REVISED WORK PLAN

FORMER TEXACO SERVICE STATION (CHEVRON SITE 30-7233)
2259 FIRST STREET, LIVERMORE, CALIFORNIA
Fuel Leak Case No. RO0002908

Prepared For:

Mr. Jerry Wickham
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Prepared by:
Conestoga-Rovers & Associates

5900 Hollis Street, Suite A
Emeryville, California
U.S.A. 94608

Office: (510) 420-0700
Fax: (510) 420-9170

web: http:\\www.CRAworld.com

SEPTEMBER 28, 2009
REF. NO. 312264 (3)
This report is printed on recycled paper

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Charlotte Evans

Brandon Wilken PG #7564

Prepared by:
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1.0 INTRODUCTION

1.1 GENERAL

Conestoga-Rovers & Associates (CRA) is submitting a Revised Work Plan on behalf of Chevron Environmental Management Company (Chevron) for the Site referenced above. In letters dated April 3 and August 4, 2009, Alameda County Environmental Health (ACEH) requested remedial options for residual petroleum hydrocarbons in soil and groundwater (Appendix A). CRA still believes it is necessary to install groundwater monitoring wells to ascertain water quality, groundwater depth with respect to any residual hydrocarbons in soil, groundwater flow direction and the distribution of the hydrocarbon plume onsite prior to pilot testing any remedial options. We need this data, especially groundwater depth and aqueous-phase hydrocarbon distribution, to determine which remedial technologies are appropriate given site-specific conditions and to design a successful pilot test. To that end, CRA is presenting our workplan to collect the required data and we also discuss multiple potential remedial options based on the existing data. We can make a final remedial pilot test decision once the necessary groundwater data is collected.

1.2 SITE BACKGROUND

The former service station site is located on the east corner of First Street and South Livermore Avenue in Livermore, California (Figure 1). The earliest available aerial photograph was from 1959, which shows a station building located on the southern edge of the property and two dispenser islands located on the western portion of the property. The 1973 aerial photograph indicates that the station building and dispenser island had been removed and only a paved lot remained. By 1978, the property had been redeveloped into what is now Mill Square Park, owned by the City of Livermore (Figure 2). The site consists of grass and trees with a concrete walkway. The park remains in the same configuration as shown on the 1978 aerial photo.

Land use surrounding the park is primarily commercial. Topography around the site slopes gently to the north at an elevation of approximately 485 feet above mean sea level.

1.3 SITE GEOLOGY AND HYDROGEOLOGY

Site Geology: The site is located in the Mocho II Sub-Basin of the Main Livermore-Amador Valley Groundwater Basin according to the Groundwater Management Plan prepared by the Zone 7 Water Agency dated September 2005. In this basin, recent alluvium consisting of sandy gravel and sandy clayey gravel are encountered from the surface to approximately 150 feet below grade (fbg). This alluvium overlies the Livermore Formation. At the site, silty sand, silty gravel and sandy gravel were encountered from the surface to approximately 9 fbg. Silts and clays were encountered from approximately 9 fbg to 45 fbg. Predominately sands and gravels were encountered from approximately 45 fbg to 80 fbg, the total depth explored.

Site Hydrogeology: Groundwater in this sub-basin typically flows westward. There are no wells at the site, but based on quarterly groundwater monitoring data from four active ACEH cases within approximately five blocks of the site, the groundwater flow direction varies from north to west. Based on monitoring well data from the past 5 years at these other sites, groundwater elevations fluctuate between approximately 2 and 20 fbg. Zone 7 Water Agency extracts groundwater from this basin for municipal drinking water.

1.4 ENVIRONMENTAL SUMMARY

To date, a total of 31 soil borings and 6 soil vapor probes have been installed at the site. Remedial activities included the removal of three orphaned underground storage tanks (UST). A chronological summary of activities conducted to date at the site is presented as Appendix B.

2.0 HYDROCARBON DISTRIBUTION

2.1 HYDROCARBON DISTRIBUTION IN SOIL

Soil concentrations above environmental screening levels[1] (ESLs) are primarily limited to onsite areas near the former dispenser islands and the two USTs removed by Chevron in 2007 in the southeast portion of the site. Except in the areas of the former USTs,

[1] Regional Water Quality Control Board – San Francisco Bay Region's (RWQCB) Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final November 2007, Revised May 2008.

elevated concentrations are detected between 15 and 40 fbg. The highest hydrocarbon concentrations detected in soil includes:

- 11,000 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as motor oil (TPHmo) in UST excavation sample EX4;
- 3,000 mg/kg TPH as diesel (TPHd) in boring SB3 at 25 fbg;
- 8,700 mg/kg TPH as gasoline (TPHg) in boring SB3 at 25 fbg, and
- 17 mg/kg benzene in boring SB5 at 34 fbg.

Based on the data collected to date, hydrocarbons are horizontally delineated to onsite in the area of the southern former dispenser island and the former USTs in the southeast portion of the site. Petroleum hydrocarbons are detected predominately between 20 and 40 fbg and are vertically delineated. The only shallow detections of hydrocarbons are in the area of the former USTs where hydrocarbons are detected between 8 and 9 fbg. Cumulative soil analytical data is included as Table 1.

2.2 HYDROCARBON DISTRIBUTION IN GROUNDWATER

First encountered grab-groundwater depths have ranged between 22 and 56 fbg during the three different investigations, potentially indicating significant water table fluctuations. The highest hydrocarbon concentrations detected in grab-groundwater samples include:

- 4,500 micrograms per liter (µg/L) TPHmo at 56 fbg in boring CPT3 potentially in the downgradient direction from the former USTs in the southeast portion of the site;
- 43,000 µg/L TPHd in boring CPT5 at 55 fbg;
- 52,000 µg/L TPHg in boring SB8 at 34 fbg; and
- 200 µg/L benzene in boring CPT3 at 56 fbg.

Based on the data collected to date, hydrocarbons in groundwater are detected both on- and offsite in two areas. In the southern portion of the site, hydrocarbon impact is centered offsite around borings CPT1 through CPT3, in the assumed downgradient direction from the former USTs. In the northern portion of the site, impact is also centered around SB8, where there may have been a second generation of USTs. Based on groundwater fluctuations in the laterally nearby borings, it appears that the coarser groundwater bearing zones are all interconnected. Cumulative grab-groundwater analytical data is included as Table 2.

2.3 HYDROCARBON DISTRIBUTION IN SOIL VAPOR

ACEH had requested that potential risk of vapor intrusion be evaluated for the building adjacent to the park and to determine if there were elevated benzene concentrations in soil gases in the subsurface near the former product lines. No benzene was detected in soil gas from any of the vapor probes at any depth. All other constituents, including chlorinated solvents, were either not detected or at least two orders of magnitude below shallow soil gas screening levels for evaluation of potential vapor intrusion concerns for commercial/industrial land use[2]. The soil vapor data demonstrates that there is no risk to human health from vapor intrusion. Cumulative soil vapor analytical data is included as Table 3.

Based on this vapor data, there is no site occupant or adjacent site human health risk requiring remediation.

3.0 TECHNICAL COMMENTS

In letters dated April 3 and August 4, 2009, ACEH had requested a Pilot Test Work Plan/Draft Corrective Action Plan to address residual petroleum hydrocarbons in soil and groundwater. Chevron and CRA understand the request, but believe it is necessary to determine static groundwater elevations and aqueous-phase plume distribution prior to evaluating remedial options and conducting feasibility testing at the site. It is critical to determine this information so that any remedial option will target the appropriate zones of impact with the best chance of success. Groundwater depth data with respect to hydrocarbon distribution in soil is critical because that relationship typically dictates which remedial approaches will be successful.

Based on data from nearby sites, groundwater flows consistently to the west-northwest, but groundwater elevation can fluctuate greatly. There have never been any groundwater monitoring wells installed at this site or data collected to determine seasonal groundwater fluctuations. There are four sites in the surrounding area that are open ACEH cases and have active groundwater monitoring. From monitoring data within the last 5 years, these sites have shown seasonal fluctuations from approximately 2 to 20 fbg in various monitoring wells installed at the sites.

[2] Regional Water Quality Control Board – San Francisco Bay Region's (RWQCB) Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final November 2007, Revised May 2008 (Table E-2).

Site Name	*ACEH Case No.*	*Number of Wells*	*Minimum Seasonal Fluctuation (feet)*	*Maximum Seasonal Fluctuation (feet)*
Arco #498	RO0002873	4	2.09	9.98
Arrow Rentals	RO0000394	28	3.98	17.19
Former Desert Petroleum	RO0000278	15	17.28	20.56
76 Station No. 4186	RO0002873	15	9.31	19.56

Because the minimum and maximum seasonal fluctuations of groundwater are different at these sites, we cannot use this data to accurately estimate groundwater depth at the former Chevron site.

During the two subsurface investigations conducted in January/February and November 2008 at the Chevron site, groundwater was first encountered onsite between 22 fbg (SB6, January 2008) and 50 fbg (SB10-SB12, November 2008). Groundwater was first encountered offsite at between 31 fbg (CPT2, February 2008) and 56 fbg (CPT3, November 2008). CPT borings CPT2 and CPT3 are approximately 10 feet apart. This data demonstrates that groundwater may be deeper at the former Chevron site than at the neighboring sites, there are large seasonal variations in the depth to groundwater, and the coarser groundwater bearing zones are all interconnected. Therefore, our site-specific data also indicates that we should not depend on the data from nearby sites to make remedial decisions.

Based on current guidelines in the LUFT manual, it is necessary to have a site conceptual model prior to determining if remedial actions are necessary and which options will be the most feasible for the site. Based on the lack of groundwater data from permanently installed monitoring wells, we cannot generate a sufficiently complete site conceptual model to make remedial decisions. Trying to determine remedial options without being able to determine the vadose and saturation zone depths could potentially result in ineffective technologies pilot tested at the site. Any feasibility tests suggested at this point could not be implemented due to unknown water depth ranges and, therefore, unknown extraction screen intervals to properly target any remaining mass in groundwater and/or soil.

No non-aqueous-phase liquids have been detected during drilling and there is no risk from the vapor inhalation pathway because no benzene vapors were detected in the subsurface. Therefore there is no need for any interim remedial measures to mitigate an imminent risk to human health or the environment. We recommend installing sufficient wells and sampling them for four quarters to determine the range of site-specific water table fluctuations and aqueous-phase plume distribution. Only then will we have sufficient data to recommend any remedial options that we could pilot test.

4.0 REMEDIAL OPTIONS

Although we cannot recommend a specific technology to pilot test based on the limited data available, we have provided general discussions of technologies that may be feasible. These general evaluations are presented below.

4.1 SOIL VAPOR EXTRACTION (SVE)

SVE is a common remediation technology applied for addressing gasoline fuel impacts to soil at UST sites. SVE is most effective in moderate to high permeability soils where air flow can be established in the formation. SVE involves applying a vacuum to wells to extract hydrocarbon-bearing vapors from the vadose zone above the capillary fringe. Extracted hydrocarbons are typically treated by granular activated carbon (GAC), or catalytic/thermal oxidizers. SVE can improve or protect groundwater quality by removing source area hydrocarbons from the vadose zone, by encouraging hydrocarbon diffusion from groundwater, and by delivering oxygen to the subsurface. Increased oxygen concentrations can stimulate naturally-occurring hydrocarbon biodegradation in soil and groundwater.

SVE system components would include appropriately constructed SVE wells, vapor conveyance piping, a vapor/liquid separator, a vapor extraction device, and a vapor treatment device. The vapor extraction device (blower) would be sized based the radius of influence and applied vacuum of the vapor extraction wells observed during pilot testing. The treatment device is determined by the anticipated influent flow rate, hydrocarbon concentrations, air quality requirements, and operating duration.

Even if we knew groundwater depth with respect to hydrocarbon mass in soil, SVE will not be effective remediating volatility compounds comprising TPHmo and to a lesser extent TPHd. Therefore, SVE is not likely to meet remediation goals for all constituents

detected at the site. SVE could be effective on the gasoline range compounds and a portion of the diesel range compounds if these compounds are in unsaturated soils.

4.2 MULTI-PHASE EXTRACTION (MPE)

MPE is the process of using groundwater extraction to depress the water table below the residual hydrocarbon mass in soil and extracting the hydrocarbon mass via SVE. Groundwater can be extracted using pumps (a dual-phase extraction configuration) or by using a stinger placed in the wells to extract both groundwater and soil vapor in a mixed stream (a two-phase extraction configuration).

Extracted groundwater can be treated using carbon and discharged to the local sanitary sewer or storm drain with the appropriate authorization or off-hauled to a disposal facility. The extracted vapors are treated using the same technologies described for SVE.

For MPE to be pilot tested, we would need to know the static water table, water table fluctuation range, and water table depth with respect to the residual hydrocarbon mass in soil. This information would be used to install appropriately screened extraction wells and piezometers to monitor the cone of water table depression. Since we do not know water table depth or fluctuation ranges, we cannot pilot test MPE. In addition, although MPE could address the residual gasoline components, it will not address the less volatile TPHd and TPHmo. Therefore, MPE is not likely to meet remediation goals for all constituents detected at the site. MPE could be effective on the gasoline range compounds and a portion of the diesel range compounds if these compounds can be exposed via groundwater dewatering.

4.3 ISCO VIA LIQUID-PHASE INJECTION

In-situ chemical oxidation (ISCO) is a remedial Method that utilizes a strong oxidizing agent to promote a chemical reaction with hydrocarbons in the subsurface. During the reaction, the oxidizing agent breaks the hydrocarbon carbon bonds and converts the compounds into non-hazardous carbon dioxide and water. Another benefit of ISCO is the production of dissolved oxygen, which subsequently accelerates the naturally-occurring hydrocarbon biodegradation. Common oxidizing agents include Fenton's reagents (hydrogen peroxide (H_2O_2) and ferrous iron (Fe^{+2}) solution), persulfate ($S_2O_8^{2-}$), and ozone (O_3).

Fenton's Reagent Injection: Injection of Fenton's Reagent, in the presence of metals that are commonly found in the subsurface, produces a hydroxyl radical that is a strong oxidizer and ultimately oxidizes hydrocarbons to water and carbon dioxide. This reaction is strongly exothermic and results in increased soil and groundwater temperatures when used in-situ. Due to potential risks from the exothermic nature of the reaction and because injection would take place in a public park, Fenton's Reagent will not be considered.

Persulfate Injection: Persulfate is commonly applied as sodium persulfate to effectively buffer the pH and improve the reaction. A catalyst is mixed with the sodium persulfate to catalyze the persulfate radical into the sulfate radical which has a greater electrode potential. Persulfate is more persistent than H_2O_2 or ozone, and will have a greater radius of influence in highly permeable soils.[3] The most practical approach for the injection of sodium persulfate is combining persulfate with a caustic catalyst (chemical mixture) and gravity feeding the chemical mixture into direct-push injection-points or injection wells.

Ozone injection: Ozone is a strong chemical oxidizer that will, upon contact, oxidize or destroy hydrocarbons present in the subsurface. Unlike many other chemical oxidizers, ozone is a gas, which enables it to migrate more easily through fine-grained soils. To maximize mass transfer to groundwater, ozone is commonly injected into sparge wells where small bubbles of ozone are generated and dispersed through the subsurface. Also, upon decomposition, ozone provides oxygen to enhance bioremediation of contaminants.

For ISCO to be effective, stoichiometric calculations are needed to ensure that the correct type and amount of oxidizing agent is injected into the ground to ensure that the aquifer characteristics are not altered and that no health and safety issues are created. A bench scale test is needed prior to pilot testing to determine the oxidizer and the amount needed to effectively remediate the site and to collect data for local permitting. With any of the above oxidizing agents, it is necessary to know groundwater depths prior to performing a pilot testing. Also, groundwater monitoring wells would need to be installed to monitor the effectiveness of this option as it is applied. ISCO would be effective at remediating TPHd, TPHg, and BTEX concentrations. ISCO is less effective remediating TPHmo.

[3] Interstate Technology Regulatory Council, Technical and Regulatory Guidance for In Situ Chemical Oxidation of Contaminated Soil and Groundwater, Second Edition, January 2005

4.4 LIMITED SOIL EXCAVATION

Hydrocarbon-bearing soil can be excavated and transported to permitted offsite treatment and/or disposal facilities. In some cases, pre-treatment (via aeration, aboveground SVE, incineration, etc) of the soil may be required in order to meet land disposal restrictions. Although excavation and offsite disposal alleviates the contaminant problem at a site, it does not treat the contaminants. The type of contaminant and its concentration level will impact offsite disposal requirements. The disposal of hazardous wastes is governed by the Resource Conservation and Recovery Act (RCRA) (40CFR Parts 261-265), and the U.S. Department of Transportation regulates the transport of hazardous materials (49 CFR Parts 172-179, 49 CFR Part 1387, and DOT-E 8876). Hazardous wastes must be treated to meet either RCRA or non-RCRA treatment standards prior to land disposal. Transport and disposal of non-hazardous or special wastes are regulated by applicable California regulations.

Standard earth moving equipment (backhoes, bobcats, loaders, etc.) is typically utilized for soil excavation. Depending on available space, this range of equipment can excavate to a depth of approximately 20 feet. Larger earth moving equipment (excavators) can excavate slightly deeper. Entry into excavations deeper than 5 feet requires sidewall shoring per OSHA regulations. Deep excavations may require shoring to prevent collapse of the sidewalls, and to prevent damage or undermining of neighboring structures, utilities, sidewalks, etc. Additionally, dewatering of the excavated area may be required depending on the groundwater elevation and recharge rates. The extent of excavation is typically estimated in advance using available soil boring data, but is ultimately directed by field personnel using field monitoring equipment such as a photo-ionization detector (PID) to screen soils by measurement of soil headspace vapor concentrations. Soil samples are collected for chemical analysis to confirm that the excavation limits are sufficient to meet soil cleanup levels.

Based on soil analytical data, there is limited mass remaining in soil and is predominately between 20 and 40 fbg in the areas beneath the former dispenser islands and the former USTs. Even without having site-specific groundwater data, based on groundwater depths at nearby sites, any source area excavation would require significant dewatering. This fact, coupled with the necessary excavation depth, precludes excavation as a feasible option.

4.5 RECOMMENDATION

Based on the above evaluation, it is not practical to conduct pilot testing activities until we have site-specific information on groundwater depth and fluctuation range. In all of the proposed options, it is necessary to know groundwater elevation, the water-bearing zone characteristics, and hydrocarbon distribution prior to designing a pilot or bench scale test. Therefore, to accelerate our ability to make informed remedial decisions, CRA proposes installing groundwater monitoring wells and collecting groundwater data for four quarters before selecting a remedial option to feasibility test. Once the groundwater data is collected, CRA will submit recommendations for the best option to address the remaining petroleum hydrocarbons in soil and groundwater.

5.0 PROPOSED SCOPE OF WORK

To collect the groundwater data necessary to make remedial decisions, CRA recommends installing five monitoring wells in locations shown on Figure 3. Justifications for well locations include:

- ***Onsite Wells:*** Three wells will be installed onsite and screened between 30 and 55 fbg to verify groundwater concentrations from previous investigations and groundwater depths and fluctuation ranges. One well will be installed near boring SB8 because elevated aqueous-phase hydrocarbons were detected in this boring. Another well will be located in the presumed downgradient direction from boring SB12, which previously had hydrocarbons above ESLs detected in soil. The final well will be located in the area of the two USTS removed by Chevron in 2007 in the southeast portion of the site.
- ***Offsite Wells:*** Two wells will be installed offsite and screened between 30 and 55 fbg to help define the extent of hydrocarbons in groundwater. CRA proposes installing one well between borings CPT1 and CPT3, in the assumed downgradient direction from the two USTs removed by Chevron in 2007. A second well will be installed near boring CPT5 to evaluate previously detected elevated dissolved-phase petroleum hydrocarbons concentrations.

The proposed screening intervals are based on first encountered groundwater depths from previous subsurface investigations, groundwater elevation data from nearby sites, and site-specific lithology from previous borings. CRA propose to conduct the following scope of work.

Health and Safety Plan: CRA will prepare a health and safety plan to protect site workers. The plan will be reviewed and signed by all site workers and visitors. The plan will remain onsite during all field activities.

Permits: CRA will obtain monitoring well permits from the Zone 7 Water District and encroachment permits from the City of Livermore prior to beginning field operations.

Underground Utility Location: CRA will contact Underground Services Alert (USA) and use a private utility locator to confirm that no utilities exist at and near the proposed well locations. Per Chevron safety standards, each boring will be cleared to 8 fbg using an air knife assisted vacuum rig or hand augers.

Well Installation: The monitoring wells will be advanced with 10-inch diameter hollow-stem augers then completed as monitoring wells MW-1 through MW-5. The wells will be completed using 4-inch diameter Schedule 40 poly vinyl chloride (PVC) casing with a 0.010-inch slotted screen. Screen depths may be adjusted depending on the depth of groundwater and lithology encountered. The filter pack will consist of #2/12 sand from the bottom of the boring to approximately 2 feet above the screened interval. Exact boring locations and final depths will be based on site and utility constraints and the vertical extent of soil impact. Borings will continue 10 feet below the deepest extent of hydrocarbons observed while drilling, with the borings backfilled as necessary to complete wells with the appropriate screens. Well locations and top of casing elevations will be surveyed by a California licensed land surveyor. Well development will be completed at least two days after installation and groundwater sampling will be initiated on a quarterly basis for at least four quarters. CRA's Standard Field Procedures for Well Installation are presented as Appendix C.

Soil Sampling Protocol: Soil samples will be collected for laboratory analysis at approximate 5 foot intervals, at obvious changes in soil types, at depths where petroleum hydrocarbons have been previously detected, at depths where elevated photo-ionization detector concentrations are detected, and where hydrocarbon staining is observed, to the bottom of the boring. CRA geologists will log collected soils using the modified Unified Soil Classification System. All samples will be sealed, capped, labeled, logged on a chain-of-custody form, placed on ice and transported to a Chevron and State-approved laboratory for analysis.

Chemical Analysis: Select soil samples will be analyzed for the following:

- TPHmo and TPHd by EPA Method 8015 modified with silica gel cleanup;
- TPHg by EPA Method 8015 modified; and
- Benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8260B.

Groundwater will be analyzed for the following:

- TPHd by EPA Method 8015 modified with silica gel cleanup;
- TPHg by EPA Method 015 modified; and
- BTEX by EPA Method 8260B.

Waste Disposal: Soil cuttings and water generated will be placed in drums and labeled appropriately. These wastes will be transported to the appropriate Chevron-approved disposal facility following receipt of analytical profile results.

Reporting: Upon completion of field activities and review of the analytical results, CRA will prepare an investigation report that, at a minimum, will contain:

- Descriptions of the drilling and sampling methods;
- Boring logs;
- Tabulated soil analytical results;
- Analytical reports and chain-of-custody forms;
- Soil disposal details;
- An evaluation of the extent of hydrocarbons in the subsurface; and
- Conclusions and recommendations.

5.1 SCHEDULE

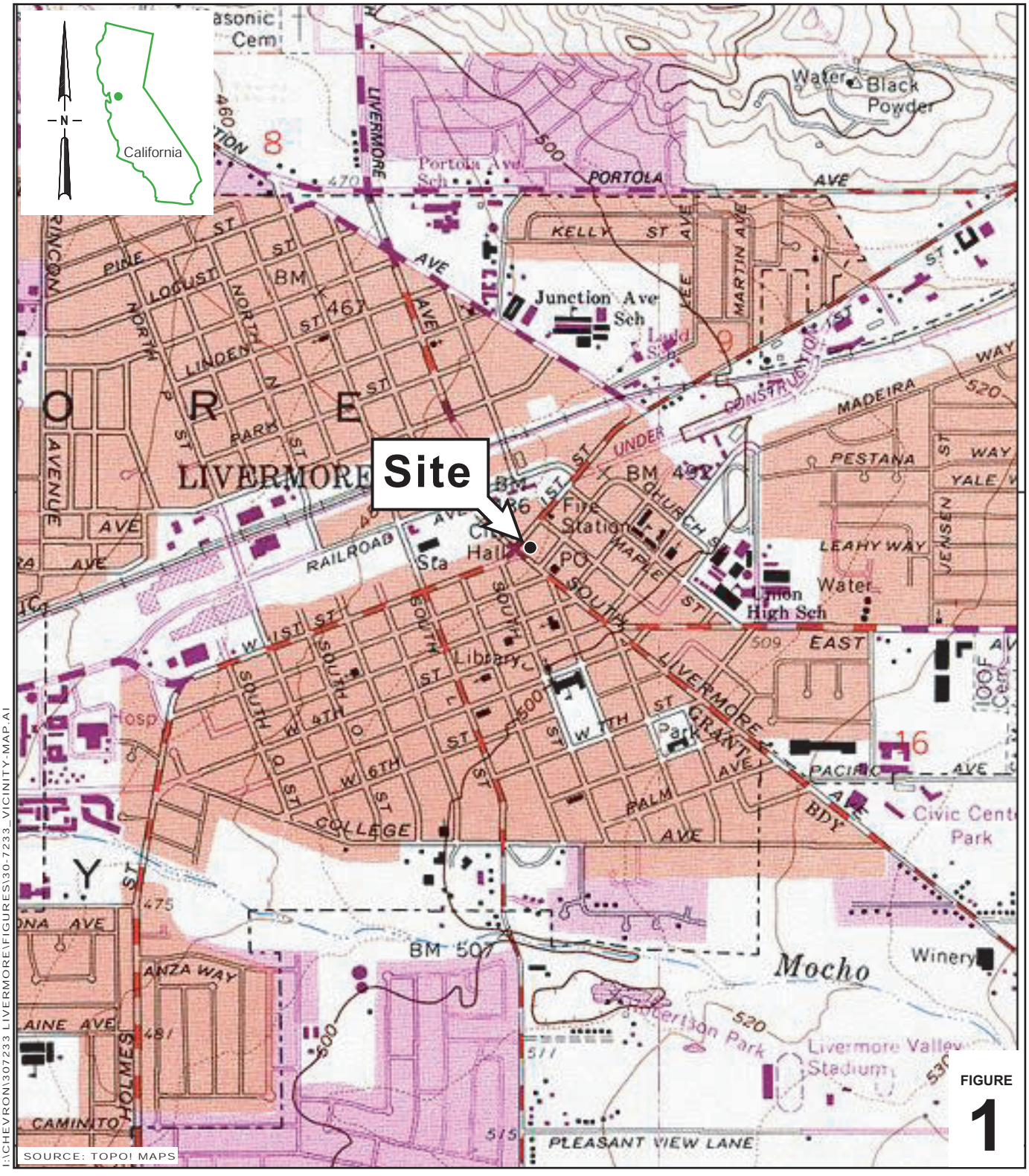
CRA will proceed with the proposed scope of work upon receipt of written approval from ACEH. After approval, CRA will obtain the necessary drilling and encroachment permits, coordinate with the City of Livermore, and schedule the subcontractors at their earliest availability. We will submit our investigation report approximately eight weeks after completion of field activities.

6.0 CLOSING

We appreciate ACEH's desire to accelerate site remediation. Chevron also has a strong desire to address this situation, but in order to implement the most effective solution, sufficient data must be collected to make an informed remedial decision. To that end, we request your approval of this workplan. We will review remedial options once we have the collected the data proposed herein

FIGURES

07/20/07



I:\CHEVRON\307233 LIVERMORE\FIGURES\30-7233_VICINITY-MAP.AI

FIGURE
1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

Chevron Service Station 30-7233

2259 First Street

Livermore, California

CONESTOGA-ROVERS & ASSOCIATES

Vicinity Map

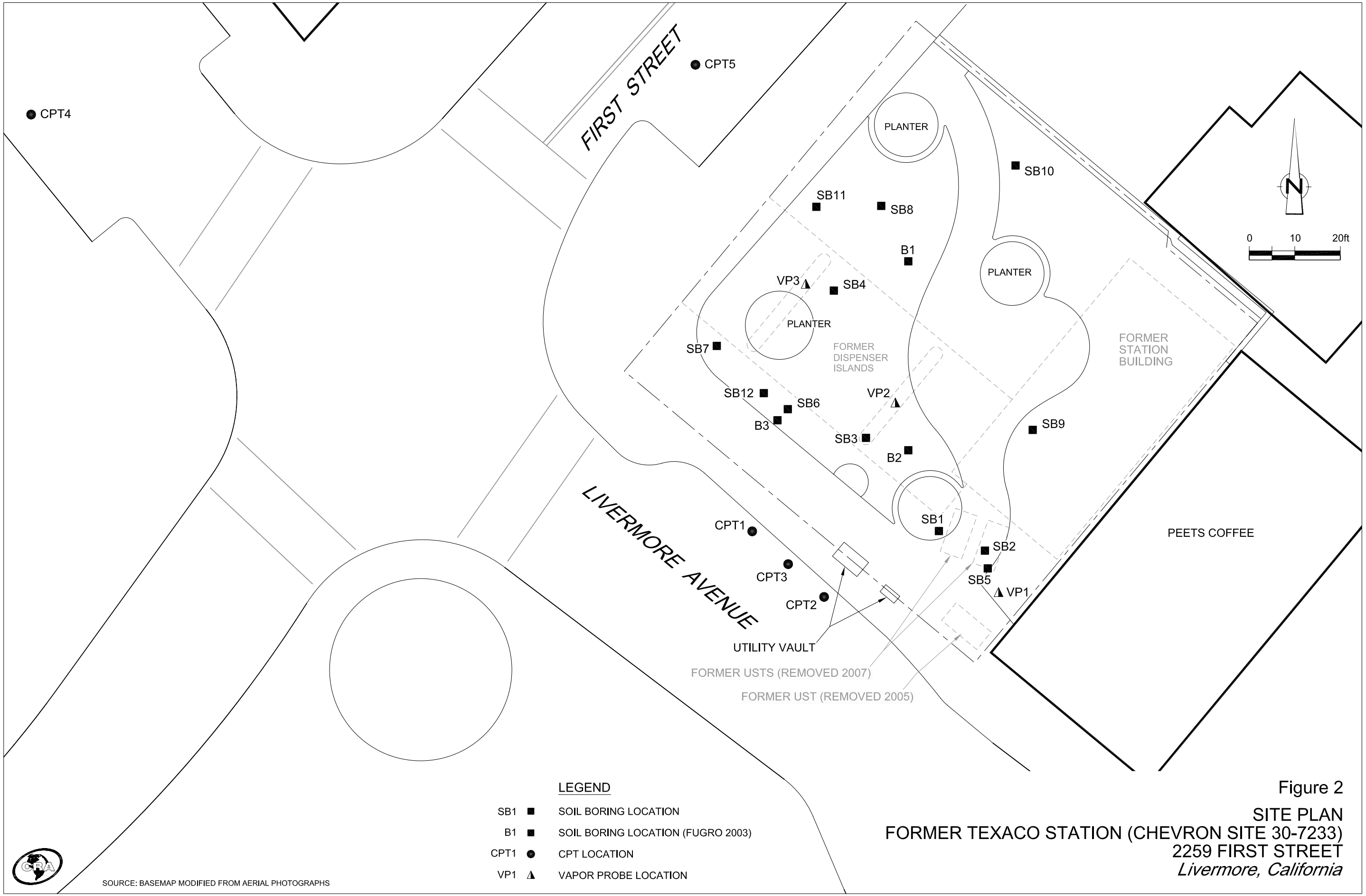


Figure 2

SITE PLAN
FORMER TEXACO STATION (CHEVRON SITE 30-7233)
2259 FIRST STREET
Livermore, California

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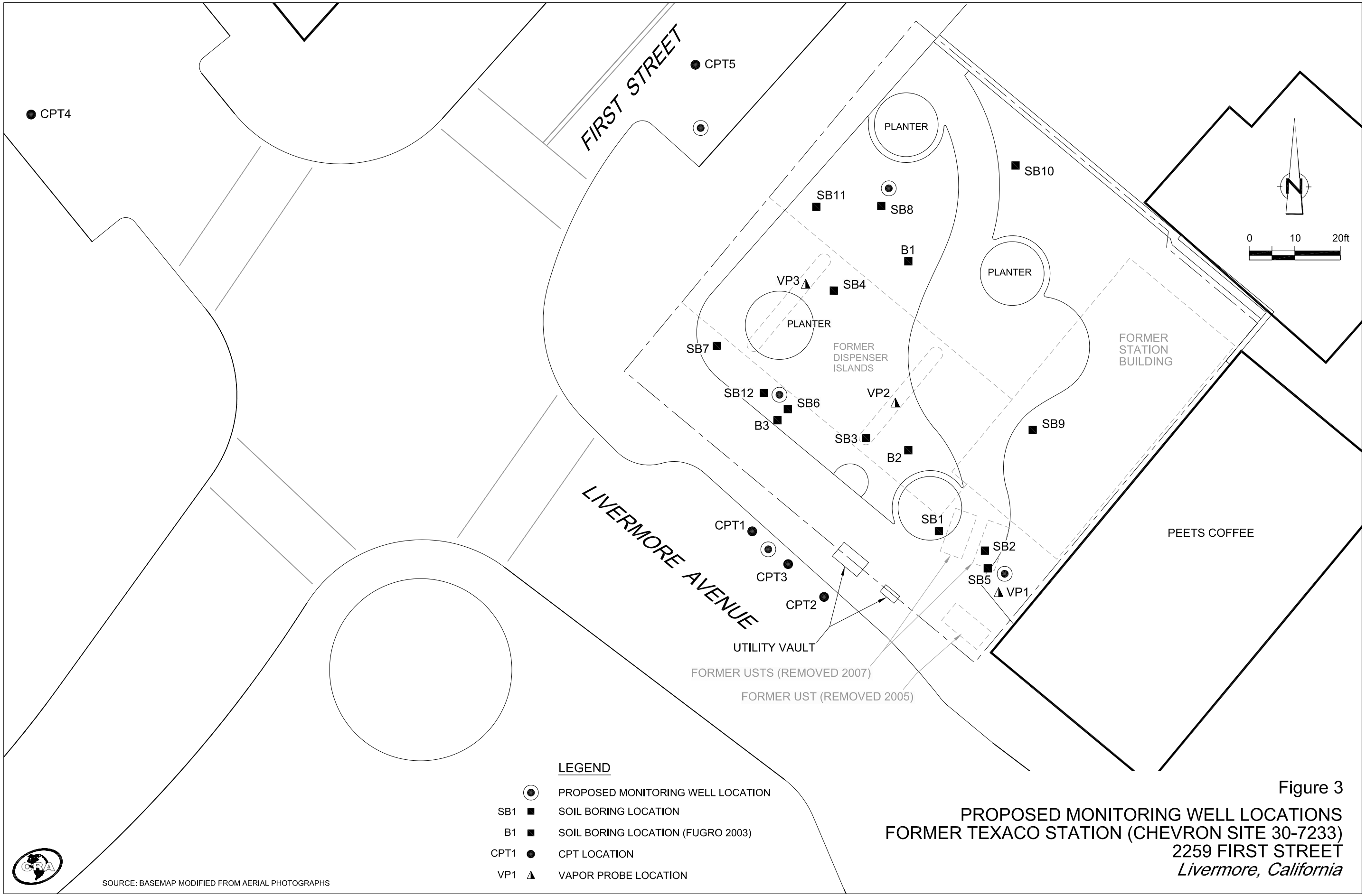

Figure 3

PROPOSED MONITORING WELL LOCATIONS
FORMER TEXACO STATION (CHEVRON SITE 30-7233)
2259 FIRST STREET
Livermore, California

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TABLES

TABLE 1

CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION (CHEVRON SITE #30-7233)
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	Date	Depth (fbg)	TPHmo	TPHd	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	Other VOCs*	SVOCs*	Cd	Cr	Pb	Ni	Zn	PCBs*	Pesticides*
			Reported in milligrams per kilogram (mg/kg)																						
ESLs - Soil less than 3 meters below			***2500***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	*NE*	*NE*	*NE*	***0.0045***	***0.00033***	*--*	*27***	***7.4***	*NE*	***750***	***150***	***600***	***0.74***	*NE*
ESLs - Soil deeper than 3 meters below			***5000***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	*NE*	*NE*	*NE*	***0.0045***	***0.00033***	*--*	*27***	***39***	***5,000***	***750***	***260***	***5,000***	***6.3***	*NE*
2008 Subsurface Investigations																									
CPT1	2/5/2008	21	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
CPT1	2/5/2008	36	380	**100**	1	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
CPT2	2/4/2008	22	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
CPT2	2/4/2008	30	<10	27	4.4	<0.026	<0.052	1.1	0.18	<0.026	<1.0	<0.052	<0.052	<0.052	<0.052	<0.052	--	--	--	--	--	--	--	--	--
CPT2	2/4/2008	35	<12	<4.0	1.3	0.0009	<0.001	<0.001	0.002	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
CPT3-S-18.5	11/4/2008	18.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
CPT3-S-35.5	11/4/2008	35.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
CPT3-S-55.5	11/4/2008	55.5	<10	7.1	52	<0.024	<0.047	<0.047	<0.047	<0.024	<0.95	<0.047	<0.047	<0.047	<0.047	<0.047	--	--	--	--	--	--	--	--	--
CPT4-S-50	11/5/2008	50	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
CPT5-S-51.5	11/3/2008	51.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB6	1/28/2008	1-8***	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	6.13	--	--	--	--
SB6	1/28/2008	9.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	6.39	--	--	--	--
SB6	1/28/2008	19.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	5.79	--	--	--	--
SB6	1/28/2008	24	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	10.90	--	--	--	--
SB7	1/28/2008	1-8***	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	8.57	--	--	--	--
SB7	1/30/2008	9.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	8.30	--	--	--	--
SB7	1/30/2008	19.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	4.70	--	--	--	--
SB7	1/30/2008	29.5	<10	<4.0	3.7	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	10.50	--	--	--	--
SB7	1/30/2008	34.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	11.60	--	--	--	--
SB8	1/28/2008	1-8***	53	18	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.019	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	--	--	--	--	21.90	--	--	--	--
SB8	1/31/2008	19.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	10.30	--	--	--	--
SB8	1/31/2008	29.5	<10	<4.0	1.2	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	8.29	--	--	--	--
SB8	1/31/2008	34.5	<10	67	**530**	<0.027	<0.054	0.10	<0.054	<0.027	<1.1	<0.054	<0.054	<0.054	<0.054	<0.054	--	--	--	--	7.86	--	--	--	--
SB8	1/31/2008	39.5	<10	<4.0	<1.0	0.007	0.002	0.015	0.007	**0.039**	0.034	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	8.93	--	--	--	--
SB9	1/28/2008	1-8***	32	13	1.3	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	13.50	--	--	--	--
SB9	1/29/2008	15	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	6.36	--	--	--	--
SB9	1/29/2008	27.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.022	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	7.92	--	--	--	--

TABLE 1

CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION (CHEVRON SITE #30-7233)
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*1,2-DCA*	*EDB*	*Other VOCs**	*SVOCs**	*Cd*	*Cr*	*Pb*	*Ni*	*Zn*	*PCBs**	*Pesticides**
			Reported in milligrams per kilogram (mg/kg)																						
ESLs - Soil less than 3 meters below			***2500***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	*NE*	*NE*	*NE*	***0.0045***	***0.00033***	*--*	*27***	***7.4***	*NE*	***750***	***150***	***600***	***0.74***	*NE*
ESLs - Soil deeper than 3 meters below			***5000***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	*NE*	*NE*	*NE*	***0.0045***	***0.00033***	*--*	*27***	***39***	***5,000***	***750***	***260***	***5,000***	***6.3***	*NE*
SB9	1/29/2008	34.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.021	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	12.30	--	--	--	--
SB9	1/29/2008	46.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.022	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	9.34	--	--	--	--
SB9	1/29/2008	54.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.022	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	5.77	--	--	--	--
SB10-S-5	10/23/2008	5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB10-S-16	11/4/2008	16	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB10-S-26	11/4/2008	26	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.021	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB10-S-36	11/4/2008	36	<10	<4.0	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.018	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	--	--	--	--	--	--	--	--	--
SB10-S-46	11/4/2008	46	<10	4.2	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.021	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB10-S-56	11/4/2008	56	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB10-S-62	11/4/2008	62	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB11-S-5	10/24/2008	5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB11-S-11	11/3/2008	11	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB11-S-16	11/3/2008	16	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB11-S-26	11/3/2008	26	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB11-S-36	11/3/2008	36	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB11-S-45.5	11/3/2008	45.5	<10	<4.0	59	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.018	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	--	--	--	--	--	--	--	--	--
SB11-S-50.5	11/3/2008	50.5	<10	25	59	<0.023	<0.045	<0.045	<0.045	<0.023	<0.91	<0.045	<0.045	<0.045	<0.045	<0.045	--	--	--	--	--	--	--	--	--
SB11-S-56	11/3/2008	56	<10	45	**98**	<0.023	<0.047	<0.047	<0.047	<0.023	<0.94	<0.047	<0.047	<0.047	<0.047	<0.047	--	--	--	--	--	--	--	--	--
SB11-S-61	11/3/2008	61	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB12-S-5	10/24/2008	5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.021	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB12-S-15.5	11/3/2008	15.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB12-S-25.5	11/3/2008	25.5	<10	<4.0	120	<0.023	<0.046	<0.046	<0.046	<0.023	<0.91	<0.046	<0.046	<0.046	<0.046	<0.046	--	--	--	--	--	--	--	--	--
SB12-S-30	11/3/2008	30	<10	34	58	<0.024	<0.047	<0.047	<0.047	<0.024	<0.94	<0.047	<0.047	<0.047	<0.047	<0.047	--	--	--	--	--	--	--	--	--
SB12-S-35.5	11/3/2008	35.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB12-S-45.5	11/3/2008	45.5	<10	<4.0	1.3	0.0007	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB12-S-50.5	11/3/2008	50.5	<10	65	**1,200**	<0.023	<0.046	<0.046	<0.046	<0.023	<0.92	<0.046	<0.046	<0.046	<0.046	<0.046	--	--	--	--	--	--	--	--	--
SB12-S-55.5	11/3/2008	55.5	<10	55	**1,300**	**1.1**	0.15	2.0	3.7	<0.024	<0.97	<0.049	<0.049	<0.049	<0.049	<0.049	--	--	--	--	--	--	--	--	--
SB12-S-60.5	11/3/2008	60.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SSB1	2/1/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.52	--	--	--	--
SSB1	2/1/2008	2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52.90	--	--	--	--
SSB1	2/1/2008	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.34	--	--	--	--

TABLE 1

CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION (CHEVRON SITE #30-7233)
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	Date	Depth (fbg)	TPHmo	TPHd	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	Other VOCs*	SVOCs*	Cd	Cr	Pb	Ni	Zn	PCBs*	Pesticides*
			Reported in milligrams per kilogram (mg/kg)																						
ESLs - Soil less than 3 meters below			2500	83	83	0.044	2.9	3.3	2.3	0.023	0.075	NE	NE	NE	0.0045	0.00033	--	27**	7.4	NE	750	150	600	0.74	NE
ESLs - Soil deeper than 3 meters below			5000	83	83	0.044	2.9	3.3	2.3	0.023	0.075	NE	NE	NE	0.0045	0.00033	--	27**	39	5,000	750	260	5,000	6.3	NE
SSB2	1/28/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.40	--	--	--	--
SSB2	1/30/2008	2.5	--	11	1.2	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.021	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	40.60	--	--	--	--
SSB2	1/30/2008	4.5	--	4.4	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.021	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	15.00	--	--	--	--
SSB2	1/30/2008	8	--	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	7.45	--	--	--	--
SSB3	1/30/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42.80	--	--	--	--
SSB3	2/6/2008	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52.40	--	--	--	--
SSB3	2/6/2008	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42.20	--	--	--	--
SSB4	2/1/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10.20	--	--	--	--
SSB4	2/1/2008	2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	517.00	--	--	--	--
SSB4	2/1/2008	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	616.00	--	--	--	--
SSB4	2/1/2008	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	90.80	--	--	--	--
SSB5	2/6/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18.20	--	--	--	--
SSB5	2/6/2008	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47.50	--	--	--	--
SSB5	2/6/2008	5.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	117.00	--	--	--	--
SSB5	2/6/2008	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	63.50	--	--	--	--
SSB6	2/6/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.30	--	--	--	--
SSB6	2/6/2008	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	98.90	--	--	--	--
SSB7	2/6/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.00	--	--	--	--
SSB7	2/6/2008	3.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.73	--	--	--	--
SSB7	2/6/2008	5.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.60	--	--	--	--
SSB7	2/6/2008	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.97	--	--	--	--
SSB8	2/1/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	168.00	--	--	--	--
SSB8	2/1/2008	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	160.00	--	--	--	--
SSB8	2/1/2008	9.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	33.80	--	--	--	--
SSB9	2/6/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	189.00	--	--	--	--
SSB9	2/6/2008	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.00	--	--	--	--
SSB9	2/6/2008	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.24	--	--	--	--
SSB9	2/6/2008	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.36	--	--	--	--
SSB10	1/31/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	38.90	--	--	--	--
SSB10	2/6/2008	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67.20	--	--	--	--
SSB10	2/6/2008	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.00	--	--	--	--
SSB10	2/6/2008	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.34	--	--	--	--
SSB11	2/6/2008	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.67	--	--	--	--

TABLE 1

CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION (CHEVRON SITE #30-7233)
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	Date	Depth (fbg)	TPHmo	TPHd	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	Other VOCs*	SVOCs*	Cd	Cr	Pb	Ni	Zn	PCBs*	Pesticides*
			Reported in milligrams per kilogram (mg/kg)																						
ESLs - Soil less than 3 meters below			***2500***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	***NE***	***NE***	***NE***	***0.0045***	***0.00033***	***--***	***27****	***7.4***	***NE***	***750***	***150***	***600***	***0.74***	***NE***
ESLs - Soil deeper than 3 meters below			***5000***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	***NE***	***NE***	***NE***	***0.0045***	***0.00033***	***--***	***27****	***39***	***5,000***	***750***	***260***	***5,000***	***6.3***	***NE***
SSB11	2/6/2008	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.86	--	--	--	--
SSB11	2/6/2008	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.90	--	--	--	--
SSB11	2/6/2008	8.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.62	--	--	--	--
VP1	2/1/2008	4.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	6.10	--	--	--	--
VP1	2/1/2008	8	<10	<4.0	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.019	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	--	--	--	--	9.03	--	--	--	--
VP2	2/1/2008	4.5	54	25	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.018	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	--	--	--	--	75.40	--	--	--	--
VP2	2/1/2008	9.5	<10	<4.0	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.019	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	--	--	--	--	15.60	--	--	--	--
VP3	2/1/2008	4.5	<10	<4.0	1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	6.12	--	--	--	--
VP3	2/1/2008	8	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	4.22	--	--	--	--
2007 Tank Pull																									
EX1	6/20/2007	7	<580	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	ND	0.406	55.5	4.98	95.3	45.8	ND	--
EX2	6/20/2007	7	<580	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	ND	0.313	63.2	3.29	104	32.9	ND	--
EX3	6/20/2007	7	<580	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	ND	0.327	46.7	5.13	117	38.5	ND	--
EX4	6/20/2007	8	**11,000**	**2,800**	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	0.81b	0.876	48.2	1,170	74.2	206	0.044d	--
EX4	6/20/2007	9	**3,100**	**1,400**	<100	<0.0005	<0.001	<0.001	0.004	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	0.18b	0.874	65.6	1,470	85.9	329	0.062d	--
EX5	6/20/2007	8	<580	**100**	<10	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	ND	0.458	61.7	190	109	102	ND	--
EX6	6/20/2007	8	**3,000**	**1,300**	<400	<0.0005	<0.002	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	0.36c	0.984	57.9	1,500	128	347	0.0083d	--
P1	6/20/2007	5	<580	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	ND	0.317	51.8	27.1	115	42.3	ND	--
October 2006 Subsurface Investigation																									
SB-1	10/26/2006	10	<10	<10	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-1	10/26/2006	15	350	**140**	15	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-1	10/26/2006	22	1,400	**780**	**2,800**	<0.062	<0.12	<0.12	<0.12	<0.062	<2.5	<0.12	<0.12	<0.12	<0.12	<0.12	--	--	--	--	--	--	--	--	--
SB-1	10/26/2006	26	390	**590**	**1,100**	<0.62	0.19	**5.5**	**19**	<0.062	<2.5	<0.12	<0.12	<0.12	<0.12	<0.12	--	--	--	--	--	--	--	--	--
SB-1	10/26/2006	32	94	**120**	**180**	**2.0**	**17**	**13**	**65**	<0.063	<2.5	<0.13	<0.13	<0.13	<0.13	<0.13	--	--	--	--	--	--	--	--	--
SB-1	10/26/2006	35.5	67	**99**	**1,200**	**1.0**	**5.5**	2.7	**16**	<0.062	<2.5	<0.12	<0.12	<0.12	<0.12	<0.12	--	--	--	--	--	--	--	--	--
SB-1	10/26/2006	39.5	<10	20	**1,000**	**0.90**	0.93	2.5	**11**	<0.063	<2.5	<0.13	<0.13	<0.13	<0.13	<0.13	--	--	--	--	--	--	--	--	--
SB-3	10/23/2006	10	<10	<10	<1.0	<0.0005	0.001	<0.001	0.002	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-3	10/23/2006	15	<10	<10	<1.0	<0.0005	<0.001	<0.001	0.002	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-3	10/23/2006	21	<20	82	**1,800**	<0.062	<0.12	**4.8**	**15**	<0.062	<2.5	<0.12	<0.12	<0.12	<0.12	<0.12	--	--	--	--	--	--	--	--	--

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FORMER TEXACO SERVICE STATION (CHEVRON SITE #30-7233)
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	Date	Depth (fbg)	TPHmo	TPHd	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	Other VOCs*	SVOCs*	Cd	Cr	Pb	Ni	Zn	PCBs*	Pesticides*
			Reported in milligrams per kilogram (mg/kg)																						
ESLs - Soil less than 3 meters below			***2500***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	*NE*	*NE*	*NE*	***0.0045***	***0.00033***	*--*	*27***	***7.4***	*NE*	***750***	***150***	***600***	***0.74***	*NE*
ESLs - Soil deeper than 3 meters below			***5000***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	*NE*	*NE*	*NE*	***0.0045***	***0.00033***	*--*	*27***	***39***	***5,000***	***750***	***260***	***5,000***	***6.3***	*NE*
SB-3	10/23/2006	25	88	**3,000**	**8,700**	**14**	**410**	**120**	**770**	<0.31	<12	<0.062	<0.062	<0.062	<0.062	<0.062	--	--	--	--	--	--	--	--	--
SB-3	10/23/2006	30	<20	**230**	**5,400**	**3.2**	**68**	**40**	**250**	<0.062	<2.5	<0.12	<0.12	<0.12	<0.12	<0.12	--	--	--	--	--	--	--	--	--
SB-3	10/23/2006	35	<10	17	**630**	**0.080**	<0.12	0.56	1.1	<0.062	<2.5	<0.12	<0.12	<0.12	<0.12	<0.12	--	--	--	--	--	--	--	--	--
SB-3	10/23/2006	39.5	<20	62	**130**	**0.23**	1.5	0.81	**5.5**	<0.063	<2.5	<0.13	<0.13	<0.13	<0.13	<0.13	--	--	--	--	--	--	--	--	--
SB-4	9/12/2006	5	<18	33	1.3	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-4	9/12/2006	10	<20	28	2.8	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-4	9/12/2006	15	<20	<12	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-4	9/12/2006	20	<20	<10	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-4	9/12/2006	25	<20	24	310	<0.003	<0.005	0.008	<0.005	<0.003	<0.10	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--
SB-4	9/12/2006	27.5	<20	**260**	**1,600**	**0.10**	0.14	**4.5**	**19**	<0.062	<2.5	<0.12	<0.12	<0.12	<0.12	<0.12	--	--	--	--	--	--	--	--	--
SB-4	9/12/2006	30	<20	<12	22	0.003	<0.005	0.014	0.007	<0.002	<0.099	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--
SB-4	9/12/2006	35	<20	45	**320**	<0.063	<0.13	<0.13	<0.13	<0.063	<2.5	<0.13	<0.13	<0.13	<0.13	<0.13	--	--	--	--	--	--	--	--	--
SB-4	9/12/2006	39.5	<16	<10	1.2	**0.15**	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-5	10/24/2006	10	<10	<10	<1.0	<0.0005	<0.001	0.001	0.002	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-5	10/26/2006	15	<10	<10	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-5	10/26/2006	19.5	560	**700**	27	<0.0005	<0.001	<0.001	0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--
SB-5	10/26/2006	26	450	**620**	**1,100**	**0.78**	<0.13	**8.5**	**12**	<0.063	<2.5	<0.13	<0.13	<0.13	<0.13	<0.13	--	--	--	--	--	--	--	--	--
SB-5	10/26/2006	30	140	**320**	**950**	<0.062	<0.12	1.1	2.0	<0.062	<2.5	<0.12	<0.12	<0.12	<0.12	<0.12	--	--	--	--	--	--	--	--	--
SB-5	10/26/2006	34	290	**630**	**3,100**	**17**	**67**	**38**	**130**	<0.13	<5	<0.25	<0.25	<0.25	<0.25	<0.25	--	--	--	--	--	--	--	--	--
SB-5	10/26/2006	39.5	<10	80	**1,400**	**5.4**	**2.6**	**13**	**73**	<0.062	<2.5	<0.12	<0.12	<0.12	<0.12	<0.12	--	--	--	--	--	--	--	--	--
2005 Consolidated Engineering Tank Pull																									
Sample (1) LFD	9/20/2008	3	<2,500	**4,100**	--	<0.017	<0.017	<0.017	<0.017	<0.017	--	--	--	--	--	--	0.140a	--	--	--	--	--	--	--	--
Sample (2)	9/20/2008	3	<250	**1,300**	--	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	ND	--	--	--	--	--	--	ND	ND
Sample (3)	9/20/2008	3	<200	**670**	--	<0.022	<0.022	<0.022	<0.022	<0.022	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--
Sample (4)	9/20/2008	3	<50	1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	ND	--	--	--	--	--	--	--	--
Sample (5)	9/20/2008	3	54	**140**	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	ND	--	--	--	--	--	--	--	--
Sample (6)	9/20/2008	3	<50	2.1	**3,300**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	ND	--	--	--	--	--	--	--	--

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Sample ID	Date	Depth (fbg)	TPHmo	TPHd	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	Other VOCs*	SVOCs*	Cd	Cr	Pb	Ni	Zn	PCBs*	Pesticides*
			Reported in milligrams per kilogram (mg/kg)																						
ESLs - Soil less than 3 meters below			***2500***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	*NE*	*NE*	*NE*	***0.0045***	***0.00033***	**--**	*27***	***7.4***	*NE*	***750***	***150***	***600***	***0.74***	*NE*
ESLs - Soil deeper than 3 meters below			***5000***	***83***	***83***	***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.075***	*NE*	*NE*	*NE*	***0.0045***	***0.00033***	**--**	*27***	***39***	***5,000***	***750***	***260***	***5,000***	***6.3***	*NE*
2004 Fugro Subsurface Investigation																									
B-1	9/17/2003	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	21	--	--	--	--
B-1	9/17/2003	25.5	<50	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-2	9/17/2003	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,700****	--	--	--	--
B-2	9/17/2003	15.5	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-2	9/17/2003	30	<50	9.6	**3.5**	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-3	9/17/2003	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.8	--	--	--	--
B-3	9/17/2003	25.5	<50	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

Total petroleum hydrocarbons as motor oil (TPHmo) analyzed by EPA Method 8015B modified unless otherwise noted.

Total petroleum hydrocarbons as diesel (TPHd) analyzed by EPA Method 8015B with silica gel cleanup unless otherwise noted.

Total petroleum hydrocarbons as gasoline (TPHg) analyzed by EPA Method 8015B modified unless otherwise noted.

Benzene, toluene, ethylbenzene, and total xylenes (BTEX); methyl tertiary-butyl ether (MTBE); t-butyl alcohol (TBA); di-isopropyl ether (DIPE); ethyl tertiary-butyl ether (ETBE); t-amyl methyl ether (TAME); 1,2-dichloroethane (1,2-DCA); 1,2-dibromoethane (EDB) unless otherwise noted.

Volatile Organic Compounds (VOCs) by EPA Method 8260B

Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C

Cd = cadmium, Cr = cromium, Pb = lead, Ni = nickel and Zn = zinc analyzed by EPA method 6010B unless otherwise noted.

Polychlorobiphenyls (PCBs) by EPA Method 8082

Pesticides = Organochlorine Pesticides analyzed by EPA Method 8081

fbg = feet below grade.

<x = Not detected at reporting limit x.

ND = not detected at various laboratory method detection limits.

Environmental Screening Levels (ESLs) for commerical land use where groundwater is a current or potential drinking water source from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* presented by the California Regional Water Quality Control Board - San Francisco Bay Region Interim Final November 2007, revised May 2008, Tables A and C.

NE = Not established

-- = Not applicable/not analyzed.

* = Refer to related investigation report for complete analytical results: only highest constituent detection reported

** = Only most stringent ESL for the detected compounds listed

*** = Discrete sample could not be collected due to large cobbles, composite sample collected.

**** = Soluble Lead Toxicity Characteristic Leaching Potential (TCLP) analysis resulted in a concentration <0.50 milligrams per liter.

a = 0.140 mg/kg of 1,3,5-Trimethylbenzene.

b = bis (2-ethylhexyl) phthalate.

c = benzo (g,h,i) perylene.

d = PCB-1248.

TABLE 2

CUMULATIVE GRAB-GROUNDWATER ANALYTICAL DATA
FORMER TEXACO SERVICE STATION (CHEVRON SITE #30-7233)
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Sample Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*1,2-DCA*	*EDB*
			Reported in micrograms per liter (µg/L)													
ESLs	*--*	*--*	***100***	***100***	***100***	***1.0***	***40***	***30***	***20***	***5.0***	***12***	***NE***	***NE***	***NE***	***0.5***	***0.05***
CRA 2008 SSI																
CPT1	02/05/08	42	**1,500**	**3,300**	**47,000**	**5**	2	3	2	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
CPT2	02/04/08	31	**1,500**	**4,100**	**10,000**	**14**	2	**57**	**110**	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
CPT3	11/04/08	56	**4,500**	**36,000**	**29,000**	**200**	**140**	**740**	**1,100**	<1	<4	<1	<1	<1	<1	<1
CPT4	11/05/08	54	**720**	**400**	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
CPT4	11/05/08	60	**1,400**	**490**	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
CPT5	11/03/08	55	**510**	**43,000**	**2,500**	<0.5	<0.5	1	0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
CPT5	11/03/08	68	<400	**340**	70	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
SB6	01/30/08	22	<400	**110**	**300**	**3**	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
SB7	01/30/08	31	<400	**3,000**	**6,400**	<0.5	<0.5	<0.5	<0.5	<0.5	**16**	<0.5	<0.5	<0.5	<0.5	<0.5
SB8	01/31/08	34	***	**18,000**	**52,000**	<1	<1	8	2	<1	<4	<1	<1	<1	<1	<1
SB9	01/29/08	55	**450**	**1,000**	**490**	<0.5	<0.5	<0.5	0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
SB10	11/04/08	50	<400	<320	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
SB11	11/03/08	50	<400	**20,000**	**9,000**	<0.5	3	17	**150**	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
SB12	11/03/08	50	<400	**4,000**	**5,500**	**190**	15	**100**	**220**	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
2004 Fugro Subsurface Investigation																
B-1	9/17/2003	34-40	<1000	**1,100**	**1,600**	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
B-2	9/17/2003	34-40	<500	**57**	**90**	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
B-3	9/17/2003	34-40	<10,000	**42,000**	**18,000**	**140**	**47**	**120**	**1,000**	<50	--	--	--	--	--	--

TABLE 2

CUMULATIVE GRAB-GROUNDWATER ANALYTICAL DATA
FORMER TEXACO SERVICE STATION (CHEVRON SITE #30-7233)
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	Date	Sample Depth (fbg)	TPHmo	TPHd	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB
			Reported in micrograms per liter (µg/L)													
ESLs	***--***	***--***	***100***	***100***	***100***	***1.0***	***40***	***30***	***20***	***5.0***	***12***	***NE***	***NE***	***NE***	***0.5***	***0.05***

Notes:
Total petroleum hydrocarbons as motor oil (TPHmo) analyzed by EPA Method 8015B modified.
Total petroleum hydrocarbons as diesel (TPHd) analyzed by EPA Method 8015B with silica gel cleanup.
Total petroleum hydrocarbons as gasoline (TPHg) analyzed by EPA Method 8015B modified.
Benzene, toluene, ethylbenzene, and total xylenes (BTEX); methyl tertiary-butyl ether (MTBE); t-butyl alcohol (TBA); di-isopropyl ether (DIPE); ethyl tertiary-butyl ether (ETBE); t-amyl methyl ether (TAME); 1,2-dichloroethane (1,2-DCA); 1,2-dibromoethane (EDB) analyzed by EPA Method 8260B.
Environmental Screening Levels (ESLs) for groundwater that is a current or potential drinking water source from *Screening for Environemental Concerns at Sites with Contaminated Soil and Groundwater* presented by the California Regional Water Quality Control Board - San Francisco Bay Region Interim Final November 2007, revised
fbg = feet below grade.
<x = Not detected at reporting limit x.
-- = Not applicable/not analyzed.

TABLE 3

CUMULATIVE SOIL VAPOR ANALYTICAL DATA
FORMER TEXACO SERVICE STATION (CHEVRON SITE #30-7233)
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes* [1]	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*EDB*	*1,2-DCA*	*Naphalene*	*VOCs*	*Helium*	*Oxygen*	*CO_2*
			Reported in micrograms per cubic meter ($\mu g/m^3$)														*Reported in % Volume*		
ESLs	*--*	*--*	*29,000*	*280*	*180,000*	*580,000*	*58,000*	*--*	*--*	*--*	*--*	*--*	*14*	*310*	*240*	*--*	*--*	*--*	*--*
2008 Subsurface Investigation																			
VP1	03/10/08	5 - 5.5	940	<3.2	18	5.6	<4.4	<3.6	<31	<17	<17	<17	<7.8	<4.1	<21	--	**0.24**	**38**	**0.36**
VP1	LAB DUPLICATE		**--**	<3.2	13	<4.4	<4.4	<3.6	<31	<17	<17	<17	<7.8	<4.1	<21	--	**0.20**	**38**	**0.36**
VP1-5	11/07/08	5 - 5.5	<250	<3.9	<4.6	<5.2	<5.2	<4.4	<15	<20	<20	<20	<9.3	<4.9	<25	ND	<0.12	19	2.5
VP1-5	LAB DUPLICATE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.12	19	2.5
VP1	03/10/08	9.5 - 10	<250	<3.9	<4.6	<5.2	<5.2	<4.4	<37	<20	<20	<20	<9.3	<4.9	<25	--	<0.12	**20**	**1**
VP1-10	11/07/08	9.5 - 10	260	<3.7	<4.4	<5.0	6.5	<4.2	<14	<19	<19	<19	<9.0	<4.7	<24	SEE LAB ANALYTICAL	<0.12	19	2.1
VP1-10 Duplicate	11/07/08	9.5 - 10	270	<3.8	<4.5	<5.2	<5.2	<4.3	<14	<20	<20	<20	<9.1	<4.8	<25	SEE LAB ANALYTICAL	<0.12	19	2.1
VP1-10 Duplicate	LAB DUPLICATE		270	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VP2	03/10/08	5 - 5.5	500	<4.0	19	6.4	31	<4.6	<38	<21	<21	<21	<9.7	<5.1	<26	--	<0.13	**17**	**2**
VP2 DUP	03/10/08	5 - 5.5	<260	<4.0	<4.8	<5.5	<5.5	<4.6	<38	<21	<21	<21	<9.7	<5.1	<26	--	<0.13	**17**	**2**
VP2	03/10/08	9.5 - 10	450	<3.9	29	9.7	11	<4.4	<37	<21	<21	<21	<9.5	<5.0	<26	--	<0.12	**18**	**1.6**
VP3	03/10/08	5 - 5.5	<260	<4.0	<4.8	<5.5	6.3	<4.6	<38	<21	<21	<21	<9.7	<5.1	<26	--	<0.13	**17**	**2.3**
VP3	03/10/08	9.5 - 10	<250	<3.9	<4.6	<5.4	<5.4	<4.4	<37	<21	<21	<21	<9.5	<5.0	<26	--	<0.12	**18**	**2.2**

Notes:

Total petroleum hydrocarbons as gasoline (TPHg) by EPA Method TO-3.

Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), Ethanol, Methyl Tertiary Butyl Ether (MtBE), t-Butyl Alcohol (TBA), di-Isopropyl ether (DIPE), Ethyl t-butyl ether (ETBE), t-amyl methyl ether (TAME), 1,2-Dibromoethane (EDB) and 1,2-Dichloroethane (1,2-DCA) by EPA Method TO-15.

Helium, Oxygen, and Carbon Dioxide (CO_2) by modified ASTM D-1946.

fbg = Feet below grade.

<X = Not detected above method detection limit x.

ND = Not detected above various laboratory method detection limits.

-- = not analyzed or not applicable.

Environmental Screening Levels (ESLs) for shallow soil gas commercial/industrial landuse from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* prepared by the California Regional Water Quality Control Board - San Francisco Bay Region Interim Final November 2007, Revised May 2008, Table E-2.

1 = Values for highest value of Xylenes detected.

APPENDIX A

REGULATORY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-93

April 3, 2009

Mr. Ian Robb
Chevron Environmental Management Company
6001 Bollinger Canyon Road
San Ramon, CA 94583-2324

Ms. Chris Davidson
City of Livermore Economic Development
1052 S. Livermore Ave.
Livermore, CA 94550

Subject: Fuel Leak Case No. RO0002908 and Geotracker Global ID T0600196622, Miller Square Park, 2259 First Street, Livermore, CA 94550

Dear Mr. Robb and Ms. Davidson:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above referenced site including the recently submitted document entitled, "*Subsurface Investigation Report*," dated March 5, 2009, which was prepared on behalf of Chevron by Conestoga-Rovers & Associates. The Subsurface Investigation Report presents the results from soil and groundwater sampling in three cone penetration test (CPT) borings and three soil borings. Results from re-sampling of soil vapor probes were also presented. The results were generally consistent with previous investigation results. Total petroleum hydrocarbons as gasoline were detected in soil and groundwater at concentrations up to 1,300 milligrams per kilogram and 52,000 micrograms per liter, respectively. The highest concentrations of TPHg were generally detected in soil at depths of approximately 45 to 55 feet bgs.

One proposed off-site CPT boring (CPT-6) was not advanced because an access agreement could not be completed with the adjacent property owner. Proposed boring CPT6 is located in a crossgradient location (north) from the former USTs and dispensers at the site. Boring SB10 was advanced near the northern site boundary, approximately 40 south of the proposed location of CPT6. Petroleum hydrocarbons were not detected in soil and groundwater samples collected from boring SB10, which appears to define the northern extent of contamination in this area of the site. Based on these results, it does not appear that boring CPT6 is required.

Based on the extent of contamination and elevated concentrations of fuel hydrocarbons, remedial action will be required for the site. We request that you prepare a Pilot Test Work Plan or Draft Corrective Action Plan **by June 10, 2009** to begin site cleanup. The Pilot Test Work Plan or Draft Corrective Action Plan is to include plans for groundwater monitoring wells that can be used to estimate the hydraulic gradient, monitor fuel hydrocarbon transport, and evaluate the long-term effectiveness of site cleanup.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **June 10, 2009** – Pilot Test Work Plan or Draft Corrective Action Plan

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

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the

professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org.

Sincerely,

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Cheryl Dizon, QIC 80201, Zone 7 Water Agency, 100 North Canyons Parkway
Livermore, CA 94551

Danielle Stefani, Livermore-Pleasanton Fire Department, 3560 Nevada Street
Pleasanton, CA 94566

John Rigter, Livermore-Pleasanton Fire Department, 3560 Nevada Street
Pleasanton, CA 94566

Charlotte Evans, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A
Emeryville, CA 94608

Donna Drogos, ACEH
Jerry Wickham, ACEH
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	ISSUE DATE: July 5, 2005
	REVISION DATE: December 16, 2005
	PREVIOUS REVISIONS: October 31, 2005
ECTION: Miscellaneous Administrative Topics & Procedures	SUBJECT: Electronic Report Upload (ftp) Instructions

ffective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require ubmission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. he electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and ompliance/enforcement activities.

EQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**. (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document.** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

dditional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

ubmission Instructions

) Obtain User Name and Password:
  a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
    i) Send an e-mail to dehloptoxic@acgov.org
    or
    ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
  b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses,** and the **Case Numbers (RO# available in Geotracker) you will be posting for.**

:) Upload Files to the ftp Site
  a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
    (i) Note: Netscape and Firefox browsers will not open the FTP site.
  b) Click on File, then on Login As.
  c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
  d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
  e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
  a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
  b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
  c) The subject line of the e-mail must start with the RO# followed by **Report Upload.** (e.g., Subject: RO1234 Report Upload)

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-93

August 4, 2009

AUG

Mr Ian Robb
Chevron Environmental Management Company
6001 Bollinger Canyon Road
San Ramon, CA 94583-2324

Ms Chris Davidson
City of Livermore Economic Development
1052 S Livermore Ave
Livermore, CA 94550

Subject Fuel Leak Case No RO0002908 and Geotracker Global ID T0600196622, Miller Square Park, 2259 First Street, Livermore, CA 94550

Dear Mr Robb and Ms Davidson

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above referenced site including the recently submitted document entitled, "*Pilot Test Work Plan or Draft Corrective Action Plan*," dated June 10, 2009, which was prepared on behalf of Chevron by Conestoga-Rovers & Associates Although the document is entitled, "*Pilot Test Work Plan or Draft Corrective Action Plan*," the document does not propose a pilot test or corrective action Instead, the document is a work plan to install four monitoring wells for the purpose of collecting additional data for one year prior to evaluating remedial options

Based on the extent of contamination and elevated concentrations of fuel hydrocarbons, remedial action will be required for the site We do not object to the collection of additional data that are necessary for the more effective or more efficient development of feasible remedial alternatives for the site However, the data collection must be necessary for and focused towards the development of remedial alternatives It is not clear that well installation and sampling of the monitoring wells for a period of one year is necessary prior to implementing any pilot testing or additional data collection specifically for the purpose of evaluating remedial alternatives

In the Revised Work Plan requested below, we request that you review and discuss specific possible remedial options for the site For each remedial option, please identify any additional data collection that is necessary for evaluation of the remedial options considered for the site For the remedial options considered, please carefully review whether it is necessary to delay all pilot testing and data collection for one year to sample the proposed monitoring wells Please provide the rationale for delaying pilot testing or corrective action for each remedial option considered Pilot testing activities that can be conducted concurrently with well installation and sampling must be proposed in the Revised Work Plan

We request that you prepare a Revised Work Plan that addresses the issues discussed in the previous two paragraphs and the technical comments below Please submit the Revised Work Plan **no later than September 30, 2009**

TECHNICAL COMMENTS

1 **Proposed Monitoring Well Locations** Three of the four proposed monitoring wells are located in a linear pattern that is perpendicular to the west northwest groundwater flow direction that occurs within the area of Livermore The wells are apparently located adjacent to locations where groundwater contamination has been detected by previous sampling activities Please give more consideration to the known sources and hydraulic gradient in proposing a groundwater monitoring network rather than targeting previous sampling locations We request that you revise the proposed monitoring well locations in the Revised Work Plan requested below

2 **Proposed Well Screen Intervals** The proposed screen intervals for the four monitoring wells are 30 to 55 feet bgs based on previous depth to first encountered water and variable groundwater elevations at nearby sites Site hydrogeologic conditions than variable depths to first encountered groundwater must be considered in designing well screen intervals The well screen intervals must target discrete water bearing layers and not create vertical conduits for ambient well flow Where necessary, multiple wells must be installed to monitor separate vertical intervals Since the proposed well locations are adjacent to previous soil borings, the hydrogeologic conditions at the proposed locations are known and must be considered As one example, we have attached the CPT log for boring CPT-1, which is adjacent to one of the proposed well locations As shown on Attachment 1, the proposed well screen interval from 30 to 55 feet bgs connects three separate coarse-grained layers that are separated by finer grained layers A well constructed in this manner at the proposed location would provide a conduit for vertical flow and water levels in the well would be affected by vertical gradients between the difference intervals Clearly, the proposed well screen interval for a well adjacent to CPT-1 would not be appropriate A second example of the need to consider the site hydrogeology is shown on Attachment 2, which is the CPT log for boring CPT-5 The proposed well adjacent to CPT-5 would be screened exclusively in the finer-grained soils consisting of silts and clays present between approximately 11 and 55 feet bgs The proposed well screen would not intersect any permeable water-bearing layers Therefore, the proposed well at this location would not provide sufficient data on contaminant migration off-site since the well does not intersect the likely pathway for contaminant migration Please review site hydrogeology and propose screen intervals that are appropriate for the site

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention Jerry Wickham), according to the following schedule

- **September 30, 2009** – Revised Work Plan

These reports are being requested pursuant to California Health and Safety Code Section 25296 10 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions" Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format) Please visit the SWRCB website for more information on these requirements (http //www swrcb ca gov/ust/cleanup/electronic_reporting)

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835 1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification Please ensure all that all technical reports submitted for this fuel leak case meet this requirement

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions California Health and Safety Code, Section 25299 76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry wickham@acgov org

Sincerely,

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Attachments CPT Logs for CPT-1 and CPT-5

Enclosure ACEH Electronic Report Upload (ftp) Instructions

cc Cheryl Dizon, QIC 80201, Zone 7 Water Agency, 100 North Canyons Parkway
Livermore, CA 94551

Danielle Stefani, Livermore-Pleasanton Fire Department, 3560 Nevada Street
Pleasanton, CA 94566

John Rigter, Livermore-Pleasanton Fire Department, 3560 Nevada Street
Pleasanton, CA 94566

Charlotte Evans, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A
Emeryville, CA 94608

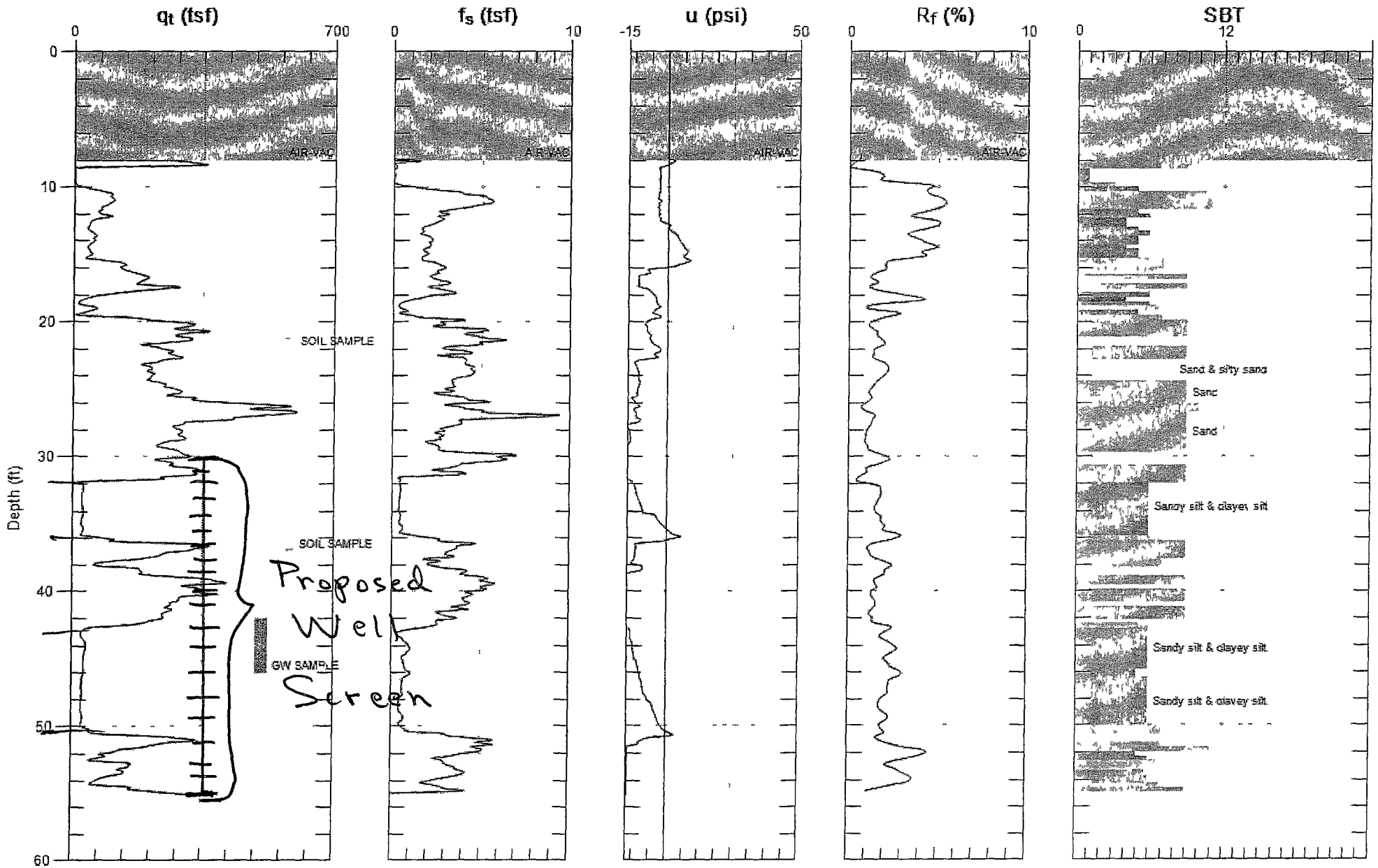
Donna Drogos, ACEH
Jerry Wickham, ACEH
File

Attachment A

GREGG **CRA**

Site FMR TEXACO 30-7233 Engineer: C.EVANS

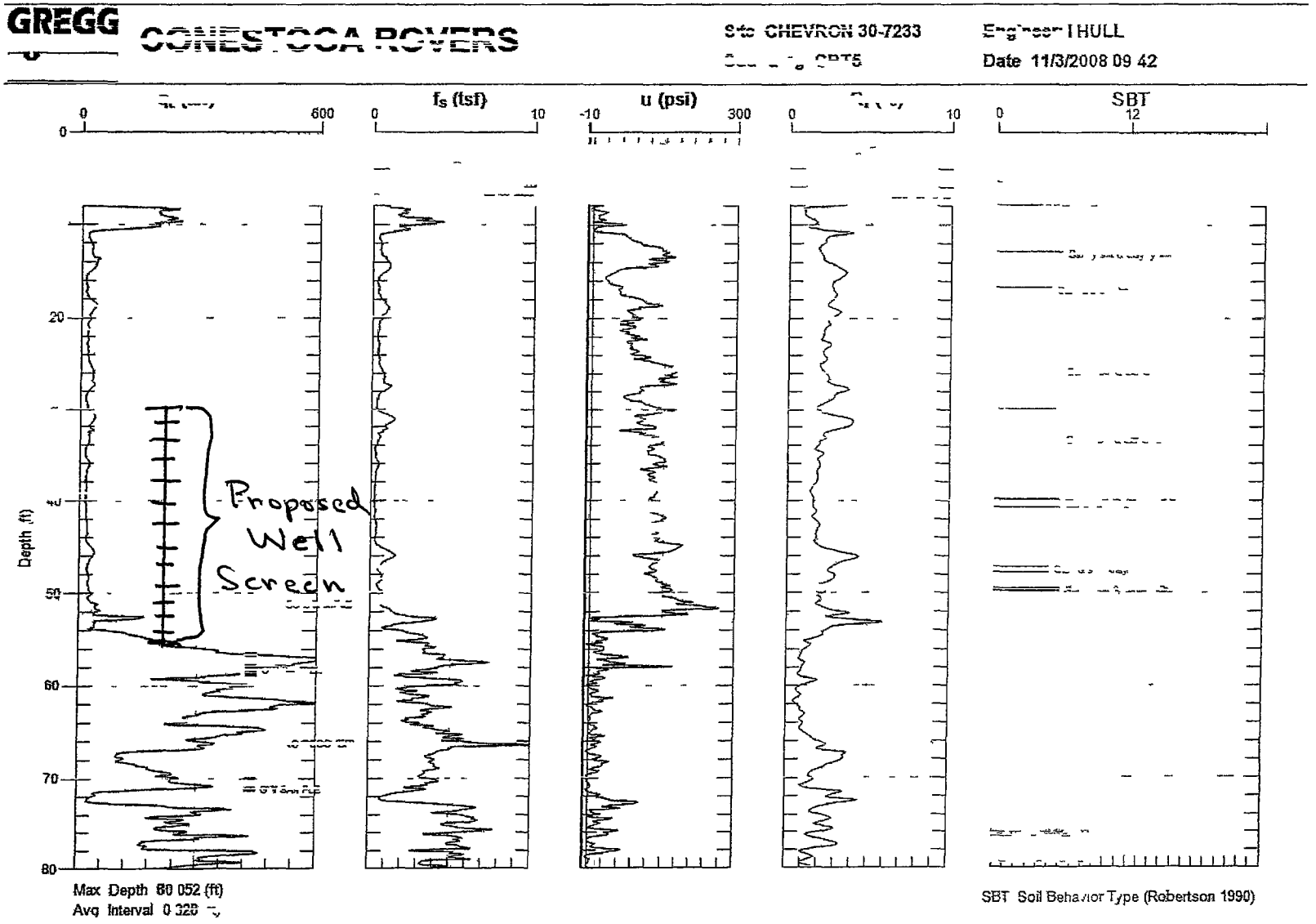
Sounding CPT-01 Date 2/5/2008 08 10



Max Depth 55 118 (ft)
Avg Interval 0 328 (ft)

SBT Soil Behavior Type (Robertson 1990)

Attachment B



Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	ISSUE DATE July 5, 2005
	REVISION DATE March 27, 2009
	PREVIOUS REVISIONS December 16, 2005, October 31, 2005
SECTION Miscellaneous Administrative Topics & Procedures	SUBJECT Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site Paper copies of reports will no longer be accepted The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection** (Please do not submit reports as attachments to electronic mail)
- It is **preferable** that reports be converted to PDF format from their original format, (e g , Microsoft Word) rather than scanned
- Signature pages and perjury statements **must** be included and have either original or electronic signature
- **Do not password protect the document** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password **Documents with password protection will not be accepted**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor
- Reports must be named and saved using the following naming convention
  RO#_Report Name_Year-Month-Date (e g , RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format These are for use by assigned Caseworker only

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site
      i) Send an e-mail to dehloptoxic@acgov org
         Or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention of My Le Huynh
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp //alcoftp1 acgov org
      (i) Note Netscape and Firefox browsers will not open the FTP site
   b) Click on File, then on Login As
   c) Enter your User Name and Password (Note Both are Case Sensitive)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov org notify us that you have placed a report on our ftp site
   b) Copy your Caseworker on the e-mail Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov org (e g , firstname lastname@acgov org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload** (e g , Subject RO1234 Report Upload) If site is a new case without an RO# use the street address instead
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site

APPENDIX B

SITE HISTORY

SUMMARY OF PREVIOUS ENVIRONMENTAL WORK

September 2003 Investigation: The City of Livermore Engineering Division, as part of a redevelopment plan, retained Fugro West, Inc. (Fugro) to investigate soil and groundwater conditions beneath Mills Square Park to evaluate the potential presence of petroleum hydrocarbons resulting from the historic use of the site as a service station. Fugro advanced three soil borings onsite. Hydrocarbons were only detected in one soil sample, which contained 9.6 mg/kg total petroleum hydrocarbons as diesel (TPHd) and 3.5 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as gasoline (TPHg). Groundwater samples contained up to 42,000 micrograms per liter (µg/l) TPHd and 18,000 µg/l TPHg. No benzene was detected in soil, but was detected in groundwater up to 140 µg/l. Total lead concentrations up to 3,700 mg/kg were detected in all soil samples at 3 feet below grade (fbg). Details can be found in Fugro's January 6, 2004 *Soil and Groundwater Investigation Report.*

September 2005 UST Removal: In September 2005, an orphan underground storage tank (UST) was encountered beneath the sidewalk on the southwest corner of the site. At the direction of the Livermore-Pleasanton Fire Department, the UST was removed, soil samples collected, and the excavated soil was backfilled into the UST pit. Soil beneath the UST contained up to 54 mg/kg total petroleum hydrocarbons as motor oil (TPHmo), 4,100 mg/kg TPHd, and 1,200 mg/kg TPHg. Chevron was not involved with the tank removal and was contacted later by ACEH to investigate whether any other USTs remained in Mills Square Park. Additional information is available in Consolidated Engineering Laboratories' October 4, 2005, *Environmental Sampling, Testing and Evaluation of Soil* report.

August 2006 Geophysical Investigation: Cambria Environmental Technology, Inc. (Cambria), now Conestoga-Rovers & Associates (CRA), contracted NORCAL Geophysical Consultants, Inc. to survey the site and determine if any USTs still remained in place. Two suspected tanks were identified in the southwest corner of the park, measuring approximately 5 by 7 feet and located approximately 3 fbg. More information available in Cambria's December 22, 2006 *Subsurface Investigation Report.*

September and October 2006 Site Investigation: Cambria observed Woodward Drilling Company, Inc. advance borings SB1 through SB5 in the vicinity of the former dispenser islands and suspected USTs. Up to 1,400 mg/kg TPHmo, 3,000 mg/kg TPHd, 8,700 mg/kg TPHg, and 14 mg/kg benzene were detected in soil. The maximum lead concentration was 65.4 mg/kg at 5 fbg. No groundwater was encountered to the total explored depth of 40 fbg. More information is available in Cambria's December 22, 2006 *Subsurface Investigation Report*.

June 2007 Tank Removal: On June 20, 2007, CRA observed Gettler-Ryan Inc. removed two 750 gallon single-wall steel gasoline USTs (Tank 1 and Tank 2) and approximately 27 feet of associated product piping. CRA collected compliance soil samples from beneath the ends and middle of both Tank 1 and Tank 2 and from below the pipes protruding from the northwestern wall of the tank pit. Up to 11,000 mg/kg TPHmo and 2,800 mg/kg TPHd were detected. No TPHg was detected in any sample. Lead was detected at a maximum concentration of 1,170 mg/kg at 8 fbg. More information can be found in CRA's August 17, 2007 *Underground Storage Tank Removal and Compliance Sampling Report*.

January and February 2008 Site Investigation: CRA observed Gregg Drilling & Testing, Inc. (Gregg), RSI Drilling, and Vironex Environmental Field Services advance soil borings CPT1, CPT2 and SB6 through SB9, shallow soil borings SSB1 through SSB11, and install vapor probes VP-1 through VP 3, both on and offsite. Maximum concentrations in soil detected above environmental screening levels[1] (ESLs) were 100 mg/kg TPHd in CPT1 at 36 fbg and 530 mg/kg TPHg in SB8 at 34.5 fbg. The highest concentrations detected in groundwater above ESLs were 1,500 µg/L TPHmo in both CPT1 and CPT2 at 42 and 31 fbg, respectively, 52,000 µg/L TPHd and 18,000 µg/L TPHg in SB8 at 34 fbg, and 14 µg/L benzene in CPT2 at 31 fbg. No benzene was detected in soil vapor and no other constituents were detected or were at least two orders of magnitude below the shallow soil gas screening levels for evaluation of potential vapor intrusion concerns for commercial/industrial land use. More information is available in CRA's March 27, 2008 *Subsurface Investigation Report and Well Installation Workplan*.

October and November 2008 Site Investigation: CRA observed Gregg Drilling advance soil borings CPT3 through CPT5 and SB10 through SB12, both on and offsite. CRA re-sampled soil vapor probe VP1 to confirm previous soil vapor data. Concentrations above ESLS in soil were only detected in boring SB12 at 1,300 mg/kg TPHg and 1.1 mg/kg benzene, both at 55.5 fbg. Maximum concentrations detected in groundwater were 5,500 µg/L TPHmo in CPT3 at 56 fbg, 43,000 µg/L TPHd in CPT5 at 55 fbg, and 29,000 µg/L TPHg and 200 µg/L benzene in CPT3 at 56 fbg. No benzene was detected in soil vapor. No other constituents were detected or were at least two orders of magnitude below the shallow soil gas screening levels for evaluation of potential vapor intrusion concerns for commercial/industrial land use. Additional information is available in CRA's March 5, 2009 *Subsurface Investigation Report*.

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[1] Environmental Screening Levels (ESLs) for commercial/industrial land use from the 2007 *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* by the California Regional Water Quality Control Board, San Francisco Bay Region Interim Final November 2007, revised May 2008.

APPENDIX C

STANDARD FIELD PROCEDURES FOR WELL INSTALLATION

Conestoga-Rovers & Associates

STANDARD FIELD PROCEDURES FOR MONITORING WELL INSTALLATION

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling groundwater monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

DRILLING AND SAMPLING

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Professional Geologist (PG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. Prior to drilling, the first 8 ft of the boring are cleared using an air or water knife and vacuum extraction. This minimizes the potential for impacting utilities.

Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4^{o}C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and groundwater depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The groundwater samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4^{o}C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. Equipment blanks may be analyzed if non-dedicated sampling equipment is used.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Groundwater monitoring wells are installed to monitor groundwater quality and determine the groundwater elevation, flow direction and gradient. Well depths and screen lengths are based on groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 feet below and 5 feet above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three feet thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. Rinsed and graded sand corresponding to the slot size occupies the annular space between the boring and the well screen to about one to two feet above the well screen. A two feet thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I, II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of groundwater surging and extraction. Surging agitates the groundwater and dislodges fine sediments from the sand pack. After about ten minutes of surging, groundwater is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of groundwater are extracted and the sediment volume in the groundwater is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Groundwater Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of groundwater are purged prior to sampling. Purging continues until groundwater pH, conductivity, and temperature have stabilized. Groundwater samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4^{o}C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite and covered by plastic sheeting. At least three individual soil samples are collected from the stockpiles and composited at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples in addition to any analytes required by the receiving disposal facility. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Groundwater removed during development and sampling is typically stored onsite in sealed 55-gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Upon receipt of analytic results, the water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.