatogram resulting in coeluted surrogate and sample peaks, or: surrogate peak is on elevated baseline, or: surrogate has been diminished by dilution of original extract.

+ The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; k) kerosene/kerosene range/jet fuel range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.

*AR* Angela Rydelius, Lab Manager



**McCampbell Analytical, Inc.**

110 2nd Avenue South, #D7, Pacheco, CA 94553-2556  
 Telephone: 925-798-1620 Fax: 925-798-1622  
 Website: www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc. 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #8311; Jay	Date Sampled: 03/19/04
		Date Received: 03/19/04
	Client Contact: Peter McIntyre	Date Extracted: 03/19/04
	Client P.O.:	Date Analyzed: 03/22/04-03/25/04

**Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel\***

Extraction method: SW3550C

Analytical methods: SW8015C

Work Order: 0403331


Lab ID	Client ID	Matrix	TPH(d)	DF	% SS
0403331-002A	SB-1 11'	S	590.d.b	50	117
0403331-008A	SB-2 18'	S	37.d.b	1	101
0403331-009A	SB-3 5'	S	ND	1	101
0403331-011A	SB-4 5'	S	21.g	1	102

Reporting Limit for DF = 1: ND means not detected at or above the reporting limit	W S	NA 1.0	NA mg/Kg
---	--------	-----------	-------------

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

# cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

\*The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.


 Angela Rydelius, Lab Manager



QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: S

WorkOrder: 0403331

EPA Method: SW8021B/8015Cm    Extraction: SW5030B    BatchID: 10835    Spiked Sample ID: 0403332-009A										
	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	0.60	96.1	98.4	2.29	103	102	0.305	70	130
MTBE	ND	0.10	92	88.8	3.50	98.4	93.5	5.12	70	130
Benzene	ND	0.10	102	114	10.8	117	116	1.69	70	130
Toluene	ND	0.10	87.2	93.5	6.97	97.4	96.8	0.526	70	130
Ethylbenzene	ND	0.10	114	108	5.30	115	115	0	70	130
Xylenes	ND	0.30	96.7	100	3.39	107	103	3.17	70	130
%SS:	90.4	0.10	102	101	0.985	106	98.3	7.54	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0403331

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 10836			Spiked Sample ID: 0403328-003A			
	Sample	Spiked	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	97.2	101	3.88	97	99.1	2.11	70	130
MTBE	ND	10	95.1	100	4.97	112	104	7.82	70	130
Benzene	ND	10	107	116	7.97	113	109	3.16	70	130
Toluene	ND	10	103	109	5.90	105	101	3.36	70	130
Ethylbenzene	ND	10	104	115	10.2	109	108	1.39	70	130
Xylenes	ND	30	95.3	100	4.78	96	96	0	70	130
%SS:	101	10	106	104	1.67	103	102	0.874	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
 NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



QC SUMMARY REPORT FOR SW8015C

Matrix: S

WorkOrder: 0403331

EPA Method: SW8015C		Extraction: SW3550C			BatchID: 10804			Spiked Sample ID: 0403284-010A		
	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(d)	ND	150	102	102	0	85.7	85.8	0.0980	70	130
%SS:	88.2	50	95.8	96.1	0.294	102	101	0.122	70	130
All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE										

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



QC SUMMARY REPORT FOR SW8015C

Matrix: W

WorkOrder: 0403331

EPA Method: SW8015C		Extraction: SW3510C			BatchID: 10838			Spiked Sample ID: N/A		
	Sample	Spiked	MS*	MSD*	IS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(d)	N/A	7500	N/A	N/A	N/A	96.8	97.6	0.836	70	130
%SS:	N/A	2500	N/A	N/A	N/A	93.5	94.2	0.751	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS Certification No. 1644

TL QA/QC Officer



**McC Campbell Analytical, Inc.**



110 Second Avenue South, #D7  
 Pacheco, CA 94553-5560  
 (925) 798-1620

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0403331

**Report to:**

Peter McIntyre  
 All Environmental, Inc.  
 2500 Camino Diablo, Ste. #200  
 Walnut Creek, CA 94597

TEL: (925) 283-6000  
 FAX: (925) 283-6121  
 ProjectNo: #8311; Jay  
 PO:

**Bill to:**

Lesliegh Alderman  
 All Environmental, Inc.  
 2500 Camino Diablo, Ste. #200  
 Walnut Creek, CA 94597

Requested TAT: 5 days

Date Received: 3/19/04

Date Printed: 3/19/04

Sample ID	ClientSampleID	Matrix	Collection Date	Hold	Requested Tests (See legend below)															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
0403331-002	SB-1 11'	Soil	3/19/04	<input type="checkbox"/>		A		A												
0403331-008	SB-2 18'	Soil	3/19/04	<input type="checkbox"/>		A		A												
0403331-009	SB-3 5'	Soil	3/19/04	<input type="checkbox"/>		A		A												
0403331-011	SB-4 5'	Soil	3/19/04	<input type="checkbox"/>		A		A												
0403331-013	SB-1 W	Water	3/19/04 10:00:00	<input type="checkbox"/>					A		B									
0403331-014	SB-2 W	Water	3/19/04 9:35:00 AM	<input type="checkbox"/>					A		B									

**Test Legend:**

1	G-MBTX_S
6	
11	

2	G-MBTX_W
7	
12	

3	TPH(D)_S
8	
13	

4	TPH(D)_W
9	
14	

5	
10	
15	

Prepared by: Melissa Valles

**Comments:**

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

**McCAMPBELL ANALYTICAL INC.**

110 3<sup>RD</sup> AVENUE SOUTH, #D7  
FACIIECO, CA 94553-9560

Telephone: (925) 798-1620

Fax: (925) 798-1622

**CHAIN OF CUSTODY RECORD**

**TURN AROUND TIME**

RUSH 24 HR  48 HR  72 HR  5 D

EDF Required? Coelt (Normal)  No Write On (DW)  No

Report To: Peter McIntyre Bill To:  
Company: AEI Consultants  
2500 Camino Diablo, Suite 200  
Walnut Creek, CA 94597 E-Mail:  
Tele: (925) 283-6000 Fax: (925) 283-6121  
Project #: 8311 Project Name: Jay  
Project Location: Foothill Blvd, Oakland  
Sampler Signature: [Signature]

Analysis Request

Other

Comment

BTEX & TPH in Gas (602/8020 + 8015)   
TPH as Diesel (8015)   
Total Petroleum Oil & Grease (5520 E&F/B&F)   
Total Petroleum Hydrocarbons (418.1)   
EPA 601 / 8010   
BTEX ONLY (EPA 602 / 8020)   
EPA 608 / 8080   
EPA 608 / 8080 PCB'S ONLY   
EPA 624 / 8240 / 8260   
EPA 625 / 8270   
PAH's / PNA's by EPA 625 / 8270 / 8310   
CAM-17 Metals   
LUFT 5 Metals   
Lead (7240/7421/239.2/8010)   
RCI

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				Analysis Request	Other	Comment
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other			
SB-1 8'		7/19/01	114	1	Head	X					X						Hold
SB-1 11'				1		X					X						Hold
SB-1 14'				1		X					X						Hold
SB-1 16'				1		X					X						Hold
SB-2 8'				1		X					X						Hold
SB-2 13'				1		X					X						Hold
SB-2 15'				1		X					X						Hold
SB-2 18'				1		X					X						Hold
SB-3 5'				1		X					X						Hold
SB-3 8'				1		X					X						Hold
SB-4 9'				1		X					X						Hold
SB-4 8'				1		X					X						Hold
SB-1 W			10:00	3	Weg	X					X						
SB-2 W			9:30	4	Weg	X					X						

Relinquished By: [Signature] Date: 7/19/01 Time: 6:00 AM Received By: [Signature]  
Relinquished By: [Signature] Date:  Time:  Received By:   
Relinquished By:  Date:  Time:  Received By:

ICE/✓ GOOD CONDITION ✓ PRESERVATION APPROPRIATE CONTAINERS ✓  
HEAD SPACE ABSENT ✓ DECHLORINATED IN LAB \_\_\_\_\_ PRESERVED IN LAB \_\_\_\_\_  
VOAS \_\_\_\_\_ U&G \_\_\_\_\_ METALS \_\_\_\_\_ OTHER \_\_\_\_\_

**Appendix C**

**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.