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Alameda County Environmental Health

October 7, 2005

# PHASE II SUBSURFACE INVESTIGATION REPORT

1310 14th Street Oakland, California

Project No. 11065

Prepared For

Heather Dennis Hall Equities Group 1855 Olympic Blvd. Walnut Creek, CA 94596

Prepared By

AEI Consultants 2500 Camino Diablo, Suite 100 Walnut Creek, CA 94597 (925) 944-2899





Phone: (925) 944-2899

Fax: (925) 944-2895

October 7, 2005

Heather Dennis
Hall Equities group
1955 Olympic Blvd.
Walnut Creek, CA 94596

Subject:

**Phase II Subsurface Investigation** 

1310 14th Street

Oakland, California 94546

Project No. 12130

Dear Ms. Dennis:

The following letter report describes the activities and results of the subsurface investigation performed by AEI Consultants at the above referenced property (Figure 1: Site Location Map). The scope of work for this investigation was designed to determine the extent of soil contamination and its impact on groundwater resulting from the hydrocarbon release from three (3) underground storage tanks (USTs) previously abandoned in place (Figures 2 and 3).

### I Background

The subject property (hereafter referred to as the "site" or "property") is located at 1310 14<sup>th</sup> Street in Oakland, California (Figure 1: Site Location Map). The site is located in industrial area of Oakland. The site occupies the area between 16<sup>th</sup> and 14<sup>th</sup> Streets (International Drive) on the north and south, respectively and Poplar Street and Mandela Parkway on the east and west, respectively. The site, which is a former Carnation manufacturing facility, is currently vacant. Several large unused buildings are on the site, which is covered with asphalt and concrete surfacing. A 2004 investigation by Lowney Associates identified TPH-g, TPH-d, and TPH-mo near the abandoned USTs.

#### **II Investigative Efforts**

AEI performed the subsurface investigation at the property on September 12 and September 29, 2005. Prior to mobilization, AEI applied for a subsurface drilling permit from the Alameda County Public Works Agency (ACPWA). The drilling permit number WR2005-2081 was approved by James Yoo on August 31, 2005. Underground Service Alert (USA) was notified more than two business days prior to the drilling to allow local utilities to be marked. Notification of the drilling schedule was made to the county. ACPWA inspector Johnson Tang visited the site during drilling operations to inspect and approve sealing procedures.

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Eight (8) soil borings (SB-2, SB-3, SB-5, SB-6 and SB-7 through SB-10) were advanced to depths ranging from 15 to 19 feet below ground surface (bgs). The locations of the soil borings are shown on Figure 3. Soil borings SB-1 and SB-4 encountered refusal on concrete at a depth of 3 feet bgs.

### Soil Sample Collection

The temporary borings were advanced with a Geoprobe<sup>®</sup> model 5410 direct-push drilling rig by EnProb, a licensed California drilling contractor (C57 - 777007).

A continuous sediment core was cut from the surface to sufficiently below the top of the water table to collect a groundwater sample. The cores were cut using an approximately 2-inch outer diameter sampling tube, which held in 1.75-inch diameter acrylic liners 4-feet in length. At least one sediment sample was retained from each 4-5 feet cored from above obviously wet sediments for possible chemical analysis. An adjacent sample was placed in a 1-quart zipper locking plastic bad and used for field screening. The samples were screened using a calibrated MiniRAE Plus Classic (Model PGM-76IS) photo ionization detector (PID). The tip of the PID was inserted into the 1-quart bag through a small diameter hole poked into the bag. The PID readings were recorded on the boring logs. The borings were logged by an AEI Professional Geologist using the Unified Soil Classification System (USCS). Copies of the boring logs, including depth of samples collected are included in Appendix B.

The soil samples retained for possible chemical analysis were sealed with Teflon® film and plastic end-caps. Each sample was labeled with at minimum, the company name and project number, a unique sample identifier, the sampler's name, and the time and date of the sample collection. The samples were placed in individual zipper locking bags and placed in a cooler with wet ice, pending transportation to the laboratory. The remainder of each core was examined and described by the AEI geologist. The cores are described in the boring logs that are included in Appendix A.

#### Groundwater Sample Collection

Groundwater samples were collected from the eight (8) soil borings that reached the groundwater. A new unused, ¾-inch PVC casing was placed in each boring to facilitate collection of the water samples. The casing consisted of 10-feet of 0.010-inch slotted casing and sufficient blank casing to rise above the ground surface. The water samples were collected using ¼-inch polyethylene tubing with a check valve on the bottom. Water samples were collected directly into one 1-liter amber bottle and three 40-milliliter (ml) volatile organic analysis vials (VOAs). Water entry into the soil borings was generally slow due to the presence of interstitial clay in the sand. Up to 30 to 60 minutes was required to collect a full liter bottle of groundwater analysis.

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Each sample was labeled with at minimum, the company name and project number, a unique sample identifier, the sampler's name, and the time and date of the sample collection. The samples were placed in individual zipper locking bags and placed in a cooler with wet ice, pending transportation to the laboratory.

### **Boring Destruction**

Following sample collection, the bottom cap on the casing in each boring was knocked off using a small diameter rod. The boring was then sealed to the surface with neat cement using the casing as a treamie pipe in accordance with ACPWA and State of California guidelines.

### Laboratory Analysis

On May 19, 2005, the soil and groundwater samples were transported to McCampbell Analytical, Inc. (Department of Health Services Certification #1644) under chain of custody protocol. One soil and one groundwater sample from each boring were selected for chemical analysis. The results of soil and groundwater analyses are shown on Tables 1 and Table 2. Chain of custody documents and copies of the laboratory analytical reports are included in Appendix C

The selected soil samples were analyzed for Total Petroleum Hydrocarbons as gasoline (TPH-g), Methyl tertiary butyl ether (MTBE), benzene, toluene, ethylebenzene, and total xylenes (BTEX) by methods SW 8015Cm/8021B. Analysis was also performed for Total Petroleum Hydrocarbons as diesel (TPH-d) and Total Petroleum Hydrocarbons as motor oil (TPH-mo) by EPA method 8015C.

Groundwater samples were analyzed for TPH-g, MTBE, and BTEX by methods SW 8015 Cm/8021B. Analysis was also performed for TPH-d and TPH-mo by EPA method 8015C.

#### **III Findings**

#### Soil Analyses

No soil samples were collected from soil borings SB-1 and BS-4 due to direct push refusal. No detectable concentrations of TPH-g, TPH-d, TPH-mo, MTBE or BTEX, were reported in soil samples from borings SB-2, SB-3, SB-5, and SB-8 at or above laboratory method detection limits of 1.0 mg/kg, 1.0 mg/kg, 5.0 mg/kg, 0.05 mg/kg, and 0.005 mg/kg, respectively.

TPH-d and TPH-mo were reported in the soil sample from SB-7 at concentrations of 21 mg/kg and 130 mg/kg respectively. TPH-g, TPH-d and TPH-mo were reported in the soil sample from SB-9 at concentrations of 7.3 mg/kg, 34 mg/kg and 40 mg/kg respectively. TPH-g, benzene and ethylbenzene were reported in the soil sample from SB-10 at concentrations of 1.5 mg/kg, 0.018 mg/kg and 0.11 mg/kg, respectively.

The results of the soil analyses are summarized in Table 1: Soil Analytical Data and shown on Figure 3. Copies of the laboratory reports are attached as Appendix C.

#### Groundwater Analyses

No groundwater samples were collected from borings SB-1 or SB-4 due to direct push refusal. No TPH-g was detected in the groundwater sample analyzed from boring SB-6. No BTEX was detected in groundwater samples from soil borings SB-2, SB-3 and boring SB-5 through SB-8. The results of the groundwater analyses are as follows:

TPH-g, TPH-d, and TPH-mo were reported in boring SB-2 at concentrations of 65  $\mu$ g/L, 1,400  $\mu$ g/L, and 500  $\mu$ g/L, respectively.

TPH-g, TPH-d, and TPH-mo were reported in boring SB-5 at concentrations of ND <50  $\mu$ g/L, 240  $\mu$ g/L, and 460  $\mu$ g/L, respectively.

TPH-g, TPH-d, and TPH-mo were reported in boring SB-7 at concentrations of ND <50  $\mu$ g/L, 9,900  $\mu$ g/L, and 38,000  $\mu$ g/L, respectively. The laboratory also reported light non-aqueous liquid (LNAPL) in the sample.

TPH-g, TPH-d, and TPH-mo were reported in boring SB-8 at concentrations of ND <50  $\mu$ g/L, 640  $\mu$ g/L, and 3,500  $\mu$ g/L, respectively.

TPH-g, TPH-d, TPH-mo, and toluene were reported in boring SB-9 at concentrations of 350  $\mu$ g/L, 5,000  $\mu$ g/L, 5,400  $\mu$ g/L, and 1.0  $\mu$ g/L, respectively. The laboratory also reported light non-aqueous liquid (LNAPL) in the sample.

TPH-g, TPH-d, and TPH-mo were reported in boring SB-10 at concentrations of 1,400  $\mu$ g/L, 440  $\mu$ g/L, and ND <250  $\mu$ g/L, respectively. BTEX was reported at concentrations of 2.3  $\mu$ g/L, 0.87  $\mu$ g/L, 130  $\mu$ g/L, and 18  $\mu$ g/L, respectively.

The results of the groundwater analyses are summarized in Table 2: Groundwater Sample Analytical Data and shown on Figures 4 and 5. Copies of the laboratory analytical reports and the chain of custody documentation are attached as Appendix C.

### **VI** Conclusions

The results of soil analyses from a depth of 10 feet bgs indicate soil above the groundwater had not been significantly impacted. Based on the presence of LNAPL in the groundwater samples, soil immediately above and below the top of the groundwater is significantly impacted.

The groundwater in the area of AEI soil boring SB-10 and earlier borings EB-14 and EB-15 has been impacted by gasoline range hydrocarbon at concentrations above the Regional Water Quality Control Board (RWQCB) environmental screening level (ESL) of 500  $\mu$ g/L for water not a potential source of drinking water.

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The groundwater in the area of AEI soil borings SB-2, SB-7, SB-8, SB-9, and earlier borings EB-14 and EB-15 has been impacted by diesel range hydrocarbon at concentrations above the RWQCB ESL of  $640 \,\mu\text{g/L}$  for water not a potential source of drinking water.

The groundwater in the area of AEI soil borings SB-7, SB-8, SB-9, and earlier borings EB-14 and EB-15 has been impacted by oil range hydrocarbon at concentrations above the RWQCB ESL of 640 µg/L for water not a potential source of drinking water.

#### VII Discussion

The sediment underlying the subject site is fine-grained well-sorted sand (Merritt Sand - MAP OF97-97). The sand contains abundant clay between the sand grains, which results in low transmissivity sand. One consequence of low transmissivity sand is slow or minimal movement of the impacted groundwater. This makes it unlikely that the impacted groundwater will migrate significantly. The absence of significant concentrations of volatile organic compounds (VOCs) suggests that no significant hazard to surface occupancy exist in the investigation area. From a strictly regulatory point of view, this and low transmissivity of the sand are supporting arguments for minimal action and monitored natural attenuation (MNA). The presence of LNAPLs and low transmissivity of the sediments mean that natural attenuation would be slow and require years to meet regulatory guidelines.

The available records indicate three (3) USTs in the investigation were abandoned in place. It is impossible to determine whether these USTs are currently contributing to the identified hydrocarbon plume. It also cannot be determined if removal of these tanks would have any beneficial impact on the hydrocarbon plume.

A variety of methods exist for remediation of the hydrocarbons impacting the groundwater. Two relatively simple methods, which require minimal disturbance of the site, are pump and treat or *in-situ* chemical oxidation. However, the fine clayey nature of the underlying sand places severe limits on the effectiveness of these potential remediation strategies.

The shallow depth of the groundwater makes another method feasible, excavation of impacted soil and removal of impacted groundwater within the excavation. This practical method is commonly used in conjunction with tank removals and has proven to be a very effective remediation strategy in many cases.

At the subject site the impacted groundwater appears to be localized between the covered loading dock and the eastern end of the abandoned USTs. Soil could be excavated to the top of the impacted soil and stock piled on site for reuse. Impacted soil (from 10 feet bgs to 13 or 14 feet bgs) would be excavated and stockpiled on site, pending characterization and disposal. Groundwater, which would collect in the resulting excavation, could be pumped out and properly

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disposed of. Prior to backfilling a product such as oxygen release compound (ORC) could be added to accelerate natural biodegradation of any residual hydrocarbons.

The net effect excavation and water removal would have on any impacted groundwater or LNAPL beneath the elevated loading dock cannot be quantified, however it is expected that significant amounts of impacted groundwater would migrate from beneath the elevated loading dock into the excavation where it could be recovered.

#### **VIII References**

- 1. Quaternary Geology of Alameda County, and Parts of Contra Costa, Santa Clara, San Mateo, San Francisco, Stanislaus, and San Joaquin Counties, California: A Digital Database Digital Data Base Open File 97-97, by E.J. Helley and R.W. Graymer U.S.G.S.
- 2. Phase I Environmental Site Assessment and Soil and Ground Water Quality Evaluation, Lowney Associates, 2004

### IX Report Limitation

This report presents a summary of work completed by AEI Consultants. The completed work includes observations and descriptions of site conditions encountered. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide the required information, but it cannot be assumed that they are representative of areas not sampled. All conclusions and/or recommendations are based on these analyses and observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document.

These services were performed in accordance with generally accepted practices, in the environmental engineering field, which existed at the time and location of the work.

If you have any questions regarding our investigation, please do not hesitate to contact Robert

Flory at (925) 944-2899.

Sincerely,

Richard Bradford Senior Staff Engineer Robert F. Flory P. S.

Senior Project Geologist

No. 5825

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### **Figures**

Figure 1: Site Location Map

Figure 2: Site Plan

Figure 3: TPH Concentrations in Groundwater Figure 4: BTEX Concentrations in Groundwater

Figure 5: TPH-g Isopleths in Groundwater Figure 6: TPH-d Isopleths in Groundwater Figure 7: TPH-mo Isopleths in Groundwater

#### **Tables**

Table 1: Soil Analytical Data

Table 2: Groundwater Analytical Data Table 3: Lowney Soil Analytical Data

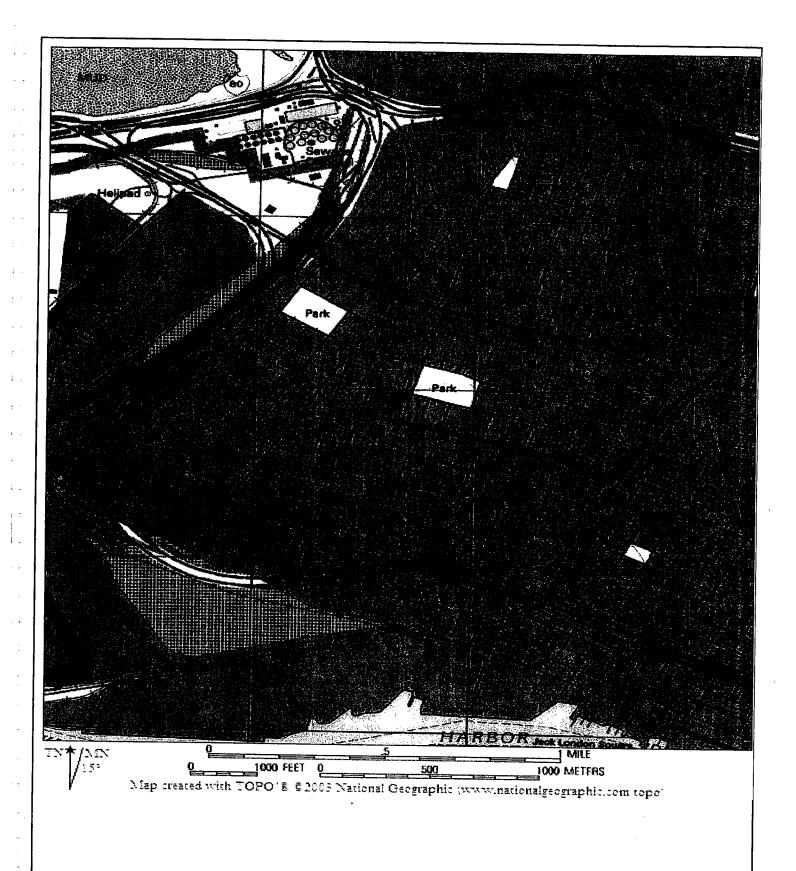
Table 4: Lowney Groundwater Analytical Data

Appendix A Boring Permits

Appendix B Boring Logs

Appendix C Laboratory Analyses w/ Chain of Custody Documentation

# **FIGURES**



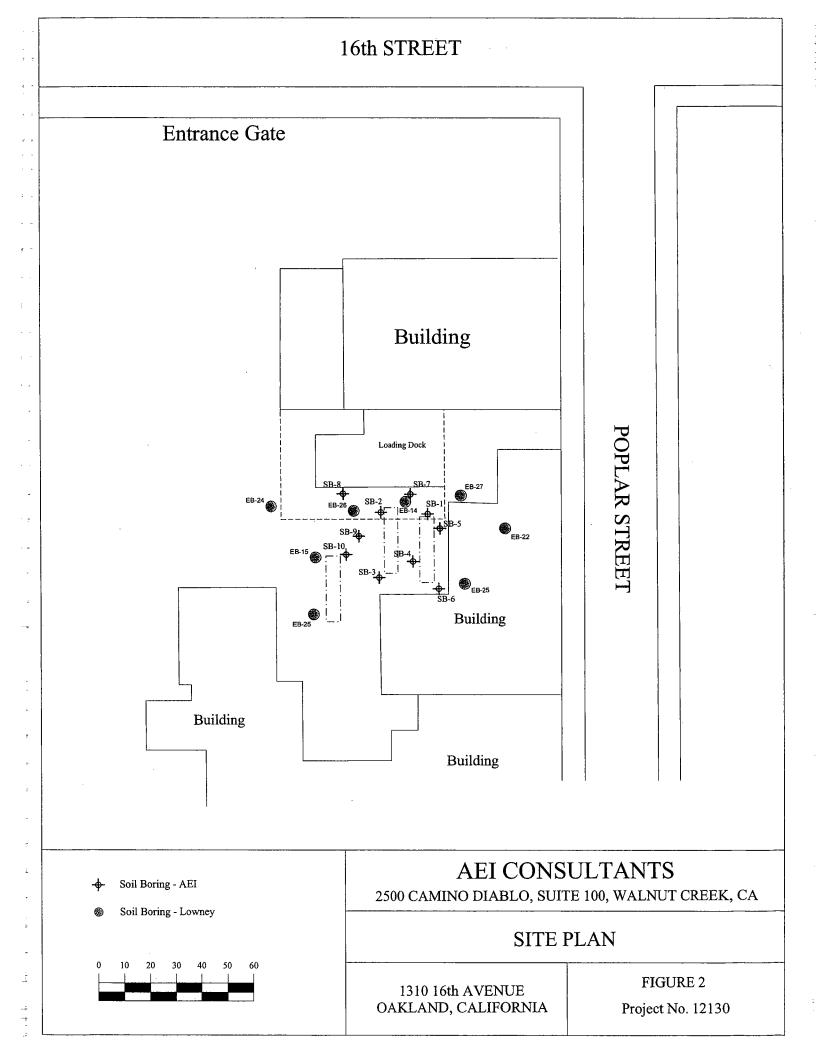
# **AEI CONSULTANTS**

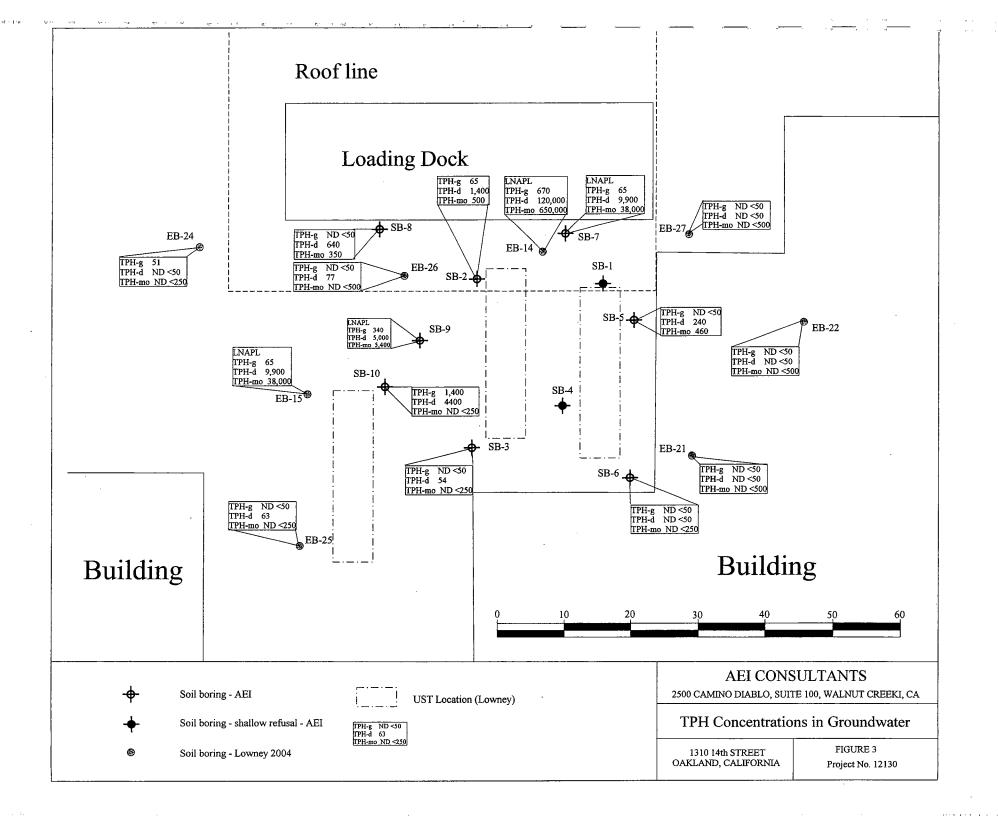
2500 Camino Diablo, Suite 200, Walnut Creek, CA 94597

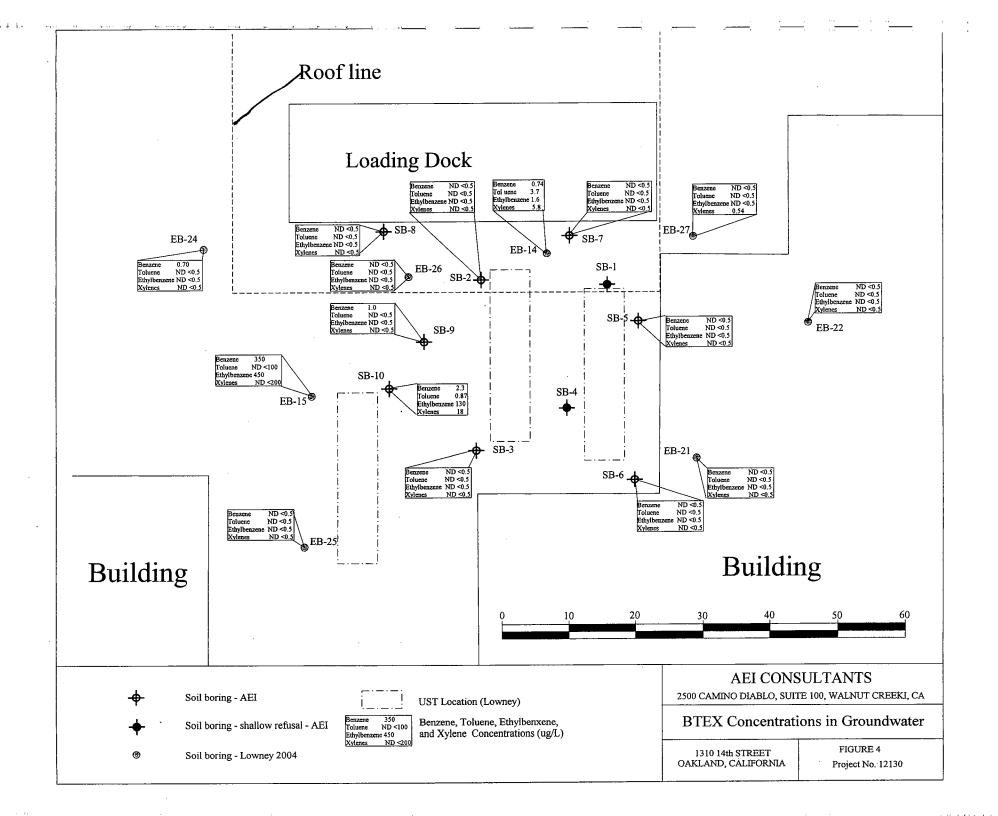
# SITE LOCATION PLAN

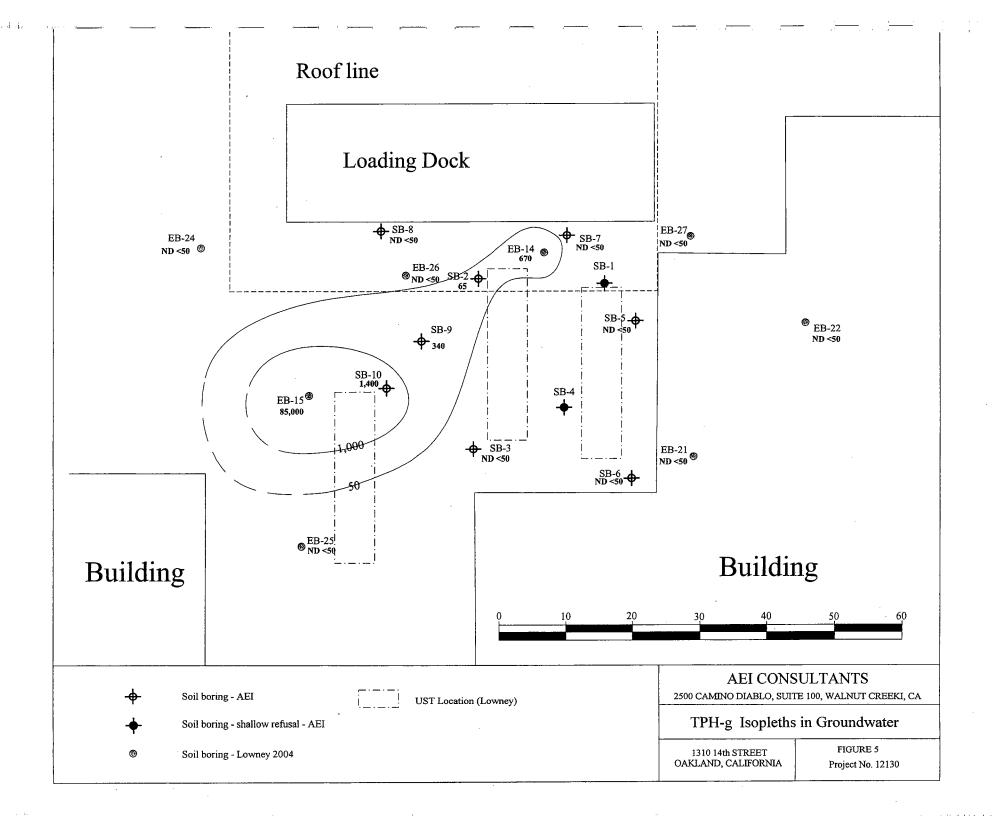
1310 14th Street Oakland, Californis

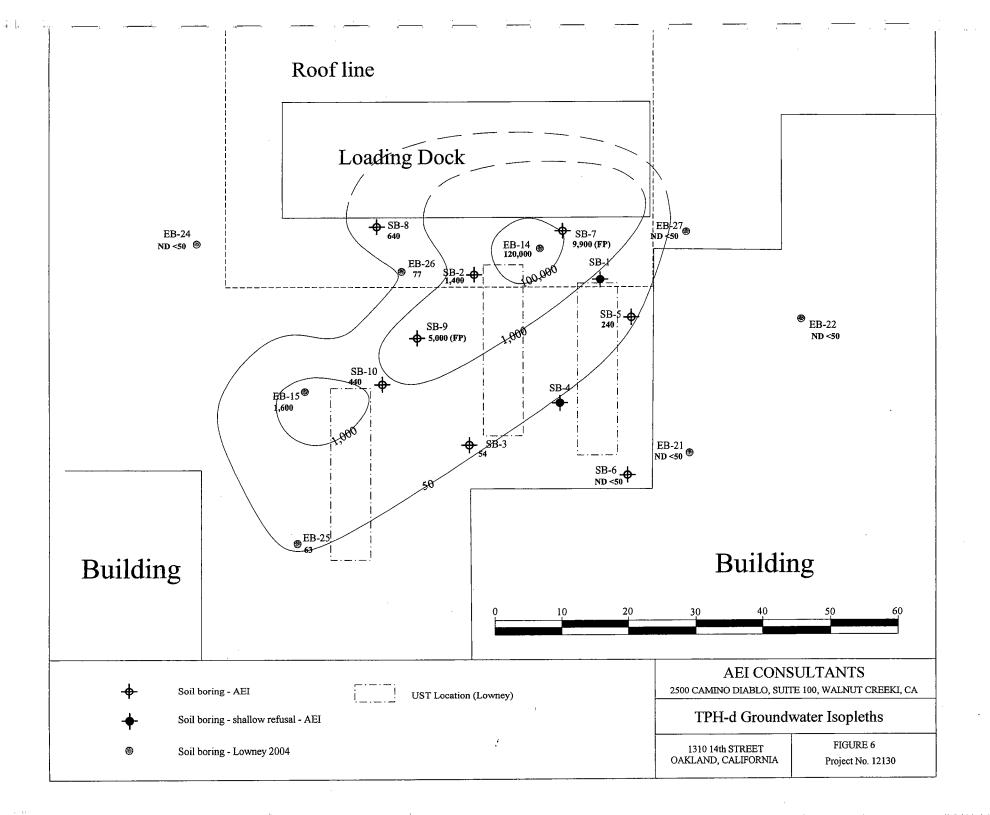
FIGURE 1 Job No: 12130











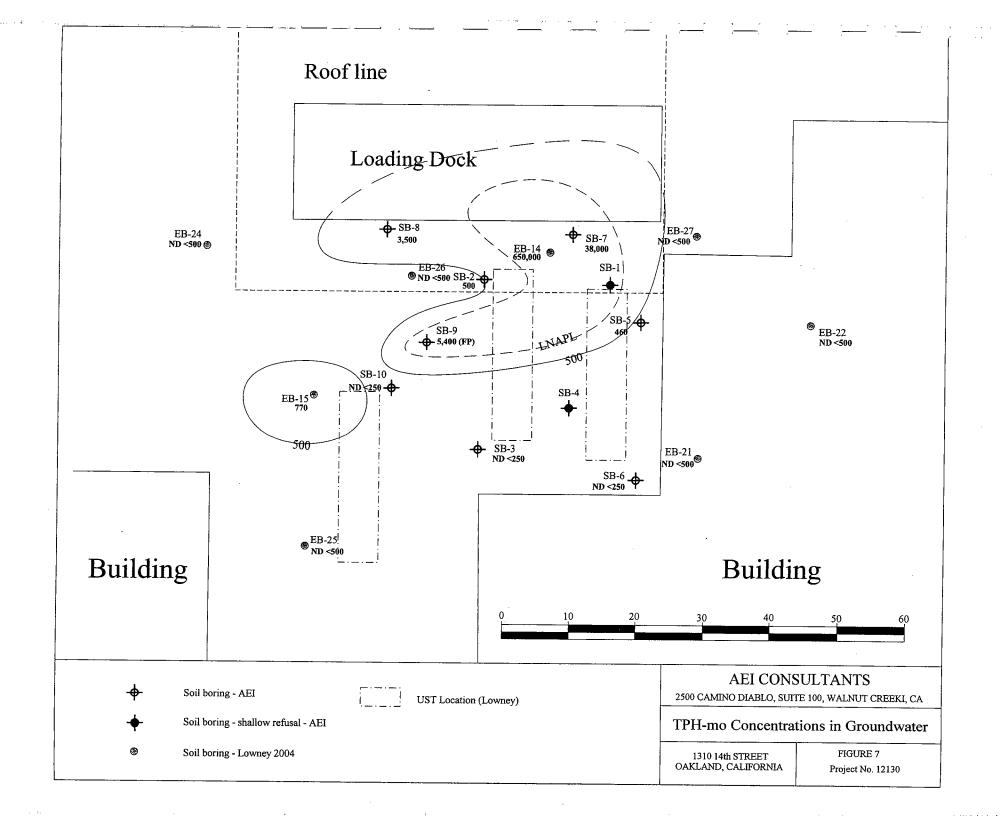




Table 1: Soil Analytical Data

Hall Equities, 1310 14th Street (1310 16th Street) Oakland, CA

Sample	Sampling	ТРН-д	TPH-d	TPH-mo	MTBE	Benzene	Toluene	Ethyl- benzene	Xylenes
ID	Date	mg/kg	mg/kg PA method 8015	mg/kg	mg/kg	mg/kg	mg/kg PA method 8021	mg/kg	μg/kg
		<del></del>							
SB-1 & SB-1a	09/12/05	Shallow	refusal, no soil	samples					
SB2-10	09/12/05	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB3-10	09/12/05	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB-4 & SB-4a	09/12/05	Shallow	refusal, no soil	samples					
SB5-10	09/12/05	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB6-10	09/12/05	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB 7-10	09/29/05	ND<1.0	21	130	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB 8-10	09/29/05	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB 9-10	09/29/05	7.3	34	40	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB 10-10	09/29/05	1.5	ND<1.0	ND<5.0	ND<0.05	0.018	ND<0.005	0.11	0.016

TPH-g = Total petroleum hydrocarbons as gasoline

TPH-d = Total petroleum hydrocarbons as diesel

TPH-mo = Total petroleum hydrocarbons as motor oil

MTBE = methyl tertiary butyl ether

mg/kg = milligrams per kilogram

Table 2: Groundwater Analytical Data

Hall Equities, 1310 14th Street (1310 16th Street) Oakland, CA

Sample	Sampling	TPH-g	TPH-d	TPH-mo	MTBE	Benzene	Toluene	Ethyl-	Xylenes
ъ	Date					! !	; ; ;	benzene	
		μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
		Œ.	PA method 801:	5C)	1 1	(E.	PA method 8021	(B)	
		,					•		
SB-1 & SB-1a	09/12/05	Shallow	refusal, no wate	r samples	i ! !		! ! !	 1	
SB-2-W19	09/12/05	65	1,400	500	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB-3-W19	09/12/05	ND<50	54	ND<250	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB-4 & SB-4a	09/12/05	Shallow	refusal, no wate	er samples		 !			
SB-5-W19	09/12/05	ND<50	240	460	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB-6-W19	09/12/05	ND<50	ND<50	ND<250	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB 7- W	09/29/05	ND<50	9,900 1	38000	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB-8 W	09/29/05	ND<50	640	350	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB-9 W	09/29/05	340	5000 <sup>1</sup>	5400	ND<5.0	1.0	ND<0.5	ND<0.5	ND<0.5
SB-10 W	09/29/05	1400	440	ND<250	ND<5.0	2.3	0.87	130	18

<sup>1 =</sup> lighter than water immiscible sheen/product is present

TPH-g = Total petroleum hydrocarbons as gasoline

TPH-d = Total petroleum hydrocarbons as diesel

TPH-mo = Total petroleum hydrocarbons as motor oil

MTBE = methyl tertiary butyl ether

 $\mu$ g/L = micrograms per liter (ppb)

Table 3: Lowney Soil Analytical Data (2004)

Hall Equities, 1310 14th Street (1310 16th Street) Oakland, CA

Sample ID	Sampling Date	TPH-g	TPH-d	ТРН-то	MTBE	Benzene	Toluene	Ethyl- benzene	Xylenes
2	2 4.1	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	(EPA method 8015C)			-	(E.	PA method 8021	(B)		
EB-14	02/10/04	2	3,700	21,000	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
EB-15	02/10/04	610	230	300	ND<0.005	ND<0.005	ND<0.005	0.56	ND<0.005
EB-24	02/17/04	ND<1.0	ND<1.0	ND<50	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
EB-25	02/17/04	ND<1.0	ND<1.0	ND<50	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
EB-26	02/17/04	ND<1.0	ND<1.0	ND<50	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
EB-27	02/17/04	ND<1.0	ND<1.0	ND<50	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005

TPH-g = Total petroleum hydrocarbons as gasoline

TPH-d = Total petroleum hydrocarbons as diesel

TPH-mo = Total petroleum hydrocarbons as motor oil

MTBE = methyl tertiary butyl ether

 $\mu g/L = micrograms \ per \ liter \ (ppb)$ 

Table 4: Lowney Groundwater Analytical Data (2004)

Hall Equities, 1310 14th Street (1310 16th Street) Oakland, CA

Sample ID	Sampling Date	TPH-g	TPH-d	TPH-mo	MTBE	Benzene	Toluene	Ethyl- benzene	Xylenes
ш	Date	μg/L Æ	μg/L PA method 8013	μg/L 5 <i>C</i> )	μg/L	μg/L <i>(E</i>	μg/L PA method 8021	μg/L	μg/L
EB-14	02/10/04	670	120,000	650,000	ND<0.5	0.74	3.7	1.6	5.8
EB-15	02/10/04	85,000	1,600	770	ND<0.5	350	ND <100	450	ND <200
EB-21	02/12/04	ND<50	ND<50	ND<500	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.0
EB-22	02/12/04	ND<50	ND<50	ND<500	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
EB-24	02/17/04	51	ND<50	ND<500	ND<5.0	0.70	ND<0.5	ND<0.5	ND<0.5
EB-25	02/17/04	ND<50	63	ND<500	ND<5.0	0.70	ND<0.5	ND<0.5	ND<0.5
EB-26	02/17/04	ND<50	77	ND<500	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
EB-27	02/17/04	ND<50	ND<50	ND<500	ND<0.5	ND<0.5	ND<0.5	0.54	ND<0.5

TPH-g = Total petroleum hydrocarbons as gasoline

TPH-d = Total petroleum hydrocarbons as diesel

TPH-mo = Total petroleum hydrocarbons as motor oil

MTBE = methyl tertiary butyl ether

 $<sup>\</sup>mu$ g/L = micrograms per liter (ppb)

# APPENDIX A

**Boring Permits** 

### Alameda County Public Works Agency - Water Resources Well Permit



399 Elmhurst Street Hayward, CA 94544-1395 Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 08/31/2005 By jamesy

Permits Issued:

W2005-0847

Receipt Number: WR2005-2081

Permits Valid from 09/12/2005 to 10/01/2005

Application Id:

1125338878958

City of Project Site: Oakland

Site Location:

1310 16th Street (1310 14th)

Oakland, 64606

**Project Start Date:** 

09/12/2005

Completion Date: 10/01/2005

Applicant:

Contact:

AEI Consultants - Robert Flory

**Property Owner:** 

2500 Camino Diablo, Ste 100, Walnut creek, CA 94597

Phone: 925-944-2899

Dennis Encinal 14th Street LLC 1855 Olympic Blvd, Ste 255, Walnut Creek, CA 94596

Phone: --

Client:

Heather Hall Equities Group

Phone: 925-472-5626

1855 Olympic Blvd, Ste 250, Walnut Creek, CA 94596

Phone: 925-944-2899

Flory

Cell: 925-457-7517

Total Due:

**Total Amount Paid:** 

\$200.00 \$200.00

PAID IN FULL

Paid By: VISA

### **Works Requesting Permits:**

Borehole(s) for Geo Probes-Sampling 24 to 72 hours only - 5 Boreholes

Driller: EnProb - Lic #: 777007 - Method: DP

Work Total: \$200.00

#### Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2005- 0847	08/31/2005	12/11/2005	5	2.00 in.	12.00 ft

#### Specific Work Permit Conditions

- 1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.
- 2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
- 3. Applicant shall contact Johnson Tang for a inspection time at 510-670-6450 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
- 4. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

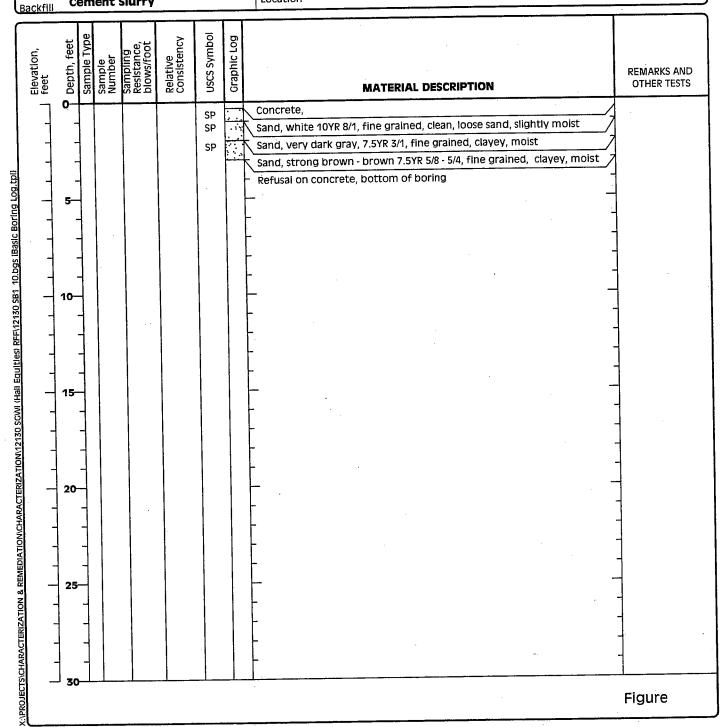
# APPENDIX B

**Boring Logs** 

Project: Hall Equities 1310 14th Ave, 1310 16th Ave, Project Location: Oakland, C Project Number: 12130

# Log of Boring SB-1

	· ·	
Date(s) September 12, 2005	Logged By Robert F. Flory	Checked By <b>Jeremy A. Smith</b>
Drilling Direct Bush	Drill Bit Size/Type	Total Depth of Borehole <b>3 feet bgs</b>
Drill Rig Geonrobe 5410	Drilling Contractor <b>EnProb</b>	Approximate Surface Elevation
Type Groundwater Level and Date Measured	Sampling Method(s) None	Hammer Data
Borehole Cement Slurry	Location	

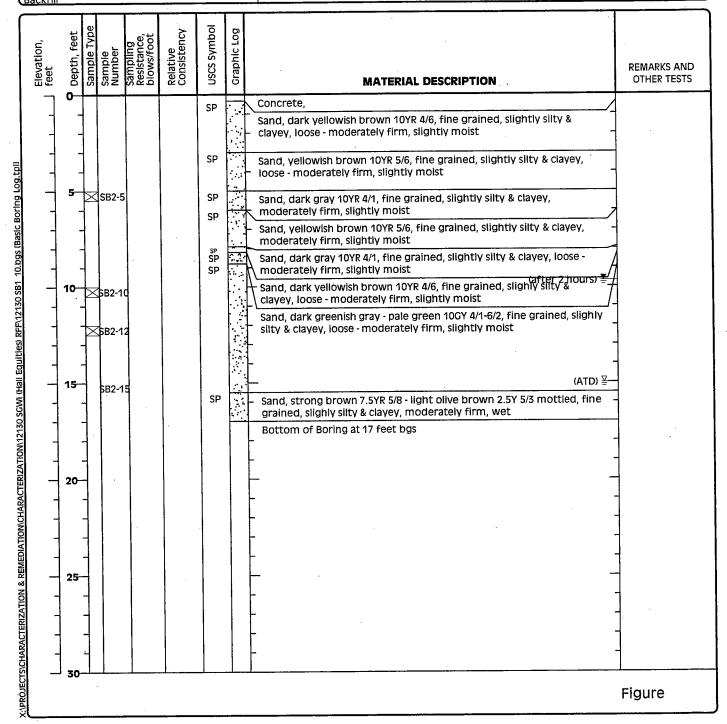


**Project: Hall Equities** 

Project Location: Oakland, C
Project Number: 12130

### Log of Boring SB-2

Date(s) Drilled September 12, 2005	Logged By Robert F. Flory	Checked By Jeremy A. Smith
Drilling Method Direct Push	Drill Bit Size/Type 2 inch	Total Depth of Borehole 17 feet bgs
Drill Rig Type Geoprobe 5410	Drilling EnProb	Approximate Surface Elevation
Groundwater Level 15.01 feet ATD, 9.7 and Date Measured feet after 2 hours	Sampling Method(s) <b>Tube</b>	Hammer Data
Borehole Backfill Cement Slurry	Location	



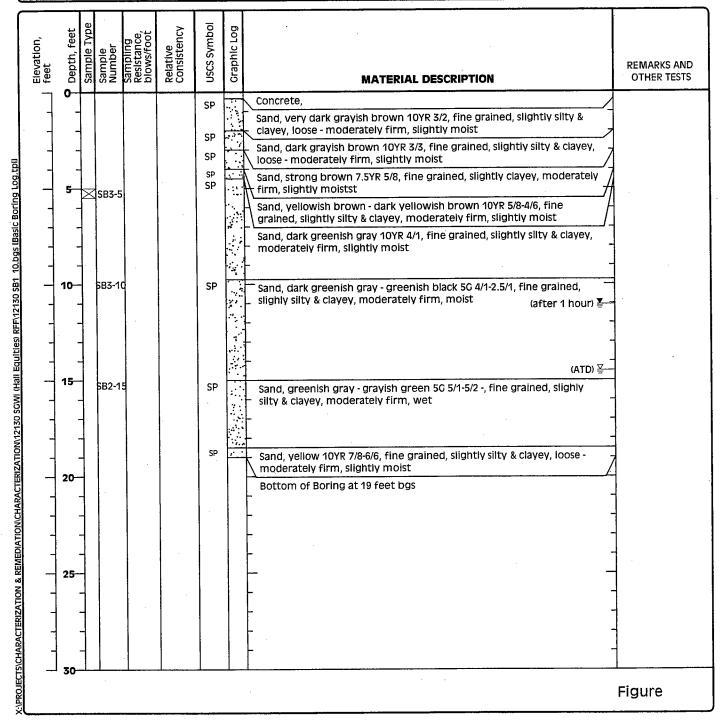
**Project: Hall Equities** 

Project Number: 12130

Project Location: 1310 14th Ave, 1310 16th Ave, 0akland, C

### **Log of Boring SB-3**

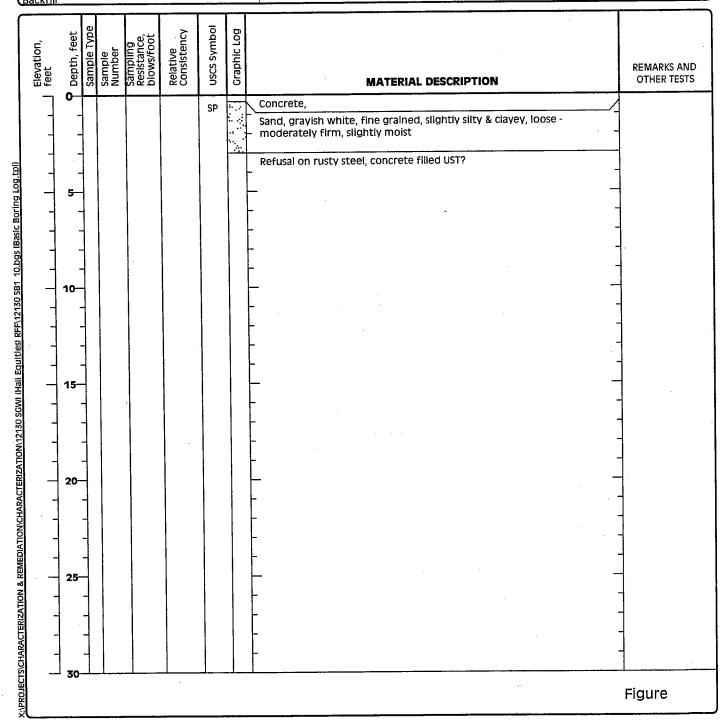
Date(S) Drilled September 12, 2005	Logged By Robert F. Flory	Checked By <b>Jeremy A. Smith</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type 2 inch	Total Depth of Borehole 19 feet bgs
Drill Rig Type Geoprobe 5410	Drilling Contractor <b>EnProb</b>	Approximate Surface Elevation
Groundwater Level 14.5 feet ATD, 11.07 and Date Measured feet after 1 hour	Sampling Method(s) <b>Tube</b>	Hammer Data
Borehole Backfill <b>Cement Slurry</b>	Location	



Project: Hall Equities
Project Location: Oakland, C
Project Number: 12130

### Log of Boring SB-4

		, <u> </u>
Date(s) Drilled September 12, 2005	Logged By Robert F. Flory	Checked By Jeremy A. Smith
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type 2 inch	Total Depth of Borehole 3 feet bgs
Drill Rig Type Geoprobe 5410	Drilling Contractor <b>EnProb</b>	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s) None	Hammer Data
Borehole Cement Slurry	Location	

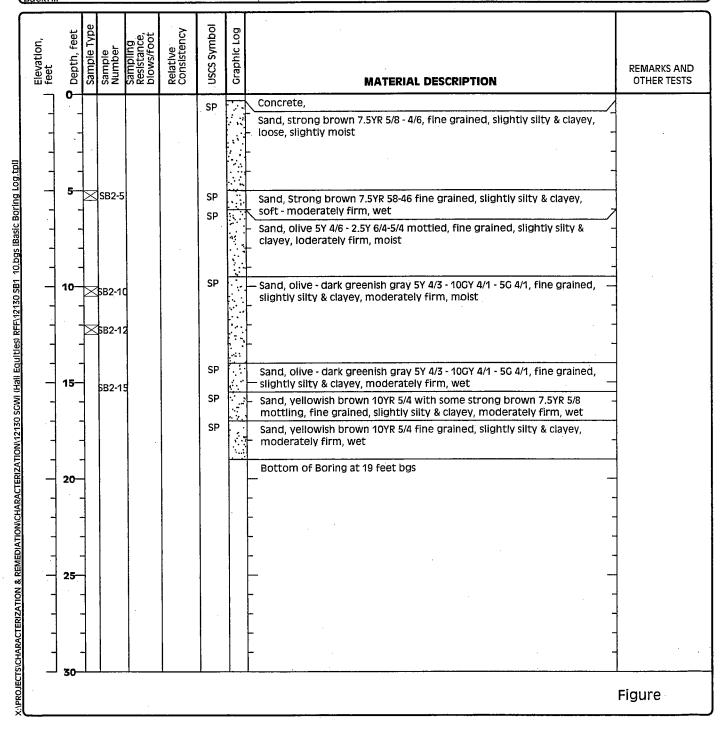


**Project: Hall Equities** 

Project Location: 0310 14th Ave, 1310 16th Ave, 03kland, C
Project Number: 12130

### Log of Boring SB-5

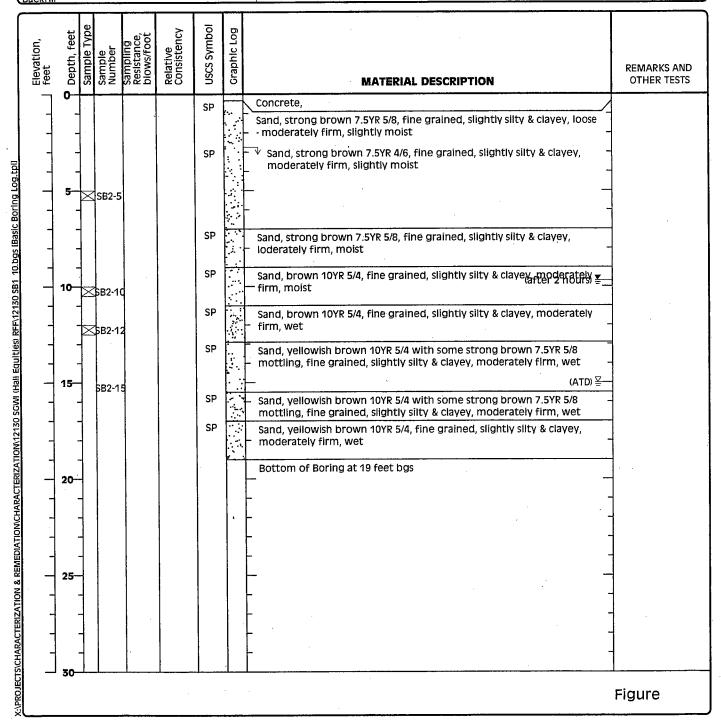
Date(s) September 12, 2005	Logged By Robert F. Flory	Checked By <b>Jeremy A. Smith</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type 2 inch	Total Depth of Borehole 19 feet bgs
Drill Rig Type Geoprobe 5410	Drilling Contractor <b>EnProb</b>	Approximate Surface Elevation
Groundwater Level Not Encountered and Date Measured ATD	Sampling <b>Tube</b> Method(s)	Hammer Data
Borehole Backfill Cement Slurry	Location	



Project: Hall Equities
Project Location: 0akland, C
Project Number: 12130

### Log of Boring SB-6

Date(s) Drilled September 12, 2005	Logged By Robert F. Flory	Checked By <b>Jeremy A. Smith</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type 2 inch	Total Depth of Borehole 19 feet bgs
Drill Rig Type Geoprobe 5410	Drilling Contractor <b>EnProb</b>	Approximate Surface Elevation
Groundwater Level 15.01 feet ATD, 9.7 and Date Measured feet after 2 hours	Sampling Method(s) <b>Tube</b>	Hammer Data
Borehole Cement Slurry	Location	

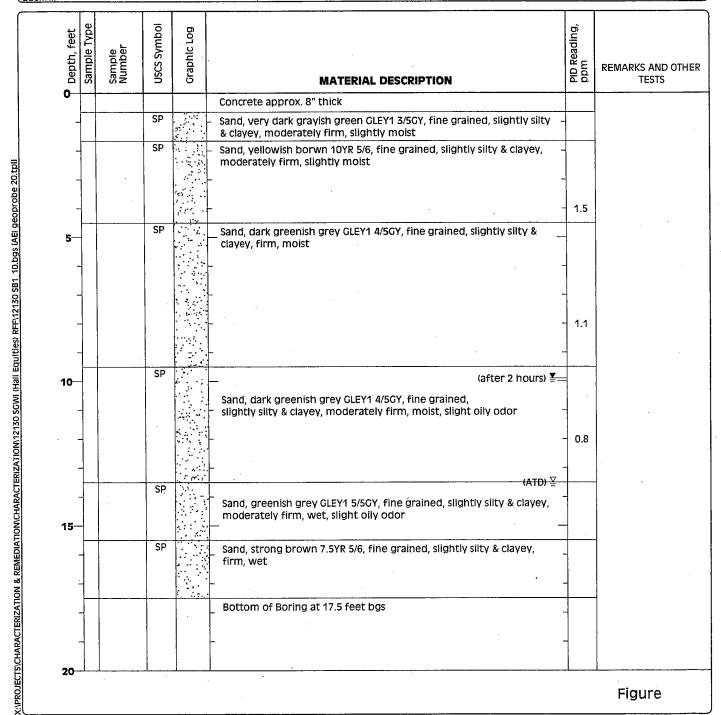


**Project: Hall Equities** 

Project Number: 12130

1	Project Location: 0310 14th Ave, 1310 16th Ave, Oakland, C	Log of Boring Si
l	Oakland, C	Shoot 1 of 1

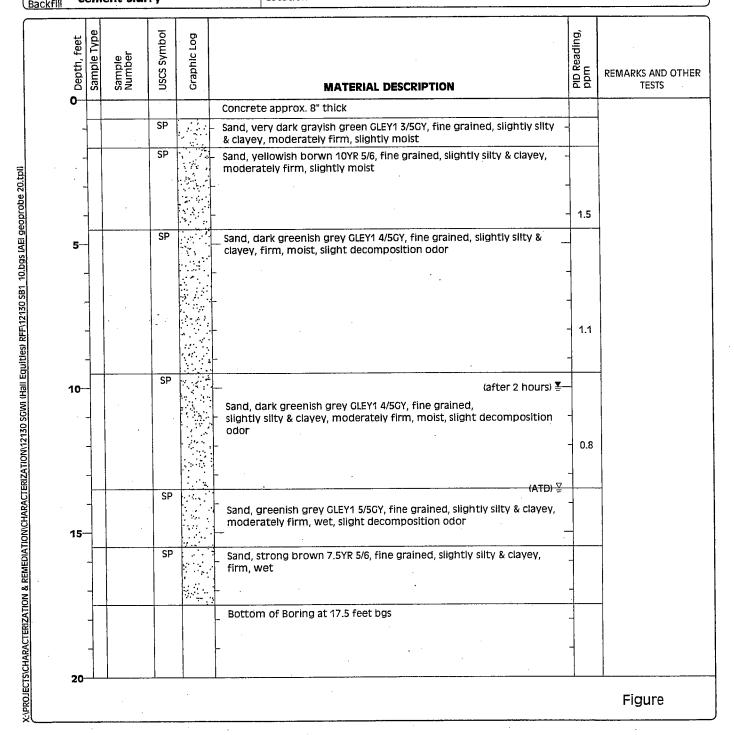
Date(s) September 29, 2005	Logged By Ricky Bradford	Checked By Robert F. Flory			
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type 2 inch	Total Depth of Borehole 17.5 feet bgs			
Drill Rig Type Geoprobe 5410	Drilling Contractor <b>EnProb</b>	Approximate Surface Elevation			
Groundwater Level 13.5 feet ATD, 9.9 and Date Measured feet after 2 hours	Sampling Method(s) None	Well Permit.			
Borehole Backfill Cement Slurry	Location				



Project: Hall Equities 1310 14th Ave, 1310 16th Ave, Project Location: Oakland, C

### Log of Boring SB-8

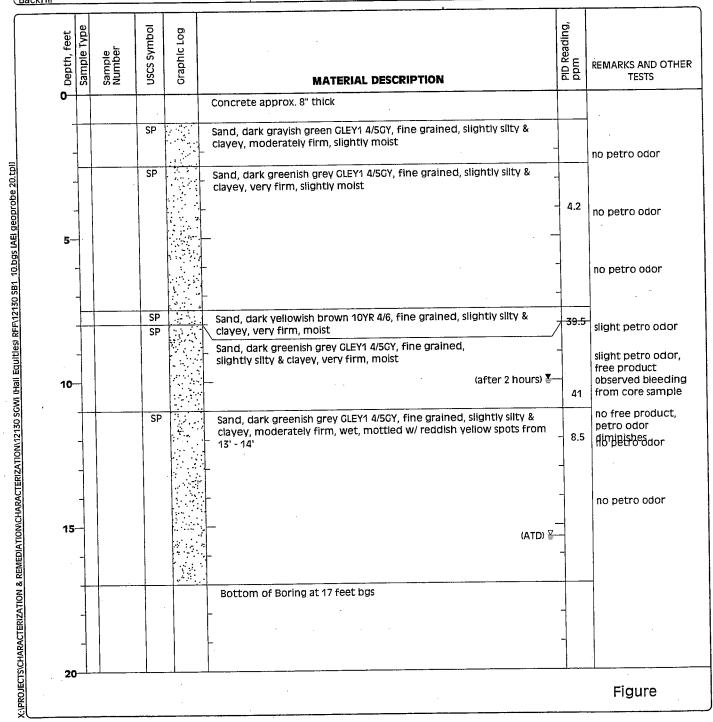
Date(S) Drilled September 29, 2005	Logged By Ricky Bradford	Checked By Robert F. Flory
Drilling Method Direct Push	Drill Bit Size/Type 2 inch	Total Depth of Borehole 17.5 feet bgs
Drill Rig Type Geoprobe 5410	Drilling Contractor <b>EnProb</b>	Approximate Surface Elevation
Groundwater Level 13.5 feet ATD, 10 and Date Measured feet after 2 hours	Sampling None	Well Permit.
Borehole Cement Slurry	Location	



Project: Hall Equities
1310 14th Ave, 1310 16th Ave,
Project Location: Oakland, C

### Log of Boring SB-9

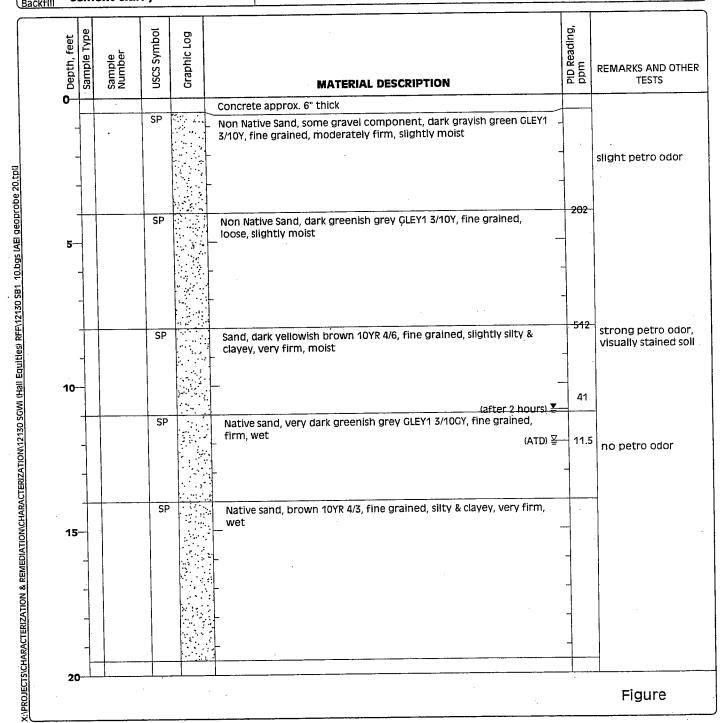
Date(s) Drilled September 29, 2005	Logged By Ricky Bradford	Checked By Robert F. Flory
Drilling Method Direct Push	Drill Bit Size/Type 2 inch	Total Depth of Borehole 17 feet bgs
Drill Rig Type Geoprobe 5410	Drilling EnProb	Approximate Surface Elevation
Croundwater Level 15.4 feet ATD, 10 and Date Measured feet after 2 hours	Sampling Method(s) None	Well Permit.
Borehole Cement Slurry	Location	



Project: Hall Equities
1310 14th Ave, 1310 16th Ave,
Project Location: Oakland, C
Project Number: 12130

### Log of Boring SB-10

	-	
Date(s) September 29, 2005	Logged By Ricky Bradford	Checked By Robert F. Flory
Drilling Method Direct Push	Drill Bit Size/Type 2 inch	Total Depth of Borehole 19.5 feet bgs
Drill Rig Type Geoprobe 5410	Drilling Contractor <b>EnProb</b>	Approximate Surface Elevation
Groundwater Level 12 feet ATD, 10.9 and Date Measured feet after 2 hours	Sampling Method(s) None	Well Permit.
Borehole Cement Slurry	Location	



### APPENDIX C

Laboratory Analyses
With
Chain of Custody Documentation



### McCampbell Analytical, Inc.

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

AEI Consultants	Client Project ID: #12130; Hall Equities	Date Sampled: 09/12/05
2500 Camino Diablo, Ste. #200		Date Received: 09/13/05
	Client Contact: Robert Flory	Date Extracted: 09/13/05
Walnut Creek, CA 94597	Client P.O.:	Date Analyzed: 09/14/05

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

Extraction method: SW5030B				Analytical methods: SW8021B/8015Cm			Work Order: 0509286			
Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
002A	SB2-10	S	ND	ND	ND	ND	ND	ND	1	89
006A	SB3-10	s	ND	ND .	ND	ND	ND	ND	1	90
009A	SB5-10	S	ND	ND	ND	ND	ND	ND	1	96
011A	SB6-10	S	ND	ND	ND	ND	ND	ND	1	96
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Reporti	ng Limit for DF =1	; w	NA	NA	NA	NA	NA	NA	1	ug
ND means not detected at or above the reporting limit			1.0	. 0.05	0.005	0.005	0.005	0.005	1	mg/

<sup>\*</sup> 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.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

<sup>+</sup>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 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 ~1 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; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request.



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Telephone: 925-798-1620 Fax: 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

AEI Consultants	Client Project ID: #12130; Hall Equities	Date Sampled: 09/12/05			
2500 Camino Diablo, Ste. #200		Date Received: 09/13/05			
Walnut Carala CA 04507	Client Contact: Robert Flory	Date Extracted: 09/13/05			
Walnut Creek, CA 94597	Client P.O.:	Date Analyzed: 09/14/05			

## Diesel (C10-23) and Oil (C18+) Range Extractable Hydrocarbons as Diesel and Motor Oil\*

Analytical methods: SW8015C Work Order: 0509286 Extraction method: SW3550C DF % SS TPH(mo) TPH(d) Lab ID Client ID Matrix 104 ND 0509286-002A SB2-10 S ND 103 0509286-006A SB3-10 S ND ND ND ND 101 S 0509286-009A SB5-10 1 104 ND S ND 0509286-011A SB6-10 ug/L Reporting Limit for DF =1; W ΝA NA ND means not detected at or 5.0 mg/Kg S 1.0 above the reporting limit

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	* 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,
1	and all DISTI C / STI C / SPLP / TCLP extracts are reported in up/L.

<sup>#</sup> 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.

	Angela	a R	vdelius.	Lab	Manager
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<sup>+</sup>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 (asphalt?); 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 ~1 vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.



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Telephone: 925-798-1620 Fax: 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

## QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Soil

QC Matrix: Soil ·

WorkOrder: 0509286

EPA Method: SW8021B/	8015Cm E	xtraction:	SW5030	В	Batc	hID: 17976	3	Spiked Sample ID: 0509285-001A				
. Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
Arialyte	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS/MSD	LCS / LCSD		
TPH(btex) <sup>£</sup>	ND	0.60	109	106	2.92	109	108	0,686	70 - 130	70 - 130		
MTBE	ND	0.10	94.3	91.1	3.53	96.3	89.5	7.35	70 - 130	70 - 130		
Benzene	ND	0.10	91.1	89.3	1.97	94.2	89.3	5.35	70 - 130	70 - 130		
Toluene	ND	0.10	90.3	88.5	1.94	93.6	88.6	5.43	70 - 130	70 - 130		
Ethylbenzene	ND	0.10	93.9	92.3	1.72	95.2	92	3.50	70 - 130	70 - 130		
Xylenes	ND	0.30	95	94.3	0.704	95	94	1.06	70 - 130	70 - 130		
%SS:	103	0.10	102	100	2.18	102	101	0.985	70 - 130	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

### BATCH 17976 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0509286-002A	9/12/05 9:05 AM	9/13/05	9/14/05 9:02 PM				

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 /MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the 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.



NONE

# McCampbell Analytical, Inc.

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

## QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder: 0509286

EPA Method: SW8015C	E	xtraction:	SW3550	С	Batcl	nID: 17991		Spiked Sample ID: 0509286-011a				
Analyte	Sample	Spiked	мѕ	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance	Criteria (%)		
Analyte	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD		
TPH(d)	ND	20	94.9	93.4	1.59	104	104	0	70 - 130	70 - 130		
%SS:	104	50	106	103	3.04	101	102	1.12	70 - 130	70 - 130		

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

BATCH 17991 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0509286-002A	9/12/05 9:05 AM	9/13/05	9/14/05 5:15 AM	0509286-006A	9/12/05 10:25 AM	9/13/05	9/14/05 6:23 AM
0509286-009A	9/12/05 11:50 AM	9/13/05	9/14/05 7:31 AM	0509286-011A	9/12/05 12:50 PM	9/13/05	9/14/05 8:40 AM

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 / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the 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.

\_\_\_\_QA/QC Officer



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

# QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder: 0509286

EPA Method: SW8021B/	8015Cm E	xtraction:	SW5030	В	Batcl	hID: 17992		Spiked Sample ID: 0509286-011A			
Analyta	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance	Criteria (%)	
Analyte	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS/MSD	LCS / LCSD	
TPH(btex) <sup>£</sup>	. ND	0.60	104	108	3.78	107	105	2.55	70 - 130	70 - 130	
MTBE	ND	0.10	95	96 -	1.06	91.6	90.2	1.52	70 - 130	70 - 130	
Benzene	ND	0.10	94	97.2	3.33	90.1	90.9	0.932	70 - 130	70 - 130	
Toluene	ND	0.10	92.6	95.9	3.51	88.9	90.2	1.45	70 - 130	70 - 130	
Ethylbenzene	ND	0.10	97.3	98.2	0.853	93.2	93.3	0.0857	70 - 130	70 - 130	
Xylenes	ND	0.30	93	99.3	6.59	95	94.7	0.351	70 - 130	70 - 130	
%SS:	96	0.10	105	104	0.957	101	103	1.96	70 - 130	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

#### BATCH 17992 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0509286-006A	9/12/05 10:25 AM	9/13/05	9/14/05 9:32 PM	0509286-009A	9/12/05 11:50 AM	9/13/05	9/14/05 10:01 PM
0509286-011A	9/12/05 12:50 PM	9/13/05	9/14/05 10:31 PM				·

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 / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the 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

# CHAIN-OF-CUSTODY RECORD

Page 1 of 1

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

WorkOrder: 0509286

ClientID: AEL

EDF: NO

Report to:

Robert Flory

**AEI Consultants** 

2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597

TEL:

PO:

(925) 283-6000 (925) 283-6121

FAX: ProjectNo: #12130; Hall Equities Diane

Bill to:

All Environmental, Inc.

2500 Camino Diablo, Ste. #200

Date Received: Date Printed:

Requested TAT:

5 days

09/13/2005

09/13/2005

Walnut Creek, CA 94597

				Г						Re	queste	d Tes	ts (See	e legend	below)		.,			
Sample ID	ClientSamplD	Matrix	Collection Date H	lold	1	2	3	4	5		6	7	8	9	10	11	12	13	14	15
0509286-002	SB2-10	Soil	9/12/05 9:05:00 AM		Α	Α	Α						1							$\perp$
0509286-002	SB3-10	Soil	9/12/05 10:25:00		Α	-	A	<del> </del>		_+			+		-				-	+-
0509286-009 0509286-011	SB5-10 SB6-10	Soil	9/12/05 11:50:00 9/12/05 12:50:00	片	A -		A		-											

### Test Legend:

1	G-MBTEX_S
6	
11	

2	PREDF REPORT
7	
12	

3	TPH(DMO)_S
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13	

4	
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.

all 0509286

McCAMPBEI	LANAT	YTI	CAI	. IN	VC.		<u></u>				П				(	CH	A	IN	Ol	F (	CU	ST	<b>(O</b> )	DY	R	E	CO	RI	)		
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PACH	CO, CA 945		0		(925)	709	R-16	22													RL	SH		24 H			8 H			HR	5 DAY
Telephone: (925) 798-1620			r	ax: (	(723)	170	<b>,- 1</b> O.				G	eoT	rac	ker	ED	F	$\boxtimes$	. 1	PDF	· [			D, e	el	<b>2</b>					(DW)	
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Walnut Creek, CA 9459	E	-Mail					iltan	ts.co	m		8015)/MTBE	5	(5520 E&F/B&B)		Ì						625 / 8270 / 8310	-	:		.	Targ				Analy	sis:
Tel: (925) 944-2899, extension 1##		ax: (									15/	1	520	418	1			:			270			1	- 1	010				Yes	/ No
Project #: 12130	- /2	rojec	t Nan	ne: l	Hall	Equi	ties				+	1.00		) SIII	æ	020		1	1		%	ĺ		6		<b>5</b> 0			1		
Project Location: 1310 14th Street, Og	dand, CA			7							8020	ph	ສະມຸ	arbc	0 lis	2 / 8	08(				62;			109/		260B					•
Sampler Signature:	Charles of the		-	<u> </u>				М	ETH	OD	Gas (602/8020	5) 7,	38	droc	108)	۸ 60٪	3 / 80	98	260		EPA	İ		39.2		3 (82					
1/ SAM	PLANG	ွှေ	iers		MAT	RD	<u> </u>	PR	ESEI	VEL		TPH as Diesel (8015)	Total Petroleum Oil & Grease	Total Petroleum Hydrocarbons (418.1)	HVOCs EPA 8260 (8010 list)	BTEX ONLY (EPA 602 / 8020)	Pesticides EPA 608 / 8080	PCBs EPA 608 / 8080	VOCs EPA 624 / 8260	0,	PAH's / PNA's by	als	sl	Lead (7240/7421/239.2/6010)		Halogenated VOCs (8260B - 8010 Target List)					
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110 2nd Avenue South, #D7, Pacheco, CA 94553-5560 Telephone: 925-798-1620 Fax: 925-798-1622 Website: www.mccampbell.com E-mail: main@mccampbell.com

AEI Consultants	Client Project ID: #12130; Hall Equities	Date Sampled: 09/12/05
2500 Camino Diablo, Ste. #200		Date Received: 09/13/05
	Client Contact: Robert Flory	Date Extracted: 09/15/05-09/16/05
Walnut Creek, CA 94597	Client P.O.:	Date Analyzed: 09/15/05-09/16/05

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

Extraction	method: SW5030B	_	•	Analytical 1	nethods: SW8021	B/8015Cm		Work	Order: 05	
Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	SB-2-W19	w	65,b,i	ND	ND	ND	ND	ND	1	108
002A	SB-3-W19	w	ND,i	ND	ND	ND	ND	ND	1	114
003A	SB-5-W19	w	ND,i	ŅD	ND	ND	ND	ND	1	111
004A	SB-6-W19	w	ND,i	ND	ND	ND	ND	ND	1	113
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Repor	rting Limit for DF =1;	w	50	5.0	0.5	0.5	0.5	0.5	1	μg/I
ND m	eans not detected at or ve the reporting limit	S	NA	NA	NA	NA	NA	NA	I	mg/K

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

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

<sup>+</sup>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 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 ~1 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; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request.



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Telephone: 925-798-1620 Fax: 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

AEI Consultants	Client Project ID: #12130; Hall Equities	Date Sampled: 09/12/05
2500 Camino Diablo, Ste. #200		Date Received: 09/13/05
	Client Contact Robert Flory	Date Extracted: 09/13/05
Walnut Creek, CA 94597	Client P.O.	Date Analyzed: 09/13/05-09/14/

## Diesel (C10-23) and Oil (C18+) Range Extractable Hydrocarbons as Diesel and Motor Oil\*

Extraction method: SW3510C Analytical methods: SW8015C								
Lab ID Client ID		Matrix	TPH(d)	TPH(mo)	DF	% SS		
0509268-001B	SB-2-W19	W	1400,a,i	500	1	105		
0509268-002B	SB-3-W19	w	54,b,i	ND	1	103		
0509268-003B	SB-5-W19	w	240,g,b,i	460	1	102		
0509268-004B	SB-6-W19	w	ND,i	ND	1	102		
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Reporting I	Limit for DF =1;	w	50	250		μg/L		
ND means r above the	not detected at or reporting limit	S	NA	NA	n	ng/Kg		

<sup>\*</sup> water samples are reported in  $\mu$ g/L, wipe samples in  $\mu$ g/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / SPLP / TCLP extracts are reported in  $\mu$ g/L.

<sup>#</sup> 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.

<sup>+</sup>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 ~I vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirits; p) see Case Narrative.



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## OC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0509268

EPA Method: SW8021B/	8015Cm E	xtraction:	SW5030	В	Batcl	hID: 17962		Spiked Sample ID: 0509259-011A				
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance	Criteria (%)		
Analyte	μg/L	μg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS/LCSD		
TPH(btex) <sup>£</sup>	ND	60	102	111	8.91	108	109	0.502	70 - 130	70 - 130		
MTBE	ND	10	93.5	103	10.1	97.6	95.8	1.88	70 - 130	70 - 130		
Benzene	ND	10	90.7	101	10.5	93.8	93.5	0.345	70 - 130	70 - 130		
Toluene	ND	10	89.9	100	10.8	94.7	95.3	0.657	70 - 130	70 - 130		
Ethylbenzene	ND	10	92	103	11.0	95.5	95.5	0	70 - 130	70 - 130		
Xylenes	ND	30	87.7	103	16.4	95.7	99	3.42	70 - 130	70 - 130		
%SS:	113	10	97	98	0.236	97	97	Ó	70 - 130	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

## BATCH 17962 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0509268-001A	9/12/05 9:50 AM	9/16/05	9/16/05 3:32 AM	0509268-002A	9/12/05 10:55 AM	9/15/05	9/15/05 6:58 AM
0509268-001A	9/12/05 12:00 PM	9/15/05	9/15/05 7:27 AM	0509268-004A	9/12/05 1:00 PM	9/15/05	9/15/05 7:57 AM

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 / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

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

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or 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.



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## QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0509268

EPA Method: SW8015C	E	xtraction:	SW3510	С	Batcl	nID: 17977		Spiked Sample ID: N/A				
A a b - d -	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
Analyte	µg/L	μg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD		
TPH(d)	N/A	1000	N/A	N/A	N/A	98.4	99	0.575	N/A	70 - 130		
%SS:	N/A	2500	N/A	N/A	N/A	102	103	0.943	N/A	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

### BATCH 17977 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0509268-001B	9/12/05 9:50 AM	9/13/05	9/13/05 11:45 PM	0509268-002B	9/12/05 10:55 AM	9/13/05	9/14/05 12:53 AM
0509268-003B	9/12/05 12:00 PM	9/13/05	9/14/05 2:02 AM	0509268-004B	9/12/05 1:00 PM	9/13/05	9/14/05 3:10 AM

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 / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the 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

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

# CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 0509268

ClientID: AEL

EDF: NO

Date Received:

Date Printed:

Report to:

Robert Flory

AEI Consultants

2500 Camino Diablo, Ste. #200

TEL: FAX:

(925) 283-6000 (925) 283-6121

ProjectNo: #12130; Hall Equities

DO:

Bill to:

Diane

All Environmental, Inc.

2500 Camino Diablo, Ste. #200

Walnut Creek, CA 94597

Requested TAT: 5 days

09/13/2005

09/13/2005

Walnut Cree	k, CA 94597	PO:							770											
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0509268-003	SB-5-W19	Water	9/12/05 12:00:00	A		В						ļ	ļ	<b>-</b>	ļ		<u> </u>			+
0509268-004	SB-6-W19	Water	9/12/05 1:00:00 PM	·Α		В						<u> </u>	<u> </u>		<u></u>	<u> </u>		l		لــــــــــــــــــــــــــــــــــــــ

### Test Legend:

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2	PREDF REPORT
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3	TPH(DMO)_W
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Prepared by: Elisa Venegas

### 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.

Mr.14MD

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

AEI Consultants	Client Project ID: #12130; Hall	Date Sampled: 09/29/05
2500 Camino Diablo, Ste. #200	Equities	Date Received: 09/29/05
W. L. G. J. G. 104507	Client Contact Robert Flory	Date Extracted: 09/29/05
Walnut Creek, CA 94597	Client P.O.	Date Analyzed: 09/29/05-09/30/05

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\* Analytical methods: SW8021B/8015Cm Work Order: 0509648 Extraction method: SW5030B DF Ethylbenzene Xylenes Client ID MTBE Toluene Lab ID Matrix TPH(g) ND ND 96 ND ND 002A SB 7-10 S ND ND ND 1 91 ND ND ND 004A SB 8-10 S ND ND 0.013 1 85 S ND ND ND ND 007A SB 9-10 7.3,g 0.016 0.018 ND 0.11 ND SB 10-10 S 1.5,a 009A

Reporting Limit for DF =1;	w	NA	NA	NA	NA	NA	NA	1	ug/L
ND means not detected at or above the reporting limit	S	1.0	0.05	0.005	0.005	0.005	0.005	1	mg/K.g

<sup>\*</sup> 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.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

<sup>+</sup>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 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 ~1 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; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request.



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Telephone: 925-798-1620 Fax: 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

AEI Consultants	Client Project ID: #12130; Hall	Date Sampled: 09/29/05
2500 Camino Diablo, Ste. #200	Equities	Date Received: 09/29/05
W. 1 . 4 Cl 1- CA 04507	Client Contact Robert Flory	Date Extracted: 09/29/05
Walnut Creek, CA 94597	Client P.O.	Date Analyzed: 09/29/05

## Diesel (C10-23) and Oil (C18+) Range Extractable Hydrocarbons as Diesel and Motor Oil\*

extraction method: SW	3550C	,	Analytical methods: SW8015C		Work O	rder: 0509648
Lab ID	Client ID	Matrix	TPH(d)	TPH(mo)	DF	% SS
0509648-002A	SB 7-10	S	21,g,b	130	1	89
0509648-004A	SB 8-10	S	ND	ND	1	93
0509648-007A	SB 9-10	S	34,g,b,d	40	. 1	94
0509648-009A	SB 10-10	S	ND	ND	1	100
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		·				
	imit for DF =1;	w	NA	NA		ıg/L
	ot detected at or reporting limit	S	1.0	5.0	n	ıg/K.g

<sup>\*</sup> water samples are reported in  $\mu g/L$ , wipe samples in  $\mu g/w$ ipe, 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  $\mu g/L$ .

<sup>#</sup> 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.

<sup>+</sup>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 (asphalt?); 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 ~1 vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.



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AEI Consultants	Client Project ID: #12130; Hall	Date Sampled: 09/29/05						
2500 Camino Diablo, Ste. #200	Equities	Date Received: 09/29/05						
,	Client Contact Robert Flory	Date Extracted: 09/30/05						
Walnut Creek, CA 94597	Client P.O.	Date Analyzed: 09/30/05						
Casalina Panga (C6	C12) Valatila Hydrocarbons as Casoline	with RTEX and MTRE*						

Extraction		ne Rang			ocarbons as nethods: SW80211		th BTEX and	MTBE*	rder: 0:	509647
Lab ID	Client ID	Matrix	TPH(g)	МТВЕ	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% S
001A	SB-7 Water	w	ND,h,i	ND	ND	ND	ND	ND	1	107
002A	SB-8 W	w	ND,i	ND	ND	ND	ND	ND	1	104
003A	SB-9 W	w	340,g,h,i	ND	1.0	ND	ND	ND	1	97
004A	SB-10 W	w	1400,a,i	ND	23	0.87	130	18	1	114
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	ng Limit for DF =1;	w	50	5.0	0.5	0.5	0.5	0.5	1	με
	ns not detected at or	9	NΔ	NΔ	NA	NA	NA	NA	1	mg

ND means not detected at or									1	
above the reporting limit	S	NA	NA	NA	NA	NA	NA ,	1	mg/Kg	
* water and vapor samples an	d all TCI	P & SPLP extrac	ets are reported in	ug/L, soil/sludge	e/solid samples ir	n mg/kg, wipe sa	mples in μg/wipe	,		İ

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

product/oil/non-aqueous liquid samples in mg/L.

<sup>+</sup>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 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 ~1 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; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request.



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Telephone: 925-798-1620 Fax: 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

AEI Consultants	Client Project ID: #12130; Hall	Date Sampled: 09/29/05
2500 Camino Diablo, Ste. #200	Equities	Date Received: 09/29/05
Walnut Creek, CA 94597	Client Contact Robert Flory	Date Extracted: 09/29/05
Walliut Cleek, CA 94397	Client P.O.	Date Analyzed: 09/29/05

### Diesel (C10-23) and Oil (C18+) Range Extractable Hydrocarbons as Diesel and Motor Oil\*

xtraction method: SW	/3510C	_	Analytical methods: SW8015C		Work O	rder: 0509647
Lab ID	Client ID	Matrix	TPH(d)	TPH(mo)	DF	% SS
0509647-001B	SB-7 Water	w	9900,g,b,h,i	38,000	10	89
0509647-002B	SB-8 W	w	640,c,i	350	1	88
0509647-003B	SB-9 W	w	5000,g,b,d,f,h,i	5400	1 -	104
0509647-004B	SB-10 W	w	440,d,b,i	ND	1	118
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						<u> </u>
Reporting I	Limit for DF =1;	w	50	250	J	ıg/L
	not detected at or reporting limit	S	NA	NA	m	g/Kg

<sup>\*</sup> water samples are reported in  $\mu g/L$ , wipe samples in  $\mu g/wipe$ , soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / SPLP / TCLP extracts are reported in  $\mu g/L$ .

<sup>#</sup> 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.

<sup>+</sup>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 ~1 vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirits; p) see Case Narrative.

# **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

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

WorkOrder: 0509648

ClientID: AEL

EDF: YES

Report to:

Robert Flory

ert Flory

AEI Consultants 2500 Camino Diablo, Ste. #200

Walnut Creek, CA 94597

TEL: (925) 283-6000

FAX: (925) 283-6121 ProjectNo: #12130; Hall Equities

PO:

Bill to

Diane

All Environmental, Inc.

2500 Camino Diablo, Ste. #200

Walnut Creek, CA 94597

Requested TAT: 1 day

Date Received: 09/29/2005

Date Printed: 09/30/2005

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	•		quested Tests (See legend below)																
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0509648-004	SB 8-10	Soil	09/29/05 9:55:00		A <sup>r</sup>	1	A	<u> </u>	ļ	<b></b>	<b></b>	<del> </del>	<del> </del>		<del>├</del>	<del> </del>	<del> </del>	<del> </del>	+
0509648-007	SB 9-10	Soil	09/29/05 11:25:00		Α		A	L	<u> </u>		<u> </u>	<b>↓</b>	<del> </del>	<del> </del>	├	├	<del> </del>	<del></del>	+
0509648-009	SB 10-10	Soil	09/29/05 12:55:00		Α		A		<u> </u>	<u> </u>	┸	<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u></u>	<u> </u>	ــــــــــــــــــــــــــــــــــــــ

### Test Legend:

1	G-MBTEX_S	
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2	PREDF REPORT
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3	TPH(DMO)_S
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Prepared by: Rosa Venegas

### 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.

ae1 0509648



McCAMPBELL ANALYTICAL INC.													T					(	CH	A	IN	0	F (	CU	SI	O'	D.	/ F	RE	CC	R	D				
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Walnut Creek, CA 94597 E-Mail: King a security of the control of t											-1	801 SYMTBE		8				ı				831					Fang				Analy					
Tel: (925) 944-2899, extension 1## Fax: (925) 944-2895											1	ଳି   	V	(5520	418							270					910				Yes	/ No	ı			
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