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CLEARWATER
GROUP
Environmental Services

August 17, 2006

Mr. Hernan E. Gomez
Hazardous Materials Specialist
City of Oakland
Fire Prevention Bureau
250 Frank H. Ogawa Plaza, 3rd Floor
Oakland, California 94612

FILE

RE: Phase II Subsurface Investigation Report
Zimmerman Property
3442 Adeline Street
Oakland, California
Clearwater Group Project No. AB013E

Dear Mr. Gomez,

Enclosed please find a copy of the *Phase II Subsurface Investigation Report* for the above referenced site. If you have any questions regarding this report, please do not hesitate to call me at (510) 307-9943 ext 237.

Sincerely,
Clearwater Group

Robert L. Nelson

Robert L. Nelson, PG, CEG
Senior Geologist

Enclosure

229 Tewksbury Avenue ◆ Point Richmond, California 94801 ◆ Telephone: 510-307-9943 ◆ Fax: 510-232-2823

CLEARWATER
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FILE

Mr. Hernan E. Gomez
Hazardous Materials Inspector
City of Oakland
Oakland Fire Department
Fire Prevention Bureau
250 Frank H. Ogawa Plaza, 3rd Floor
Oakland, California 94612

Re: **Phase II Subsurface Investigation Report**
Zimmerman Property
3442 Adeline Street
Oakland, California

Dear Mr. Gomez:

Clearwater Group (Clearwater) is pleased to present its *Phase II Subsurface Investigation Report* for the Zimmerman Property, located at 3442 Adeline Street, in Oakland, California (**Figure 1**), to the City of Oakland Fire Department. The property (**Figure 2**) straddles the block between Adeline Street (to the west) and Chestnut Street (to the east), between 34th and 35th Streets. The main entrance to the property is on the Adeline Street side, hence the street address. One of the roll up doors to the warehouse complex is located on Chestnut Street. Adjacent to the roll up door the property was improved with an underground fuel tank and dispensing system (see **Figure 2 insert**).

229 Tewksbury Avenue ◆ Point Richmond, California 94801 ◆ Telephone: 510-307-9943 ◆ Fax: 510-232-2823

UST Removal and Site Investigation History

An underground fuel storage tank (UST) was removed from the site (**Figures 1 and 2**) on February 22, 2000, under permit from the City of Oakland Fire Department, by Fast-Tek Engineering Support Services (Fast-Tek), of Pt. Richmond, California. Fast-Tek has State of California General Engineering Contractor's Class A, B, C-57, and Hazardous Materials CSLB licenses.

The UST was a single wall tank with a capacity of 3,750 gallons. Clearwater collected two soil samples and one groundwater sample from the excavation pit and analyzed the samples for total petroleum hydrocarbons as diesel (TPH-d), TPH as gasoline (TPH-g), methyl tertiary butyl either (MTBE) and BTEX components (benzene, toluene, ethyl benzene and total xylenes). The analytical results of the soil samples indicated concentrations of up to 850 milligrams per kilogram (mg/kg) of TPH-d and 920 mg/kg of TPH-g, in addition to minor levels of BTEX. The groundwater sample from the excavation pit contained 7,400 micrograms per liter (ug/L) of TPH-d and 34,000 ug/L of THP-g, with lesser concentrations of BTEX. MTBE was not detected above the reporting limit in either the soil or pit water samples. The depth to the water in the pit at the time of the sample collection was 7 feet below ground surface (bgs). The results of the UST closure were reported in the Clearwater, March 21, 2000, *UST Closure Report, Zimmerman Property, 3342 Adeline Street, Oakland, California*, which was submitted to the City of Oakland Fire Department.

PHASE II SUBSURFACE INVESTIGATION

Permits and USA Notification

Permits for four soil borings were obtained from the Alameda County Public Works Agency, Water Resources Section (Attachment A). Underground Alert Services (USA) was notified and all underground utilities were marked on the ground of the perimeter of the subject property soil boring work activity area. An excavation permit to drill a soil

boring in Chestnut Street was obtained from the City of Oakland, Office of Planning and Building (**Attachment A**).

Soil Borings

The soil borings were driven on June 23, 2006, by Fast-Tek. Fast-Tek used a direct push, Geoprobe® Macro-Core Soil Sampling System to obtain continuous soil cores and to minimize soil cuttings from the borings. The borings and soil sampling was performed according to Clearwater Direct-Push Drilling Investigation Procedures, presented in **Attachment B.**

The four soil borings were drilled around the former UST location (**Figure 2**). The soil boring descriptions (logs) were made during drilling by a California Professional Geologist (P.G.). All the borings were driven through or near the sidewalk. Boring S1 was located in the asphalt along the curb of Chestnut Street, boring S2 was located at the north end of the former UST location, boring S3 was located closest to the building, and boring S4 was located near the south end of the former UST location. All of the borings were drilled and sampled to 15 feet below ground surface (bgs). The soil boring locations are shown on **Figures 2, 3, and 4** and the soil boring logs are presented in **Attachment C.**

A calibrated photo-ionization detector (PID) was used to screen the soil samples for petroleum hydrocarbons. The PID readings are shown on the soil boring logs (OVM reading in ppm column). The soil samples were collected and preserved within acetate sleeves. A total of 16 soil samples (four per boring) were sent under Chain of Custody documentation to Kiff Analytical, LLC (Kiff), of Davis, California, a California Department of Health certified laboratory for analysis.

One grab groundwater sample was collected through a temporary well casing from each boring, using a separate disposable bailer at each boring. The grab groundwater samples were identified by the boring number followed by the letter W (e.g., S1-W). After collecting the grab groundwater samples, the soil borings were grouted with Portland II cement from the bottom of the boring to the surface using a tremmie pipe.

Sample Analyses

All of the soil and grab groundwater samples were analyzed by Kiff for TPH-d by EPA Method 3550/8015M. All of the samples were also analyzed by EPA Method 8260B for TPH-g, BTEX, and 1,2-DCA/EDB (1,2-dichloroethane/1,2-dichloromethane). See Kiff report No.50776, **Attachment D**. The samples were not analyzed for MTBE, due to previous groundwater sample results, which were below the reporting limit for MTBE.

Soil Sample Analytical Results

All of the soil samples, except sample S2-14.0 (soil sample from boring S2 at a depth of 14.0 feet bgs), contained reportable concentrations of TPH-d. Reportable concentrations of TPH-d ranged from a high of 250 mg/kg in sample S3-7.5, to a low of 1.2 mg/kg in sample S1-14.5. The samples with high concentrations of TPH-d were flagged by the laboratory with a note stating that "hydrocarbons reported as THP-d do not exhibit a typical diesel chromatographic pattern, these hydrocarbons are higher boiling point than typical diesel fuel." Silica gel clean-up was not used on any of the soil samples.

TPH-g concentrations ranged from below the reporting limit of 1.0 mg/kg for eight samples, to 1,200 mg/kg for sample S3-7.5. BTEX concentrations were low or below the reporting limit in all of the samples, except for samples S2-7.5, S2-12.0 and S3-7.5, which contained primarily total xylenes, at concentrations of 24 ug/L, 2.4 ug/L and 100 ug/L, respectively. All of the soil sample results were below the reporting limit for 1,2-DCA/EDB. **Table 1** presents the Cumulative Soil Sample Analytical Results. **Figure 3** presents a Maximum Sorbed Phase Hydrocarbon Concentration Map. For **Figure 3,** the

soil sample results from the one soil sample with the highest overall concentrations of petroleum hydrocarbons of the four samples from each bore hole was presented.

Grab Groundwater Sample Analytical Results

All of the grab groundwater samples contained reportable concentrations of petroleum hydrocarbons. Floating product was observed within the sample vials from each of the borings. TPH-g concentrations ranged from 20,000 ug/L in sample S1-W to 120,000 ug/L in sample S4-W. Due to the high detections of TPH-g, all of the TPH-d analyses were reported at below reporting limit concentrations: however, the elevated TPH-d reporting limits ranged from 4,000 ug/L for sample S2-W to 40,000 ug/L for sample S4-W. All of the water samples contained reportable concentrations of BTEX components, except for sample S4-W, which was below the reporting limit for toluene, at a reporting limit of 15 ug/L. Sample S2-W contained the highest concentration of BTEX components (7,000 ug/L of benzene, 260 ug/L of toluene, 920 ug/L of ethyl benzene and 2,800 ug/L of total xylenes). All of the grab groundwater sample results were below the reporting limit for 1,2-DCA/EDB. Silica gel clean-up was not used on any of the groundwater samples. **Table 2** presents the Cumulative Groundwater Sample Analytical Results. **Figure 4** presents a contaminants in groundwater Dissolved Phase Hydrocarbon Concentration Map.

Soil Lithology and Hydrology

The soil boring logs indicate that the site's lithology is significantly variable over relatively short distances. In general, the upper five to seven feet consists of silty lean clay. Below five to seven feet consists primarily of sandy clayey gravel. The clayey gravel extends to a depth of approximately 14 feet in all of the borings, where it is underlain by lean clay to a depth of at least 15 feet bgs, the maximum depth explored.

Due to the generally clayey nature of the site's soil, the depth to groundwater during drilling could be field determined in boring S4 only, at a depth 12 feet bgs. The grab groundwater samples were collected from approximately this depth in all of the borings. The borings were left open until all of the borings had been drilled, in an attempt to allow enough water to accumulate in the boreholes to collect six 40 ml vials of groundwater. At all of the borings, the borehole was dewatered during grab groundwater sample collection and the sample technician had to wait for up to one hour for the boreholes to recharge to finish sample collection.

Results

Comparison of the soil boring logs, PID readings, and soil sample analytical results indicates that the soil contamination is concentrated in the sandy clayey gravel layers and that the contaminant concentrations decrease with depth within the sandy clayey gravel layers. Reportable concentrations of the contaminants of concern were detected in all of the soil borings, indicating that the sorbed contamination has spread beyond the area explored during this investigation.

Soil samples collected from borings S1, S3 and S4 at a depth of 14.0 to 15.0 feet contained low concentrations of TPH-d (1.2, 1.3 and 1.2 mg/kg, respectively). The sample from boring S2 at 14.0 feet was below the reporting limit for TPH-g and TPH-d. Samples from all of the borings at 14 to15 feet bgs were below the reporting limit for TPH-g.

The groundwater sample analytical results indicate that the site groundwater is heavily impacted with petroleum hydrocarbons, primarily as gasoline. A maximum concentration of 120,000 ug/L of TPH-g was reported in groundwater sample S4-W.

Conclusions

- Soil and groundwater contamination was reported in all of the soil borings.
- The lateral extent of the soil and groundwater contamination has not been defined.
- The low or below reporting limit concentrations of TPH-d and TPH-g at depths of 14 to 15 feet bgs may indicate the vertical limit of soil contamination.

Recommendations

Due to the high concentrations of petroleum hydrocarbons detected in the groundwater and the lack of data identifying the lateral and vertical extent of those constituents, further site investigation is warranted. Clearwater requests a referral from the City of Oakland Fire Department to the Alameda County Local Oversight Program for direction in such as investigation.

LICENSED PROFESSIONALS

All projects are directed by in-house licensed professionals. These professionals, including geologists or engineers, shall be guided by the highest standards of ethics, honesty, integrity, fairness, personal honor, and professional conduct. To the fullest extent possible, the licensed professional seeks to protect the public health and welfare and property in carrying out professional duties. In the course of normal business, recommendations by the in-house professional may include the use of equipment, services or products in which the Company has an interest. Therefore, the Company is making full disclosure of potential or perceived conflicts of interest to all parties.

CERTIFICATION

This report was prepared under the supervision of a Professional Geologist in the State of California. All statements, conclusions and recommendations are based solely upon field observations by Clearwater staff and laboratory analyses performed by a State of California certified laboratory related to the work performed by Clearwater.

CLEARWATER
GROUP, INC.
Environmental Services

Information and interpretation presented herein are for the sole use of the client and regulating agency. The information and interpretation contained in this document should not be relied upon by a third party.

The service provided by Clearwater staff has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of this profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

Please call me at (510) 307-9943 X 237 if you have any questions.

Sincerely,

CLEARWATER GROUP

REGISTERED GEOLOGIST
ROBERT L. NELSON
No. 2087
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Robert L. Nelson, PG #6270, CEG #2087
Senior Geologist

Reviewed by
James A. Jacobs, PG #4815, CHG #88
Chief Hydrogeologist

Cc: Mr. Steven Zimmerman

FIGURES

Figure 1: Site Location Map

Figure 2: Site Map

Figure 3: Maximum Sorbed Phase Hydrocarbon Concentration Map

Figure 4: Dissolved Phase Hydrocarbon Concentration Map

TABLES

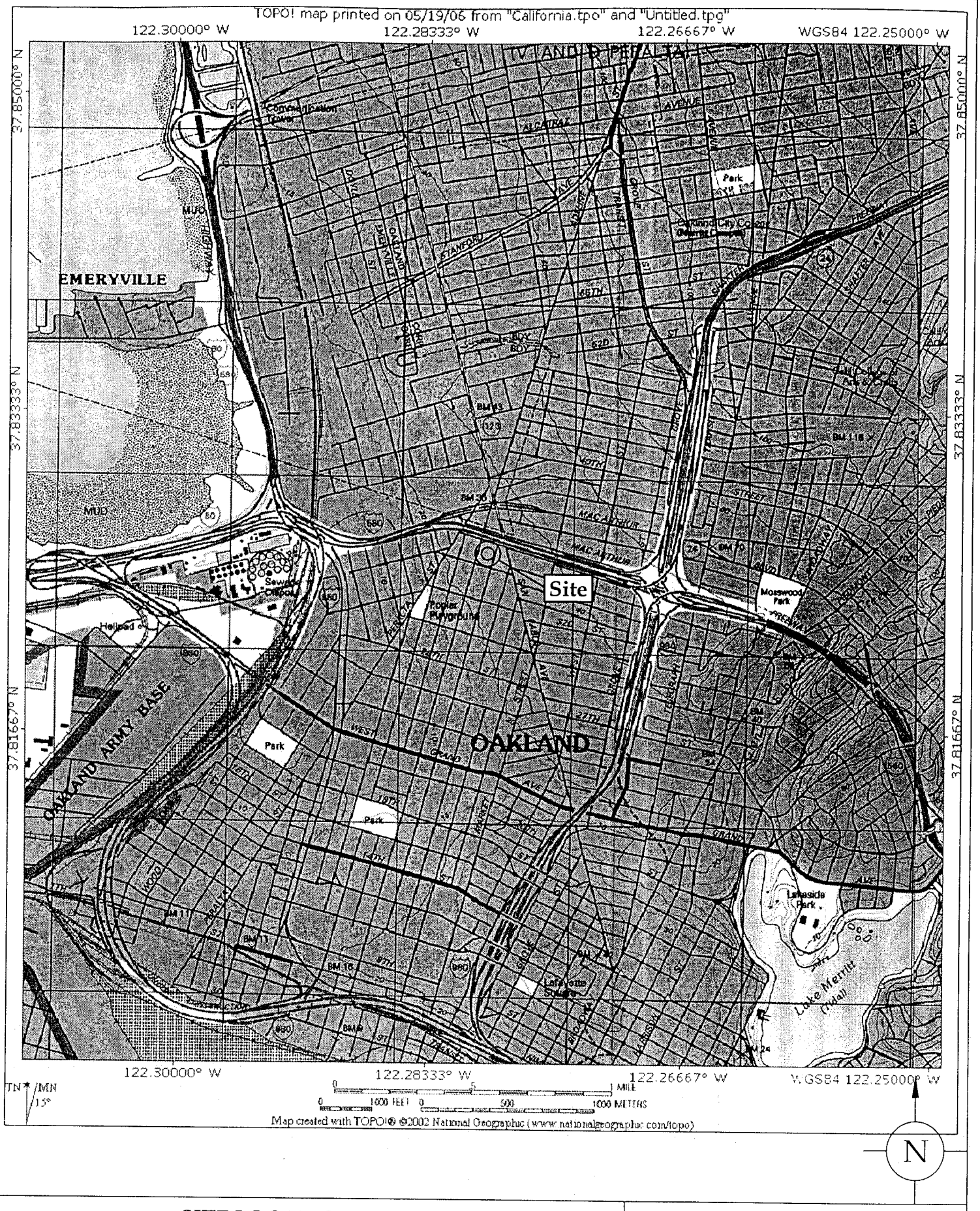
Table 1: Cumulative Soil Sample Analytical Results

Table 2: Cumulative Groundwater Sample Analytical Results

ATTACHMENTS

Attachment A:	City of Oakland, Excavation Permit Alameda County Public Works Agency- Water Resources Well Permit
Attachment B:	Clearwater Direct Push Drilling Investigation Procedures
Attachment C:	Soil Boring Logs S1 through S4
Attachment D:	Kiff Analytical Report 50776 with Chain-of Custody Form (6/28/2006)

FIGURES

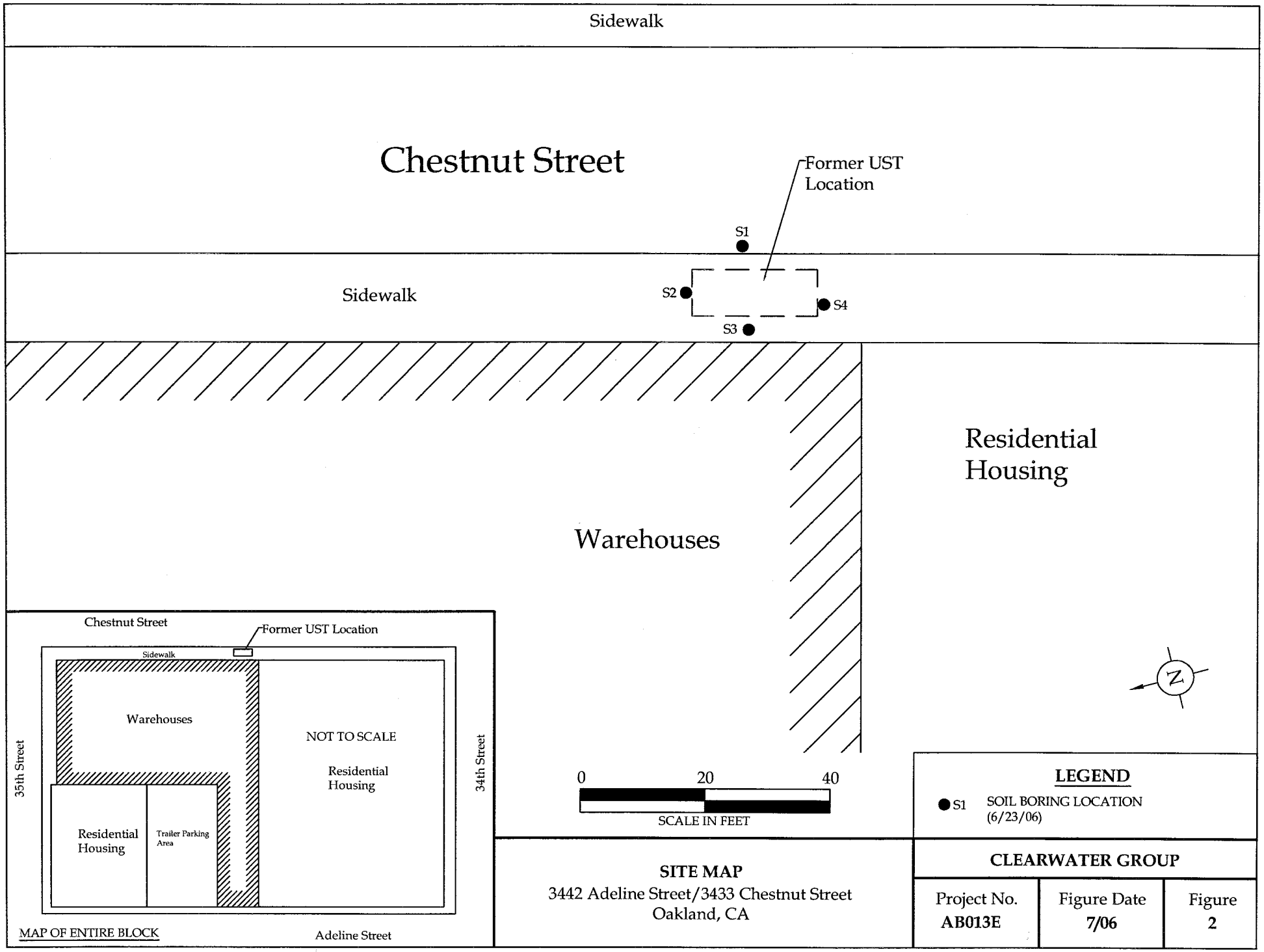


SITE LOCATION MAP

3442 Adeline Street
Oakland, California

CLEARWATER GROUP

Project No.	Figure Date	Figure
AB013E	05/06	1

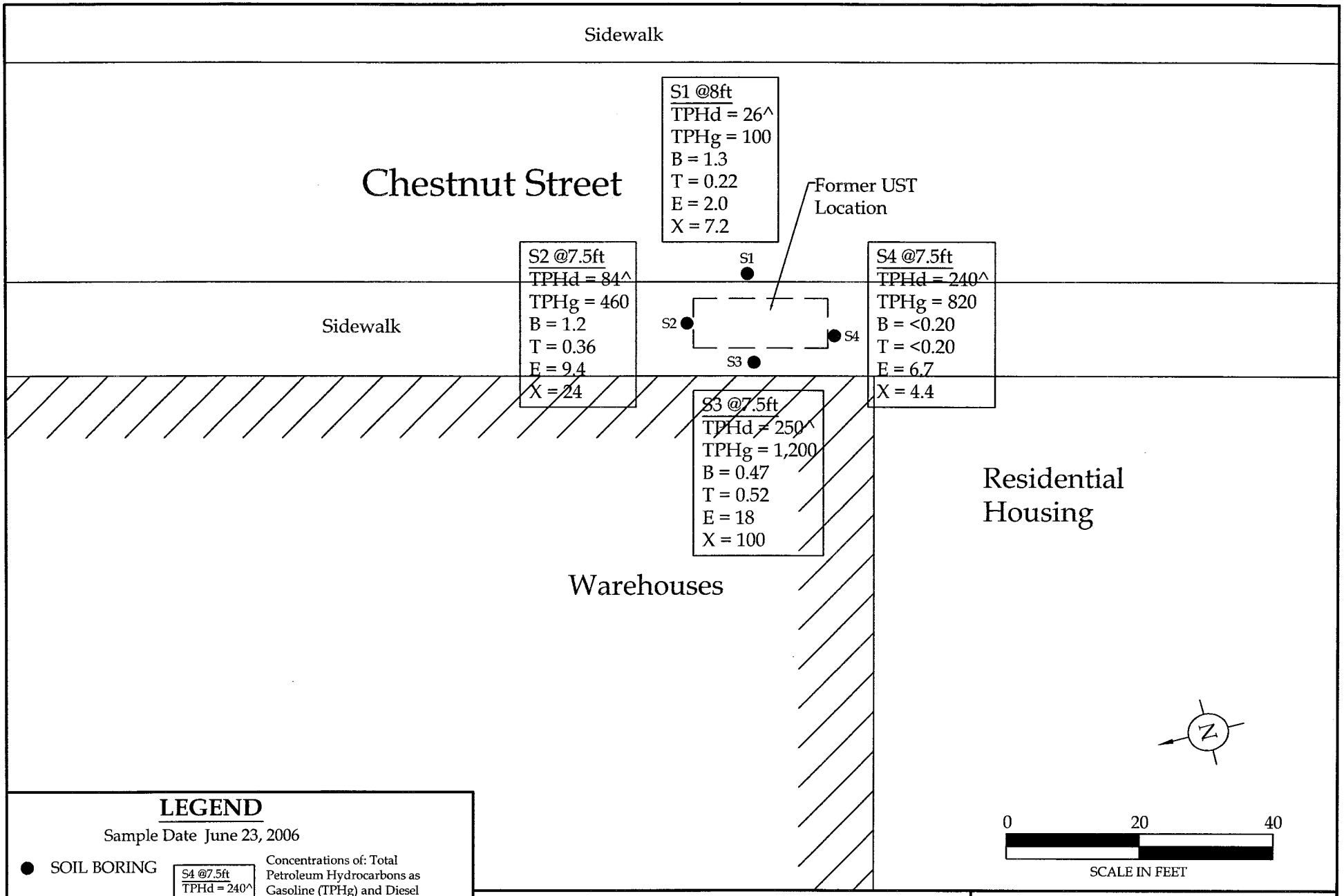


SITE MAP

3442 Adeline Street/3433 Chestnut Street
Oakland, CA

CLEARWATER GROUP

Project No.	Figure Date	Figure
AB013E	**7/06**	**2**



LEGEND

Sample Date June 23, 2006

● SOIL BORING

S4 @7.5ft
TPHd = 240^
TPHg = 820
B = <0.20
T = <0.20
E = 6.7
X = 4.4

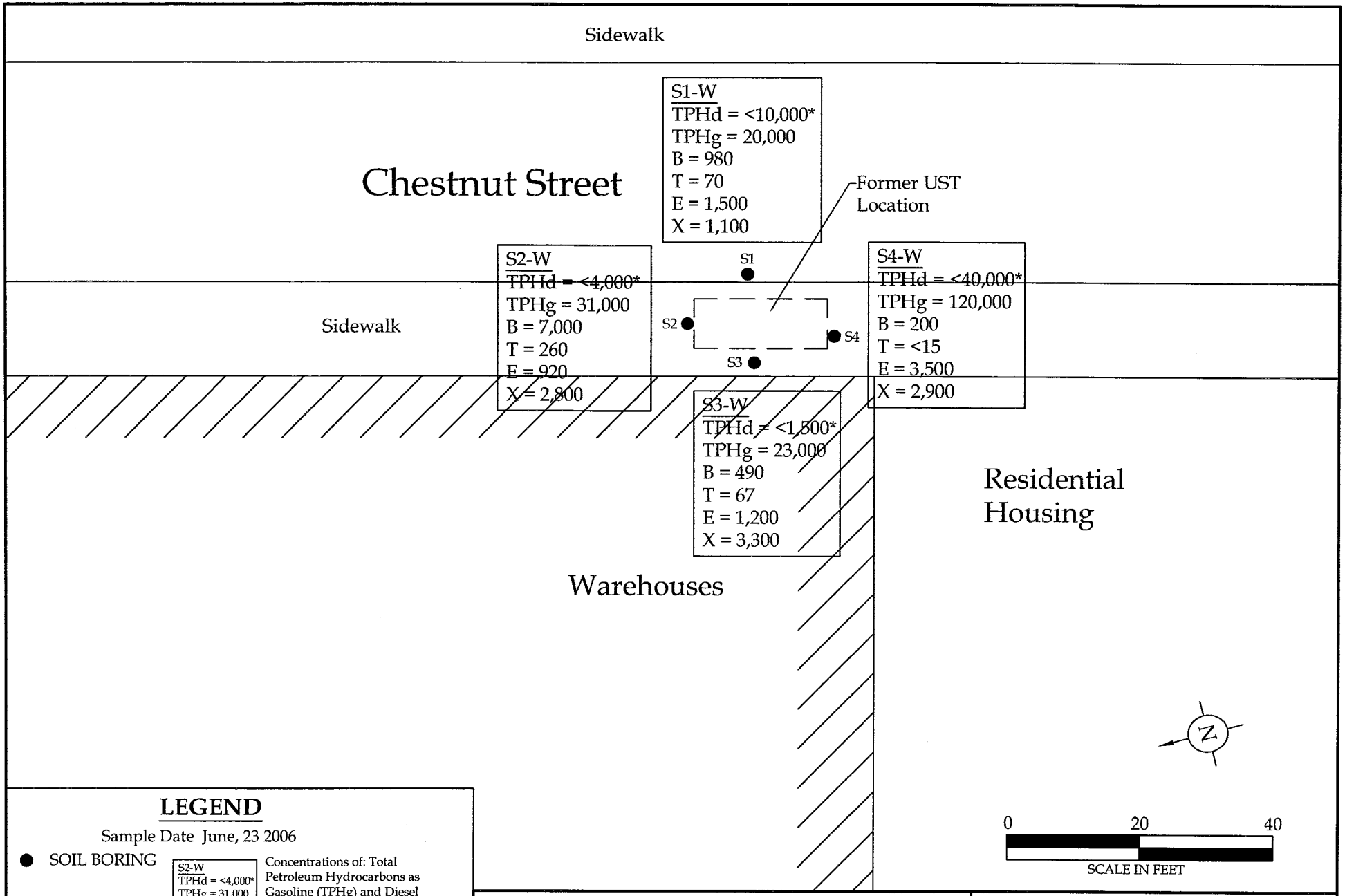
Concentrations of: Total Petroleum Hydrocarbons as Gasoline (TPHg) and Diesel (TPHd), Benzene (B), Toulene (T), Ethylbenzene (E), Total Xylenes (X). All concentrations reported in milligrams per kilogram (mg/kg).

^ Hydrocarbons reported as TPHd do not exhibit typical diesel chromatographic pattern, the boiling point is lower than typical diesel fuel.

Maximum Sorbed Phase Hydrocarbon Concentration Map
3442 Adeline Street
Oakland, CA

CLEARWATER GROUP

Project No.	Figure Date	Figure
AB013E	**7/06**	**3**



LEGEND

Sample Date June, 23 2006

● SOIL BORING

S2-W
TPHd = <4,000*
TPHg = 31,000
B = 7,000
T = 260
E = 920
X = 2,800

Concentrations of: Total Petroleum Hydrocarbons as Gasoline (TPHg) and Diesel (TPHd), Benzene (B), Toulene (T), Ethylbenzene (E), Total Xylenes (X). All concentrations reported in micrograms per liter (µg/L).

* Laboratory reporting limit increased due to interference from gasoline range hydrocarbons.

Dissolved Phase Hydrocarbon Concentration Map
3442 Adeline Street
Oakland, CA

CLEARWATER GROUP

Project No.	Figure Date	Figure
AB013E	**7/06**	**4**

TABLES

Table 1
CUMULATIVE SOIL SAMPLE ANALYTICAL RESULTS
Zimmerman Property
3442 Adeline Street, Oakland CA
Clearwater Group Project Number AB013E

Sample I.D	Date	Depth (ft bgs)	TPHd mg/Kg	TPHg mg/Kg	B mg/Kg	T mg/Kg	E mg/Kg	X mg/Kg	MTBE mg/Kg	1,2-DCA/EDB mg/Kg
NW-6.5'	2/22/2000	6.5	130	130	0.16	0.26	0.73	6.3	<0.5	****
SE-6.5'	2/22/2000	6.5	850	920	0.3	0.37	5.3	22	<2.5	****
S1-5.0	6/23/2006	5.0	5.6*	<1.0	0.011	<0.0050	<0.0050	<0.0050	****	<0.0050
S1-8.0	6/23/2006	8.0	26^	100	1.3	0.22	2.0	7.2	****	<0.0050
S1-12.0	6/23/2006	12.0	45^	67	0.098	<0.025	0.73	0.39	****	<0.025
S1-14.5	6/23/2006	14.5	1.2*	<1.0	<0.0050	<0.0050	<0.0050	0.010	****	<0.0050
S2-4.0	6/23/2006	4.0	4.7*	<1.0	0.016	<0.0050	<0.0050	<0.0050	****	<0.0050
S2-7.5	6/23/2006	7.5	84^	460	1.2	0.36	9.4	24	****	<0.050
S2-12.0	6/23/2006	12.0	49^	61	0.33	0.055	0.84	2.4	****	<0.025
S2-14.0	6/23/2006	14.0	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	****	<0.0050
S3-3.5	6/23/2006	3.5	3.1*	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	****	<0.0050
S3-7.5	6/23/2006	7.5	250^	1,200	0.47	0.52	18	100	****	<0.090
S3-10.0	6/23/2006	10.0	76^	220	0.26	<0.040	6.2	7.2	****	<0.040
S3-14.5	6/23/2006	14.5	1.3*	<1.0	<0.0050	<0.0050	0.0056	0.016	****	<0.0050
S4-3.5	6/23/2006	3.5	3.6*	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	****	<0.0050
S4-7.5	6/23/2006	7.5	240^	820	<0.20	<0.20	6.7	4.4	****	<0.20
S4-11.5	6/23/2006	11.5	120^	500	0.079	<0.040	3.5	4.8	****	<0.040
S4-14.5	6/23/2006	14.5	1.3*	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	****	<0.0050

Notes	
NW-6.5'	Soil sample collected during tank pull on the northwest sidewall just above groundwater level.
SE-6.5'	Soil sample collected during tank pull on the southeast sidewall just above groundwater level.
S3-7.5	Soil boring number and corresponding depth at which soil sample was collected.
ft bgs	Feet below ground surface that soil sample was collected.
TPHd	Total petroleum hydrocarbons reported as diesel by EPA Method 3550/8015M in 2000 and 8015M in 2006.
TPHg	Total petroleum hydrocarbons reported as gasoline by EPA Method 5030/8015M in 2000 and 8260B in 2006.
BTEX	Benzene, Toluene, Ethylbenzene, Total Xylenes by EPA Method 8020 in 2000 and 8260B in 2006.
MTBE	Methyl tertiary butyl ether by EPA Method 8020 in 2000 and 8260B in 2006.
1,2-DCA	1,2-Dichloroethane by EPA Method 8260B.
EDB	1,2-Dibromoethane by EPA Method 8260B.
mg/Kg	miligrams per Kilogram or parts per million
<	Not detected in concentrations exceeding indicated laboratory reporting limit.
*	Hydrocarbons reported as TPHd do not exhibit a typical diesel chromatographic pattern, these hydrocarbons are higher boiling than typical diesel fuel.
^	Hydrocarbons reported as TPHd do not exhibit a typical diesel chromatographic pattern, these hydrocarbons are lower boiling than typical diesel fuel.
*****	Compound not analyzed.

Table 2
CUMULATIVE GROUNDWATER SAMPLE ANALYTICAl RESULTS
Zimmerman Property
3442 Adeline Street, Oakland CA
Clearwater Group Project Number AB013E

Sample I.D	Date	TPHd µg/L	TPHg µg/L	B µg/L	T µg/L	E µg/L	X µg/L	MTBE µg/L	1,2-DCA/EDB µg/L
Pit Water	2/22/2000	7,400	34,000	3,300	930	400	6,200	<250	****
S1-W	6/23/2006	<10,000*	20,000	980	70	1,500	1,100	****	<5.0
S2-W	6/23/2006	<4,000*	31,000	7,000	260	920	2,800	****	<15
S3-W	6/23/2006	<1,500*	23,000	490	67	1,200	3,300	****	<5.0
S4-W	6/23/2006	<40,000*	120,000	200	<15	3,500	2,900	****	<15

Notes

S1-W	Soil boring number which water sample was collected from.
TPHd	Total petroleum hydrocarbons reported as diesel by EPA Method 3550/8015M in 2000 and 8015M in 2006.
TPHg	Total petroleum hydrocarbons reported as gasoline by EPA Method 5030/8015M in 2000 and 8260B in 2006.
BTEX	Benzene, Toluene, Ethylbenzene, Total Xylenes by EPA Method 8020 in 2000 and 8260B in 2006.
MTBE	Methyl tertiary butyl ether by EPA Method 8020 in 2000 and 8260B in 2006.
1,2-DCA	1,2-Dichloroethane by EPA Method 8260B.
EDB	1,2-Dibromoethane by EPA Method 8260B.
µg/L	Micrograms per Liter or parts per billion.
<	Not detected in concentrations exceeding indicated laboratory reporting limit.
*****	Compound not analyzed.
*	Laboratory reporting limit increased due to interference from Gasoline-Range Hydrocarbons.

ATTACHMENT A

CITY OF OAKLAND
Office of Planning and Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERI

Permit valid for 90 days from date of issuance.

PERMIT NUMBER	SITE ADDRESS/LOCATION
X 0 6 0 0 5 9 2	* 3432 Chestnut Street Oakland
APPROX. START DATE: 6/23/06 / APPROX. END DATE: 6/23/06	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number)
CONTRACTOR'S LICENSE # AND CLASS: C-57 #624461	CITY BUSINESS TAX #

ATTENTION:

1- State law requires that the contractor/owner call Underground Service Alert (USA) two working days before excavating. This permit is not valid unless applicant has secured an inquiry identification number issued by USA. The USA telephone number is 1-800-642-2444. Underground Service Alert (USA) # _____

2- 48 hours prior to starting work, you MUST CALL (510) 238-3651 to schedule an inspection.

3- 48 hours prior to re-paving, a compaction certificate is required (waived for approved slurry backfill).

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work wil' be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than t structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____ , B&PC for this reason _____

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

X _____ 6/20/06

Signature of Permittee ☐ Agent for ☐ Contractor ☐ Owner Date

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED? ☐ YES ☐ NO	HOLIDAY RESTRICTION? (NOV 1 - JAN 1) ☐ YES ☐ NO	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM) ☐ YES ☐ NO
ISSUED BY		DATE ISSUED	

CITY OF OAKLAND • Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • FAX (510) 238-2263

Job Site 3433 CHESTNUT ST Parcel# 005 -0478-005-01 Appl# X0600592

Descr soil boring project Permit Issued 06/20/06
Block s/w per approved TCP and reserve parking for

Work Type EXCAVATION-PRIVATE P

USA # Util Co. Job # Acctg#:
Util Fund #:

	Applcnt	Phone#	Lic#	License Classes
Owner	ZIMMERMAN RONALD S & STEFFI R			
Contractor	THE AUGER GROUP INC	X (510)307-9943	624461 A	C57 B
Arch/Engr				
Agent	CLEARWATER GROUP/M MAGLIOCCO	(510)307-9943		

Applic Addr 227 A TEWKSBURY AVENUE, POINT RICHMOND, CA, 94801

$411.96	TOTAL FEES PAID AT ISSUANCE		
$59.00	Applic	$300.00	Permit
$.00	Process	$34.11	Rec Mgmt
$.00	Gen Plan	$.00	Invstg
$.00	Other	$18.85	Tech Enh

DDRESS:

JOB SITE

CITY OF OAKLAND

DIST:

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: 06/19/2006 By jamesy **Receipt Number: WR2006-0299**
Permits Issued: W2006-0613 **Permits Valid from 06/23/2006 to 06/23/2006**

Application Id: 1150396132414 **City of Project Site:**Oakland
Site Location: 3442 Adeline St, Oakland, CA 94608
(property located at sidewalk of Chestnut St, between 34th & 35tth Sts.)
Project Start Date: 06/23/2006 **Completion Date:**06/23/2006

Applicant: Clearwater Group - Jessica Moreno **Phone:** 510-307-9943
229 Tewksbury Ave., Pt Richmond, CA 94801
Property Owner: Steve Zimmerman **Phone:** 916-601-5202
6330 Swainland Rd., Oakland, CA 94611
Client: ** same as Property Owner **

Total Due: $200.00
Total Amount Paid: $200.00
Payer Name : Olivia P Jacobs Paid By: MC **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Contamination Study - 4 Boreholes
Driller: Fast-Tek Enginering - Lic #: 624461 - Method: other **Work Total: $200.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2006-0613	06/19/2006	09/21/2006	4	2.50 in.	5.00 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. All cuttings remaining or unused shall be containerized and hauled off site.

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. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

5. 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.

6. No Inspector Assigned to this site.
Applicant shall contact this office by email at wells@acpwa.org and certify in writing that work was completed and according to County Standards within 5 working days after the completion of work.

ATTACHMENT B

CLEARWATER GROUP

Direct-Push Drilling Investigation Procedures

The direct push method of soil boring has several advantages over hollow-stem auger drill rigs. The direct push method produces no drill cuttings and is capable of 150 to 200 feet of boring or well installation per work day. Direct push can be used for soil gas surveys, soil sampling, groundwater sampling, installation of small-diameter monitoring wells, and components of remediation systems such as air sparge points. The equipment required to perform direct push work is varied ranging from a roto-hammer and operator to a pickup truck-mounted rig capable of substantial static downward force combined with percussive force. This method allows subsurface investigation work to be performed in areas inaccessible to conventional drill rigs such as in basements, beneath canopies, or below power lines. Direct push equipment is ideal at sites with unconsolidated soil or overburden, and for sampling depths of less than 30 feet. This method is not appropriate for boring through bedrock or gravelly soils.

Permitting and Site Preparation

Prior to direct push boring work, Clearwater Group will obtain all necessary permits and locate all underground and above ground utilities through Underground Service Alert (USA) and a thorough site inspection. All drilling equipment will be inspected daily and will be maintained in safe operating condition. All down-hole drilling equipment will be cleaned prior to arriving on-site. Working components of the rig near the borehole, as well as driven casing and sampling equipment will be thoroughly decontaminated between each boring location by either steam cleaning or washing with an Alconox® solution. All drilling and sampling methods will be consistent with ASTM Method D-1452-80 and county, state and federal regulations.

Boring Installation and Soil Sampling

Direct push uses a 1.5-inch outer barrel with an inner rod held in place during pushing. Soil samples are collected by penetrating to the desired depth, retracting the inner rod and attaching a spoon sampler. The sampler is then thrust beyond the outer barrel into native soil. Soil samples are recovered in brass or stainless containers lining the spoon.

Soil removed from the upper tube section is used for lithologic descriptions (according to the unified soil classification system) and for organic vapor field analysis. If organic vapors will be analyzed in the field, a portion of each soil sample will be placed in a plastic zip-lock bag. The bag will be sealed and warmed for approximately 10 minutes to allow vapors to be released from the soil sample and diffuse into the head space of the bag. The bag is then pierced with the probe of a calibrated organic vapor detector. The results of the field testing will be noted with the lithologic descriptions on the field exploratory soil boring log. Soil samples selected for laboratory analysis will be covered on both ends with Teflon™ tape and plastic end caps. The samples will then be labeled, documented on a chain-of-custody form and placed in a cooler for transport to a state certified analytical laboratory.

Temporary Well Installation and Groundwater Sampling

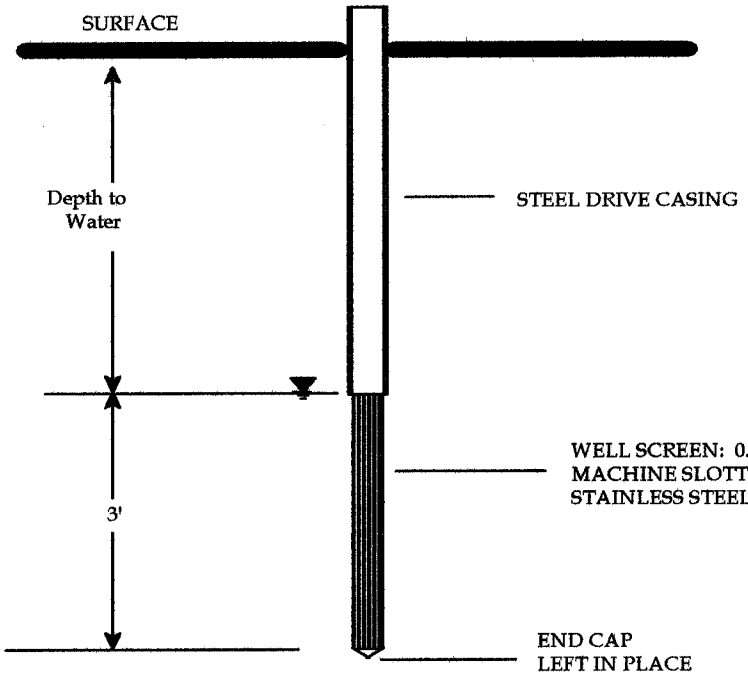


Figure 1

Groundwater samples are collected by removing the inner rod and attaching a 4-foot stainless steel screen with a drive point at the end (Figure 1). The screen and rod are then inserted in the outer barrel and driven to the desired depth where the outer rod is retracted to expose the screen. If enough water for sampling is not produced through the stainless well screen, a 1-inch PVC screen can be installed in the boring and the outer rod retracted to leave a temporary well point for collecting groundwater samples or water levels.

Monitoring Well Installation and Development

Permanent small-diameter monitoring wells are installed by driving the outer barrel and inner rod as described above. Upon reaching the desired depth the system is removed and 2-inch OD (1/2-inch ID) pre-packed PVC piping is installed. The well plug is created using granular bentonite. The well seal is constructed of cement and sealed at the surface with a conventional "Christy® Box" or similar vault. Monitoring wells are developed by surging the well with a small diameter bailer and removing 3 to 5 casing volumes of water until the produced water is clear.

Groundwater Sample Collection and Water Level Measurement

Prior to collecting groundwater from the wells the water levels are measured in all wells using an electronic water level gauge. Monitoring wells are prepared for sampling by purging three well bore volumes of water. Water is removed using small diameter bailers, a peristaltic pump, or manually using tubing with a check valve at the bottom. During removal of each volume, the temperature, pH and conductivity are measured and recorded on the field sampling form. Successive well volumes are removed until the parameters have stabilized or the well has gone dry. Prior to sampling, the well is allowed to recover to within 90% of the stabilized water levels.

Groundwater samples[1] are collected using small diameter bailers. The samples are decanted into laboratory supplied containers, labeled, recorded on a chain-of-custody form and placed on ice for transport to a certified laboratory.

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[1] Small diameter wells often produce small sample quantities and are appropriate for analysis of volatile and aromatic compounds and dissolved metals analysis using VOA vials. Obtaining liter-size samples can be difficult and time consuming. Monitoring wells installed by the direct push method are most effective at sites where the subsurface soils are more coarse than silt, gasoline components are the key contaminants of concern, and water levels are not more than 25 feet below ground surface.

ATTACHMENT C

BORING/WELL CONSTRUCTION LOG

CLEARWATER GROUP, INC.
Environmental Services

229 Tewksbury Ave, Point Richmond, California 94801

CLIENT/ **Zimmerman Property**
LOCATION **3442 Adeline Street**
Oakland, CA

DRILLING CONTRACTOR **Fast-Tek**
DRILL RIG OPERATOR **Eric Austin**
DRILL RIG TYPE **Geo Probe 5400**
LOGGED BY **Robert Nelson**
REVIEWED BY **James A. Jacobs, P.G.,C.H.G.**
PLANNED USE
DATES DRILLED: **6/23/06**
DRILLING START **N/A**
DRILLING FINISH **N/A**
Approximate First Encountered Water Depth
Approximate Stabilized Water Depth

BORING/ WELL NUMBER **S1**
PROJECT NUMBER **AB013E**
BORING DEPTH **16'**
WELL DEPTH **N/A**
SCREEN SLOT SIZE **N/A**
BORE/CASE DIAMETER **2"**
FILTER PACK **N/A**
WELL MATERIAL **N/A**
DEPTH TO WATER **N/A**

DEPTH (feet)	SAMPLING: BLOWS/ 6" INTERVAL	SAMPLING: INTERVAL	SAMPLING: RECOVERY	SAMPLING: ANALYTICAL	WATER LEVEL	OVM READING (ppm)	ESTIMATED PERCENT: GRAVEL	ESTIMATED PERCENT: SAND	ESTIMATED PERCENT: FINES	LITHOLOGY	USCS SYMBOL	LITHOLOGIC DESCRIPTION/ NOTES	WELL CONSTRUCTION DETAILS
0												(0.0- 0.3) Concrete 4"	Cement
1						0						(0.3- 5.0) Silty Lean Clay (CL), very stiff, dry to moist, trace of fine sand, trace roots and root burrows, no odor, dark gray (10YR 4/1).	
2													
3						0					CL		
4													
5						0							
6						0							
7						60						(5.0- 14.0) Sandy Clayey Gravel (GC), moist, moderate odor, dark green gray (5GY 4/1).	
8						110							Bentonite
9													
10						120					GC		
11													
12						40							
13						40							
14													
15						0						(14.0- 16.0) Lean Clay, very stiff, moist to wet, trace of fine sand, no odor, streaked olive (5Y 5/4) on light olive brown (2.5Y 5/3)	
16											CL		
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

BORING/WELL CONSTRUCTION LOG

CLEARWATER GROUP, INC.
Environmental Services

229 Tewksbury Ave, Point Richmond, California 94801

CLIENT/ **Zimmerman Property**
LOCATION **3442 Adeline Street**
Oakland, CA

DRILLING CONTRACTOR **Fast-Tek**
DRILL RIG OPERATOR **Eric Austin**
DRILL RIG TYPE **Geo Probe 5400**
LOGGED BY **Robert Nelson**
REVIEWED BY **James A. Jacobs**
PLANNED USE
DATES DRILLED: **6/23/06**
DRILLING START **N/A**
DRILLING FINISH **N/A**
Approximate First Encountered Water Depth
Approximate Stabilized Water Depth

BORING/ WELL NUMBER **S2**
PROJECT NUMBER **AB013E**
BORING DEPTH **16'**
WELL DEPTH **N/A**
SCREEN SLOT SIZE **N/A**
BORE/CASE DIAMETER **2"**
FILTER PACK **N/A**
WELL MATERIAL **N/A**
DEPTH TO WATER **N/A**

DEPTH (feet)	SAMPLING: BLOWS/ 6" INTERVAL	SAMPLING: INTERVAL	SAMPLING: RECOVERY	SAMPLING: ANALYTICAL	WATER LEVEL	OVM READING (ppm)	ESTIMATED PERCENT: GRAVEL	ESTIMATED PERCENT: SAND	ESTIMATED PERCENT: FINES	LITHOLOGY	USCS SYMBOL	LITHOLOGIC DESCRIPTION/ NOTES	WELL CONSTRUCTION DETAILS
0						0					CL	(0.0- 0.3) Concrete 4"	Cement
1												(0.3- 3.5) Dark Gray Silty Clay (CL), stiff, dry to moist, trace of fine sand no odor, Black (10YR 2/1)	
2						0							
3													
4						0					CL	(3.5- 6.5) Silty Clay (CL) very stiff, dry, trace of very fine sand, no odor above 5', dark greenish gray (5GY4/1)	
5													
6						40					GC	(6.5- 7.0) Clayey Gravel layer, 40% fine subangular gravel, dark greenish gray (5GY 4/1).	
7						0					CL	(7.0- 11.5) Silty Clay (CL), very stiff, dry to moist, mottled and streaked dark greenish gray (5GY 4/1) on olive brown (2.5Y 4/3)	Bentonite Chips
8													
9						0							
10													
11						0							
12						20					GC	(11.5- 14.5) Clayey Gravel with sand (GC), wet, dense, 40% fine subangular gravel, 30% fine to coarse sand, 30% clay, moderate odor.	
13													
14						0					CL	(14.5- 16.0) Lean Clay, very stiff, moist, trace fine sand, no odor light olive brown (2.5Y 5/3)	
15						0						Sharp Contact at 14.5'	
16												(14.5-15.5) Heavy iron oxide staining	
17													
18													
19													
20													
21													
22													
23													
24													
25													
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29													
30													

BORING/WELL CONSTRUCTION LOG

CLEARWATER GROUP, INC.
Environmental Services

229 Tewksbury Ave, Point Richmond, California 94801

CLIENT/ **Zimmerman Property**
LOCATION **3442 Adeline Street**
Oakland, CA

DRILLING CONTRACTOR **Fast-Tek**
DRILL RIG OPERATOR **Eric Austin**
DRILL RIG TYPE **Geo Probe 5400**
LOGGED BY **Robert Nelson**
REVIEWED BY **James A. Jacobs, P.G.,C.H.G.**
PLANNED USE
DATES DRILLED: **6/23/06**
DRILLING START **N/A**
DRILLING FINISH **N/A**
Approximate First Encountered Water Depth
Approximate Stabilized Water Depth

BORING/ WELL NUMBER **S3**
PROJECT NUMBER **AB013E**
BORING DEPTH **16'**
WELL DEPTH **N/A**
SCREEN SLOT SIZE **N/A**
BORE/CASE DIAMETER **2"**
FILTER PACK **N/A**
WELL MATERIAL **N/A**
DEPTH TO WATER **N/A**

DEPTH (feet)	SAMPLING: BLOWS/ 6" INTERVAL	SAMPLING: INTERVAL	SAMPLING: RECOVERY	SAMPLING: ANALYTICAL	WATER LEVEL	OVM READING (ppm)	ESTIMATED PERCENT: GRAVEL	ESTIMATED PERCENT: SAND	ESTIMATED PERCENT: FINES	LITHOLOGY	USCS SYMBOL	LITHOLOGIC DESCRIPTION/ NOTES	WELL CONSTRUCTION DETAILS
0												(0.0- 0.3) Concrete 4"	Cement
1						0						(0.3- 6.0) Silty Lean Clay (CL), very stiff, moist, trace of fine sand, no odor, trace roots and root burrows, dark gray (10YR 4/1).	
2													
3						0					CL		
4													
5						0							
6						20						Non-distinct contact at 6' (6.0- 7.5) Sandy Clayey (CL), dense, moist, micaceous, ~40% fine sand, moderate odor, trace gravel above 7.5', dark greenish gray (5GY 4/1).	
7						100					CL		
8												(7.5- 14.0) Sandy Clayey Gravel, dense, moist, 40% fine subrounded gravel, 30% fine to coarse sand, 30% clay, weak odor, olive gray (5Y 4/2).	Bentonite
9													
10						2							
11											GC		
12						2							
13						0							
14													
15						0					CL	(14.0- 16.0) Lean Clay, very stiff, moist to wet, trace fine sand, no odor, streaked olive (5Y 4/3) on light olive brown (2.5Y 5/4)	
16						0							
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

BORING/WELL CONSTRUCTION LOG

CLEARWATER GROUP, INC.
Environmental Services
229 Tewksbury Ave, Point Richmond, California 94801

CLIENT/ **Zimmerman Property**
LOCATION **3442 Adeline Street**
Oakland, CA

DRILLING CONTRACTOR **Fast-Tek**
DRILL RIG OPERATOR **Eric Austin**
DRILL RIG TYPE **Geo Probe 5400**
LOGGED BY **Robert Nelson**
REVIEWED BY **James A. Jacobs, P.G.,C.H.G.**
PLANNED USE
DATES DRILLED: **6/23/06**
DRILLING START **N/A**
DRILLING FINISH **N/A**
▽ Approximate First Encountered Water Depth
▼ Approximate Stabilized Water Depth

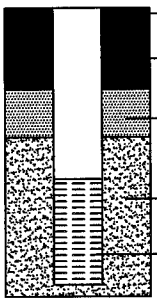
BORING/ WELL NUMBER **S4**
PROJECT NUMBER **AB013E**
BORING DEPTH **16'**
WELL DEPTH **N/A**
SCREEN SLOT SIZE **N/A**
BORE/CASE DIAMETER **2"**
FILTER PACK **N/A**
WELL MATERIAL **N/A**
DEPTH TO WATER **N/A**

DEPTH (feet)	SAMPLING: BLOWS/ 6" INTERVAL	SAMPLING: INTERVAL	SAMPLING: RECOVERY	SAMPLING: ANALYTICAL	WATER LEVEL	OVM READING (ppm)	ESTIMATED PERCENT: GRAVEL	ESTIMATED PERCENT: SAND	ESTIMATED PERCENT: FINES	LITHOLOGY	USCS SYMBOL	LITHOLOGIC DESCRIPTION/ NOTES	WELL CONSTRUCTION DETAILS
0-1						0					CL	(0.0- 0.3) Concrete 4"	Cement
1-2												(0.3- 4.5) Silty Lean Clay, stiff, moist, no odor, black (10YR 2/1).	
2-3						0							
3-4													
4-5						0							
5-6						0					CL	(4.5- 6.5) Sandy Lean Clay, stiff, moist, 20% very fine sand, dark greenish gray (10Y 4/1).	
6-7						2					CL	(6.5- 7.0) 30% medium sand.	
7-8											GC	(7.0- 9.0) Sandy Graveley Clay (GC), dense, moist, 35% fine to coarse sand, strong odor, 40% sandstone and chert gravel, dark olive gray (5Y 3/2).	Bentonite
8-9													
9-10						145					CL	(9.0- 10.5) Sandy Lean Clay (CL), stiff, moist, trace fine sand, yellowish brown (10YR 5/6).	
10-11											SC	(10.5- 11.0) Clayey Sand (SC), dense, moist to wet, micaceous, strong odor, trace fine gravel, olive (5Y 4/3).	
11-12					▽	Out of Range					GM	(11.0- 13.5) Sandy Silty Gravel, dense, wet, dark olive gray (5Y 3/2).	
12-13													
13-14						0					CL	(13.5- 16.0) Sandy Lean Clay, stiff to soft, wet, very fine sand, olive (5Y 5/3)	
14-15						0							
15-16													
16-17													
17-18													
18-19													
19-20													
20-21													
21-22													
22-23													
23-24													
24-25													
25-26													
26-27													
27-28													
28-29													
29-30													

UNIFIED SOIL CLASSIFICATION SYSTEM - VISUAL CLASSIFICATION OF SOILS
(ASTM D-2488)

MAJOR DIVISIONS		GROUP SYMBOL	GROUP NAME	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-grained gravel Well-graded gravel with sand	Well-grained gravels or gravel-sand mixtures, little or no fines.
		GP	Poorly-grained gravel Poorly-graded gravel with sand	Poorly-grained gravels or gravel-sand mixtures, little or no fines.
		GM	Silty grained Silty graded gravel with sand	Silty-grained gravels or gravel-sand mixtures, little or no fines.
		GC	Clayey grained Clayey graded gravel with sand	Clayey-grained gravels or gravel-sand mixtures, little or no fines.
	SAND AND SANDY SOILS	SW	Well-grained sand Well-graded sand with gravel	Well-graded sands or gravelly sands, little or no fines.
		SP	Poorly-grained sand Poorly-graded sand with gravel	Poorly-graded sands or gravelly sands, little or no fines.
		SM	Silty sand Silty graded sand with gravel	Silty sands or gravelly sands.
		SC	Clayey sand Clayey sand with gravel	Clayey sands or gravelly sands.
FINE GRAINED SOILS	SILTS AND CLAYS	ML	Silt; Silt with sand; Silt with gravel Sandy silt; Sandy silt with sand; Silt with gravel Gravelly silt; Gravelly silt with sand	Inorganic silts and very fine sands, rock flour, silty or clayey find sands or clayey silts with slight plasticity.
		CL	Lean clay; Lean clay with sand; Lean clay with gravel Sandy lean clay; Sandy lean clay with gravel Gravelly lean clay; Gravelly lean clay with sand	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
	ELASTIC SILTS AND CLAYS	MH	Elastic silt; Elastic silt with sand; Elastic silt with gravel Sandy Elastic silt; Sandy Elastic silt with gravel Gravelly Elastic silt; Gravelly Elastic silt with sand	Inorganic silts, micaceous or diatamaceous fine sandy or silty soils, elacstic silts.
		CH	Fat clay; Fat clay with sand; Fat clay with gravel Sandy Fat clay; Sandy Fat clay with gravel Gravelly Fat clay; Gravelly Fat clay with sand	Inorganic clays of high plasticity, fat clays
HIGHLY ORGANIC SOILS		OL/OH	Organic soil; Organic soil with sand; Organic soil with gravel; Sandy Organic soil; Sandy Organic soil with gravel; Gravelly Organic soil; Gravelly Organic soil with sand	Organic silts and organic silt-clays of low plasticity. Organic clays of medium to high plasticity.
		Pt	Peat	Peat and other highly organic soils.

WELL CONSTRUCTION EXPLANATION



SOIL BORING NOTES:

Blow count represents the number of blows of a 140-lb hammer falling 30 inches per blow required to drive a sampler through the last 12 inches of an 18 inch penetration.

No warrenty is provided as to the continuity of soil strata between borings. Logs represent the soil section observed at the boring location on the date of drilling only.

S= Sampler sank into medium under the weight of the hammer (no blow count)
P= Sampler was pushed into medium by drilling rig (no blow count)
NR= No Recovery

Approximate stabilized water level

Approximate first encountered water level

NOTE:
all percentages of lithological composition presented on the soil boring logs atre approximite. They represent the best estimates of a CGI geologist based on visual inspection in the field.

SANDS & GRAVELS	BLOWS/FT
VERY LOOSE	0 - 5
LOOSE	5 - 12
MED. DENSE	12 - 37
DENSE	37 - 62
VERY DENSE	OVER 62

SILTS & CLAYS	BLOWS/FT
SOFT	0 - 5
FIRM	5 - 10
STIFF	10 - 20
VERY STIFF	20 - 40
HARD	OVER 40

CLEARWATER GROUP

Soil Boring and Well Construction Diagram Legend

ATTACHMENT D

KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Jessica Moreno
Clearwater Group, Inc.
229 Tewksbury Avenue
Point Richmond, CA 94801

Subject : 16 Soil Samples and 4 Water Samples
Project Name : Zimmerman
Project Number : AB013E

Dear Ms. Moreno,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Subject : 16 Soil Samples and 4 Water Samples
Project Name : Zimmerman
Project Number : AB013E

Case Narrative

The Method Reporting Limit for TPH as Diesel is increased due to interference from Gasoline-Range Hydrocarbons for samples S4-W, S2-W, S3-W and S1-W.

Hydrocarbons reported as TPH as Diesel do not exhibit a typical Diesel chromatographic pattern for samples S4-3.5, S4-14.5, S2-4.0, S3-3.5, S3-14.5, S1-5.0 and S1-14.5. These hydrocarbons are higher boiling than typical diesel fuel.

Hydrocarbons reported as TPH as Diesel do not exhibit a typical Diesel chromatographic pattern for samples S4-7.5, S4-11.5, S2-7.5, S2-12.0, S3-7.5, S3-10.0, S1-8.0, and S1-12.0. These hydrocarbons are lower boiling than typical diesel fuel.

Matrix Spike/Matrix Spike Duplicate Results associated with samples S2-4.0, S3-7.5, S2-7.5 for the analytes Benzene, Toluene were outside of control limits. This may indicate a bias for the sample that was spiked. Since the LCS recoveries were within control limits, no data are flagged.

Approved By: Joel Kiff

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 50776

Date : 6/28/2006

Project Name : **Zimmerman**

Project Number : **AB013E**

Sample : **S1-W** Matrix : Water Lab Number : 50776-20

Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**980**	5.0	ug/L	EPA 8260B	6/27/2006
Toluene	**70**	3.0	ug/L	EPA 8260B	6/26/2006
Ethylbenzene	**1500**	3.0	ug/L	EPA 8260B	6/26/2006
Total Xylenes	**1100**	3.0	ug/L	EPA 8260B	6/26/2006
TPH as Gasoline	**20000**	500	ug/L	EPA 8260B	6/27/2006
1,2-Dichloroethane	**< 5.0**	5.0	ug/L	EPA 8260B	6/27/2006
1,2-Dibromoethane	**< 5.0**	5.0	ug/L	EPA 8260B	6/27/2006
Toluene - d8 (Surr)	82.8		% Recovery	EPA 8260B	6/26/2006
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	6/26/2006
Dibromofluoromethane (Surr)	95.1		% Recovery	EPA 8260B	6/27/2006
1,2-Dichloroethane-d4 (Surr)	96.6		% Recovery	EPA 8260B	6/27/2006
TPH as Diesel	**< 10000**	10000	ug/L	M EPA 8015	6/26/2006
Octacosane (Diesel Surrogate)	117		% Recovery	M EPA 8015	6/26/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S2-W** Matrix : Water Lab Number : 50776-10
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**7000**	15	ug/L	EPA 8260B	6/26/2006
Toluene	**260**	15	ug/L	EPA 8260B	6/26/2006
Ethylbenzene	**920**	15	ug/L	EPA 8260B	6/26/2006
Total Xylenes	**2800**	15	ug/L	EPA 8260B	6/26/2006
TPH as Gasoline	**31000**	1500	ug/L	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 15**	15	ug/L	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 15**	15	ug/L	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	96.3		% Recovery	EPA 8260B	6/26/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	6/26/2006
Dibromofluoromethane (Surr)	96.7		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	95.9		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**< 4000**	4000	ug/L	M EPA 8015	6/24/2006
Octacosane (Diesel Surrogate)	107		% Recovery	M EPA 8015	6/24/2006

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S3-W** Matrix : Water Lab Number : 50776-19
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**490**	5.0	ug/L	EPA 8260B	6/26/2006
Toluene	**67**	5.0	ug/L	EPA 8260B	6/26/2006
Ethylbenzene	**1200**	5.0	ug/L	EPA 8260B	6/26/2006
Total Xylenes	**3300**	5.0	ug/L	EPA 8260B	6/26/2006
TPH as Gasoline	**23000**	500	ug/L	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 5.0**	5.0	ug/L	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 5.0**	5.0	ug/L	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	6/26/2006
4-Bromofluorobenzene (Surr)	98.9		% Recovery	EPA 8260B	6/26/2006
Dibromofluoromethane (Surr)	97.0		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	96.8		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**< 1500**	1500	ug/L	M EPA 8015	6/24/2006
Octacosane (Diesel Surrogate)	95.0		% Recovery	M EPA 8015	6/24/2006

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S4-W** Matrix : Water Lab Number : 50776-09
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**200**	15	ug/L	EPA 8260B	6/27/2006
Toluene	**< 15**	15	ug/L	EPA 8260B	6/27/2006
Ethylbenzene	**3500**	15	ug/L	EPA 8260B	6/27/2006
Total Xylenes	**2900**	15	ug/L	EPA 8260B	6/27/2006
TPH as Gasoline	**120000**	2500	ug/L	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 15**	15	ug/L	EPA 8260B	6/27/2006
1,2-Dibromoethane	**< 15**	15	ug/L	EPA 8260B	6/27/2006
Toluene - d8 (Surr)	90.5		% Recovery	EPA 8260B	6/27/2006
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	6/27/2006
Dibromofluoromethane (Surr)	87.5		% Recovery	EPA 8260B	6/27/2006
1,2-Dichloroethane-d4 (Surr)	88.9		% Recovery	EPA 8260B	6/27/2006
TPH as Diesel	**< 40000**	40000	ug/L	M EPA 8015	6/24/2006
Octacosane (Diesel Surrogate)	98.2		% Recovery	M EPA 8015	6/24/2006

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S1-5.0** Matrix : Soil Lab Number : 50776-15
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**0.011**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	6/24/2006
1,2-Dichloroethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
1,2-Dibromoethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	6/24/2006
1,2-Dichloroethane-d4 (Surr)	98.8		% Recovery	EPA 8260B	6/24/2006
TPH as Diesel	**5.6**	1.0	mg/Kg	M EPA 8015	6/27/2006
1-Chlorooctadecane (Diesel Surrogate)	97.1		% Recovery	M EPA 8015	6/27/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S1-8.0** Matrix : Soil Lab Number : 50776-16
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**1.3**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene	**0.22**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Ethylbenzene	**2.0**	0.050	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**7.2**	0.050	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	**100**	5.0	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
1,2-Dibromoethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene - d8 (Surr)	84.2		% Recovery	EPA 8260B	6/24/2006
1,2-Dichloroethane-d4 (Surr)	81.8		% Recovery	EPA 8260B	6/24/2006
TPH as Diesel	**26**	1.0	mg/Kg	M EPA 8015	6/27/2006
1-Chlorooctadecane (Diesel Surrogate)	94.7		% Recovery	M EPA 8015	6/27/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S1-12.0** Matrix : Soil Lab Number : 50776-17
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**0.098**	0.025	mg/Kg	EPA 8260B	6/27/2006
Toluene	**< 0.025**	0.025	mg/Kg	EPA 8260B	6/27/2006
Ethylbenzene	**0.73**	0.025	mg/Kg	EPA 8260B	6/27/2006
Total Xylenes	**0.39**	0.025	mg/Kg	EPA 8260B	6/27/2006
TPH as Gasoline	**67**	2.5	mg/Kg	EPA 8260B	6/27/2006
1,2-Dichloroethane	**< 0.025**	0.025	mg/Kg	EPA 8260B	6/27/2006
1,2-Dibromoethane	**< 0.025**	0.025	mg/Kg	EPA 8260B	6/27/2006
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	6/27/2006
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	6/27/2006
TPH as Diesel	**45**	1.0	mg/Kg	M EPA 8015	6/26/2006
1-Chlorooctadecane (Diesel Surrogate)	103		% Recovery	M EPA 8015	6/26/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S1-14.5** Matrix : Soil Lab Number : 50776-18
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**0.010**	0.0050	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	104		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**1.2**	1.0	mg/Kg	M EPA 8015	6/26/2006
1-Chlorooctadecane (Diesel Surrogate)	98.2		% Recovery	M EPA 8015	6/26/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S2-4.0** Matrix : Soil Lab Number : 50776-05
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**0.016**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	98.3		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**4.7**	1.0	mg/Kg	M EPA 8015	6/26/2006
1-Chlorooctadecane (Diesel Surrogate)	95.6		% Recovery	M EPA 8015	6/26/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S2-7.5** Matrix : Soil Lab Number : 50776-06
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**1.2**	0.050	mg/Kg	EPA 8260B	6/27/2006
Toluene	**0.36**	0.050	mg/Kg	EPA 8260B	6/27/2006
Ethylbenzene	**9.4**	0.050	mg/Kg	EPA 8260B	6/27/2006
Total Xylenes	**24**	0.050	mg/Kg	EPA 8260B	6/27/2006
TPH as Gasoline	**460**	5.0	mg/Kg	EPA 8260B	6/27/2006
1,2-Dichloroethane	**< 0.050**	0.050	mg/Kg	EPA 8260B	6/27/2006
1,2-Dibromoethane	**< 0.050**	0.050	mg/Kg	EPA 8260B	6/27/2006
Toluene - d8 (Surr)	97.1		% Recovery	EPA 8260B	6/27/2006
1,2-Dichloroethane-d4 (Surr)	92.8		% Recovery	EPA 8260B	6/27/2006
TPH as Diesel	**84**	1.0	mg/Kg	M EPA 8015	6/26/2006
1-Chlorooctadecane (Diesel Surrogate)	102		% Recovery	M EPA 8015	6/26/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S2-12.0** Matrix : Soil Lab Number : 50776-07
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**0.33**	0.025	mg/Kg	EPA 8260B	6/26/2006
Toluene	**0.055**	0.025	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	**0.84**	0.025	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**2.4**	0.025	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	**61**	2.5	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 0.025**	0.025	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 0.025**	0.025	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	99.2		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**49**	1.0	mg/Kg	M EPA 8015	6/27/2006
1-Chlorooctadecane (Diesel Surrogate)	103		% Recovery	M EPA 8015	6/27/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S2-14.0** Matrix : Soil Lab Number : 50776-08
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	6/24/2006
1,2-Dichloroethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
1,2-Dibromoethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene - d8 (Surr)	99.7		% Recovery	EPA 8260B	6/24/2006
1,2-Dichloroethane-d4 (Surr)	97.5		% Recovery	EPA 8260B	6/24/2006
TPH as Diesel	**< 1.0**	1.0	mg/Kg	M EPA 8015	6/26/2006
1-Chlorooctadecane (Diesel Surrogate)	100		% Recovery	M EPA 8015	6/26/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S3-3.5** Matrix : Soil Lab Number : 50776-11
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	6/24/2006
1,2-Dichloroethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
1,2-Dibromoethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	6/24/2006
1,2-Dichloroethane-d4 (Surr)	98.8		% Recovery	EPA 8260B	6/24/2006
TPH as Diesel	**3.1**	1.0	mg/Kg	M EPA 8015	6/26/2006
1-Chlorooctadecane (Diesel Surrogate)	101		% Recovery	M EPA 8015	6/26/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S3-7.5** Matrix : Soil Lab Number : 50776-12
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**0.47**	0.090	mg/Kg	EPA 8260B	6/26/2006
Toluene	**0.52**	0.090	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	**18**	0.090	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**100**	0.25	mg/Kg	EPA 8260B	6/27/2006
TPH as Gasoline	**1200**	25	mg/Kg	EPA 8260B	6/27/2006
1,2-Dichloroethane	**< 0.090**	0.090	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 0.090**	0.090	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	97.1		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	95.4		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**250**	1.0	mg/Kg	M EPA 8015	6/27/2006
1-Chlorooctadecane (Diesel Surrogate)	105		% Recovery	M EPA 8015	6/27/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S3-10.0** Matrix : Soil Lab Number : 50776-13
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**0.26**	0.040	mg/Kg	EPA 8260B	6/27/2006
Toluene	**< 0.040**	0.040	mg/Kg	EPA 8260B	6/27/2006
Ethylbenzene	**6.2**	0.040	mg/Kg	EPA 8260B	6/27/2006
Total Xylenes	**7.2**	0.040	mg/Kg	EPA 8260B	6/27/2006
TPH as Gasoline	**220**	5.0	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 0.040**	0.040	mg/Kg	EPA 8260B	6/27/2006
1,2-Dibromoethane	**< 0.040**	0.040	mg/Kg	EPA 8260B	6/27/2006
Toluene - d8 (Surr)	94.9		% Recovery	EPA 8260B	6/27/2006
1,2-Dichloroethane-d4 (Surr)	92.7		% Recovery	EPA 8260B	6/27/2006
TPH as Diesel	**76**	1.0	mg/Kg	M EPA 8015	6/27/2006
1-Chlorooctadecane (Diesel Surrogate)	105		% Recovery	M EPA 8015	6/27/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S3-14.5** Matrix : Soil Lab Number : 50776-14
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	**0.0056**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**0.016**	0.0050	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	97.1		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**1.3**	1.0	mg/Kg	M EPA 8015	6/27/2006
1-Chlorooctadecane (Diesel Surrogate)	97.4		% Recovery	M EPA 8015	6/27/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S4-3.5** Matrix : Soil Lab Number : 50776-01
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**3.6**	1.0	mg/Kg	M EPA 8015	6/27/2006
1-Chlorooctadecane (Diesel Surrogate)	99.8		% Recovery	M EPA 8015	6/27/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S4-7.5** Matrix : Soil Lab Number : 50776-02

Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.20**	0.20	mg/Kg	EPA 8260B	6/26/2006
Toluene	**< 0.20**	0.20	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	**6.7**	0.20	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**4.4**	0.20	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	**820**	20	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 0.20**	0.20	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 0.20**	0.20	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	99.0		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	98.0		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**240**	1.0	mg/Kg	M EPA 8015	6/27/2006
1-Chlorooctadecane (Diesel Surrogate)	106		% Recovery	M EPA 8015	6/27/2006

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S4-11.5** Matrix : Soil Lab Number : 50776-03
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**0.079**	0.040	mg/Kg	EPA 8260B	6/26/2006
Toluene	**< 0.040**	0.040	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	**3.5**	0.040	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**4.8**	0.040	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	**500**	15	mg/Kg	EPA 8260B	6/27/2006
1,2-Dichloroethane	**< 0.040**	0.040	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 0.040**	0.040	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	94.7		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	92.2		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**120**	1.0	mg/Kg	M EPA 8015	6/26/2006
1-Chlorooctadecane (Diesel Surrogate)	98.3		% Recovery	M EPA 8015	6/26/2006

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KIFF Analytical LLC

Report Number : 50776
Date : 6/28/2006

Project Name : **Zimmerman**
Project Number : **AB013E**

Sample : **S4-14.5** Matrix : Soil Lab Number : 50776-04
Sample Date :6/23/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	97.6		% Recovery	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	6/26/2006
TPH as Diesel	**1.3**	1.0	mg/Kg	M EPA 8015	6/26/2006
1-Chlorooctadecane (Diesel Surrogate)	95.3		% Recovery	M EPA 8015	6/26/2006

Approved By: Joel Kiff

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Report Number : 50776

Date : 6/28/2006

QC Report : Method Blank Data

Project Name : **Zimmerman**

Project Number : **AB013E**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel	< 50	50	ug/L	M EPA 8015	6/24/2006
Octacosane (Diesel Surrogate)	99.4		%	M EPA 8015	6/24/2006
TPH as Diesel	< 1.0	1.0	mg/Kg	M EPA 8015	6/26/2006
1-Chlorooctadecane (Diesel Surrogate)	96.1		%	M EPA 8015	6/26/2006
TPH as Diesel	< 50	50	ug/L	M EPA 8015	6/26/2006
Octacosane (Diesel Surrogate)	101		%	M EPA 8015	6/26/2006
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/24/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/24/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/24/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	6/24/2006
1,2-Dichloroethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/24/2006
1,2-Dibromoethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/24/2006
Toluene - d8 (Surr)	96.7		%	EPA 8260B	6/24/2006
1,2-Dichloroethane-d4 (Surr)	105		%	EPA 8260B	6/24/2006
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	99.4		%	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	6/26/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	6/26/2006
1,2-Dichloroethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
1,2-Dibromoethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	99.0		%	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	6/26/2006
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/26/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/26/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/26/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/26/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/26/2006
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	6/26/2006
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	6/26/2006
Toluene - d8 (Surr)	99.1		%	EPA 8260B	6/26/2006
4-Bromofluorobenzene (Surr)	106		%	EPA 8260B	6/26/2006
Dibromofluoromethane (Surr)	105		%	EPA 8260B	6/26/2006
1,2-Dichloroethane-d4 (Surr)	104		%	EPA 8260B	6/26/2006

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KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 50776

Date : 6/28/2006

QC Report : Method Blank Data

Project Name : **Zimmerman**

Project Number : **AB013E**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/27/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/27/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/27/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/27/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/27/2006
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	6/27/2006
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	6/27/2006
Toluene - d8 (Surr)	96.1		%	EPA 8260B	6/27/2006
4-Bromofluorobenzene (Surr)	100		%	EPA 8260B	6/27/2006
Dibromofluoromethane (Surr)	103		%	EPA 8260B	6/27/2006
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	6/27/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

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Report Number : 50776

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 6/28/2006

Project Name : **Zimmerman**

Project Number : **AB013E**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
TPH as Diesel	Blank	<50	1000	1000	1110	1090	ug/L	M EPA 8015	6/24/06	111	109	1.66	70-130	25
TPH as Diesel	50776-03	120	20.0	20.0	150	162	mg/Kg	M EPA 8015	6/26/06	108	117	8.30	60-140	25
TPH as Diesel	Blank	<50	1000	1000	1040	1030	ug/L	M EPA 8015	6/26/06	104	103	1.20	70-130	25
Benzene	49969-01	<0.0050	0.0397	0.0396	0.0389	0.0387	mg/Kg	EPA 8260B	6/24/06	98.0	97.8	0.131	70-130	25
Toluene	49969-01	<0.0050	0.0397	0.0396	0.0371	0.0367	mg/Kg	EPA 8260B	6/24/06	93.6	92.6	0.982	70-130	25
1,2-Dichloroethane	49969-01	<0.0050	0.0397	0.0396	0.0324	0.0315	mg/Kg	EPA 8260B	6/24/06	81.6	79.5	2.66	70-130	25
Benzene	50760-02	<0.0050	0.0398	0.0400	0.0364	0.0397	mg/Kg	EPA 8260B	6/26/06	91.6	99.3	8.13	70-130	25
Toluene	50760-02	<0.0050	0.0398	0.0400	0.0366	0.0397	mg/Kg	EPA 8260B	6/26/06	92.0	99.2	7.55	70-130	25
1,2-Dichloroethane	50760-02	<0.0050	0.0398	0.0400	0.0360	0.0385	mg/Kg	EPA 8260B	6/26/06	90.6	96.2	6.03	70-130	25
Benzene	50185-01	<0.0050	0.0397	0.0398	0.0263	0.0246	mg/Kg	EPA 8260B	6/26/06	66.4	61.9	7.01	70-130	25
Toluene	50185-01	<0.0050	0.0397	0.0398	0.00670	0.00529	mg/Kg	EPA 8260B	6/26/06	16.9	13.3	23.8	70-130	25
1,2-Dichloroethane	50185-01	<0.0050	0.0397	0.0398	0.0303	0.0285	mg/Kg	EPA 8260B	6/26/06	76.3	71.5	6.51	70-130	25
Benzene	50762-03	<0.50	40.0	39.8	40.6	41.1	ug/L	EPA 8260B	6/26/06	101	103	1.78	70-130	25
Toluene	50762-03	<0.50	40.0	39.8	41.5	41.8	ug/L	EPA 8260B	6/26/06	104	105	1.16	70-130	25
1,2-Dichloroethane	50762-03	<0.50	40.0	39.8	38.0	38.5	ug/L	EPA 8260B	6/26/06	95.0	96.6	1.65	70-130	25

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KIFF ANALYTICAL, LLC

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Report Number : 50776

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 6/28/2006

Project Name : **Zimmerman**

Project Number : **AB013E**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	50781-01	<0.50	39.9	40.0	43.2	43.9	ug/L	EPA 8260B	6/27/06	108	110	1.52	70-130	25
Toluene	50781-01	<0.50	39.9	40.0	41.5	42.3	ug/L	EPA 8260B	6/27/06	104	106	1.80	70-130	25
1,2-Dichloroethane	50781-01	<0.50	39.9	40.0	35.4	35.9	ug/L	EPA 8260B	6/27/06	88.6	89.9	1.36	70-130	25

Approved By: Joel Kiff

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2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 50776

QC Report : Laboratory Control Sample (LCS)

Date : 6/28/2006

Project Name : **Zimmerman**

Project Number : **AB013E**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
TPH as Diesel	20.0	mg/Kg	M EPA 8015	6/26/06	95.3	70-130
Benzene	0.0394	mg/Kg	EPA 8260B	6/24/06	104	70-130
Toluene	0.0394	mg/Kg	EPA 8260B	6/24/06	101	70-130
1,2-Dichloroethane	0.0394	mg/Kg	EPA 8260B	6/24/06	85.4	70-130
Benzene	0.0399	mg/Kg	EPA 8260B	6/26/06	94.6	70-130
Toluene	0.0399	mg/Kg	EPA 8260B	6/26/06	95.2	70-130
1,2-Dichloroethane	0.0399	mg/Kg	EPA 8260B	6/26/06	91.2	70-130
Benzene	0.0400	mg/Kg	EPA 8260B	6/26/06	95.0	70-130
Toluene	0.0400	mg/Kg	EPA 8260B	6/26/06	94.8	70-130
1,2-Dichloroethane	0.0400	mg/Kg	EPA 8260B	6/26/06	93.0	70-130
Benzene	40.0	ug/L	EPA 8260B	6/26/06	103	70-130
Toluene	40.0	ug/L	EPA 8260B	6/26/06	106	70-130
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	6/26/06	99.4	70-130
Benzene	40.0	ug/L	EPA 8260B	6/27/06	110	70-130
Toluene	40.0	ug/L	EPA 8260B	6/27/06	107	70-130
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	6/27/06	91.6	70-130

Approved By: Joel Kiff

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