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Alameda County  
Environmental Health

7133 Koll Center Parkway, Suite 100  
Pleasanton, CA  
94566-3101

p | 925.484.1700  
f | 925.484.5838

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August 11, 2008  
File No. 84855/FH#3 UST

Mr. James W. Gotcher  
City of Pleasanton  
Public Works / Development Services  
200 Old Bernal Avenue  
P.O. Box 520  
Pleasanton, California 94566

**SUBJECT: Environmental Site Investigation of Fire Station No. 3, 3200  
Santa Rita Road, Pleasanton, California**

Dear Mr. Gotcher:

This letter report presents the results of an environmental site investigation performed at the Fire Station No. 3 property located at 3200 Santa Rita Road in Pleasanton (the Site, shown on Plate 1) for the City of Pleasanton. This work was performed in general accordance with the *Site Investigation Workplan* prepared by Kleinfelder and dated August 10, 2007, and technical comments included in a letter to the City of Pleasanton from Alameda County Environmental Health dated September 20, 2007.

Kleinfelder completed field work related to this investigation on April 3, 2008. Field activities included advancement of one soil boring to collect four soil samples and one groundwater sample. Three soil samples and one groundwater sample were analyzed by a California state-certified analytical laboratory to assess potential presence of impacted soil or groundwater related to the former underground storage tanks (USTs) on the site. One soil sample was archived by the analytical laboratory and not analyzed. Total petroleum hydrocarbons in the gasoline and diesel ranges were detected at concentrations exceeding their

Environmental Screening Levels (ESLs) in the groundwater sample and in the soil sample collected at a depth of 15 feet below ground surface (bgs). Xylene was also detected in the soil sample collected at a depth of 15 feet bgs. Petroleum-related volatile organic compounds were not detected at or above laboratory reporting limits in the groundwater sample analyzed. Due to detected concentrations of gasoline and diesel range hydrocarbons in the soil and groundwater at the site, Kleinfelder recommends further assessment of the subsurface to define their extent.

### **Purpose and Scope of Work**

The work described in this report was performed pursuant to a request to the City of Pleasanton from Alameda County Environmental Health (ACEH). The scope of work included advancement of one soil boring on the site, collection of four discrete soil samples and one groundwater grab sample, analysis of samples by a state-certified analytical laboratory, disposal of investigation-derived wastes, and preparation of this report.

### **Site Description and Background**

The Site is located at 3200 Santa Rita Road in Pleasanton, California, at the intersection with West Las Positas Boulevard. The site is situated in the Amador Valley, and the site geology represents typical Coast Range alluvial fill – interbedded and discontinuous sands, gravels, silts and clays.

On September 12, 1996, two underground storage tanks (USTs) were removed from the Site. The USTs were each 500 gallons in capacity; one contained gasoline and the other contained diesel fuel. According to the Fire Department's *Hazardous Materials Record of Inspection* prepared on the day of the UST removal, the piping elbows for both the diesel and gasoline USTs were rusted, corroded and had holes in them. Both the diesel and gasoline USTs were tar wrapped with no obvious holes or rust, but there were gasoline odors and indications of contamination from pipe leakage. Four soil samples were collected: one from beneath the gasoline UST at a depth of approximately 9.5

feet below ground surface (bgs); one from the south sidewall of the excavation at a depth of approximately 4 feet bgs; and two from the stockpile. The highest detected concentrations were in the sidewall sample, with total petroleum hydrocarbons (TPH) as diesel (TPHd) detected at 2,800 mg/kg. The deeper soil sample had a detected concentration of TPHd at 29 mg/kg. Benzene was not detected in the soil samples. A report dated October 14, 1996 by the UST removal contractor, W.A. Craig, includes additional detail, and recommended further excavation to remove additional soil containing petroleum hydrocarbons.

According to a report by Ecology Recovery Associates (ERA), dated January 6, 1997, ERA excavated additional soil from the site and coordinated disposal of the contaminated soil. On November 27, 1996 approximately 12 additional cubic yards of soil from along the south side of the excavation was removed. A sample collected from a gravel layer at 2 feet bgs contained TPHd at a concentration of 12,000 mg/kg, however, two additional samples collected from dense clay below the gravel layer had no detectable TPHd concentrations. On December 19, 1996 approximately seven additional cubic yards of soil was excavated from the south sidewall. A sample collected from the remaining gravel layer detected only 2 mg/kg TPHd.

On June 26, 2007, at the request of the City of Pleasanton, Kleinfelder supervised the drilling of a soil boring (SR-1) at the location of the former USTs. The objective of the drilling was to assess the impact of the fuel release on soil and groundwater beneath the site, with the intention of obtaining regulatory case closure. However, due to a greater than anticipated depth to groundwater and the depth limitation of the drilling rig, the boring was terminated at a depth of 28 feet bgs. No indications of soil contamination were observed in the boring, however groundwater was not encountered. A soil sample was collected from the boring at a depth of approximately 12 feet bgs. TPHd was detected in that sample at a concentration of 2.2 mg/kg. The boring log for boring SR-1 is included in Appendix B.

## Field Activities

Kleinfelder completed the field portion of this investigation on April 3, 2008. Vironex of Pacheco, California, a state-licensed drilling contractor (C-57 License No. 705927), advanced one soil boring under the direction of a Kleinfelder professional geologist. Soil and groundwater samples collected during this investigation were analyzed by McCampbell Analytical, Inc. of Pittsburg, California, a state-certified chemical testing laboratory (DHS ELAP certification no. 1644).

### *Soil Borings*

Prior to drilling, Kleinfelder obtained a drilling permit from the Zone 7 Water Agency. A copy of the drilling permit is included in Appendix A. Kleinfelder notified Underground Service Alert more than 48 hours prior to drilling, as required by law, to notify local utilities with underground facilities in the vicinity of the investigation area (USA ticket no. 110413). Kleinfelder retained Cruz Brothers Locators to clear the boring location using geophysical equipment. The soil boring location and site features are shown on Plate 2.

Vironex provided drilling services for one soil boring using a truck-mounted Geoprobe 6600 (direct-push) drill rig employing the Macro-Core sampling system. The direct push rig advances a five-foot long steel tube using a hydraulic ram and hydraulic percussion hammer. The steel tube has an inside diameter of two inches and an interchangeable acrylic liner, which allows for a continuous sample through the entire depth of the borehole.

One boring was advanced to a depth of 35 feet bgs. Soil was collected in acrylic liners and inspected for indications of staining and/or odors. The continuous soil samples were logged in the field using the Unified Soil Classification System. The soil boring log is included in Appendix B.

Soil samples were collected at depth intervals of five feet and screened for organic vapors using a photo-ionization gas detector (PID). Soil samples were

not recovered in the first ten feet of the boring due to the unconsolidated nature of the material encountered (loose gravel). Staining and odors were not noted in the soil samples. A PID reading of 185 parts per million (ppm) was detected at a depth of 15 feet bgs. Elevated PID readings were not detected deeper than 15 feet bgs. Four soil samples, collected at depths of 15, 20, 25 and 30 feet bgs, were selected from the boring and sealed on both ends with Teflon sheets and rubber end caps. The soil samples were transferred on ice to McCampbell Analytical, Inc. under chain-of-custody protocol for analysis. The soil sample collected at a depth of 30 feet bgs was placed on hold because it was collected below the apparent water table encountered in the boring. Soil sampling equipment was decontaminated between sample intervals as described below.

Groundwater was encountered at a depth of 25.5 feet bgs. Because the upper ten feet of the borehole collapsed when the drill-string was withdrawn, Vironex advanced 2.25-inch steel casing in the borehole to a depth of 30 feet bgs in order to set temporary PVC casing within the groundwater interval. The steel casing was withdrawn to expose the PVC screen over an interval from 20 to 30 feet bgs before collecting a groundwater sample. One groundwater sample was collected using new 3/8-inch polyethylene tubing and a ball-check valve device. Groundwater samples were placed in laboratory-supplied containers, labeled, and transferred on ice to McCampbell Analytical, Inc. under chain-of-custody protocol.

After groundwater samples were collected, temporary well casing was removed and discarded. The borehole was backfilled with neat cement and abandoned according to well permit requirements. The steel casing was used as a tremie pipe so that the grout would reach the total depth of the boring.

### *Decontamination Procedures*

Non-expendable sampling equipment was decontaminated prior to use using an Alconox detergent and water solution and two-stage rinse. New expendable equipment was used whenever possible.

### *Investigation-Derived Waste Management*

Waste soil cuttings and decontamination rinsates generated during this investigation were placed in a DOT 17H 55-gallon steel drum and left at the Site pending approval of a waste profile. The drum was removed by Clearwater Environmental and transferred to Alviso Independent Oil in Alivso, California for disposal on April 24, 2008. The non-hazardous waste manifest is included in Appendix C.

### **Chemical Analysis**

Three soil samples and one groundwater sample were submitted to McCampbell Analytical, Inc., for the following analyses:

- Volatile Organic Compounds (VOCs) limited to Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX), fuel oxygenates (tertiary-Amyl Methyl Ether, tertiary-Butyl Alcohol, Diisopropyl Ether, Ethyl tertiary-Butyl Ether and Methyl tertiary-Butyl Ether), Ethylene Dibromide, and 1,2-Dichloroethane using EPA Method 8260B;
- Total Petroleum Hydrocarbons in the Gasoline range (TPHg) using EPA Method 8015Cm; and
- Total Petroleum Hydrocarbons in the Diesel range (TPHd) using EPA Method 8015C.

The three soil samples were also analyzed for total lead using EPA Method 6020A. One soil sample (SR-2-30) was archived by the analytical laboratory and not analyzed.

### **Results**

The analytical results for soil samples collected on April 3, 2008, are summarized on Table 1. The results for the groundwater sample collected on April 3, 2008, are summarized on Table 2. The analytical report from McCampbell Analytical, Inc. is included in Appendix D.

Analytical results are compared to Environmental Screening Levels (ESLs) established by the San Francisco Bay Regional Water Quality Control Board (RWQCB). For the purposes of this investigation, the ESLs established for shallow soil in residential areas where groundwater is a current or potential source of drinking water were used. RWQCB ESLs do not represent regulatory action levels for contaminants, however they provide a guideline from which to assess risk factors associated with the presence of chemicals in soil, groundwater and soil gas.

Total Xylenes were detected in soil sample SR-2-15 at a concentration of 0.035 milligrams per kilogram (mg/kg), which is below the ESL for total Xylenes in soil of 2.3 mg/kg. (Note: Total Xylenes were detected in sample SR-2-15 using EPA Method 8021B – Gas Chromatography, but were not detected at or above laboratory reporting limits using EPA Method 8260B – Gas Chromatography and Mass Spectrometry.) Other VOCs were not detected at or above laboratory reporting limits in the three soil samples submitted.

Total lead was detected at concentrations below the ESL for lead in soil. TPHg and TPHd were detected in soil sample SR-2-15 (collected 15 feet bgs) at concentrations of 92 and 1,100 mg/kg respectively. The ESLs for TPHg and TPHd are both 83 mg/kg. TPHd was detected at a concentration below its ESL in soil sample SR-2-20 (6.3 mg/kg), collected from 20 feet bgs.

One groundwater sample was collected and analyzed for VOCs, TPHg and TPHd. VOCs were not detected at or above laboratory reporting limits in the groundwater sample submitted. TPHg was detected at 620 micrograms per liter ( $\mu\text{g/L}$ ) and TPHd was detected at 49,000  $\mu\text{g/L}$  in groundwater sample SR-2. The ESLs for TPHg and TPHd in groundwater are both 100  $\mu\text{g/L}$ .

## Conclusions and Recommendations

Based on the results of this investigation, it appears that soil and groundwater beneath the site may have been impacted by releases from the former USTs on the site. Kleinfelder recommends the following for further investigation at the site

to assess the extent of impacts to soil and groundwater beneath the Fire Station No. 3 site:

- Advance four additional soil borings to collect soil and groundwater samples at the locations shown on Plate 3, in general accordance with the site investigation workplan dated August 10, 2007;
- Analyze soil and groundwater samples for Total Petroleum Hydrocarbons in the gasoline and diesel ranges, and volatile organic compounds, including fuel oxygenates;
- Report the results of this and any further investigations to Alameda County Environmental Health;
- If the results from the additional soil and groundwater samples show concentrations below ESLs, recommend no further action for the site.

### **Limitations**

Kleinfelder prepared this report in accordance with generally accepted standards of care that exist in Alameda County at this time. This report may be used only by the City of Pleasanton and only for the purposes stated, within a reasonable time from its issuance, but in no event later than one (1) year from the date of the report. All information gathered by Kleinfelder is considered confidential and will be released only upon written authorization of the City of Pleasanton or as required by law. Non-compliance with any of these requirements by the City of Pleasanton or anyone else, unless specifically agreed to in advance by Kleinfelder in writing, will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party and the City of Pleasanton agrees to defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact



science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present. Although risk can never be eliminated, more-detailed and extensive investigations yield more information, which may help understand and manage the level of risk. Since detailed investigation and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface investigations or field tests, may be performed to reduce uncertainties. Acceptance of this report will indicate that the City of Pleasanton has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may be discovered. Kleinfelder will assume no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. The City of Pleasanton will be solely responsible for notifying all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. The City of Pleasanton will be responsible for all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.


Regulations and professional standards applicable to Kleinfelder's services are continually evolving. Techniques are, by necessity, often new and relatively untried. Different professionals may reasonably adopt different approaches to similar problems. As such, our services are intended to provide the City of

Pleasanton with a source of professional advice, opinions and recommendations. Our professional opinions and recommendations are based on our limited number of field observations and tests, collected and performed in accordance with the generally accepted engineering practice that exists at the time and may depend on, and be qualified by, information gathered previously by others and provided to Kleinfelder by the City of Pleasanton. Consequently, no warranty or guarantee, expressed or implied, is intended or made.

### Closing Remarks

We appreciate the opportunity to work with you on this project. If you have any questions regarding this letter report, or would like assistance from Kleinfelder in implementing the above recommendations, please call Jim Lehrman or John Williams at (925) 484-1700.

Respectfully submitted,  
**KLEINFELDER WEST, INC.**



John L. Williams, III, PG  
Staff Geologist



James A. Lehrman, PG, CHG  
Environmental Group Manager



JLW/JAL/jmk

Attachments: Table 1 – Summary of Soil Analytical Results, Fire Station No. 1  
Table 2 – Summary of Groundwater Analytical Results, Fire Station No. 1  
Plate 1 – Site Vicinity Map  
Plate 2 – Site Plan  
Plate 3 – Proposed Soil Boring Locations  
Appendix A – Drilling Permit from Zone 7 Water Agency  
Appendix B – Soil Boring Logs  
Appendix C – Non-Hazardous Waste Manifest  
Appendix D – Laboratory Analytical Report

# **TABLES**

**TABLE 1  
SUMMARY OF SOIL ANALYTICAL RESULTS  
FIRE STATION NO. 3  
PLEASANTON, CALIFORNIA**

Analyte	Method	Sample ID and Date			RWQCB - ESLs <sup>1</sup>	Hazardous Waste Criteria	
		SR-2-15 4/3/2008	SR-2-20 4/3/2008	SR-2-25 4/3/2008	Residential Land Use 2007	TTLc	STLC x 10
Total Lead (mg/kg)	6020A	11	7.5	12	200	1,000	50
Petroleum Hydrocarbons (mg/kg)	8015C						
TPH (Gasoline)		92	ND (<1.0)	ND (<1.0)	83	---	---
TPH (Diesel)		1,100	6.3	ND (<1.0)	83	---	---
BTEX and Oxygenates (mg/kg)	8260B <sup>2</sup>						
Benzene		ND (<0.005)	ND (<0.005)	ND (<0.005)	0.044	---	---
Toluene		ND (<0.005)	ND (<0.005)	ND (<0.005)	2.9	---	---
Ethylbenzene		ND (<0.005)	ND (<0.005)	ND (<0.005)	3.3	---	---
Total Xylenes		0.035	ND (<0.005)	ND (<0.005)	2.3	---	---
tert-Amyl Methyl Ether (TAME)		ND (<0.005)	ND (<0.005)	ND (<0.005)	NE	---	---
tert-Butyl Alcohol (TBA)		ND (<0.05)	ND (<0.05)	ND (<0.05)	NE	---	---
Diisopropyl Ether (DIPE)		ND (<0.005)	ND (<0.005)	ND (<0.005)	NE	---	---
Ethyl tert-Butyl Ether (ETBE)		ND (<0.005)	ND (<0.005)	ND (<0.005)	NE	---	---
Methyl tert-Butyl Ether (MTBE)		ND (<0.005)	ND (<0.005)	ND (<0.005)	0.023	---	---
Ethylene Dibromide (EDB)		ND (<0.004)	ND (<0.004)	ND (<0.004)	0.00033	---	---
1, 2-Dichloroethane		ND (<0.004)	ND (<0.004)	ND (<0.004)	0.0045	---	---

Samples were analyzed by McCampbell Analytical, Inc of Pittsburg, California, a state-certified analytical laboratory. Laboratory data met EPA and laboratory specifications for quality assurance and quality control.

<sup>1</sup> California Regional Water Quality Control Board, San Francisco Bay Region. *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 1: Summary Tier 1 Lookup Tables, Shallow Soils, Groundwater is Current or Potential Source of Drinking Water*, Interim Final, November 2007.

<sup>2</sup> Samples also analyzed for BTEX compounds and MTBE using EPA Method 8021B.

**Acronyms/Abbreviations:**

mg/kg - milligrams per kilogram  
mg/L - milligrams per liter  
ESLs - Environmental Screening Levels  
RWQCB - Regional Water Quality Control Board (San Francisco Bay Region)  
ND - Not detected at or above laboratory reporting limit  
NE - Not established



**TABLE 2  
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS  
FIRE STATION NO. 3  
PLEASANTON, CALIFORNIA**

Analyte	Method	Sample ID and Date	RWQCB - ESLs <sup>1</sup>
		SR-2 4/3/2008	Residential Land Use 2007
<b>Petroleum Hydrocarbons (µg/L)</b>	8015C		
TPH (Gasoline)		<b>620</b>	<b>100</b>
TPH (Diesel)		<b>49,000</b>	<b>100</b>
<b>Volatile Organic Compounds (µg/L)</b>	8260B <sup>2</sup>		
Benzene		ND (<0.5)	1.0
Toluene		ND (<0.5)	40
Ethylbenzene		ND (<0.5)	30
Total Xylenes		ND (<0.5)	20
tert-Amyl Methyl Ether (TAME)		ND (<0.5)	NE
tert-Butyl Alcohol (TBA)		ND (<2.0)	NE
Diisopropyl Ether (DIPE)		ND (<0.5)	NE
Ethyl tert-Butyl Ether (ETBE)		ND (<0.5)	NE
Methyl tert-Butyl Ether (MTBE)		ND (<0.5)	5.0
Ethylene Dibromide (EDB)		ND (<0.5)	0.05
1, 2-Dichloroethane		ND (<0.5)	0.5

Samples were analyzed by McCampbell Analytical, Inc of Pittsburg, California, a state-certified analytical laboratory. Laboratory data met EPA and laboratory specifications for quality assurance and quality control.

<sup>1</sup> California Regional Water Quality Control Board, San Francisco Bay Region. *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 1: Summary Tier 1 Lookup Tables, Shallow Soils, Groundwater is Current or Potential Source of Drinking Water*, Interim Final, November 2007.

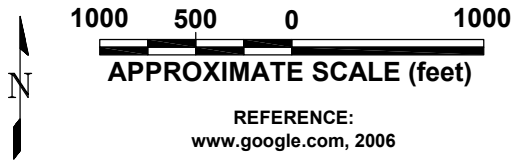
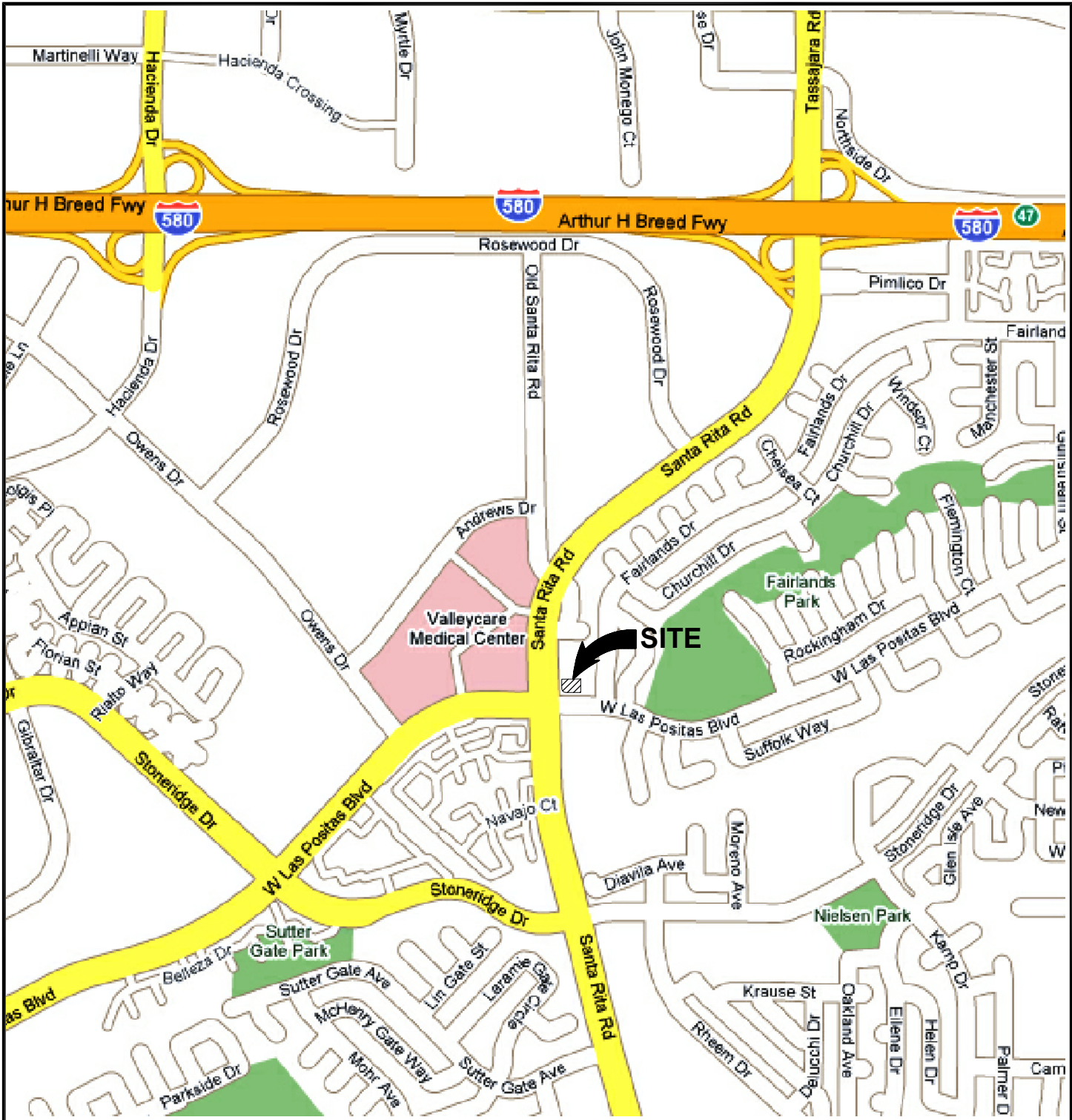
<sup>2</sup> Samples also analyzed for BTEX compounds and MTBE using EPA Method 8021B.

**Acronyms/Abbreviations:**

- mg/kg - milligrams per kilogram
- µg/L - micrograms per liter
- ESLs - Environmental Screening Levels
- RWQCB - Regional Water Quality Control Board (San Francisco Bay Region)
- ND - Not detected at or above laboratory reporting limit
- NE - Not established

# PLATES

ATTACHED IMAGES: Images: SITE-VIC.jpg Images: SITEPLAN.jpg  
 ATTACHED XREFS: XRef: Eng-A\_8x11\_P\_StyleA  
 PLEASANTON, CA  
 PLOTTED: 18 Jul 2008, 9:00am, Issue  
 CAD FILE: L:\2008\08\Projects\84855\GRAPHICS\FH#3\_UST\2008-07\ LAYOUT: SITE-VIC



REFERENCE:  
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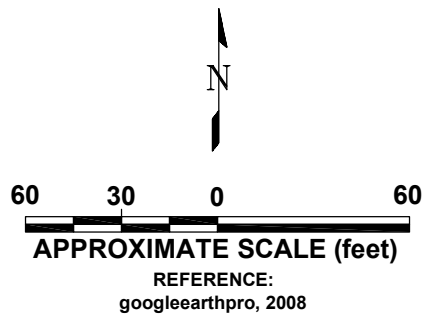
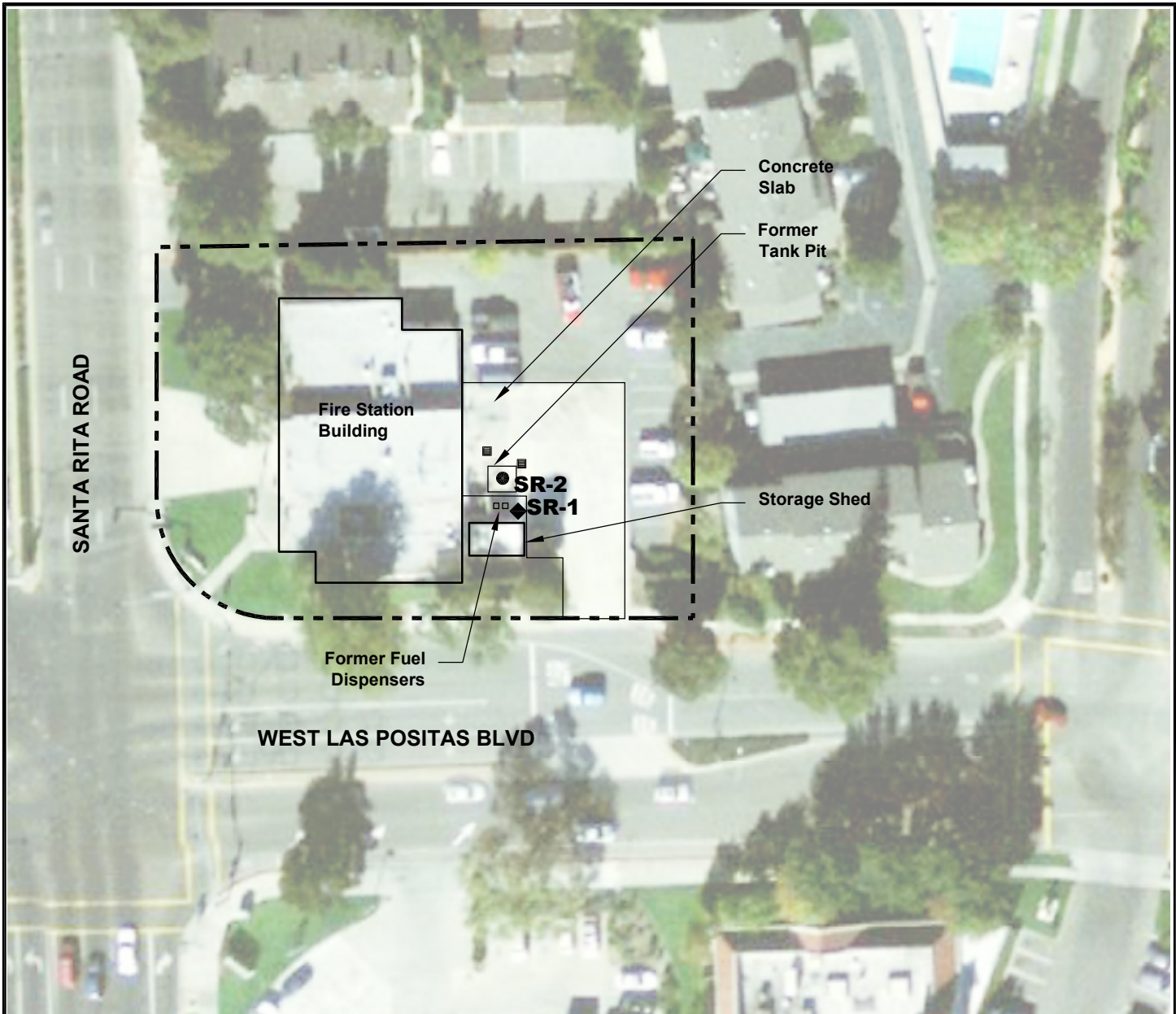
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**SITE VICINITY MAP**

PLEASANTON FIREHOUSE #3  
 3200 SANTA RITA ROAD  
 PLEASANTON, CALIFORNIA

PLATE  
**1**






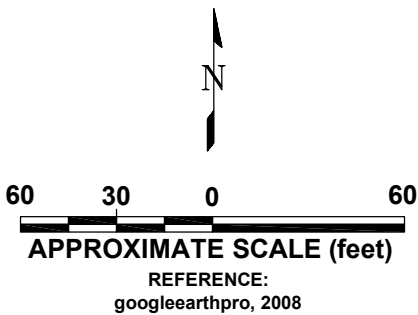
- LEGEND**
- — — — — PROPERTY LINE
  - STORM DRAIN INLET
  - **SR-2** SOIL BORING (by Kleinfelder, 2008)
  - ◆ **SR-1** SOIL BORING (by Kleinfelder, 2007)

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**NOTE:** Locations are approximate.

	PROJECT NO. 84855	<b>SITE PLAN</b>  PLEASANTON FIREHOUSE #3 3200 SANTA RITA ROAD PLEASANTON, CALIFORNIA	PLATE  <b>2</b>
	DRAWN: JUL 2008 DRAWN BY: LGS CHECKED BY: JAL FILE NAME: FH#3_UST_2008-07.dwg		





**LEGEND**

- — — — — PROPERTY LINE
- STORM DRAIN INLET
- **SR-2** SOIL BORING (by Kleinfelder, 2008)
- ◆ **SR-1** SOIL BORING (by Kleinfelder, 2007)
- PROPOSED SOIL BORING

**NOTE:** Locations are approximate.

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<b>PROPOSED SOIL BORING LOCATIONS</b>
PLEASANTON FIREHOUSE #3 3200 SANTA RITA ROAD PLEASANTON, CALIFORNIA

PLATE
<b>3</b>

# **APPENDIX A**



# ZONE 7 WATER AGENCY

100 NORTH CANYONS PARKWAY, LIVERMORE, CALIFORNIA 94551 VOICE (925) 454-5000 FAX (925) 245-9306  
E-MAIL [whong@zone7water.com](mailto:whong@zone7water.com)

## DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 3200 SANTA RITA RD  
PLEASANTON, CA 94566

PERMIT NUMBER 28037  
WELL NUMBER \_\_\_\_\_  
APN 946-1109-056-00

California Coordinates Source \_\_\_\_\_ ft. Accuracy - \_\_\_\_\_ ft.  
CCN \_\_\_\_\_ ft. CCE \_\_\_\_\_ ft.  
APN 946-1109-056-00

PERMIT CONDITIONS  
(Circled Permit Requirements Apply)

CLIENT  
Name CITY OF PLEASANTON  
Address 200 OLD BERNAL AVE Phone 925-931-5684  
City PLEASANTON Zip 94566

- A. GENERAL
  1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
  2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
  3. Permit is void if project not begun within 90 days of approval date.

APPLICANT  
Name JOHN WILLIAMS - KLEINFELDER  
Email jlwilliams@kleinfelder.com Fax 925-484-5838  
Address 7133 KOLL CENTER PKWY STE 100 Phone 925-484-1700  
City PLEASANTON Zip 94566

- B. WATER SUPPLY WELLS
  1. Minimum surface seal diameter is four inches greater than the well casing diameter.
  2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
  3. Grout placed by tremie.
  4. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
  5. A sample port is required on the discharge pipe near the wellhead.

TYPE OF PROJECT:  
Well Construction .. Geotechnical Investigation ..  
Well Destruction .. Contamination Investigation ..  
Cathodic Protection .. Other ..

PROPOSED WELL USE:  
Domestic .. Irrigation ..  
Municipal .. Remediation ..  
Industrial .. Groundwater Monitoring ..  
Dewatering .. Other ..

- C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
  1. Minimum surface seal diameter is four inches greater than the well or piezometer casing diameter.
  2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
  3. Grout placed by tremie.

DRILLING METHOD:  
Mud Rotary .. Air Rotary .. Hollow Stem Auger ..  
Cable Tool .. Direct Push .. Other ..

DRILLING COMPANY VIRONEX  
DRILLER'S LICENSE NO. 705927

- D. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

WELL SPECIFICATIONS:  
Drill Hole Diameter \_\_\_\_\_ in. Maximum \_\_\_\_\_ ft.  
Casing Diameter \_\_\_\_\_ in. Depth \_\_\_\_\_ ft.  
Surface Seal Depth \_\_\_\_\_ ft. Number \_\_\_\_\_

- E. CATHODIC. Fill hole above anode zone with concrete placed by tremie.
- F. WELL DESTRUCTION. See attached.

SOIL BORINGS:  
Number of Borings 1 Maximum \_\_\_\_\_ ft.  
Hole Diameter 3 in. Depth 65 ft.

ESTIMATED STARTING DATE 4/3/08  
ESTIMATED COMPLETION DATE 4/3/08

- G. SPECIAL CONDITIONS. Submit to Zone 7 within 60 days after completion of permitted work the well installation report including all soil and water laboratory analysis results.

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

Approved Wyman Hong Date 3/25/08  
Wyman Hong

APPLICANT'S SIGNATURE JOHN WILLIAMS Date 3/24/08  
ATTACH SITE PLAN OR SKETCH

# **APPENDIX B**

# UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	ID	DESCRIPTION	MAJOR DIVISIONS	LTR	ID	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY		GW	Well-graded gravels or gravel with sand, little or no fines.	FINE GRAINED SOILS		ML	Inorganic silts and very fine sands, rock flour or clayey silts with slight plasticity.
			GP	Poorly-graded gravels or gravel with sand, little or no fines.			CL	Inorganic lean clays of low to medium plasticity, gravelly clays, sandy clays, silty clays.
			GM	Silty gravels, silty gravel with sand mixture.			OL	Organic silts and organic silt-clays of low plasticity.
			GC	Clayey gravels, clayey gravel with sand mixture.			MH	Inorganic elastic silts, micaceous or diatomaceous or silty soils.
	SAND AND SANDY		SW	Well-graded sands or gravelly sands, little or no fines.			CH	Inorganic fat clays (high plasticity).
			SP	Poorly-graded sands or gravelly sands, little or no fines.			OH	Organic clays of medium high to high plasticity.
			SM	Silty sand.			PI	Peat and other highly organic soils.
			SC	Clayey sand.		HIGHLY ORGANIC SOILS		



- Geoprobe, Direct Push Sample
- Large Bore Discrete Soil Sampler, 1.5 in. O.D., 1.12 in. I.D.
- Modified California Sampler, 2.5 in. O.D., 2 in. I.D.
- California Sampler, 3.0 in. dia.
- Shelby Tube 3.0 inch O.D.



- Blank casing
- Screened casing
- Cement grout
- Bentonite
- Sand pack or gravel pack

OVA Organic Vapor Analyzer

PID Total organic vapors (parts per million) measured by a photo-ionization device

FID Total Organic vapors (parts per million) measured by a flame-ionization device

NA Not Applicable

- Sharp Contact (observed)
- Inferred Contact (contact not observed)
- Gradational Contact (observed)
- Water level observed in boring
- Stabilized water level
- NFWE No free water encountered

Notes: Blow counts represent the number of blows a 140-pound hammer falling 30 inches required to drive a sampler through the last 12 inches of an 18 inch penetration.

The lines separating strata on the logs represent approximate boundaries only. The actual transition may be gradual. No warranty 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.

References to plasticity of cohesive soils are based on qualitative field observations and not on quantitative field or laboratory tests. Qualitative soil plasticity is noted solely to aid in stratigraphic correlation and is not intended for geotechnical characterization of soils.

## KLEINFELDER

PROJECT NO. **84855**

### BORING LOG LEGEND

PLEASANTON FIREHOUSE #3  
3200 SANTA RITA ROAD  
PLEASANTON, CALIFORNIA

PLATE

Date Completed: 6/26/07

Drilling method: Direct Push - Geoprobe 5400

Logged By: J. Williams

Fisch Environmental

Total Depth: 28.0 ft

Hammer Wt: None

Notes: Gravel surface

Depth (feet)	Sample Number	Sample Type	Blows/Foot	Recovery (%)	OVA (ppm) PID/FID	USCS	Description	Remarks	Well Construction
1							<b>SILTY SAND (SM)</b> - dark olive-brown (2.5Y 3/3), moist, loose, poorly graded		
2									
3							<b>SILTY CLAY (CL)</b> - dark olive-brown (2.5Y 3/3), moist, soft		
4	SR-1-4			75	0.5				
5							<b>SILTY SAND with CLAY (SM)</b> - very dark greenish-gray (5GY 3/1), moist, medium dense, poorly graded		
6									
7									
8	SR-1-8			100	0.3		<b>SANDY CLAY (CL)</b> - olive-brown (2.5Y 4/3), wet, soft		
9									
10							<b>FINE SAND (SP)</b> - olive-brown (2.5Y 4/3), moist, loose, poorly graded		
11							- wet, increasing grain size		
12	SR-1-12			88	0.6				
13							<b>MEDIUM SAND (SP)</b> - dark olive-gray, wet, loose, poorly graded		
14									
15							<b>SILTY CLAY (CL)</b> - very dark gray (5Y 4/1), moist, medium soft		
16	SR-1-16			100	0.0				
17									
18							- increasing stiffness		
19									
20				100					
21							<b>CLAY (CH)</b> - dark greenish-gray (10Y 4/1), moist, stiff		
22									
23									
24				100	1.0				
25									
26							<b>CLAY (CL)</b> - very dark grayish-brown (2.5Y 3/2), moist, medium stiff		
27									
28				100	0.0				
29							<b>Refusal at approximately 28 feet below ground surface. Boring backfilled with neat cement grout.</b>		
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									

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**KLEINFELDER**

**LOG OF BORING NO. SR-1**

PLATE

PLEASANTON FIREHOUSE #3  
3200 SANTA RITA ROAD  
PLEASANTON, CALIFORNIA

PROJECT NO. 84855

Date Completed: 4/3/08

Drilling method: Direct Push - Geoprobe 6600

Logged By: J. Williams

Vironex

Total Depth: 35.0 ft

Hammer Wt: None

Notes: Concrete surface

Depth (feet)	Sample Number	Sample Type	Blows/Foot	Recovery (%)	OVA (ppm) PID/FID	USCS	Description	Remarks	Well Construction
1							CONCRETE - 4 inches thick	NO SAMPLE RECOVERY to 10 feet below ground surface	
2							COARSE GRAVEL (GW)- gray (5Y 6/1), dry, loose, well graded		
3									
4									
5									
6									
7									
8									
9									
10									
11							FINE SAND (SP)- olive (5Y 4/3), saturated, loose, poorly graded		
12									
13									
14							CLAY (CL)- very dark gray (5Y 3/1), moist, soft, slight hydrocarbon odor		
15	SR-2--15			100	185		CLAY (CH)- very dark gray (5Y 3/1), moist, stiff		
16									
17									
18							CLAY (CH)- dark olive-gray (5Y 3/2), moist, stiff		
19									
20	SR-2--20			100	0.0				
21									
22									
23									
24									
25	SR-2--25			100	0.0			▽	
26							GRAVEL (GW)- dark olive-gray (5Y 4/2), wet, loose, well graded, grain size decreases with depth		
27									
28									
29							SANDY CLAY (CL)- olive (5Y 4/3), moist, stiff, expansive		
30	SR-2--30			100	0.0				
31							CLAY (CH)- very dark gray (5Y 3/1), moist, very stiff		
32									
33									
34									
35				100	0.0				
36							Boring terminated at approximately 35 feet below ground surface.		
37							Groundwater sample screened from 20 to 30 feet.		
38									
39							Boring backfilled with neat cement grout.		
40									

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<h1 style="margin: 0;">KLEINFELDER</h1> <p style="margin: 0;">PROJECT NO. 84855</p>	<h2 style="margin: 0;">LOG OF BORING NO. SR-2</h2> <p style="margin: 0;">PLEASANTON FIREHOUSE #3 3200 SANTA RITA ROAD PLEASANTON, CALIFORNIA</p>	<p style="margin: 0;">PLATE</p>
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# **APPENDIX C**



484-5838

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No.		2. Page 1 of 1		3. Document Number 6035				
4. Generator's Name and Mailing Address City of Pleasanton Headquarters 3600 NEVADA ST Pleasanton CA Generator's Phone (925) 625-1736 94566				5. Transporter Company Name CLEARWATER ENVIRONMENTAL				6. US EPA ID Number CAR000007013		
5. Designated Facility Name and Site Address ALVISO INDEPENDENT OIL 5002 ARCHER STREET ALVISO, CA 95002				7. Transporter Phone (510) 476-1740				8. US EPA ID Number CAL000161743		
8. Designated Facility Name and Site Address ALVISO INDEPENDENT OIL 5002 ARCHER STREET ALVISO, CA 95002				9. US EPA ID Number CAL000161743				10. Facility's Phone (510) 476-1740		
11. Waste Shipping Name and Description a. Non-Hazardous waste - solid						12. Containers No. Type		13. Total Quantity	14. Unit Wt/Vol	
						001 dm		300	P	
15. Special Handling Instructions and Additional Information Wear PPE Emergency Contact (510) 476-1740 Attn: Kirk Hayward						Handling Codes for Wastes Listed Above 11a. H-011 11b.				
16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to state or federal regulations for reporting proper disposal of Hazardous Waste.										
Printed/Typed Name MEDIAN Newton				Signature 				Month 4	Day 23	Year 08
17. Transporter Acknowledgement of Receipt of Materials Printed/Typed Name William Clark				Signature 				Month 04	Day 23	Year 08
18. Discrepancy Indication Space										
19. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 18.										
Printed/Typed Name Kirk Hayward				Signature 				Month 4	Day 24	Year 08

# **APPENDIX D**

 <b>McC Campbell Analytical, Inc.</b> "When Quality Counts"	1534 Willow Pass Road, Pittsburg, CA 94565-1701 Web: www.mcccampbell.com E-mail: main@mcccampbell.com Telephone: 877-252-9262 Fax: 925-252-9269	
	Kleinfelder, Inc.  7133 Koll Center Pkwy, #100  Pleasanton, CA 94566	Client Project ID: # 84855/FS# UST; Pleasanton Firehouse #3  Client Contact: Jim Lehrman Client P.O.:

**WorkOrder: 0804144**

April 10, 2008

Dear Jim:

Enclosed within are:

- 1) The results of the **4** analyzed samples from your project: **# 84855/FS# UST; Pleasanton Fireh**
- 2) A QC report for the above samples,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

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

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing

McC Campbell Analytical Laboratories for your analytical needs.

Best regards,



Angela Rydelius  
 Laboratory Manager  
 McC Campbell Analytical, Inc.



**McC Campbell Analytical, Inc.**



1534 Willow Pass Rd  
Pittsburg, CA 94565-1701  
(925) 252-9262

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0804144

ClientCode: KFP

WriteOn     EDF     Excel     Fax     Email     HardCopy     ThirdParty     J-flag

Report to:

Jim Lehrman  
Kleinfelder, Inc.  
7133 Koll Center Pkwy, #100  
Pleasanton, CA 94566

Email: jlehrman@kleinfelder.com  
TEL: (925) 484-1700    FAX: (925) 484-5838  
PO:  
ProjectNo: # 84855/FS# UST; Pleasanton  
Firehouse #3

Bill to:

Accounts Payable  
Kleinfelder Inc.  
7133 Koll Center Pkwy, #100  
Pleasanton, CA 94566  
SEND HARDCOPY

Requested TAT: 5 days

Date Received: 04/03/2008

Date Printed: 04/08/2008

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
0804144-001	SR-2-15	Soil	4/3/2008 11:08	<input type="checkbox"/>	A		A		A							
0804144-002	SR-2-20	Soil	4/3/2008 11:13	<input type="checkbox"/>	A		A		A							
0804144-003	SR-2-25	Soil	4/3/2008 11:18	<input type="checkbox"/>	A		A		A							
0804144-005	SR-2	Water	4/3/2008 12:15	<input type="checkbox"/>		A		B								

Test Legend:

1	G-MBTEX_S	2	G-MBTEX_W	3	MBTEXOXY-8260B_S	4	MBTEXOXY-8260B_W	5	PBMS_S
6		7		8		9		10	
11		12							

The following SamplIDs: 001A, 002A, 003A, 005A contain testgroup.

Prepared by: Kimberly Burks

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).  
Hazardous samples will be returned to client or disposed of at client expense.



**Sample Receipt Checklist**

Client Name: **Kleinfelder, Inc.**

Date and Time Received: **4/3/2008**

Project Name: **# 84855/FS# UST; Pleasanton Firehouse #3**

Checklist completed and reviewed by: **Kimberly Burks**

WorkOrder N°: **0804144** Matrix Soil/Water

Carrier: Michael Hernandez (MAI Courier)

**Chain of Custody (COC) Information**

- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Sample IDs noted by Client on COC? Yes  No
- Date and Time of collection noted by Client on COC? Yes  No
- Sampler's name noted on COC? Yes  No

**Sample Receipt Information**

- Custody seals intact on shipping container/cooler? Yes  No  NA
- Shipping container/cooler in good condition? Yes  No
- Samples in proper containers/bottles? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No

**Sample Preservation and Hold Time (HT) Information**

- All samples received within holding time? Yes  No
- Container/Temp Blank temperature Cooler Temp: 7.6°C NA
- Water - VOA vials have zero headspace / no bubbles? Yes  No  No VOA vials submitted
- Sample labels checked for correct preservation? Yes  No
- TTLIC Metal - pH acceptable upon receipt (pH<2)? Yes  No  NA

Client contacted:

Date contacted:

Contacted by:

Comments:



**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

Kleinfelder, Inc.  7133 Koll Center Pkwy, #100  Pleasanton, CA 94566	Client Project ID: # 84855/FS# UST; Pleasanton Firehouse #3	Date Sampled: 04/03/08
	Client Contact: Jim Lehrman	Date Received: 04/04/08
	Client P.O.:	Date Extracted: 04/07/08
		Date Analyzed: 04/08/08-04/09/08

**Oxygenates and BTEX by GC/MS\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0804144

Lab ID	0804144-001A	0804144-002A	0804144-003A		Reporting Limit for DF = 1	
Client ID	SR-2-15	SR-2-20	SR-2-25			
Matrix	S	S	S			
DF	1	1	1			
					S	W

Compound	Concentration			mg/kg	ug/L
tert-Amyl methyl ether (TAME)	ND	ND	ND	0.005	NA
Benzene	ND	ND	ND	0.005	NA
t-Butyl alcohol (TBA)	ND	ND	ND	0.05	NA
1,2-Dibromoethane (EDB)	ND	ND	ND	0.004	NA
1,2-Dichloroethane (1,2-DCA)	ND	ND	ND	0.004	NA
Diisopropyl ether (DIPE)	ND	ND	ND	0.005	NA
Ethylbenzene	ND	ND	ND	0.005	NA
Ethyl tert-butyl ether (ETBE)	ND	ND	ND	0.005	NA
Methyl-t-butyl ether (MTBE)	ND	ND	ND	0.005	NA
Toluene	ND	ND	ND	0.005	NA
Xylenes	ND	ND	ND	0.005	NA

**Surrogate Recoveries (%)**

%SS1:	89	90	96		
%SS2:	95	95	97		
%SS3:	81	93	95		
Comments					

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

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.





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Kleinfelder, Inc.  7133 Koll Center Pkwy, #100  Pleasanton, CA 94566	Client Project ID: # 84855/FS# UST; Pleasanton Firehouse #3	Date Sampled: 04/03/08
	Client Contact: Jim Lehrman	Date Received: 04/04/08
	Client P.O.:	Date Extracted: 04/09/08
		Date Analyzed: 04/09/08

### Oxygenates and BTEX by GC/MS\*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0804144

Lab ID	0804144-005B				Reporting Limit for DF =1
Client ID	SR-2				
Matrix	W				
DF	1				

Compound	Concentration				ug/kg	µg/L
----------	---------------	--	--	--	-------	------

tert-Amyl methyl ether (TAME)	ND				NA	0.5
Benzene	ND				NA	0.5
t-Butyl alcohol (TBA)	ND				NA	2.0
1,2-Dibromoethane (EDB)	ND				NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND				NA	0.5
Diisopropyl ether (DIPE)	ND				NA	0.5
Ethylbenzene	ND				NA	0.5
Ethyl tert-butyl ether (ETBE)	ND				NA	0.5
Methyl-t-butyl ether (MTBE)	ND				NA	0.5
Toluene	ND				NA	0.5
Xylenes	ND				NA	0.5

### Surrogate Recoveries (%)

%SS1:	100				
%SS2:	110				
%SS3:	105				
Comments	h				

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

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.







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**QC SUMMARY REPORT FOR SW8021B/8015Cm**

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0804144

EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 34794			Spiked Sample ID: 0804076-005A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>f</sup>	ND	0.60	108	114	5.96	103	105	1.72	70 - 130	20	70 - 130	20
MTBE	ND	0.10	105	117	11.5	113	116	2.64	70 - 130	20	70 - 130	20
Benzene	ND	0.10	94.8	111	15.3	96.6	101	3.96	70 - 130	20	70 - 130	20
Toluene	ND	0.10	88.9	103	14.6	92.2	94	1.90	70 - 130	20	70 - 130	20
Ethylbenzene	ND	0.10	98.4	107	8.51	100	102	1.70	70 - 130	20	70 - 130	20
Xylenes	ND	0.30	93.3	102	8.86	96.1	96.6	0.475	70 - 130	20	70 - 130	20
%SS:	91	0.10	87	95	8.33	93	95	2.33	70 - 130	20	70 - 130	20

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

**BATCH 34794 SUMMARY**

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0804144-001A	04/03/08 11:08 AM	04/04/08	04/07/08 3:58 PM	0804144-002A	04/03/08 11:13 AM	04/04/08	04/05/08 2:26 PM
0804144-003A	04/03/08 11:18 AM	04/04/08	04/07/08 4:59 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 = matrix interference and/or 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 SW8260B

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0804144

EPA Method SW8260B	Extraction SW5030B			BatchID: 34828			Spiked Sample ID: 0804144-003A					
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	0.050	91.8	98.3	6.80	92.7	91	1.86	60 - 130	30	60 - 130	30
Benzene	ND	0.050	88	95.3	8.01	92.9	90.2	2.96	60 - 130	30	60 - 130	30
t-Butyl alcohol (TBA)	ND	0.25	102	111	8.44	124	97.5	24.3	60 - 130	30	60 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	0.050	105	111	4.78	117	112	5.05	60 - 130	30	60 - 130	30
Diisopropyl ether (DIPE)	ND	0.050	103	110	6.44	111	109	1.67	60 - 130	30	60 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	0.050	94.5	102	7.41	97.6	96.4	1.25	60 - 130	30	60 - 130	30
Methyl-t-butyl ether (MTBE)	ND	0.050	96.8	103	6.10	114	93.1	20.1	60 - 130	30	60 - 130	30
Toluene	ND	0.050	87.8	97.6	10.5	90.4	87.3	3.55	60 - 130	30	60 - 130	30
%SS1:	96	0.050	97	92	5.30	101	97	4.40	70 - 130	30	70 - 130	30
%SS2:	97	0.050	102	102	0	99	100	0.712	70 - 130	30	70 - 130	30
%SS3:	95	0.050	105	104	1.18	106	105	0.869	70 - 130	30	70 - 130	30

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

#### BATCH 34828 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0804144-001A	04/03/08 11:08 AM	04/07/08	04/09/08 2:13 AM	0804144-002A	04/03/08 11:13 AM	04/07/08	04/09/08 1:30 AM
0804144-003A	04/03/08 11:18 AM	04/07/08	04/08/08 12:00 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.

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.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0804144

EPA Method SW8015C		Extraction SW3510C			BatchID: 34830			Spiked Sample ID: N/A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	103	102	1.46	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	107	106	1.64	N/A	N/A	70 - 130	30

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

#### BATCH 34830 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0804144-005A	04/03/08 12:15 PM	04/04/08	04/07/08 11:48 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.

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.



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**QC SUMMARY REPORT FOR SW8021B/8015Cm**

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0804144

EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 34834			Spiked Sample ID: 0804145-003B				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>f</sup>	ND	60	94.3	92	2.52	92.1	94.3	2.35	70 - 130	20	70 - 130	20
MTBE	ND	10	103	98.5	4.31	86.1	98.7	13.6	70 - 130	20	70 - 130	20
Benzene	ND	10	88.3	88.9	0.691	97.5	101	4.06	70 - 130	20	70 - 130	20
Toluene	ND	10	82.5	83.7	1.37	89.9	93.3	3.71	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	91.5	92.9	1.47	98.7	103	4.15	70 - 130	20	70 - 130	20
Xylenes	ND	30	87.5	88	0.511	95.5	99.9	4.53	70 - 130	20	70 - 130	20
%SS:	103	10	84	92	8.87	97	94	2.98	70 - 130	20	70 - 130	20

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

BATCH 34834 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0804144-005A	04/03/08 12:15 PM	04/08/08	04/08/08 4:24 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.

<sup>f</sup> 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 = matrix interference and/or 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, or inconsistency in sample containers.



**QC SUMMARY REPORT FOR SW8260B**

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0804144

EPA Method SW8260B		Extraction SW5030B			BatchID: 34842			Spiked Sample ID: 0804154-001C				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	83.2	92.2	10.3	71.5	73.3	2.50	70 - 130	30	70 - 130	30
Benzene	ND	10	95.8	93	2.95	96.3	93.9	2.51	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	113	122	7.60	87.1	95.7	9.14	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	119	116	2.65	107	114	6.10	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	98	109	10.6	82.8	85	2.55	70 - 130	30	70 - 130	30
Toluene	ND	10	94.6	92	2.78	96	94.6	1.39	70 - 130	30	70 - 130	30
%SS1:	78	10	103	100	3.02	101	103	2.64	70 - 130	30	70 - 130	30
%SS2:	99	10	102	102	0	102	103	0.828	70 - 130	30	70 - 130	30
%SS3:	95	10	105	106	0.444	104	103	0.655	70 - 130	30	70 - 130	30

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

BATCH 34842 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0804144-005B	04/03/08 12:15 PM	04/09/08	04/09/08 8:54 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.

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.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.





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### QC SUMMARY REPORT FOR 6020A

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0804144

EPA Method 6020A		Extraction SW3050B				BatchID: 34831			Spiked Sample ID 0804167-001A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	mg/Kg	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Lead	29	50	96	95.3	0.456	10	91.2	91	0.231	70 - 130	20	80 - 120	20
%SS:	96	250	96	96	0	250	94	94	0	70 - 130	20	70 - 130	20

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

#### BATCH 34831 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0804144-001A	04/03/08 11:08 AM	04/04/08	04/08/08 5:15 PM	0804144-002A	04/03/08 11:13 AM	04/04/08	04/07/08 9:23 PM
0804144-003A	04/03/08 11:18 AM	04/04/08	04/07/08 9:31 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.

N/A = not applicable to this method.

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.

*JR*



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1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder: 0804144

EPA Method SW8015C		Extraction SW3550C			BatchID: 34818			Spiked Sample ID: 0804170-006A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	8.6	20	85.8	86.5	0.521	112	125	11.3	70 - 130	30	70 - 130	30
%SS:	115	50	99	100	1.09	101	117	14.5	70 - 130	30	70 - 130	30

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

#### BATCH 34818 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0804144-001A	04/03/08 11:08 AM	04/04/08	04/07/08 10:40 PM	0804144-002A	04/03/08 11:13 AM	04/04/08	04/06/08 4:58 AM
0804144-003A	04/03/08 11:18 AM	04/04/08	04/05/08 11:16 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.

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

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

DHS ELAP Certification N° 1644

 QA/QC Officer