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TRANSMITTAL

DATE: May 3, 2011

REFERENCE NO.: 312264

PROJECT NAME: Former Texaco 30-2733

TO: Mr. Jerry Wickham
ACEHS
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

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Environmental Health

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- ☐
- ☐

COMMENTS:
Please contact David Grunat at (510) 420-3363 with any questions or comments.

Copy to: Mr. Tom Bauhs, Chevron
Mr. Hyman Wong, Zone 7 Water Agency
Mr. Chris Davidson, City of Livermore
Mr. Eric Uranga, City of Livermore Economic Development

Completed by: David Grunat [Please Print] Signed:

Thomas Bauhs
Project Manager
Marketing Business Unit

Chevron Environmental Management Company
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Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Former Texaco Service Station No. 30-7233
2259 First Street
Livermore, California

I accept the **Draft Corrective Action Plan** dated May 3, 2011.

I agree with the conclusions and recommendations presented in this document. The information included is accurate to the best of my knowledge, and appears to meet local agency and Regional Board guidelines. This **Draft Corrective Action Plan** was prepared by Conestoga Rovers & Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,

Thomas Bauhs
Project Manager

Attachment: Draft Corrective Action Plan

DRAFT CORRECTIVE ACTION PLAN

FORMER TEXACO STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA
ACEHS RO# 2908

Prepared For:

Mr. Jerry Wickham
Alameda County Environmental Health (ACEH)
1131 Harbor Bay Parkway
Alameda, California 94502

Prepared by:
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MAY 3, 2011
REF. NO. 312264 (10)
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DRAFT CORRECTIVE ACTION PLAN

FORMER TEXACO STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA
ACEHS RO# 2908

David Grunat

Brandon S. Wilken, PG #7564

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MAY 3, 2011
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1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) is submitting this *Feasibility Study and Corrective Action Plan* (FS/CAP) on behalf of Chevron Environmental Management Company (Chevron) for the former Texaco station located at 2259 First Street, Livermore. In a letter dated October 12, 2010 (Appendix A), Alameda County Environmental Health (ACEH) requested a "pilot test work plan or draft corrective action plan."

The FS/CAP presented below complies with California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Storage Tank Regulations. Discussions of the site background, previous investigations at the site, quarterly monitoring activities, distribution of chemicals of concern, remediation goals, evaluation of remedial alternatives, and final remediation recommendations are presented herein.

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION

The site is located on the eastern corner of First Street and South Livermore Avenue in Livermore, California (Figure 1). Currently the site is Mill Square Park, owned by the City of Livermore. The park consists of grass and trees with a paved walkway and gazebo. Land use surrounding the park is primarily commercial.

The earliest available aerial photograph from 1959 shows a gasoline service station building located on the southern edge of the property and two dispenser islands located on the western portion of the property. A 1973 aerial photograph indicates that the station building and dispenser islands had been removed, leaving an unoccupied paved lot. By 1978, the property had been redeveloped as a park (Figure 2). The park remains in the same configuration as shown on a 1978 aerial photograph.

2.2 PREVIOUS WORK

Environmental assessment and remediation has been ongoing since 2003 which began with an investigation initiated by the City of Livermore Engineering Division to assess soil and groundwater conditions prior to further development to the park. To date, 31 soil borings, 6 soil vapor probes and 9 wells have been installed. In 2005, one orphaned underground storage tank (UST) and in 2007, two orphaned USTs and associated product piping were removed. A chronological summary of environmental

investigations and remediation conducted to date is presented in Appendix B. Figure 2 shows the locations of all known historical monitoring wells, soil borings, and former USTs.

2.3 SITE GEOLOGY AND HYDROGEOLOGY

The site is approximately 485 feet above mean sea level and regional topography slopes gently to the north. According to the September 2005 *Groundwater Management Plan* prepared by the Zone 7 Water Agency (Zone 7), the site is located in the Mocho II Sub-Basin of the Main Livermore-Amadore Valley Groundwater Basin. Zone 7 Water Agency extracts groundwater from this basin for municipal drinking water. Sediments in this basin are described as recent alluvium consisting of sandy gravel and sandy clayey gravel from the surface to approximately 150 feet below grade (fbg). This alluvium overlies the Livermore Formation.

Sediments encountered beneath the site consist of silty sand, silty gravel, and sandy gravel from the surface to approximately 9 fbg. Silts and clays are encountered between approximately 9 and 45 fbg. Sands and gravels are predominately encountered from approximately 45 fbg to the total depth explored of 62 fbg.

A current network of nine onsite and offsite wells monitor groundwater in two water-bearing zones that have been identified below the site; Zone A at approximately 28 to 40 fbg and Zone B at approximately 55 fbg. Zone A is believed to be a seasonal perched Zone and is not horizontally continuous across the site as it was only encountered in the southern and eastern portion of the site. Groundwater in shallow Zone A ranges from approximately 25 to 37 fbg and flows toward the southwest. Groundwater in deep Zone B is confined, ranges from approximately 27 to 38 fbg, and flows toward the northwest. A well construction summary table is included as Table 1. Soil boring and monitoring well logs are presented in Appendix C. Geologic cross sections are presented as Figures 3 and 4.

2.4 PRODUCT RELEASES AND SOURCE AREA

The source of hydrocarbons in soil and groundwater appears to be primarily from the former USTs and dispenser islands that were removed in 2005 and 2007. The highest hydrocarbon concentrations in vadose Zone soil were detected in soil samples collected from beneath the USTs and borings SB-1, SB-3, SB-4, and SB-5 located adjacent to the former USTs and dispenser islands. The highest hydrocarbon concentrations in

groundwater are detected in Zone A well MW-7, located within the former UST pit. No release volumes are available.

2.5 SENSITIVE RECEPTOR SURVEY

A sensitive receptor survey has not been completed for this site.

2.6 PREFERENTIAL PATHWAY ANALYSIS

A preferential pathway study has not been completed for this site.

3.0 DISTRIBUTION OF CONSTITUENTS OF CONCERN (COCs)

The primary constituents of concern (COCs) are total petroleum hydrocarbons as diesel (TPHd), total petroleum hydrocarbons as gasoline (TPHg), and benzene. Other COCs are total petroleum hydrocarbons as motor oil (TPHmo), toluene, ethylbenzene, and xylenes. Methyl tertiary butyl ether (MTBE) is not a COC.

3.1 HYDROCARBON DISTRIBUTION IN SOIL

TPHmo is limited to soil beneath the former USTs in soil borings SB1 and SB5 at a maximum concentration of 11,000 milligrams per kilogram (mg/kg). The highest TPHd, TPHg, and benzene concentrations were detected in soil beneath the former UST pit in SB1 and SB5 and former dispenser islands in soil boring SB3 at maximum concentrations of 4,100 mg/kg TPHd, 8,700 mg/kg TPHg and 17 mg/kg benzene. TPHd, TPHg, and benzene soil impacts are centered beneath the former USTs and dispenser islands and are laterally defined in all directions except east of the former USTs; however, further investigation in this direction is prevented by the adjacent retail building (Figures 5 through 8). The vertical extent of hydrocarbons in soil is defined with no hydrocarbons detected in soil below 56 fbg (Figures 3 and 4). Elevated lead concentrations above the Environmental Screening Levels (ESLs)[1] were detected in soil collected from the UST pit and soil boring B2 at a maximum concentration of 3,700 mg/kg; however, these elevated concentrations are limited to shallow soil (<10 fbg) near the former USTs and are

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

defined by 20 borings which contained lead concentrations below ESLs. Cumulative soil analytical results are presented in Table 2. Geologic cross sections illustrating the vertical extent of hydrocarbons in soil are presented as Figures 3 and 4. TPHg and benzene soil concentration maps illustrating the horizontal extent of hydrocarbons in shallow and deep soil are presented as Figures 5 through 8.

3.2 HYDROCARBON DISTRIBUTION IN GROUNDWATER

Groundwater has been monitored for 1 year using nine monitoring wells. Historical and current groundwater monitoring and sampling data are presented in Table 3. Grab-groundwater samples collected from soil borings are presented in Table 4. A summary of the March 7, 2011 groundwater monitoring data is presented in Table A below.

TABLE A: FIRST QUARTER 2011 GROUNDWATER ANALYTICAL DATA

Well ID	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*Total Xylenes*
	micrograms per liter (µg/L)					
Drinking Water ESLs	***100***	***100***	***1***	***40***	***30***	***20***
	Deep Wells					
MW-1	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-2	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-3	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-4	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-5	93	<50	<0.5	<0.5	<0.5	<0.5
MW-6	63	<50	<0.5	<0.5	<0.5	<0.5
	Shallow Wells					
MW-7	**55,000**	**16,000**	**1,500**	**50**	**470**	**2,100**
MW-8	**1,300**	**2,800**	0.9	0.7	12	2
MW-9	<50	<50	<0.5	<0.5	<0.5	<0.5

Hydrocarbons in shallow groundwater are localized around well MW-7 (source area), extending downgradient to MW-8, located in Livermore Avenue. Concentrations are defined crossgradient to the northwest by well MW-9 and to the north (upgradient) by the lack of groundwater encountered in borings SB9, SB10, SB11, and SB13. Additionally, no shallow groundwater was encountered in offsite CPT borings CPT4 and CPT5, located north and west of the site. Hydrocarbons in shallow groundwater

remain undefined downgradient, and cannot be defined crossgradient to the east due to the presence of the adjacent commercial building. The horizontal extent of hydrocarbons in shallow groundwater is illustrated in Figures 9 through 11. Hydrocarbons in groundwater are vertically defined as no TPHg or benzene, toluene, ethylbenzene, and xylenes (BTEX) are detected in deep groundwater wells, and the detected TPHd concentrations are below the drinking water ESL.

3.2.1 GEOCHEMICAL ANALYSIS

On March 7, 2011, groundwater samples from each well were measured in the field for pre-purge dissolved oxygen (DO) and oxidation reduction potential (ORP) and analyzed for nitrates, sulfates, and dissolved total ferrous iron. This data is presented on Table B below.

Active biodegradation is indicated by inverse relationships between hydrocarbon concentrations and DO, nitrate and sulfate concentrations, and direct relationships between hydrocarbon concentrations and total ferrous iron. Because of the complex system in which these reactions occur, individual geochemical parameters may not exhibit the specific expected relationships. Therefore, the data set should be viewed in total to assess whether hydrocarbons are biodegrading. The site-specific relationships are shown on Figures A through E and discussed below.

TABLE B: GEOCHEMICAL DATA

Sample I.D.	*TPHd*	*TPHg*	*Benzene*	*DO*	*ORP*	*Nitrate*	*Sulfate*	*Ferrous Iron*
	(µg/L)	*(µg/L)*	*(µg/L)*	*(mg/L)*	*(mV)*	*(µg/L)*	*(µg/L)*	*(µg/L)*
MW-1	< 50	< 50	< 0.5	1.7	171	6,900	73,600	< 10
MW-2	< 50	< 50	< 0.5	1.8	122	3,600	45,900	20
MW-3	< 50	< 50	< 0.5	2.0	17	4,300	70,400	53
MW-4	< 50	< 50	< 0.5	1.9	76	7,900	72,300	15
MW-5	93	< 50	< 0.5	1.6	24	7,900	70,100	23
MW-6	63	< 50	< 0.5	1.7	55	360	55,400	33
MW-7	55,000	16,000	1,500	0.3	-37	< 250	2,600	2,800
MW-8	1,300	2,800	0.9	0.7	-67	< 250	7,000	820
MW-9	< 50	< 50	< 0.5	1.5	59	< 250	172,000	48

Abbreviations & Notes:
mg/L = milligrams per liter
mV = millivolts

Dissolved Oxygen

During aerobic biodegradation, DO concentrations are reduced as aerobic respiration occurs. Oxygen is the most thermodynamically-favored electron acceptor used in aerobic biodegradation of petroleum hydrocarbons. Inverse relationships between DO and hydrocarbon concentrations indicate the occurrence of aerobic degradation, provided that at least 1 to 2 milligrams per liter (mg/L) of DO is present in groundwater. During this monitoring event, DO concentrations in shallow wells ranged from 0.3 to 1.5 mg/L. As shown on Figure A, there is an inverse relationship between hydrocarbon and DO concentrations in shallow groundwater; however, only 0.3 mg/L DO is detected in shallow source area well MW-7 indicating aerobic conditions do not exist in the plume core. DO concentrations in deep groundwater ranged between 1.5 and 2.0 mg/L, indicating aerobic conditions exist in the deeper water-bearing zone.

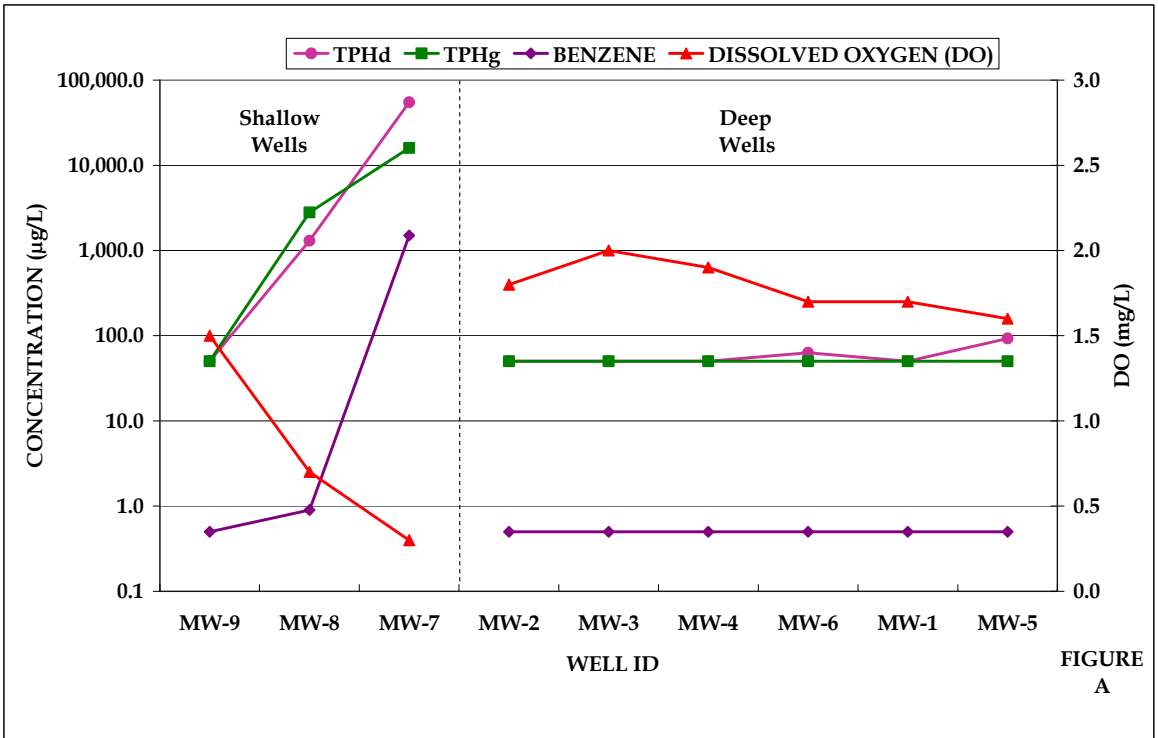


FIGURE A

FORMER TEXACO SERVICE STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA

CONESTOGA-ROVERS & ASSOCIATES

DISOLVED OXYGEN CONCENTRATION VERSUS TPHd, TPHg, AND BENZENE CONCENTRATION

Oxidation Reduction Potential

The ORP in groundwater is a measure of electron activity and is an indicator of the relative tendency of a solute species to gain or lose electrons. The ORP in groundwater generally ranges from -800 millivolts (mV) to +800 mV. ORP in groundwater is positive under oxidizing conditions, and negative under reducing conditions. Reducing conditions (negative ORP) suggests that anaerobic biodegradation is occurring. ORP in shallow groundwater during this monitoring event ranged from -67 to 59 mV (Figure B). The negative ORP associated with the higher hydrocarbon concentrations suggests anaerobic conditions in the plume core (MW-7 and MW-8). The positive ORP in all the deep wells suggests oxidizing conditions in deep groundwater.

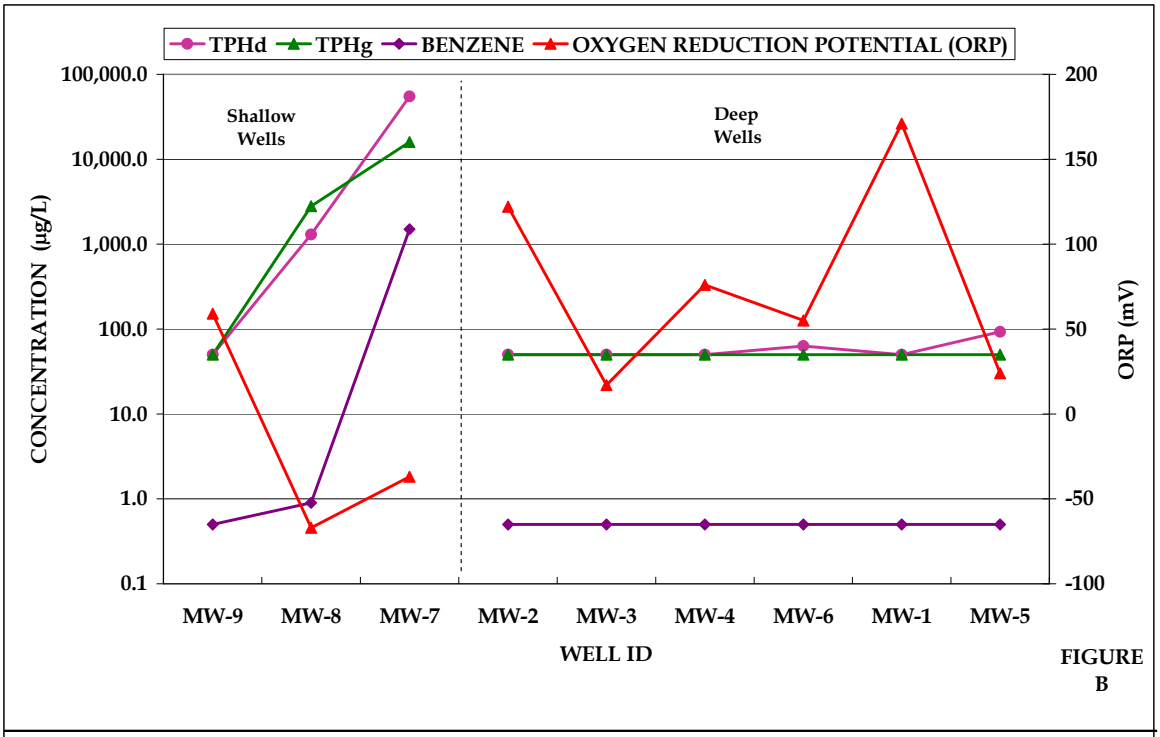


FIGURE B

FORMER TEXACO SERVICE STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA

CONESTOGA-ROVERS & ASSOCIATES

OXYGEN REDUCTION POTENTIAL VERSUS TPHd, TPHg, AND BENZENE CONCENTRATION

Nitrate

After DO has been depleted in groundwater, nitrate may be used as an electron acceptor for anaerobic biodegradation. In this denitrification process, nitrate is reduced to nitrite. If nitrate concentrations vary inversely with hydrocarbon concentrations and if nitrates are depleted in the core of the plume, anaerobic biodegradation of fuel hydrocarbons is probably occurring. Nitrate concentrations are below detection limits (<250) in shallow wells, indicating that either nitrate has been depleted (anaerobic conditions) or no nitrate exists in the shallow water-bearing Zone (Figure C). Nitrate concentrations are detected in all six deep wells and no to low hydrocarbon concentrations are detected in the deep water-bearing zone.

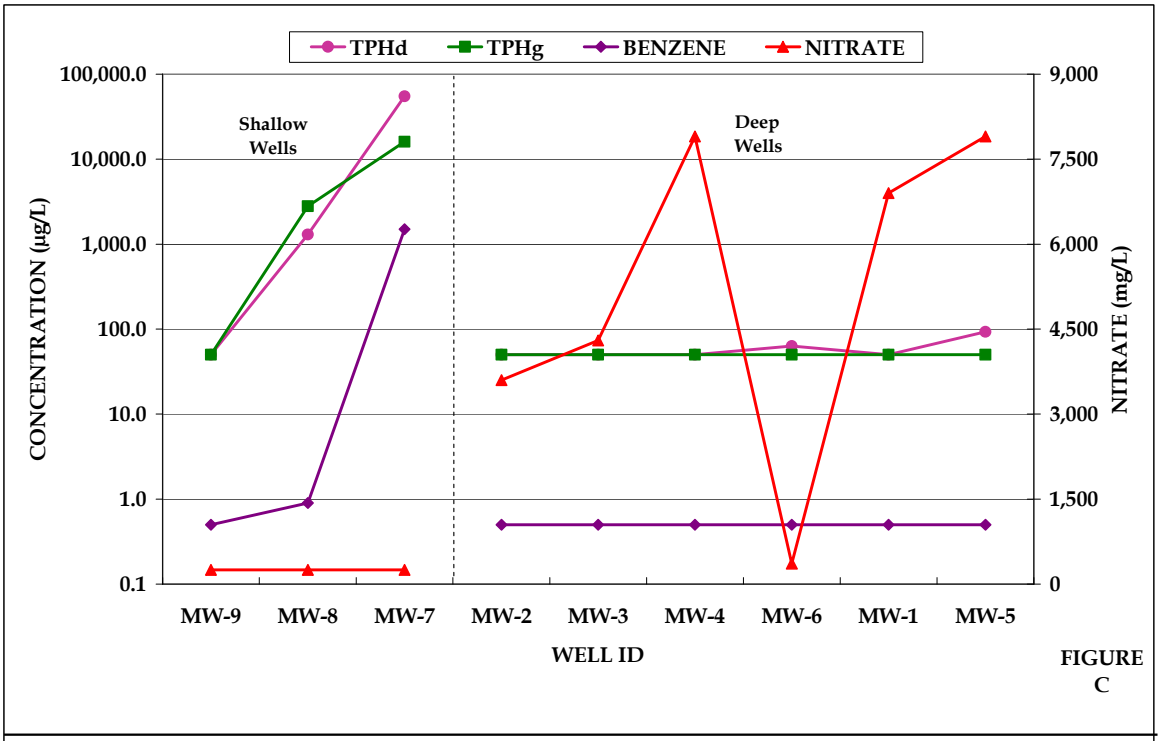


FIGURE C

FORMER TEXACO SERVICE STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA

CONESTOGA-ROVERS & ASSOCIATES

NITRATE CONCENTRATION VERSUS TPHd, TPHg, AND BENZENE CONCENTRATION

Sulfate

After DO and nitrate have been depleted in groundwater, sulfate may be used as an electron acceptor for anaerobic biodegradation. If sulfate concentrations vary inversely with hydrocarbon concentrations, anaerobic biodegradation of fuel hydrocarbons is probably occurring. As shown in Figure D, in shallow groundwater, sulfate concentrations vary inversely with hydrocarbon concentrations, indicating that anaerobic biodegradation is likely occurring in the plume core (MW-7 and MW-8). Sulfate concentrations are detected in all six deep wells and no to low hydrocarbon concentrations are detected in the deep water-bearing zone.

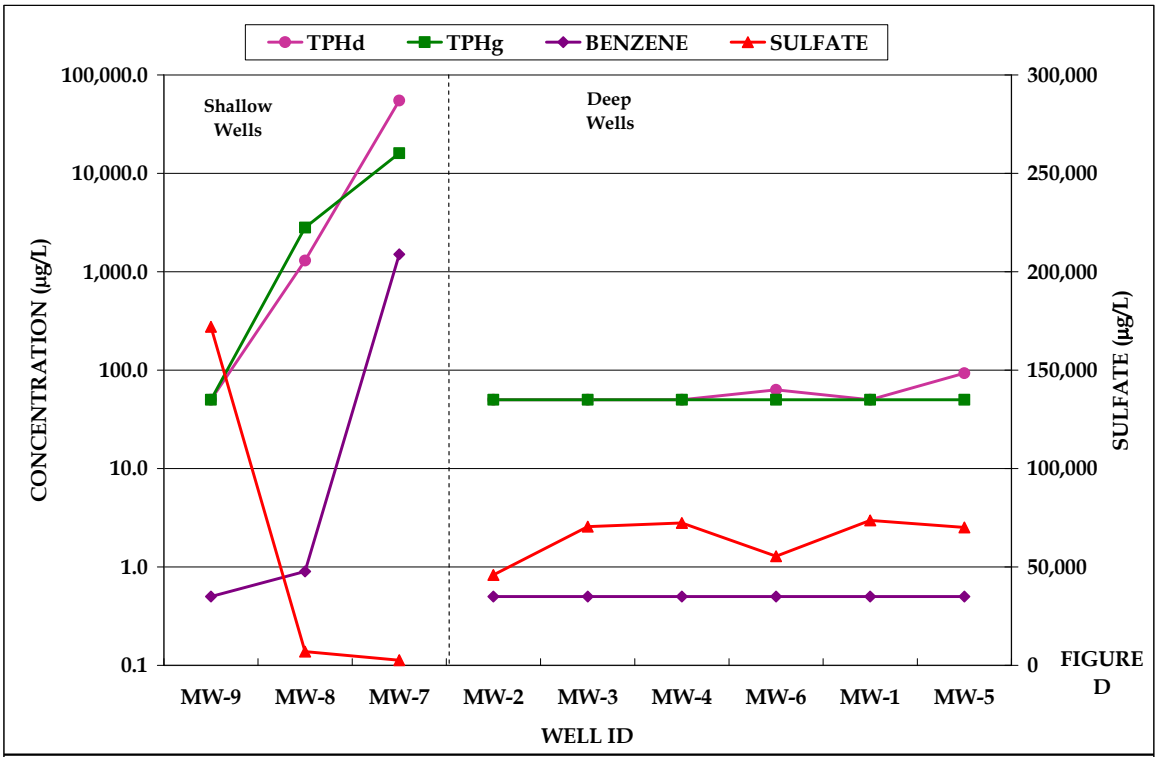


FIGURE D

FORMER TEXACO SERVICE STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA

CONESTOGA-ROVERS & ASSOCIATES

SULFATE CONCENTRATION VERSUS TPHd, TPHg, AND BENZENE CONCENTRATION

Ferric Iron

In some cases ferric iron is used as an electron acceptor during anaerobic biodegradation of petroleum hydrocarbons. In this process, ferric iron is reduced to ferrous iron, which is soluble in water. As shown on Figure E, ferrous iron in shallow groundwater varies directly with hydrocarbon concentrations. The 2,800 and 820 µg/L ferrous iron detected in shallow wells MW-7 and MW-8 indicate anaerobic biodegradation is likely occurring in the plume core. No to low ferrous iron concentrations are detected in all six deep wells and no to low hydrocarbon concentrations are detected in the deep water-bearing zone.

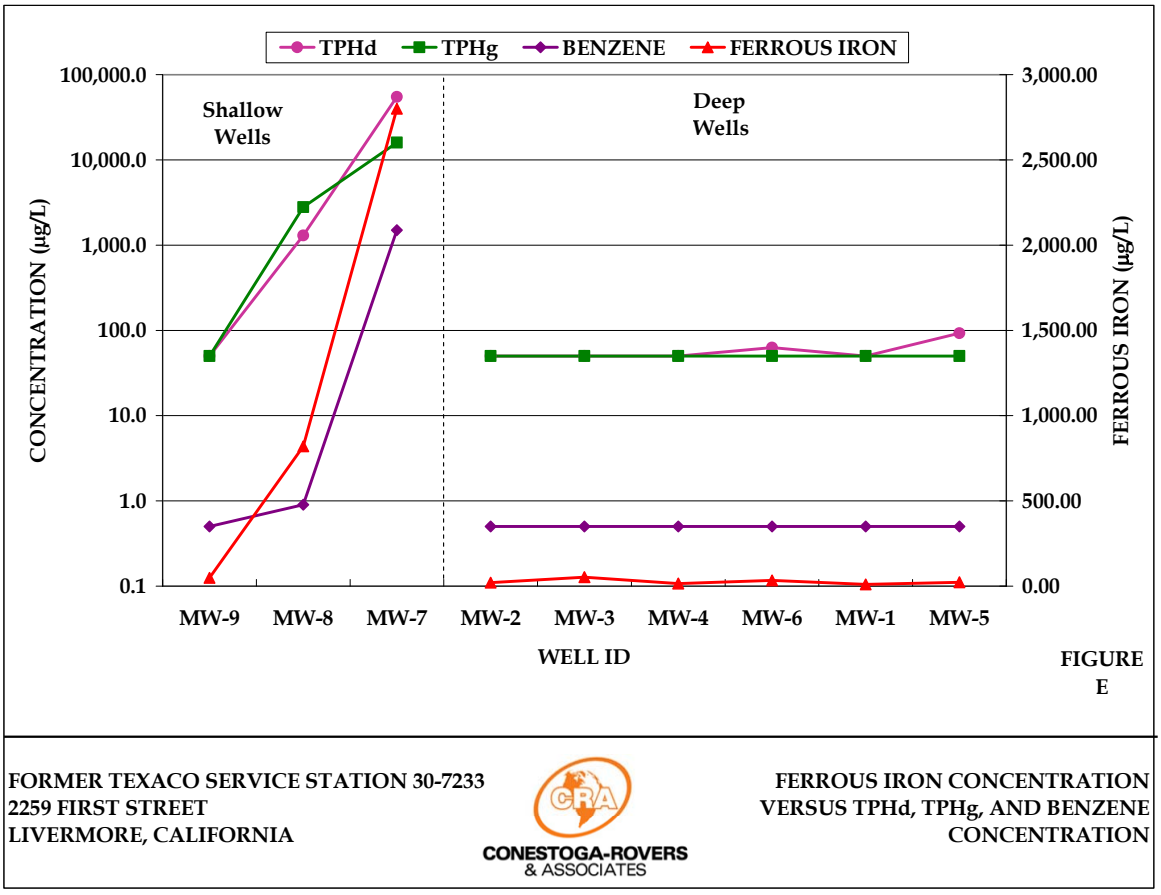


FIGURE E

FORMER TEXACO SERVICE STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA

CONESTOGA-ROVERS & ASSOCIATES

FERROUS IRON CONCENTRATION VERSUS TPHd, TPHg, AND BENZENE CONCENTRATION

Intrinsic Bioremediation Summary

There is a strong correlation between the geochemical parameters and hydrocarbon concentrations in shallow groundwater wells that suggest anaerobic biodegradation is occurring within the shallow plume core. Additionally, the above geochemical parameters indicate aerobic conditions exist in deep groundwater. The decreasing hydrocarbon concentrations seen over the past year in deep groundwater suggest that aerobic biodegradation is occurring in the deep water-bearing zone.

3.3 HYDROCARBON DISTRIBUTION IN SOIL VAPOR

In March and November 2008, soil vapor samples were collected from nested vapor probes VP1 through VP3. No benzene, fuel oxygenates, or naphthalene were detected in vapor, and the detected TPHg, toluene, ethylbenzene, and xylenes concentrations were two to three orders of magnitude lower than both the residential and commercial/industrial land use ESLs (ESL Table E). Cumulative soil vapor results are summarized on Table 5.

3.4 LIGHT NON-AQUEOUS PHASE LIQUIDS

No light non-aqueous phase liquids (LNAPL) have been observed.

4.0 FEASIBILITY STUDY/CORRECTIVE ACTION PLAN

4.1 REMEDIAL ACTION OBJECTIVES

Groundwater and soil cleanup goals will be established based on the following:

- Background concentrations of individual COCs;
- Applicable water quality objectives (WQOs) and environmental screening levels based on human health and environmental risk; and
- Technologic and economic feasibility.

4.2 GROUNDWATER CLEANUP GOALS

According to the September 2005 *Groundwater Management Plan* prepared by the Alameda County Flood Control & Water Conservation District Zone 7 Water Agency

(Zone 7), the site is located in the Mocho II Sub-Basin of the Main Livermore-Amadore Valley Groundwater Basin. Zone 7 extracts groundwater from this basin for municipal drinking water. The COCs are TPHd, TPHg, and benzene. Table C presents the COCs, background levels, ESLs to protect designated beneficial use, highest historical concentrations, and current maximum concentrations (using March 7, 2011 monitoring well data) for this site.

TABLE C: COMPARISION OF SHALLOW GROUNDWATER HYDROCARBON CONCENTRATIONS AND ENVIRONENTAL SCREENING LEVELS

Constituent of Concern (COC)	*Background Level (µg/L)*	*Environmental Screening Level (ESLs) (µg/L)*	*Historical Maximum Detected Concentration (µg/L)*	*Current Maximum Concentration (µg/L)*
TPHd	≤50	100	**55,000**	**55,000**
TPHg	≤50	100	**47,000**	**16,000**
Benzene	≤0.5	1	**2,800**	**1,500**

Bold designates drinking water ESL exceedence.

The background levels for all organic chemicals are assumed to be less than the typical analytical reporting limit. The current TPHd, TPHg, and/or benzene concentrations in shallow groundwater wells MW-7 and MW-8 exceed drinking water ESLs. CRA proposes groundwater cleanup goals that, along with decreasing COC concentration trends, would project to achieving ESLs in a reasonable timeframe (less than approximately 50 years). This is consistent with recent State Water Resources Board Resolution 2009-0042

4.3 SOIL CLEANUP GOALS

Maximum historical soil concentrations at the site were compared to San Francisco Bay RWQCB soil leaching and construction worker direct exposure ESLs for TPHd, TPHg, and benzene. The results are presented in the Table D.

TABLE D: COMPARISION OF HYDROCARBON CONCENTRATIONS IN SOIL AND ENVIRONMENTAL SCREENING LEVELS			
COC	**Soil**		
	Concentrations (a)	***Leaching Concerns ESLs (b)***	***Construction Worker Direct Exposure ESLs (C)***
	mg/kg		
TPHd	**4,100**	83	4,200
TPHg	**8,700**	83	4,200
Benzene	**17**	0.044	12

Notes:
(a) Soil concentrations based on highest historic detection
(b) Applicable ESLs are Table G Soil Leaching Concerns
(c) Applicable ESLs are Table K-3 Construction Worker Direct Exposure
Bold designates exceedances to the respective ESLs.

However, while removal of hydrocarbons in soil is a remediation objective, CRA recommends that reduction of dissolved concentrations of COCs in groundwater be used as the sole measures to define success of any remedial activities. The hydrocarbons detected in soil are aged and weathered, and the leachable fraction of hydrocarbons appears to be significantly less than the fraction sorbed to soil particles, as demonstrated by shallow and deep soil and groundwater concentrations. The site is currently a city park with no foreseeable redevelopment plans and the direct exposure pathway can be mitigated at the time of redevelopment with a soil management plan. In addition, no soil vapor intrusion ESLs have been exceeded. Therefore, exposure pathways to soil are limited and the advancement of soil confirmation borings to confirm that hydrocarbon concentrations in soil are below ESLs should not be required to confirm attainment of cleanup goals once the groundwater cleanup goal is achieved.

4.4 REMEDIAL ALTERNATIVES DISCUSSION AND APPROACH

The proposed remediation objectives are based on implementing the most cost-effective remedial approach that will protect human health and groundwater quality. Given site conditions, the remediation objectives are to reduce hydrocarbon concentrations in groundwater to the point that hydrocarbon concentrations trends would project achieving water quality objectives in a reasonable timeframe.

The remediation alternatives reviewed in this FS/CAP have been evaluated based on their potential to meet these objectives. No dissolved TPHg and BTEX concentrations are detected in the six deep groundwater monitoring wells and detected TPHd concentrations are below the drinking water ESL. Based on the information presented herein, remediation will focus on the shallow water-bearing Zone in the area of monitoring wells MW-7 and MW-8.

4.5 REMEDIAL ALTERNATIVES

The remedial technologies selected for evaluation include monitored natural attenuation (MNA), in-situ chemical oxidation (ISCO), soil vapor extraction with air sparging (SVE/AS), and excavation. These four alternatives are evaluated on the basis of technical feasibility and cost effectiveness.

4.5.1 MONITORED NATURAL ATTENUATION (MNA)

Biodegradation, adsorption, chemical reactions, and volatilization can all naturally degrade hydrocarbons. MNA is the process of hydrocarbon concentrations in groundwater to confirm that the concentrations are decreasing and will reach water quality objectives in a reasonable time frame. Concentration reductions in groundwater is a primary indicator of natural attenuation. Secondary indicators such as dissolved oxygen (DO) concentrations, oxidation-reduction potential (ORP), alkalinity, and nitrate, sulfate, ferrous iron concentrations, and ^{13}C isotopes can be used to confirm natural attenuation and understand the specific attenuation mechanisms.

4.5.1.1 FEASIBILITY AND COST EFFECTIVENESS

MNA is technically feasible for this site based on the following: (1) MNA is an effective remediation technology for TPHd, TPHg, and benzene; (2) groundwater monitoring data shows concentrations below drinking water ESLs in the deep Zone indicating the deeper drinking water aquifer is likely not at an immediate risk from hydrocarbons originating from the shallow zone, and (3) the release likely occurred more than 50 years ago; therefore, if hydrocarbons were capable of migrating to the deeper aquifer, they would have already done so. To determine the time to reach water quality objectives, CRA would typically utilize the first-order decay equation to predict that TPHd (100 µg/L), TPHg (100 µg/L), and benzene (1 µg/L) will reach the groundwater drinking water ESLs within a reasonable amount of time; however, currently there is insufficient data to make these predictions. The timeframe for achieving the cleanup levels in this area would be calculated upon collection of more data.

In general, DO measurements of less than 1 mg/L suggest that anaerobic conditions may exist. Aerobic biodegradation typically occurs in groundwater with >1 mg/L DO. Theoretically, aerobic degradation activity occurs at a highly positive

oxidation/reduction potential (ORP), while anaerobic microbial processes such as methanogenesis and sulfate reduction will occur at strongly negative ORP. During the first quarter 2011 groundwater monitoring and sampling event, DO concentrations in the shallow water-bearing Zone ranged from 0.3 to 1.5 mg/L, and ORP levels ranged from -67 to 59 mV. These levels indicate an anaerobic condition within the plume core, and a slightly more aggressive aerobic condition existing outside the plume. These data indicate that natural attenuation is not only feasible, but currently occurring.

Implementation of MNA will not result in a net increase in greenhouse gas emissions to reach water quality objectives except for the emissions from vehicles used to collect groundwater samples.

With current data, the cost of MNA and continued semi-annual sampling of well MW-1 and MW-9 cannot be calculated. Once better trends are developed, CRA can reevaluate MNA as a final remedial solution.

Recommendation: MNA is a viable remedial alternative and should be evaluated against other viable remedial options.

4.5.2 IN-SITU CHEMICAL OXIDATION (ISCO)

ISCO uses a strong oxidizing agent to promote a chemical reaction with hydrocarbons. During the reaction, the oxidizing agent breaks the carbon bonds in unsaturated compounds and converts them into carbon dioxide (CO_2) and water (H_2O). Another benefit of ISCO includes an increase in dissolved oxygen, which in turn accelerates naturally-occurring hydrocarbon biodegradation.

Common oxidizing agents include permanganate (MnO_4^-), Fenton's reagent (hydrogen peroxide (H_2O_2) and ferrous iron (Fe^{+2})), oZone (O_3), and persulfate ($S_2O_8^{2-}$). Persulfate, the strongest oxidizer from the referenced list, is commonly applied as sodium persulfate to effectively buffer the pH (Interstate Technology & Regulatory Council Guidance Documents, 2005). Because persulfate is also more persistent than H_2O_2 or ozone, the radius of influence will be greater. However, Fenton's reagent has been most commonly used and effective when treating hydrocarbon contamination (Environmental Protection Agency Guidance Documents, 2005).

4.5.2.1 FEASIBILITY AND COST EFFECTIVENESS

ISCO has been used to successfully reduce TPHd, TPHg, and benzene concentrations in soil and groundwater. The effectiveness of ISCO is limited by soil heterogeneities; however, the silt, sandy silt and gravel observed in the subsurface are not likely to inhibit ISCO effectiveness at this site.

There is an increased risk of fugitive vapors entering nearby buildings and/or conduits when using ISCO. This is a potential human health concern at this site due the adjacent commercial building, located less than 10 feet from the source area. Additionally, ISCO reactions are exothermic and are not recommended beneath buildings.

Bench-scale feasibility testing would be required to determine the appropriate oxidizing reagent, appropriate dosing rates, and to satisfy any applicable waste discharge requirements (WDRs). ISCO would be utilized at monitoring wells MW-7 and MW-8, which have the highest concentrations of COCs. In addition, CRA predicts that two more injection wells would need to be installed in the vicinity of MW-7 and MW-8 to ensure adequate ISCO dissemination. The reagent would likely be applied in batches at regular time intervals, as the area containing hydrocarbons is not large.

Recommendation: ISCO is not a feasible method for remediating soil and groundwater in the vicinity of wells MW-7 and MW-8. Due to the potential of fugitive hydrocarbon vapors entering the adjacent building and the potential exothermic reaction occurring beneath the building, this technology would create an unnecessary health risk to the buildings occupants. Therefore, CRA has deemed ISCO infeasible and does not recommend it at this site.

4.5.3 EXCAVATION

During excavation, contaminated soil is removed and transported to permitted off-site treatment and/or disposal facilities. In some cases, pre-treatment (via aeration, aboveground SVE, incineration, etc) of the contaminated media may be required in order to meet land disposal restrictions. Although excavation and offsite disposal alleviates the contaminant problem at the site, it does not treat the COCs. The type of COC and its concentration 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 excavation. Depending on available space, this range of equipment can safely excavate to a depth of approximately 25 feet maximum due to site constraints. Entry into excavations deeper than 5 feet requires shoring or sloping 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 depth 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 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.

4.5.3.1 FEASIBILITY AND COST EFFECTIVENESS

Based on historical soil analytical data, CRA has estimated a 50-foot by 50-foot excavation area around the former orphaned USTs. However, to fully capture the extent of hydrocarbons in soil beneath the site, this excavation would have to extend to approximately 40 feet deep. This depth exceeds the standard depth limit for which an excavation can be cost-effectively performed. In addition, the highest concentrations in soil are too near the footprint of the adjacent building and sidewalk to be effectively removed. We are unaware of any site in the area that has been closed after remedial excavation where groundwater quality improvements are a prerequisite to closure. CRA has not estimated a cost to execute soil excavation due to these limitations.

Recommendation: Excavation would effectively remove some of the residual soil source mass; however, it would be difficult to remove sufficient soil source mass to guarantee improvement of water quality. Therefore, CRA has deemed excavation infeasible and does not recommend it at this site.

4.5.4 SOIL VAPOR EXTRACTION WITH AIR SPARGING (SVE/AS)

Soil Vapor Extraction (SVE) is an in-situ process used to remove volatile organic compounds (VOCs) from soil. SVE is a common remediation technology applied for

addressing gasoline in the subsurface, such as at this site. Air Sparging (AS) is a remedial technology whereby air is injected into the saturated Zone to remove VOCs from below the groundwater table. It is typically implemented to remove VOCs adsorbed to saturated soil, although it can also be implemented to remove LNAPL or dissolved-phase VOCs. AS is typically designed to operate at relatively high air injection rates (greater than 10 cubic feet per minute [cfm] per injection point) in order to volatilize the VOCs. AS usually operates in tandem with an SVE system that captures the VOCs stripped from the saturated zone. SVE/AS improves groundwater quality by removing source area VOC mass and by delivering oxygen to the subsurface to accelerate hydrocarbon biodegradation.

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 on the radius of influence and applied vacuum of the vapor extraction wells observed during pilot testing. Extracted hydrocarbons are typically treated by granular activated carbon (GAC), a catalytic or thermal oxidizer, or an internal combustion engine. The treatment device is determined by the influent flow rate, hydrocarbon concentrations, air quality requirements, and operating duration. Equipment required to implement AS would include a compressed air source (air compressor/blower), compressed air conveyance piping, and specifically designed AS wells. The air compressor or blower size would be based on the number of injection points, pressure requirements, and minimum pressure and flow delivery at the injection depth.

4.5.4.1 FEASIBILITY AND COST EFFECTIVENESS

SVE/AS is an effective alternative for reducing dissolved concentrations of petroleum hydrocarbons. The limiting factors for a SVE/AS system include permeability of soils and volatility of constituents. At this site, soil permeability is within a range of 10^{-10} to 10^{-6} cm^2 (assumed), and the COCs are adequately volatile. Both factors are considered to be within the moderate to effective range for implementation of SVE/AS.

The site is not fully characterized; therefore, CRA is unable to adequately evaluate the equipment required to effectively remediate the hydrocarbon plume. Additionally, CRA contacted the City of Livermore to evaluate the possibility of installing a fixed remediation system compound onsite. Based on phone conversations with Ms. Lorraine Purcell of the City of Livermore Planning Department on March 29 and 31, 2011, a fixed remediation system would not be permitted on the site property.

Recommendation: SVE/AS is a not a viable remedial option because the City of Livermore will not allow a system to be placed on their small, active park in the middle of downtown Livermore.

4.6 SUMMARY OF REMEDIAL ALTERNATIVES

Of the four remedial alternatives evaluated, MNA is likely the most cost-effective, has the lowest greenhouse gas emissions, and is the only practical option. Costs can be further reduced if groundwater monitoring and sampling is reduced from quarterly to semi-annually, and will still meet requirements to close the site. Because MNA is the only alternative that is currently feasible, CRA recommends implementing MNA at least while completing groundwater assessment and further developing the site conceptual model (SCM).

5.0 CONCLUSION & RECOMENDATIONS

There is insufficient groundwater monitoring data from the current monitoring well network to predict that dissolved COC concentrations are declining and will achieve WQOs in a reasonable timeframe. However, geochemical parameter data collected at the site indicates that anaerobic biodegradation of COCs is likely occurring in the primary shallow source area in the vicinity of MW-7 and MW-8. Additionally, MNA appears to be the only cost-effective and technically feasible alternative to apply at the site. Therefore, CRA believes MNA is appropriate to implement, at least while finalizing a comprehensive SCM. Until the site can be further characterized, CRA cannot recommend that any active remedial alternative is appropriate.

To further develop the SCM, CRA proposes installing two shallow monitoring wells downgradient of wells MW-7 and MW-8 to further delineate shallow groundwater conditions CRA additionally proposes conducting a preferential pathway and sensitive receptor survey. These activities are further discussed below. In addition, CRA proposes a minimum of two additional years of groundwater monitoring to evaluate dissolved concentration trends at the site before active remedial alternatives could again be considered.

6.0 PROPOSED OFFSITE INVESTIGATION

To assess the downgradient extent of hydrocarbons in shallow groundwater, CRA proposes installing two shallow groundwater monitoring wells (Figure 2). In addition, CRA proposes conducting a sensitive receptor survey and preferential pathway study. In order to accomplish this scope of work, Chevron and CRA propose to conduct the following activities:

Permits

CRA will obtain a drilling permit from the Zone 7 water agency prior to beginning field operations. A minimum of 48 hours of notice will be given to ACEHS prior to beginning activities. Additionally, CRA will obtain encroachment permits for the work in the street and sidewalk as well as to access Mills Square Park.

Site Health and Safety Plan

CRA will prepare a site health and safety plan to provide safety guidelines to all site workers and visitors. The plan will be kept onsite at all times and followed by all site workers and visitors each day of operation.

Utility Location

CRA will mark the site for Underground Service Alert (USA) clearance. USA and a licensed geophysicist will be contacted a minimum of 48 hours prior to field activities to mark and identify locations of utilities near the boring and well locations and identify any potential preferential pathways.

Utility Clearance

Per Chevron and CRA safety requirements, each boring and well location will be cleared to 8 fbg using an air-knife assisted vacuum truck and/or hand augers to detect any unknown utilities prior to drilling.

Soil Boring and Monitoring Well Installation

After clearing to 8 fbg, the two wells will be advanced to 40 fbg using 8-inch diameter hollow stem augers. After soil samples are collected, two borings will be backfilled using neat Portland cement.

The borings will be located in the parking lane south of MW-7 and the landscaped planter west of MW-8 and will be completed as 2-inch diameter wells MW-10 and MW-11. The wells will be screened from approximately 35 to 40 fbg and will be constructed using 0.010 slotted 2-inch diameter Schedule 40 PVC pipe with Monterey Sand #2/12. The sand pack will be placed to a minimum of 1-foot above the screen. The

well annulus will have a 2-foot hydrated bentonite seal above the sand pack and be filled with neat Portland cement to approximately 1 fbg. The screen interval and well construction may be modified based on conditions encountered in the field. A well box equipped with a traffic rated lid will be installed at grade. Exact well locations and final depths will be based on site and utility constraints and the extent of soil impacts, if any, encountered at depth. CRA and Chevron safety protocol prohibits installation of monitoring wells in active roadways and within 5 feet of energized utility lines. If active utilities prevent installation of a monitoring well in the landscaped planter, CRA proposes advancing a soil boring in the roadway and collecting grab-groundwater samples. CRA's *Standard Field Procedures for Soil Boring and Monitoring Well Installation* is presented in Appendix D.

Well Development and Sampling

The well will be developed using agitation and pumping. Gettler-Ryan, Inc. will develop and sample the wells no sooner than 72 hours after installation.

Soil Sampling Protocol

CRA geologists will log collected soils using the ASTM D 2488-06 Unified Soil Classification System. Soil samples will be field-screened using a photo ionization detector (PID) and visual observations. Approximately one 6-inch soil sample will be collected every 5 feet for laboratory analysis and at obvious changes in soils, and where hydrocarbon staining or PID readings are observed. Soil samples above 8 fbg will be collected by driving steel tubes into disturbed sediments removed by a hand auger bucket. Soil samples below 8 fbg will be collected by either driving a modified California split spoon sampler lined with three 6-inch brass tubes or a 4-foot acetate lined direct push sampler into undisturbed sediments. All samples will be capped using Teflon tape and plastic caps, labeled, placed in a cooler with ice, and transported under chain-of-custody to a Chevron and State-approved laboratory for analysis.

Chemical Analysis

Selected soil and groundwater samples will be analyzed for the following:

- TPHd by EPA Method 8015 modified with silica gel cleanup
- TPHg by EPA Method 8015 modified
- Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260B
- Total lead by EPA Method 6010 (waste composite soil samples only)

Soil Disposal

Soil cuttings, decontamination water, and groundwater will be temporarily stored onsite in properly labeled 55-gallon drums pending soil profiling results. The wastes will transported and disposed of at appropriate Chevron and State-approved disposal facilities.

Preferential Pathway Study

CRA proposes to map the subsurface utility structures by noting exposed features (e.g. manhole covers) and underground service alert markings, and reviewing engineering drawings from the utility purveyors, and completing a private utility mark out onsite. CRA will attempt to determine the top and bottom of utility trenches. All utilities will be shown on a scaled site plan, and if available the diameter, depth, and flow direction of the utilities will also be represented. CRA will also identify underground utilities on scaled cross-sections.

Well and Sensitive Receptor Survey

CRA will request the *Well Driller Completion Reports* from the California Department of Water Resources (DWR) for all wells located within a ½-mile radius of the site. In addition, CRA will contact Alameda County Public Works Agency to get a map and table of wells located within a ½-mile radius of the site. CRA will identify and discuss all surface water bodies within a ½-mile radius of the site. CRA will identify and discuss any sites with sensitive land usage (i.e. schools, daycare, hospitals, and etc.) within 500 feet of the site. In addition, CRA will contact local agencies to determine if any municipal wells are located in the vicinity of the site. All wells identified will be tabulated and represented on a scaled map and included in the site assessment.

Reporting

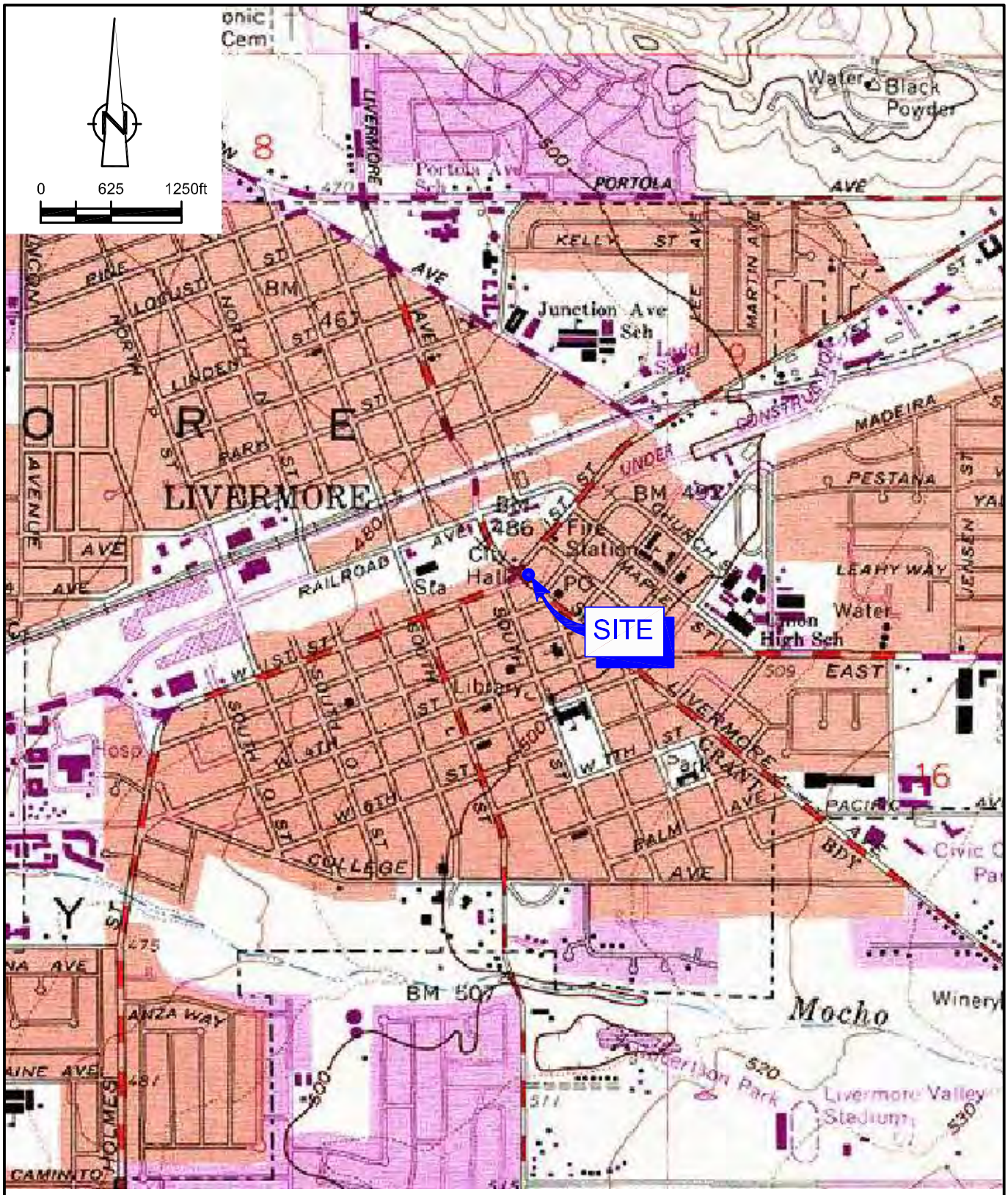
Upon completion of field activities and review of the analytical results, we will prepare an investigation report that at a minimum will contain:

- Preferential Pathway Survey
- Sensitive Receptor Survey
- Descriptions of drilling and sampling methods
- Well installation details
- Tabulated soil and groundwater analytical results
- A figure illustrating the well locations
- Analytical reports and chain-of-custody forms
- Soil disposal methods

- An updated SCM with discussion of the hydrocarbon distribution in soil and groundwater
- Conclusions and recommendations

CRA will conduct this work following approval from the ACEHS. After approval, CRA will obtain the necessary permits, meet with utility service providers, and schedule a drilling subcontractor. CRA will submit the investigation report approximately 8 weeks after completion of field activities, which includes the development, and monitoring and sampling of the newly installed well. Based on the results of the proposed investigation and groundwater trends from onsite wells and the proposed well, CRA will update the FS/CAP if necessary.

FIGURES



SOURCE: TOPO! MAPS.

Figure 1

VICINITY MAP
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

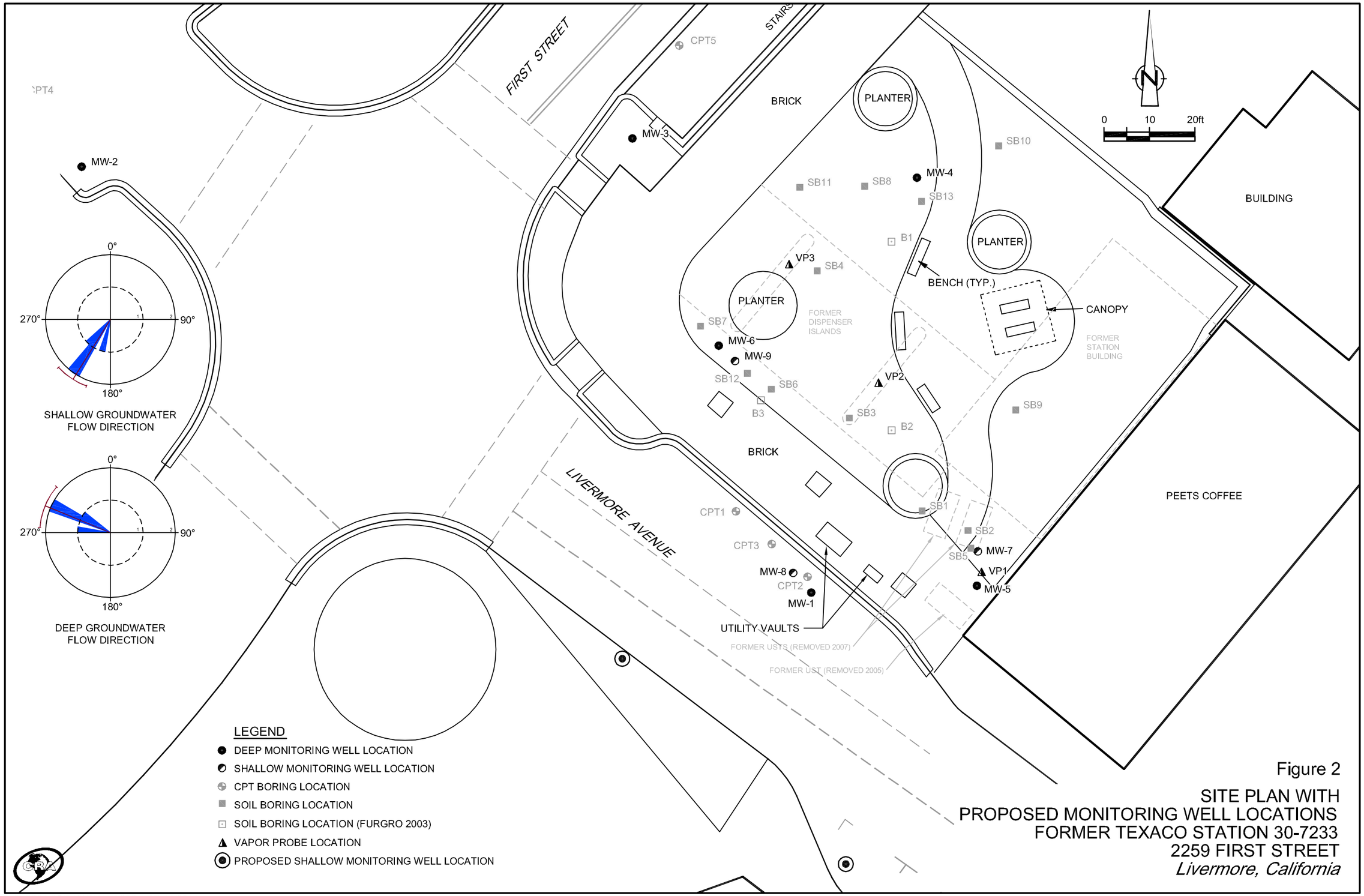


Figure 2

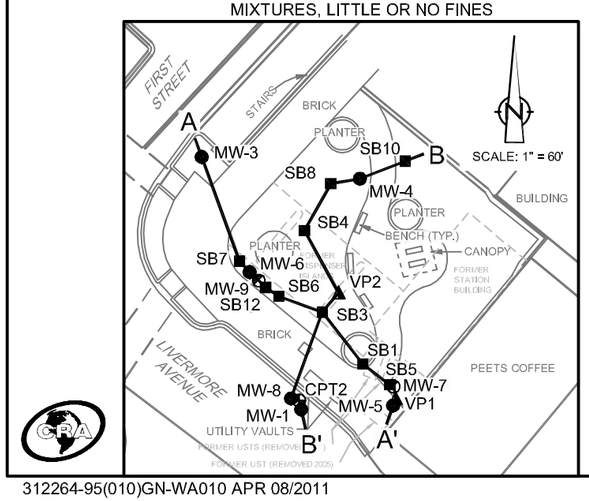
SITE PLAN WITH
PROPOSED MONITORING WELL LOCATIONS
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

312264-95(010)GN-WA002 APR 14/2011

LEGEND

MW-6 — WELL DESIGNATION
GROUND SURFACE
OBSERVATION WELL INSTALLATION
STRATIGRAPHIC BOUNDARY
CL — TYPICAL SOIL CLASSIFICATION
SCREENED INTERVAL
BOTTOM OF BORING
APPROXIMATE SOIL SAMPLE LOCATION
TPHg / BENZENE / DATE — HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
APPROXIMATE GROUNDWATER SAMPLE LOCATION (MARCH 7, 2011)
TPHd / TPHg / BENZENE — HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
MINIMUM DTW IN SHALLOW ZONE
MAXIMUM DTW IN SHALLOW ZONE
MINIMUM DTW IN DEEP ZONE
MAXIMUM DTW IN DEEP ZONE
< NOT DETECTED AT OR ABOVE STATED REPORTING LIMITS
100 — TPHg CONCENTRATION CONTOUR IN SOIL (mg/kg)

FILL
TS - TOPSOIL
CO - CONCRETE
CL - INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
ML - INORGANIC SILTS, VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY
SM - SILTY SANDS, SAND-SILT MIXTURES
SP - POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SW - WELL-GRADED SAND, GRAVELLY SANDS, LITTLE OR NO FINES
GM - SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
GP - POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
GW - WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES



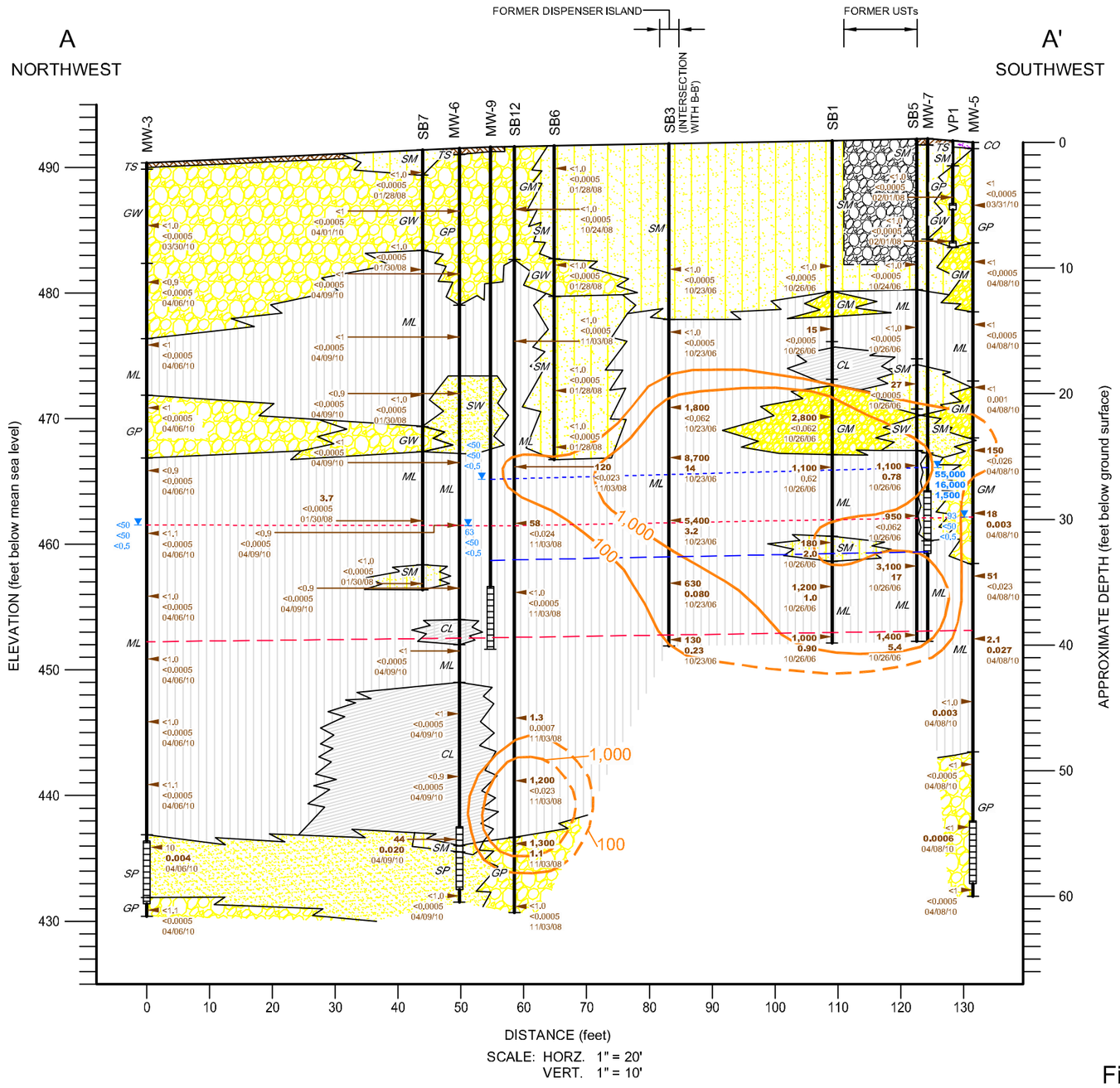


Figure 3

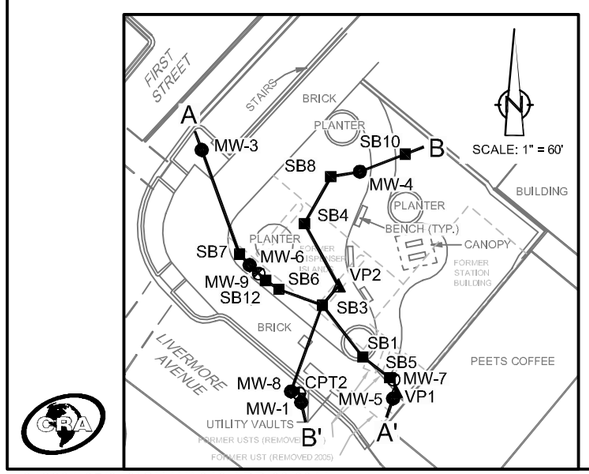
GEOLOGIC CROSS SECTION A-A'
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

LEGEND

MW-4 — WELL DESIGNATION
GROUND SURFACE
OBSERVATION WELL INSTALLATION
STRATIGRAPHIC BOUNDARY
CL — TYPICAL SOIL CLASSIFICATION
SCREENED INTERVAL
BOTTOM OF BORING
APPROXIMATE SOIL SAMPLE LOCATION
TPHg / BENZENE / DATE — HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
APPROXIMATE GROUNDWATER SAMPLE LOCATION (MARCH 7, 2011)
TPHd / TPHg / BENZENE — HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
MINIMUM DTW IN SHALLOW ZONE
MAXIMUM DTW IN SHALLOW ZONE
MINIMUM DTW IN DEEP ZONE
MAXIMUM DTW IN DEEP ZONE
< — NOT DETECTED AT OR ABOVE STATED REPORTING LIMITS
100 — TPHg CONCENTRATION CONTOUR IN SOIL (mg/kg)

FILL

TS - TOPSOIL
CL - INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
ML - INORGANIC SILTS, VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY
SM - SILTY SANDS, SAND-SILT MIXTURES
SP - POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SW - WELL-GRADED SAND, GRAVELLY SANDS, LITTLE OR NO FINES
GM - SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
GP - POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
GW - WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES



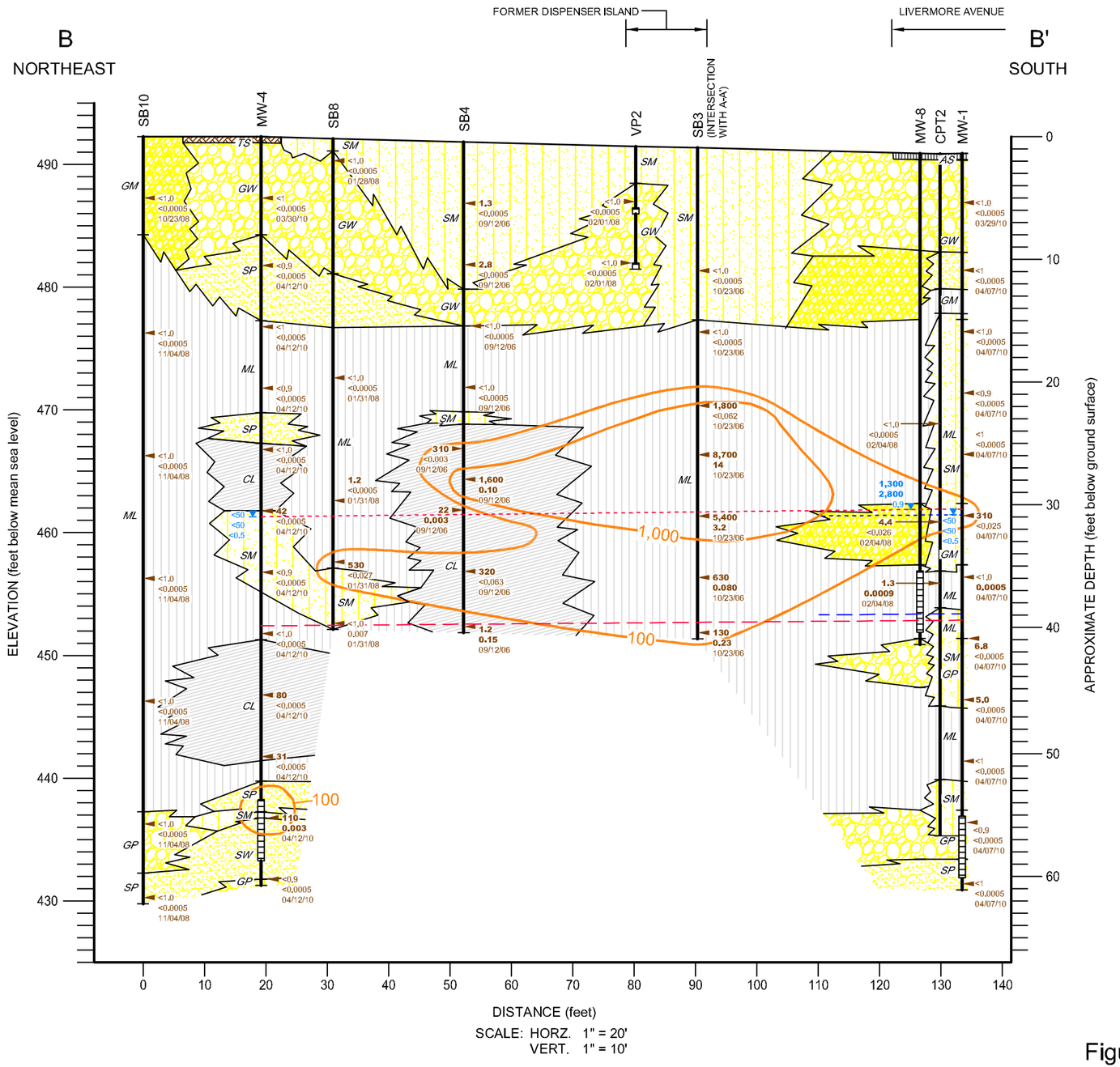


Figure 4

GEOLOGIC CROSS SECTION B-B'
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

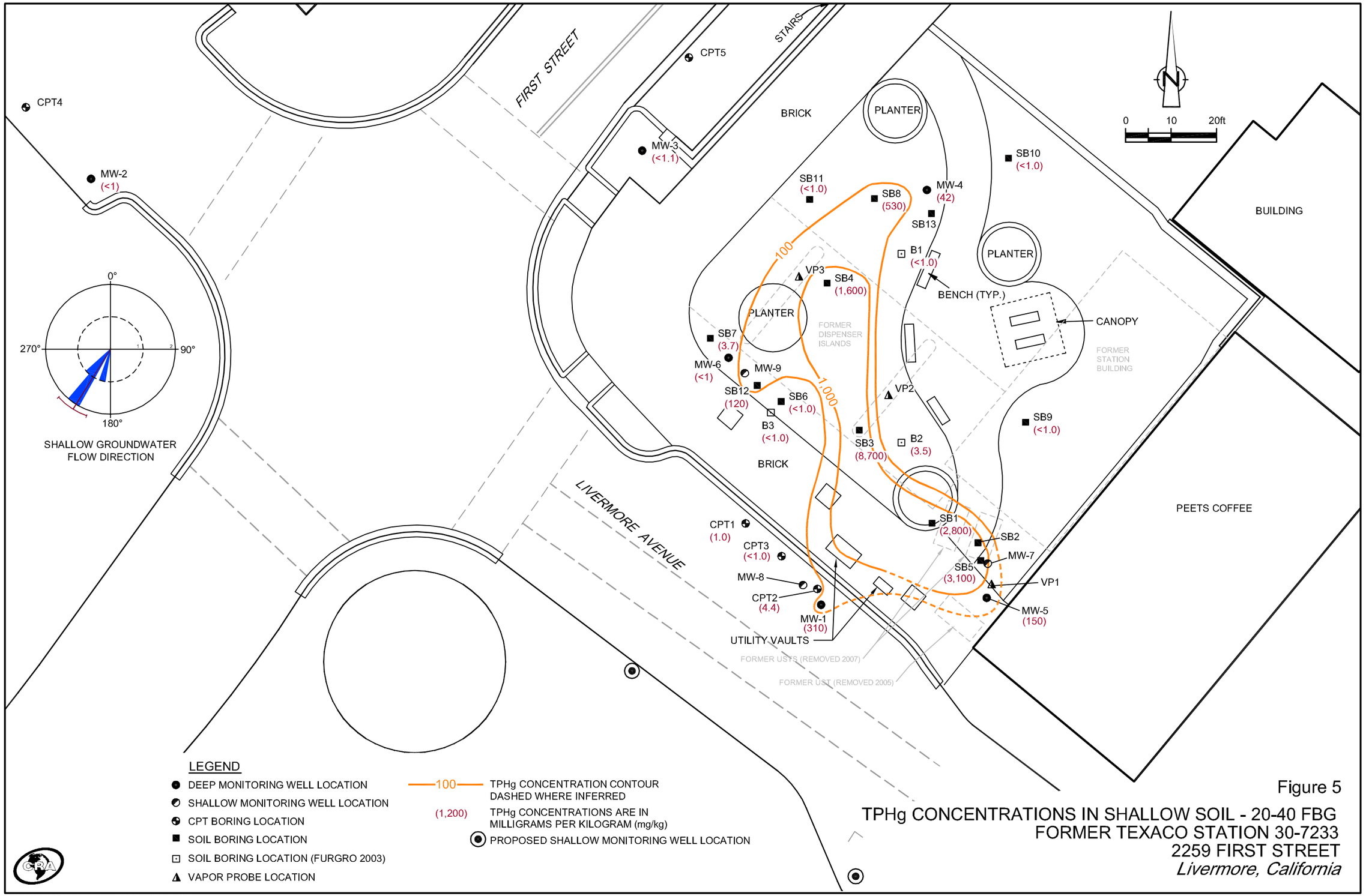


Figure 5

TPHg CONCENTRATIONS IN SHALLOW SOIL - 20-40 FBG
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

312264-95(010)GN-WA006 APR 14/2011

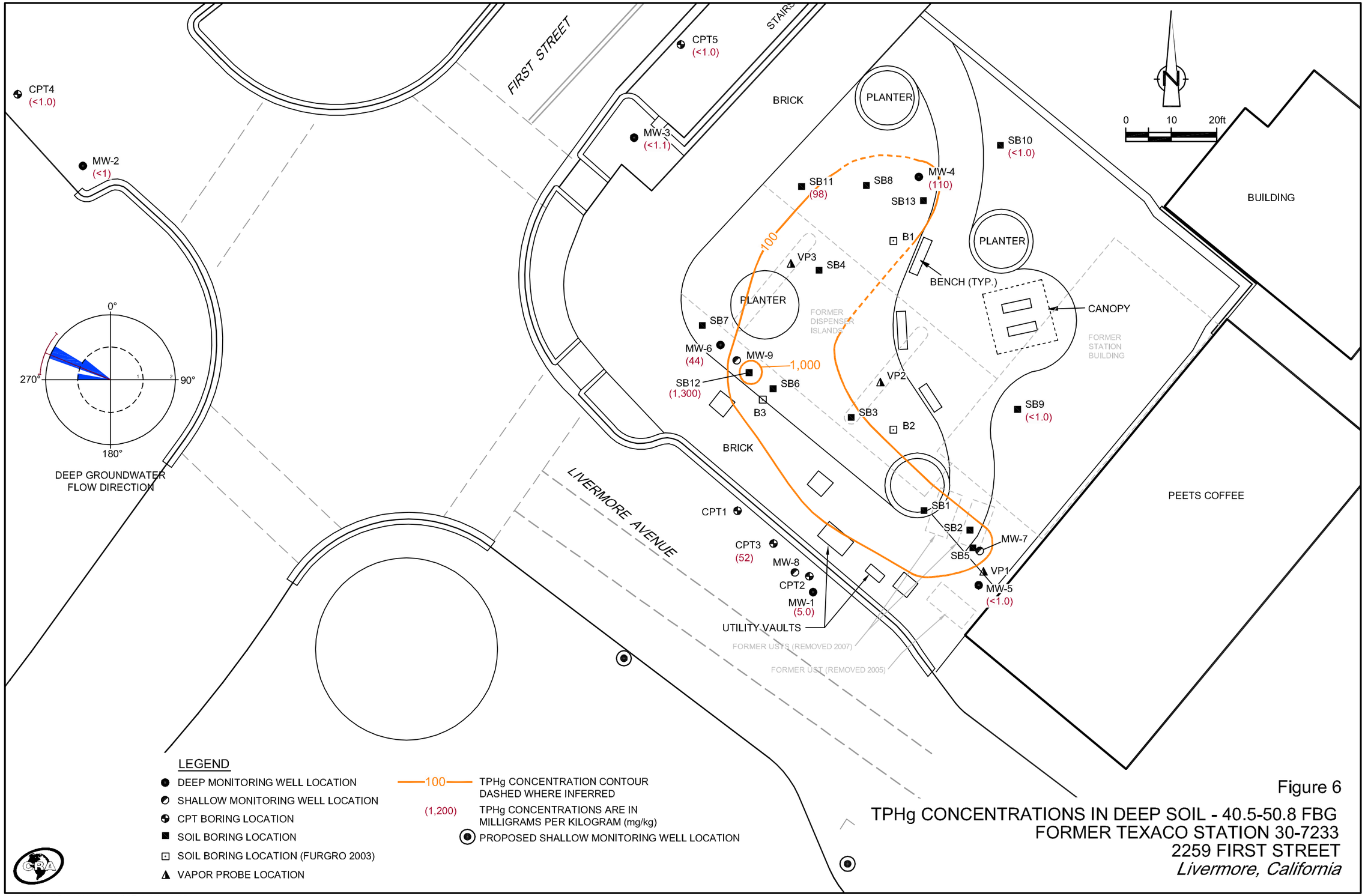


Figure 6

TPHg CONCENTRATIONS IN DEEP SOIL - 40.5-50.8 FBG
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

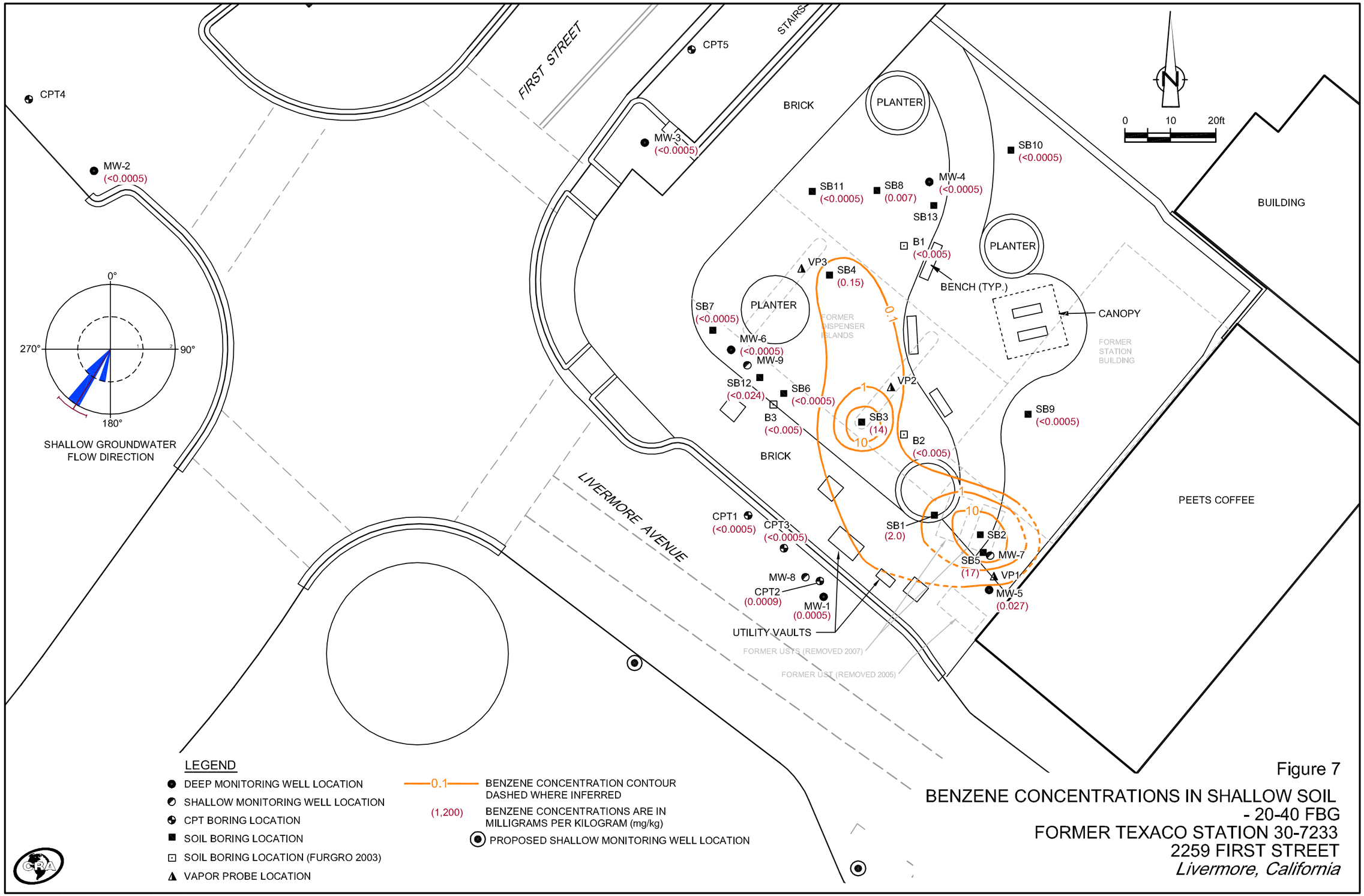


Figure 7

BENZENE CONCENTRATIONS IN SHALLOW SOIL - 20-40 FBG

FORMER TEXACO STATION 30-7233

2259 FIRST STREET

Livermore, California

312264-95(010)GN-WA008 APR 14/2011

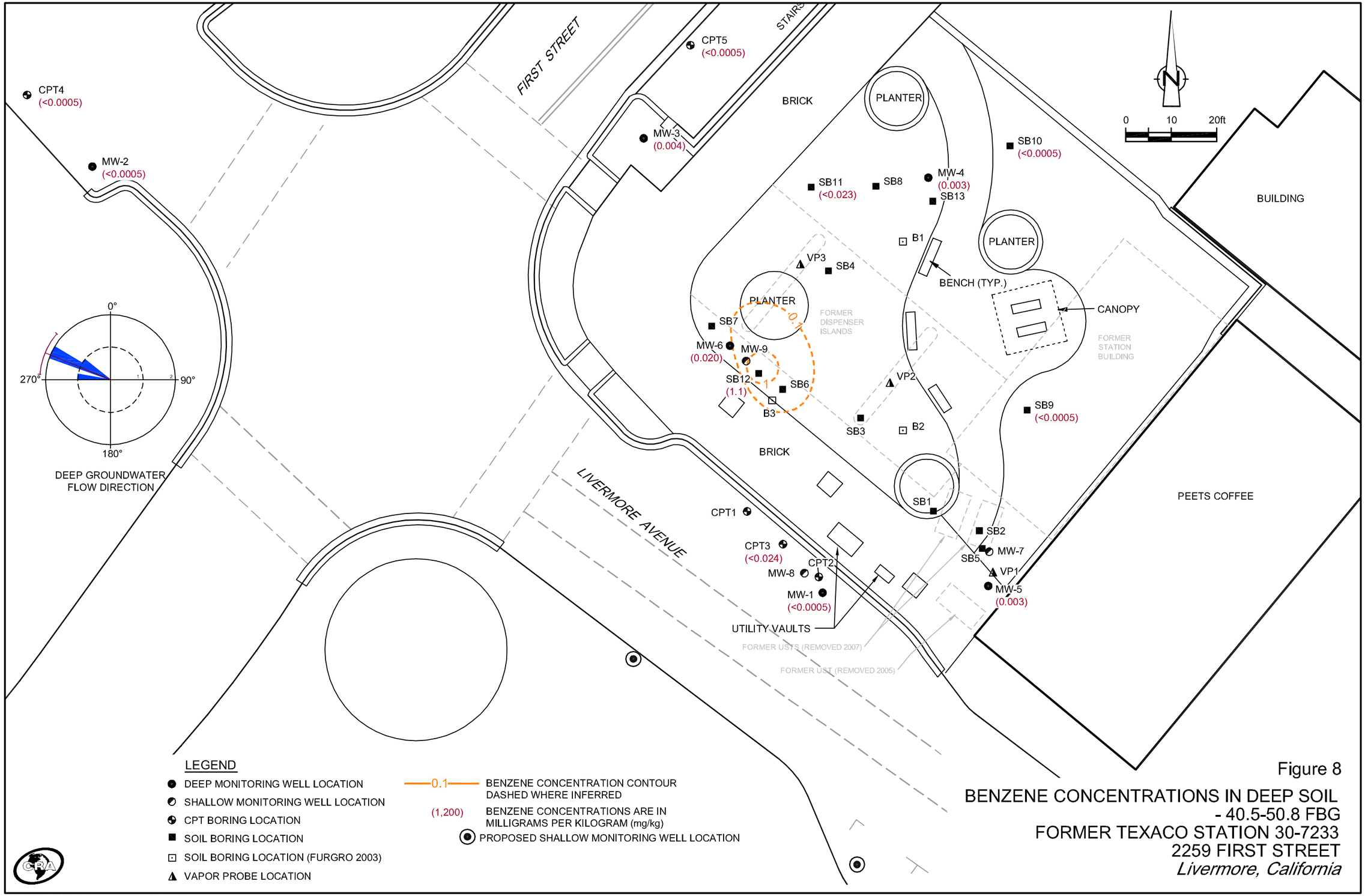


Figure 8

BENZENE CONCENTRATIONS IN DEEP SOIL - 40.5-50.8 FBG
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

312264-95(010)GN-WA009 APR 14/2011

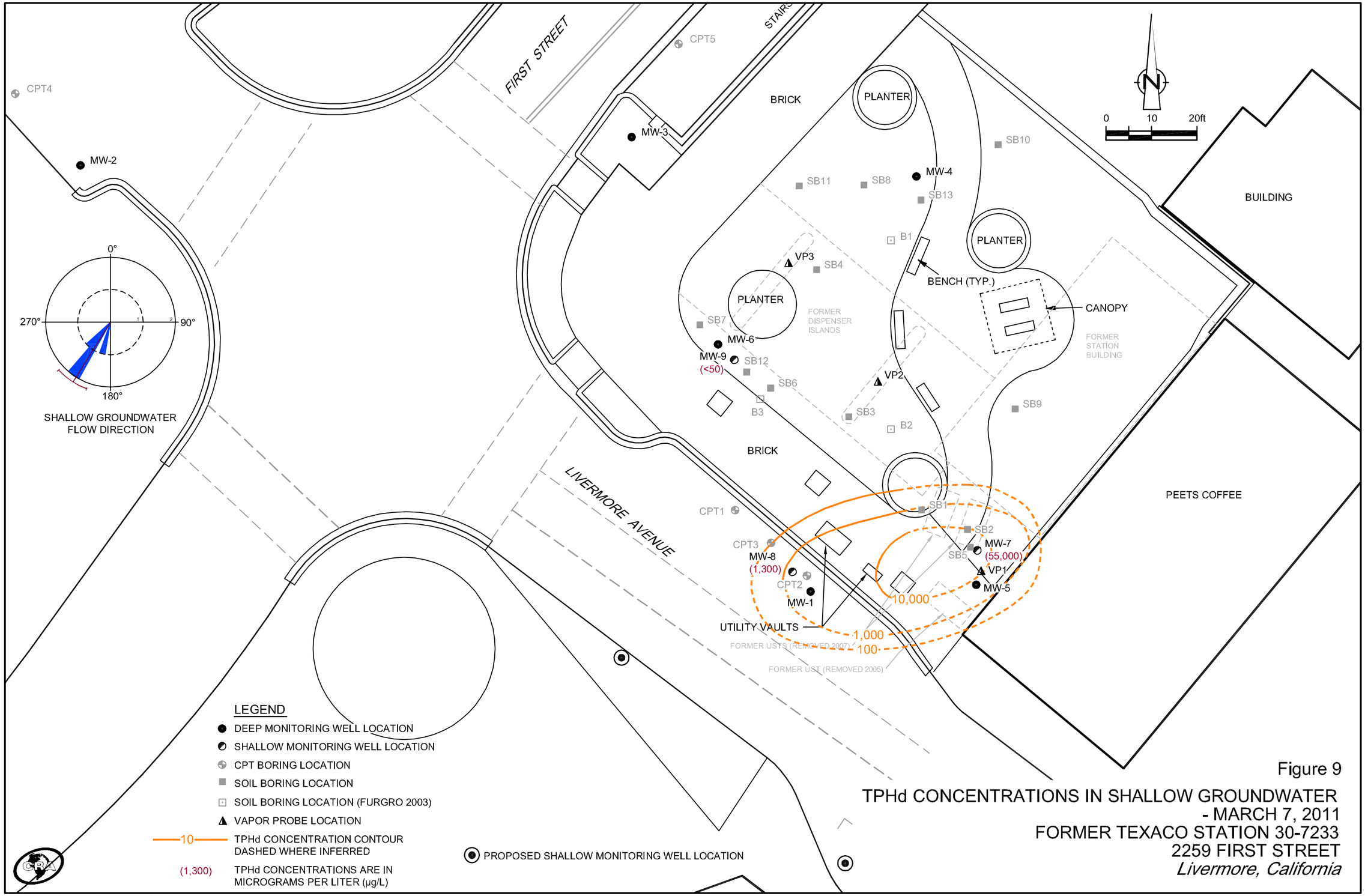


Figure 9

TPHd CONCENTRATIONS IN SHALLOW GROUNDWATER - MARCH 7, 2011
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

312264-95(010)GN-WA003 APR 14/2011

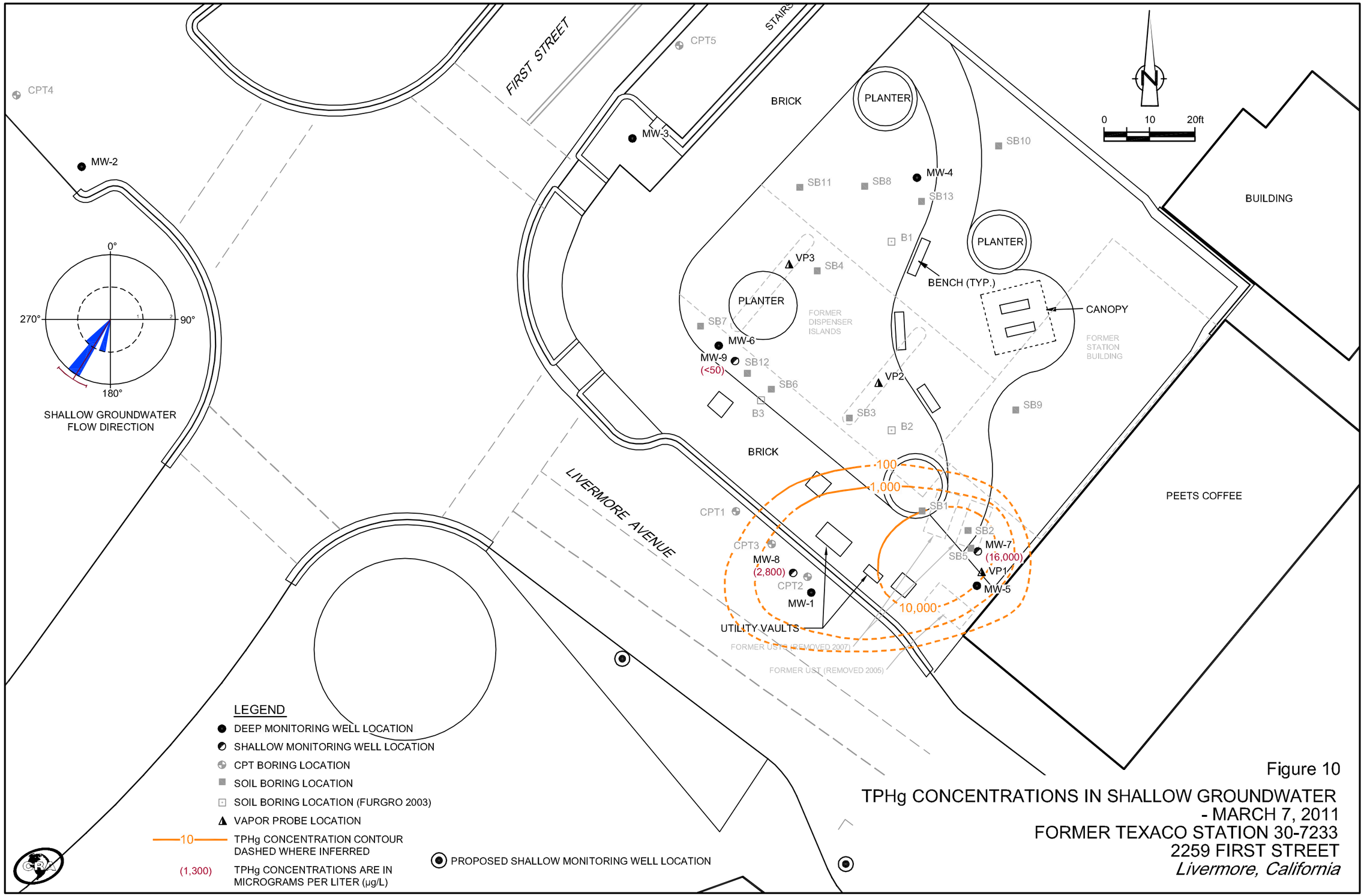


Figure 10

TPHg CONCENTRATIONS IN SHALLOW GROUNDWATER - MARCH 7, 2011
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

312264-95(010)GN-WA004 APR 14/2011

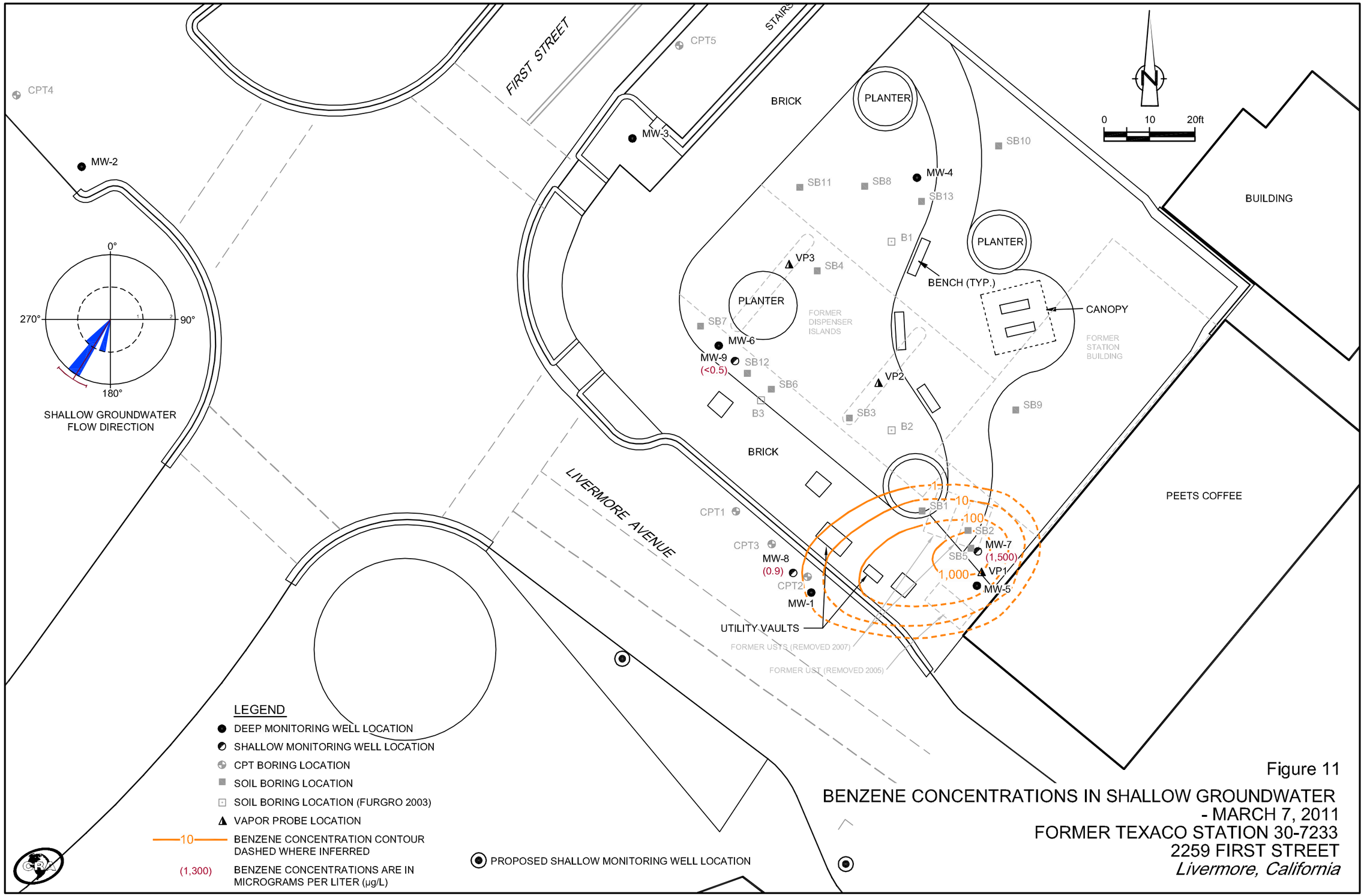


Figure 11

BENZENE CONCENTRATIONS IN SHALLOW GROUNDWATER
- MARCH 7, 2011
FORMER TEXACO STATION 30-7233
2259 FIRST STREET
Livermore, California

312264-95(010)GN-WA005 APR 14/2011

TABLES

TABLE 1
WELL CONSTRUCTION DETAILS
FORMER TEXACO STATION #30-7233
2259 FIRST STREET, LIVERMORE , CALIFORNIA

Well ID	*Date Installed*	*TOC*	*Total Depth (fbg)*	*Casing Diameter (inches)*	*Screen Interval (fbg)*	*Zone*	*Status*
MW-1	4/7/2010	490.89	59	2	54-59	Zone B	*Active/New*
MW-2	4/5/2010	489.43	59	2	54-59	Zone B	*Active/New*
MW-3	4/6/2010	490.38	59	2	54-59	Zone B	*Active/New*
MW-4	4/12/2010	492.27	59	2	54-59	Zone B	*Active/New*
MW-5	4/8/2010	491.99	59	2	54-59	Zone B	*Active/New*
MW-6	4/9/2010	491.52	59	2	54-59	Zone B	*Active/New*
MW-7	4/8/2010	492.29	33	2	28-33	Zone A	*Active/New*
MW-8	4/7/2010	490.86	39	2	34-39	Zone A	*Active/New*
MW-9	4/9/2010	491.64	40	2	35-40	Zone A	*Active/New*

Abbreviations/Notes:
fbg = feet below grade
TOC = Top of casing elevation (feet above mean sea level)
TOC elevations for wells for all exisiting wells were surveyed by Morrow Surveying on April 19, 2010.
Zone A = Shallow perched water zone
Zone B = Deeper water zone

TABLE 2
CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #30-7233
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*OXYs*	*Pb*
			Reported in milligrams per kilogram (mg/kg)									
ESLs for Soil Leaching Screening Level (Drinking Water Sourse) Table G			***83***	83	83	0.044	2.9	3.3	2.3	0.023	Varies	*--*
ESLs for Soil Direct Exposure Construction/Trench Worker Table K-3			***12,000***	4,200	4,200	12	650	210	420	2,800	Varies	750
2010 CRA Well Installation												
MW-1	03/29/2010	4.0	<10	<4.0	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-1	04/07/2010	9.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-1	04/07/2010	14.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-1	04/07/2010	19.5	<10	<4.0	<0.9	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-1	04/07/2010	24.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-1	04/07/2010	29.5	<10	31	**310**	<0.025	<0.049	<0.049	<0.049	--	--	--
MW-1	04/07/2010	34.5	<10	<4.0	<1.0	0.0005	<0.001	<0.001	<0.001	--	--	--
MW-1	04/07/2010	39.5	<10	<4.0	6.8	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-1	04/07/2010	44.5	<10	<4.0	5.0	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-1	04/07/2010	49.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-1	04/07/2010	54.5	<10	<4.0	<0.9	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-1	04/07/2010	59.5	<10	<4.0	<1	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-2	04/05/2010	9.5	<10	<4.0	<1	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-2	04/05/2010	14.5	<10	<4.0	<1	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-2	04/05/2010	19.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-2	04/05/2010	24.5	<10	<4.0	<0.9	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-2	04/05/2010	29.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-2	04/05/2010	34.5	<10	<4.0	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-2	04/05/2010	39.5	<10	<4.0	<1	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-2	04/05/2010	44.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-2	04/05/2010	49.5	<10	<4.0	<1.1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-2	04/05/2010	54.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-2	04/05/2010	59.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-3	03/30/2010	5.0	<10	8.8	<1.0	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-3	04/06/2010	9.5	<10	<4.0	<0.9	<0.0005	0.002	<0.001	<0.001	--	--	--
MW-3	04/06/2010	14.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-3	04/06/2010	19.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-3	04/06/2010	24.5	<10	<4.0	<0.9	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-3	04/06/2010	29.5	<10	<4.0	<1.1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-3	04/06/2010	34.5	<10	<4.0	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-3	04/06/2010	39.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-3	04/06/2010	44.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-3	04/06/2010	49.5	<10	<4.0	<1.1	<0.0005	<0.001	<0.001	<0.001	--	--	--

TABLE 2
CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #30-7233
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*OXYs*	*Pb*
			Reported in milligrams per kilogram (mg/kg)									
ESLs for Soil Leaching Screening Level (Drinking Water Sourse) Table G			***83***	83	83	0.044	2.9	3.3	2.3	0.023	Varies	**--**
ESLs for Soil Direct Exposure Construction/Trench Worker Table K-3			***12,000***	4,200	4,200	12	650	210	420	2,800	Varies	750
MW-3	04/06/2010	54.5	<10	<4.0	10	0.004	<0.001	<0.001	<0.001	--	--	--
MW-3	04/06/2010	59.5	<10	<4.0	<1.1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	03/30/2010	5.0	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	10.5	<10	<4.0	<0.9	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	15.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	20.5	<10	<4.0	<0.9	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	25.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	30.5	<10	82	42	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	35.5	<10	<4.0	<0.9	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	40.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	45.5	<10	<4.0	80	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	50.5	<10	<4.0	31	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-4	04/12/2010	55.5	<10	4.7	**110**	0.003	0.001	0.019	0.007	--	--	--
MW-4	04/12/2010	60.5	<10	<4.0	<0.9	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-5	03/31/2010	5.0	**130**	42	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-5	04/08/2010	9.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-5	04/08/2010	14.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-5	04/08/2010	19.5	<10	<4.0	<1	0.001	<0.0009	<0.0009	<0.0009	--	--	--
MW-5	04/08/2010	24.5	<10	5.9	**150**	<0.026	<0.053	<0.053	<0.053	--	--	--
MW-5	04/08/2010	29.5	<10	8.1	18	0.003	<0.001	0.038	0.022	--	--	--
MW-5	04/08/2010	34.5	<10	29	51	<0.023	<0.046	<0.046	<0.046	--	--	--
MW-5	04/08/2010	39.5	<10	<4.0	2.1	0.027	0.002	0.004	<0.001	--	--	--
MW-5	04/08/2010	44.5	<10	<4.0	<1.0	0.003	<0.001	<0.001	<0.001	--	--	--
MW-5	04/08/2010	49.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-5	04/08/2010	54.5	<10	<4.0	<1	0.0006	<0.001	<0.001	<0.001	--	--	--
MW-5	04/08/2010	59.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--

TABLE 2
CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #30-7233
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*OXYs*	*Pb*
			Reported in milligrams per kilogram (mg/kg)									
ESLs for Soil Leaching Screening Level (Drinking Water Sourse) Table G			***83***	83	83	0.044	2.9	3.3	2.3	0.023	Varies	**--**
ESLs for Soil Direct Exposure Construction/Trench Worker Table K-3			***12,000***	4,200	4,200	12	650	210	420	2,800	Varies	750
MW-6	04/01/2010	5.0	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-6	04/09/2010	10.0	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-6	04/09/2010	15.0	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-6	04/09/2010	19.5	<10	<4.0	<0.9	<0.0005	<0.0009	<0.0009	<0.0009	--	--	--
MW-6	04/09/2010	25.0	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-6	04/09/2010	30.0	<10	<4.0	<0.9	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-6	04/09/2010	35.0	<10	<4.0	<0.9	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-6	04/09/2010	40.0	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-6	04/09/2010	45.0	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-6	04/09/2010	50.0	<10	<4.0	<0.9	<0.0005	<0.001	<0.001	<0.001	--	--	--
MW-6	04/09/2010	55.0	<10	<4.0	44	0.020	0.003	0.006	0.002	--	--	--
MW-6	04/09/2010	59.5	<10	<4.0	<1	<0.0005	<0.001	<0.001	<0.001	--	--	--
2008 Subsurface Investigations												
CPT1	02/05/2008	21.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
CPT1	02/05/2008	36.0	**380**	**100**	1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
CPT2	02/04/2008	22.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
CPT2	02/04/2008	30.0	<10	27	4.4	<0.026	<0.052	1.1	0.18	<0.026	ND	--
CPT2	02/04/2008	35.0	<12	<4.0	1.3	0.0009	<0.001	<0.001	0.002	<0.0005	ND	--
CPT3	11/04/2008	18.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
CPT3	11/04/2008	35.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
CPT3	11/04/2008	55.5	<10	7.1	52	<0.024	<0.047	<0.047	<0.047	<0.024	ND	--
CPT4	11/05/2008	50.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
CPT5	11/03/2008	51.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB6	01/28/2008	1-8***	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	6.13
SB6	01/28/2008	9.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	6.39
SB6	01/28/2008	19.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	5.79
SB6	01/28/2008	24.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	10.9

TABLE 2
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FORMER TEXACO SERVICE STATION #30-7233
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*OXYs*	*Pb*
			Reported in milligrams per kilogram (mg/kg)									
ESLs for Soil Leaching Screening Level (Drinking Water Sourse) Table G			***83***	83	83	0.044	2.9	3.3	2.3	0.023	Varies	--
ESLs for Soil Direct Exposure Construction/Trench Worker Table K-3			***12,000***	4,200	4,200	12	650	210	420	2,800	Varies	750
SB7	01/28/2008	1-8***	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	8.57
SB7	01/30/2008	9.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	8.30
SB7	01/30/2008	19.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	4.70
SB7	01/30/2008	29.5	<10	<4.0	3.7	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	10.5
SB7	01/30/2008	34.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	11.6
SB8	01/28/2008	1-8***	53	18	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	ND	21.9
SB8	01/31/2008	19.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	10.3
SB8	01/31/2008	29.5	<10	<4.0	1.2	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	8.29
SB8	01/31/2008	34.5	<10	67	**530**	<0.027	<0.054	0.10	<0.054	<0.027	ND	7.86
SB8	01/31/2008	39.5	<10	<4.0	<1.0	0.007	0.002	0.015	0.007	**0.039**	0.034[a]	8.93
SB9	01/28/2008	1-8***	32	13	1.3	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	13.5
SB9	01/29/2008	15.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	6.36
SB9	01/29/2008	27.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	7.92
SB9	01/29/2008	34.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	12.3
SB9	01/29/2008	46.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	9.34
SB9	01/29/2008	54.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	5.77
SB10	10/23/2008	5.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB10	11/04/2008	16.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB10	11/04/2008	26.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB10	11/04/2008	36.0	<10	<4.0	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	ND	--
SB10	11/04/2008	46.0	<10	4.2	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB10	11/04/2008	56.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB10	11/04/2008	62.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB11	10/24/2008	5.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB11	11/03/2008	11.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB11	11/03/2008	16.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB11	11/03/2008	26.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB11	11/03/2008	36.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB11	11/03/2008	45.5	<10	<4.0	59	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	ND	--
SB11	11/03/2008	50.5	<10	25	59	<0.023	<0.045	<0.045	<0.045	<0.023	ND	--
SB11	11/03/2008	56.0	<10	45	**98**	<0.023	<0.047	<0.047	<0.047	<0.023	ND	--
SB11	11/03/2008	61.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--

TABLE 2
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2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*OXYs*	*Pb*
			Reported in milligrams per kilogram (mg/kg)									
ESLs for Soil Leaching Screening Level (Drinking Water Sourse) Table G			***83***	83	83	0.044	2.9	3.3	2.3	0.023	Varies	**--**
ESLs for Soil Direct Exposure Construction/Trench Worker Table K-3			***12,000***	4,200	4,200	12	650	210	420	2,800	Varies	750
SB12	10/24/2008	5.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB12	11/03/2008	15.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB12	11/03/2008	25.5	<10	<4.0	120	<0.023	<0.046	<0.046	<0.046	<0.023	ND	--
SB12	11/03/2008	30.0	<10	34	58	<0.024	<0.047	<0.047	<0.047	<0.024	ND	--
SB12	11/03/2008	35.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB12	11/03/2008	45.5	<10	<4.0	1.3	0.0007	<0.001	<0.001	<0.001	<0.0005	ND	--
SB12	11/03/2008	50.5	<10	65	**1,200**	<0.023	<0.046	<0.046	<0.046	<0.023	ND	--
SB12	11/03/2008	55.5	<10	55	**1,300**	**1.1**	0.15	2.0	**3.7**	<0.024	ND	--
SB12	11/03/2008	60.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SSB1	02/01/2008	1.5	--	--	--	--	--	--	--	--	--	9.52
SSB1	02/01/2008	2.5	--	--	--	--	--	--	--	--	--	52.9
SSB1	02/01/2008	4.5	--	--	--	--	--	--	--	--	--	7.34
SSB2	01/28/2008	1.5	--	--	--	--	--	--	--	--	--	17.4
SSB2	01/30/2008	2.5	--	11	1.2	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	40.6
SSB2	01/30/2008	4.5	--	4.4	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	15.0
SSB2	01/30/2008	8.0	--	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	7.45
SSB3	01/30/2008	1.5	--	--	--	--	--	--	--	--	--	42.8
SSB3	02/06/2008	3.0	--	--	--	--	--	--	--	--	--	52.4
SSB3	02/06/2008	5.0	--	--	--	--	--	--	--	--	--	42.2
SSB4	02/01/2008	1.5	--	--	--	--	--	--	--	--	--	10.2
SSB4	02/01/2008	2.5	--	--	--	--	--	--	--	--	--	517
SSB4	02/01/2008	4.5	--	--	--	--	--	--	--	--	--	616
SSB4	02/01/2008	9.0	--	--	--	--	--	--	--	--	--	90.8
SSB5	02/06/2008	1.5	--	--	--	--	--	--	--	--	--	18.2
SSB5	02/06/2008	3.0	--	--	--	--	--	--	--	--	--	47.5
SSB5	02/06/2008	5.5	--	--	--	--	--	--	--	--	--	117
SSB5	02/06/2008	7.0	--	--	--	--	--	--	--	--	--	63.5
SSB6	02/06/2008	1.5	--	--	--	--	--	--	--	--	--	14.3
SSB6	02/06/2008	3.0	--	--	--	--	--	--	--	--	--	98.9

TABLE 2
CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #30-7233
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*OXYs*	*Pb*
			Reported in milligrams per kilogram (mg/kg)									
ESLs for Soil Leaching Screening Level (Drinking Water Sourse) Table G			***83***	83	83	0.044	2.9	3.3	2.3	0.023	Varies	*--*
ESLs for Soil Direct Exposure Construction/Trench Worker Table K-3			***12,000***	4,200	4,200	12	650	210	420	2,800	Varies	750
SSB7	02/06/2008	1.5	--	--	--	--	--	--	--	--	--	13.0
SSB7	02/06/2008	3.5	--	--	--	--	--	--	--	--	--	9.73
SSB7	02/06/2008	5.5	--	--	--	--	--	--	--	--	--	4.60
SSB7	02/06/2008	7.0	--	--	--	--	--	--	--	--	--	3.97
SSB8	02/01/2008	1.5	--	--	--	--	--	--	--	--	--	168
SSB8	02/01/2008	4.5	--	--	--	--	--	--	--	--	--	160
SSB8	02/01/2008	9.5	--	--	--	--	--	--	--	--	--	33.8
SSB9	02/06/2008	1.5	--	--	--	--	--	--	--	--	--	189
SSB9	02/06/2008	3.0	--	--	--	--	--	--	--	--	--	15.0
SSB9	02/06/2008	5.0	--	--	--	--	--	--	--	--	--	6.24
SSB9	02/06/2008	9.0	--	--	--	--	--	--	--	--	--	6.36
SSB10	01/31/2008	1.5	--	--	--	--	--	--	--	--	--	38.9
SSB10	02/06/2008	3.0	--	--	--	--	--	--	--	--	--	67.2
SSB10	02/06/2008	5.0	--	--	--	--	--	--	--	--	--	5.00
SSB10	02/06/2008	9.0	--	--	--	--	--	--	--	--	--	9.34
SSB11	02/06/2008	1.5	--	--	--	--	--	--	--	--	--	9.67
SSB11	02/06/2008	3.0	--	--	--	--	--	--	--	--	--	4.86
SSB11	02/06/2008	5.0	--	--	--	--	--	--	--	--	--	3.90
SSB11	02/06/2008	8.5	--	--	--	--	--	--	--	--	--	5.62
VP1	02/01/2008	4.5	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	6.10
VP1	02/01/2008	8.0	<10	<4.0	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	ND	9.03
VP2	02/01/2008	4.5	54	25	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	ND	75.4
VP2	02/01/2008	9.5	<10	<4.0	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	ND	15.6
VP3	02/01/2008	4.5	<10	<4.0	1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	6.12
VP3	02/01/2008	8.0	<10	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	4.22

TABLE 2
CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #30-7233
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*OXYs*	*Pb*
			Reported in milligrams per kilogram (mg/kg)									
ESLs for Soil Leaching Screening Level (Drinking Water Sourse) Table G			***83***	83	83	0.044	2.9	3.3	2.3	0.023	Varies	**--**
ESLs for Soil Direct Exposure Construction/Trench Worker Table K-3			***12,000***	4,200	4,200	12	650	210	420	2,800	Varies	750
2007 Tank Pull												
EX1	06/20/2007	7.0	<580	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	4.98
EX2	06/20/2007	7.0	<580	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	3.29
EX3	06/20/2007	7.0	<580	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	5.13
EX4	06/20/2007	8.0	**11,000**	**2,800**	<1.0	<0.0005	0.001	<0.001	<0.001	<0.0005	ND	**1,170**
EX4	06/20/2007	9.0	**3,100**	**1,400**	<100	<0.0005	<0.001	<0.001	0.004	<0.0005	ND	**1,470**
EX5	06/20/2007	8.0	<580	**100**	<10	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	190
EX6	06/20/2007	8.0	**3,000**	**1,300**	<400	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	**1,500**
P1	06/20/2007	5.0	<580	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	27.1
October 2006 Subsurface Investigation												
SB-1	10/26/2006	10.0	<10	<10	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB-1	10/26/2006	15.0	**350**	**140**	15	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB-1	10/26/2006	22.0	**1,400**	**780**	**2,800**	<0.062	2.1	**7.5**	<0.12	<0.062	ND	--
SB-1	10/26/2006	26.0	**390**	**590**	**1,100**	**0.62**	0.19	**5.5**	**19**	<0.062	ND	--
SB-1	10/26/2006	32.0	**94**	**120**	**180**	**2.0**	**17**	**13**	**65**	<0.063	ND	--
SB-1	10/26/2006	35.5	67	**99**	**1,200**	**1.0**	**5.5**	2.7	**16**	<0.062	ND	--
SB-1	10/26/2006	39.5	<10	20	**1,000**	**0.90**	0.93	2.5	**11**	<0.063	ND	--
SB-3	10/23/2006	10.0	<10	<10	<1.0	<0.0005	0.001	<0.001	0.002	<0.0005	ND	--
SB-3	10/23/2006	15.0	<10	<10	<1.0	<0.0005	<0.001	<0.001	0.002	<0.0005	ND	--
SB-3	10/23/2006	21.0	<20	82	**1,800**	<0.062	<0.12	**4.8**	**15**	<0.062	ND	--
SB-3	10/23/2006	25.0	88	**3,000**	**8,700**	**14**	**410**	**120**	**770**	<0.31	ND	--
SB-3	10/23/2006	30.0	<20	**230**	**5,400**	**3.2**	**68**	**40**	**250**	<0.062	ND	--
SB-3	10/23/2006	35.0	<10	17	**630**	**0.080**	<0.12	0.56	1.1	<0.062	ND	--
SB-3	10/23/2006	39.5	<20	62	**130**	**0.23**	1.5	0.81	**5.5**	<0.063	ND	--
SB-4	09/12/2006	5.0	<18	33	1.3	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB-4	09/12/2006	10.0	<20	28	2.8	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB-4	09/12/2006	15.0	<20	<12	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB-4	09/12/2006	20.0	<20	<10	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB-4	09/12/2006	25.0	<20	24	**310**	<0.003	<0.005	0.008	<0.005	<0.003	ND	--
SB-4	09/12/2006	27.5	<20	**260**	**1,600**	**0.10**	0.14	**4.5**	**19**	<0.062	ND	--
SB-4	09/12/2006	30.0	<20	<12	22	0.003	<0.005	0.014	0.007	<0.002	ND	--
SB-4	09/12/2006	35.0	<20	45	**320**	<0.063	<0.13	<0.13	<0.13	<0.063	ND	--
SB-4	09/12/2006	39.5	<16	<10	1.2	**0.15**	<0.001	<0.001	<0.001	<0.0005	ND	--

TABLE 2
CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #30-7233
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*OXYs*	*Pb*
			Reported in milligrams per kilogram (mg/kg)									
ESLs for Soil Leaching Screening Level (Drinking Water Sourse) Table G			***83***	83	83	0.044	2.9	3.3	2.3	0.023	Varies	**--**
ESLs for Soil Direct Exposure Construction/Trench Worker Table K-3			***12,000***	4,200	4,200	12	650	210	420	2,800	Varies	750
SB-5	10/24/2006	10.0	<10	<10	<1.0	<0.0005	0.001	<0.001	0.002	<0.0005	ND	--
SB-5	10/26/2006	15.0	<10	<10	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	ND	--
SB-5	10/26/2006	19.5	**560**	**700**	27	<0.0005	<0.001	<0.001	0.001	<0.0005	ND	--
SB-5	10/26/2006	26.0	**450**	**620**	**1,100**	**0.78**	<0.13	**8.5**	**12**	<0.063	ND	--
SB-5	10/26/2006	30.0	**140**	**320**	**950**	<0.062	<0.12	1.1	2.0	<0.062	ND	--
SB-5	10/26/2006	34.0	**290**	**630**	**3,100**	**17**	**67**	**38**	**130**	<0.13	ND	--
SB-5	10/26/2006	39.5	<10	80	**1,400**	**5.4**	2.6	**13**	**73**	<0.062	ND	--
2005 Consolidated Engineering Tank Pull												
Sample (1) LFD	09/20/2005	3.0	<2,500	**4,100**	--	<0.017	<0.017	<0.017	<0.017	<0.017	ND	--
Sample (2)	09/20/2005	3.0	<250	**1,300**	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	--
Sample (3)	09/20/2005	3.0	<200	**670**	--	<0.022	<0.022	<0.022	<0.022	<0.022	ND	--
Sample (4)	09/20/2005	3.0	<50	1.0	<1.000	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	--
Sample (5)	09/20/2005	3.0	54	**140**	<1.000	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	--
Sample (6)	09/20/2005	3.0	<50	2.1	3	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	--
2004 Fugro Subsurface Investigation												
B-1	09/17/2003	3.0	--	--	--	--	--	--	--	--	--	21
B-1	09/17/2003	25.5	<50	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--
B-2	09/17/2003	3.0	--	--	--	--	--	--	--	--	--	**3,700******
B-2	09/17/2003	15.5	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	--	--	--
B-2	09/17/2003	30.0	<50	9.6	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	--	--
B-3	09/17/2003	3.0	--	--	--	--	--	--	--	--	--	4.8
B-3	09/17/2003	25.5	<50	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--

TABLE 2
CUMULATIVE SOIL ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #30-7233
2259 FIRST STREET, LIVERMORE, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*OXYs*	*Pb*
			Reported in milligrams per kilogram (mg/kg)									
ESLs for Soil Leaching Screening Level (Drinking Water Sourse) Table G			***83***	83	83	0.044	2.9	3.3	2.3	0.023	Varies	*--*
ESLs for Soil Direct Exposure Construction/Trench Worker Table K-3			***12,000***	4,200	4,200	12	650	210	420	2,800	Varies	750

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) analyzed by EPA method 8260B unless otherwise noted.
OXYs = TBA, DIPE, ETBE, TAME, 1,2,-DCA, and EDB
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.
NE = Not established
-- = Not applicable/not analyzed.
a = TBA, no other oxygenates detected
*** = 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.

TABLE 3

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER TEXACO SERVICE STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				*GENERAL CHEMISTRY*		
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*Nitrate Nitrogen*	*Sulfate*	*Ferrous Iron*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-1	05/25/2010[1]	490.86	30.62	460.24	-	-	-	-	-	-	-	-	-	-
MW-1	05/27/2010	490.86	30.65	460.21	<50	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-1	09/13/2010	490.86	36.49	454.37	51	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-1	12/20/2010	490.86	32.24	458.62	-	79	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-1	**03/07/2011**	**490.86**	**27.86**	**463.00**	**-**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**6,900**	**73,600**	**<10**
MW-2	05/25/2010[1]	489.43	31.18	458.25	-	-	-	-	-	-	-	-	-	-
MW-2	05/27/2010	489.43	31.11	458.32	<50	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-2	09/13/2010	489.43	36.96	452.47	<50	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-2	12/20/2010	489.43	32.62	456.81	-	52	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-2	**03/07/2011**	**489.43**	**28.26**	**461.17**	**-**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**3,600**	**45,900**	**20**
MW-3	05/25/2010[1]	490.38	30.17	460.21	-	-	-	-	-	-	-	-	-	-
MW-3	05/27/2010	490.38	30.98	459.40	610	-	2,100	2	<0.5	<0.5	0.9	-	-	-
MW-3	09/13/2010	490.38	36.77	453.61	<50	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-3	12/20/2010	490.38	32.41	457.97	-	97	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-3	**03/07/2011**	**490.38**	**28.06**	**462.32**	**-**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**4,300**	**70,400**	**53**
MW-4	05/25/2010[1]	492.27	32.21	460.06	-	-	-	-	-	-	-	-	-	-
MW-4	05/27/2010	492.27	32.26	460.01	230	-	1,800	1	<0.5	<0.5	0.7	-	-	-
MW-4	09/13/2010	492.27	38.14	454.13	<50	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-

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GROUNDWATER MONITORING AND SAMPLING DATA
FORMER TEXACO SERVICE STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				*GENERAL CHEMISTRY*		
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*Nitrate Nitrogen*	*Sulfate*	*Ferrous Iron*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-4	12/20/2010	492.27	33.80	458.47	-	180	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-4	**03/07/2011**	**492.27**	**29.42**	**462.85**	**-**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**7,900**	**72,300**	**15**
MW-5	05/25/2010[1]	491.99	31.39	460.60	-	-	-	-	-	-	-	-	-	-
MW-5	05/27/2010	491.99	31.42	460.57	120	-	420	2	<0.5	<0.5	1	-	-	-
MW-5	09/13/2010	491.99	37.25	454.74	700	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-5	12/20/2010	491.99	33.01	458.98	-	74	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-5	**03/07/2011**	**491.99**	**28.60**	**463.39**	**-**	**93**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**7,900**	**70,100**	**23**
MW-6	05/25/2010[1]	491.52	31.63	459.89	-	-	-	-	-	-	-	-	-	-
MW-6	05/27/2010	491.52	31.79	459.73	1,000	-	3,700	4	<0.5	<0.5	1	-	-	-
MW-6	09/13/2010	491.52	37.64	453.88	68	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-6	12/20/2010	491.52	33.32	458.20	-	140	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-6	**03/07/2011**	**491.52**	**28.96**	**462.56**	**-**	**63**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**360**	**55,400**	**33**
MW-7	05/25/2010[1]	492.29	28.69	463.60	-	-	-	-	-	-	-	-	-	-
MW-7	05/27/2010	492.29	28.61	463.68	2,800	-	14,000	1,800	35	320	660	-	-	-
MW-7	09/13/2010	492.29	31.75	460.54	40,000	-	16,000	1,700	33	460	600	-	-	-
MW-7	12/20/2010	492.29	27.96	464.33	-	6,200	15,000	2,800	59	450	530	-	-	-
MW-7	**03/07/2011**	**492.29**	**24.98**	**467.31**	**-**	**55,000**	**16,000**	**1,500**	**50**	**470**	**2,100**	**<250**	**2,600**	**2,800**

TABLE 3

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER TEXACO SERVICE STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				*GENERAL CHEMISTRY*		
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*Nitrate Nitrogen*	*Sulfate*	*Ferrous Iron*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-8	05/25/2010[1]	490.89	30.62	460.27	-	-	-	-	-	-	-	-	-	-
MW-8	05/27/2010	490.89	30.78	460.11	750	-	3,100	36	3	<0.5	2	-	-	-
MW-8	09/13/2010	490.89	36.55	454.34	590	-	3,400	5	2	<0.5	1	-	-	-
MW-8	12/20/2010	490.89	31.60	459.29	-	750	4,000	0.8	0.7	19	3	-	-	-
MW-8	**03/07/2011**	**490.89**	**28.20**	**462.69**	**-**	**1,300**	**2,800**	**0.9**	**0.7**	**12**	**2**	**<250**	**7,000**	**820**
MW-9	05/25/2010[1]	491.64	29.23	462.41	-	-	-	-	-	-	-	-	-	-
MW-9	05/27/2010	491.64	28.96	462.68	<50	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-9	09/13/2010	491.64	31.85	459.79	30,000	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-9	12/20/2010	491.64	28.95	462.69	-	56	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
MW-9	**03/07/2011**	**491.64**	**25.67**	**465.97**	**-**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<250**	**172,000**	**48**
QA	05/27/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
QA	09/13/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
QA	12/20/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-	-	-
QA	**03/07/2011**	**-**	**-**	**-**	**-**	**-**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**-**	**-**	**-**

Abbreviations and Notes:

TOC = Top of Casing

DTW = Depth to Water

GWE = Groundwater elevation

TABLE 3

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER TEXACO SERVICE STATION 30-7233
2259 FIRST STREET
LIVERMORE, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				*GENERAL CHEMISTRY*		
Location	Date	***TOC***	***DTW***	***GWE***	***TPH-DRO***	***TPH-DRO w/ Si Gel***	***TPH-GRO***	***B***	***T***	***E***	***X***	***Nitrate Nitrogen***	***Sulfate***	***Ferrous Iron***
	Units	***ft***	***ft***	***ft-amsl***	***µg/L***	***µg/L***	***µg/L***	***µg/L***	***µg/L***	***µg/L***	***µg/L***	***µg/L***	***µg/L***	***µg/L***

(ft-amsl) = Feet Above Mean sea level

ft = Feet

µg/L = Micrograms per Liter

TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics

TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics

VOCS = Volatile Organic Compounds

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylene

-- = Not available / not applicable

<x = Not detected above laboratory method detection limit

* TOC elevations were surveyed on April 19, 2010 by Morrow Surveying. Vertical datum is NAVD 88 from GPS observations

1 Well development performed.

TABLE 4
CUMULATIVE GRAB-GROUNDWATER ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #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 for Drinking Water Toxicity (Table F-3)			***210***	***210***	***210***	***1.0***	***150***	***300***	***1800***	***13***	***12***	***NE***	***NE***	***NE***	***0.5***	***0.05***
ESLs for Potential Vapor Intrusion Into Buildings Comercial/Industrial (Table E-1a)			--	Uses soil gas	Uses soil gas	1,800	530,000	170,000	160,000	80,000	Uses soil gas	***NE***	***NE***	***NE***	***690***	510
CRA 2008 SSI																
CPT1	02/05/08	42	**1,500**	**3,300**	**47,000**	**5**	2	3	2	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
CPT2	02/04/08	31	**1,500**	**10,000**	**4,100**	**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	**300**	**110**	**3**	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
SB7	01/30/08	31	<400	**6,400**	**3,000**	<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	--	**52,000**	**18,000**	<1	<1	8	2	<1	<4	<1	<1	<1	<1	<1
SB9	01/29/08	55	**450**	**490**	**1,100**	<0.5	<0.5	<0.5	0.5	<0.5	<2	<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	<1,000	**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 4
CUMULATIVE GRAB-GROUNDWATER ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #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 for Drinking Water Toxicity (Table F-3)			***210***	***210***	***210***	***1.0***	***150***	***300***	***1800***	***13***	***12***	***NE***	***NE***	***NE***	***0.5***	***0.05***
ESLs for Potential Vapor Intrusion Into Buildings Comercial/Industrial (Table E-1a)			--	Uses soil gas	Uses soil gas	1,800	530,000	170,000	160,000	80,000	Uses soil gas	***NE***	***NE***	***NE***	***690***	510

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 May 2008.

fbg = feet below grade.

<x = Not detected at reporting limit x.

-- = Not applicable/not analyzed.

TABLE 5
SOIL VAPOR ANALYTICAL DATA
FORMER TEXACO SERVICE STATION #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 - Soil Gas	Residential		**10,000**	**84**	**63,000**	**980**	**21,000**	**9,400**	--	--	--	--	**4.1**	**94**	**72**	--	--	--	--
ESLs - Soil Gas	Commercial		**29,000**	**280**	**180,000**	**3,300**	**58,000**	**31,000**	--	--	--	--	**14**	**310**	**240**	--	--	--	--
VP1-5	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**
VP1-5	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
VP1-10	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VP2-5	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**
VP2-5 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**
VP2-10	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**
VP3-5	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**
VP3-10	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

ESLs - Soil Gas = Environmental Screening Levels for shallow soil gas in commercial/industrial land (Table E-2) from S*creening 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 2007, Revised May 2008.

<X = Not detected above laboratory method detection limit x

ND = Not detected above various laboratory method detection limits

-- = not analyzed or not applicable

1 = Values for highest value of Xylenes detected.

APPENDIX A

REGULATORY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

November 15, 2010

Mr. Ian Robb (*Sent via E-mail to: ianrobb@chevron.com*)
Chevron Environmental Management Company
6001 Bollinger Canyon Road
San Ramon, CA 94583-2324

Mr. Eric Uranga (*Sent via E-mail to: ejuranga@ci.livermore.ca.us*)
City of Livermore Economic Development
1052 S. Livermore Ave.
Livermore, CA 94550

Subject: Review of Response to Request for Pilot Test Work Plan or Draft Corrective Action Plan for Fuel Leak Case No. RO0002908 and Geotracker Global ID T0600196622, Miller Square Park, 2259 First Street, Livermore, CA 94550

Dear Mr. Robb and Mr. Uranga:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above referenced site including the most recently submitted document entitled, "*Response to Request for Pilot Test Work Plan or Draft Corrective Action Plan Installation Report, Former Texaco Station, 30-7233, 2259 First Street, Livermore, California*," dated October 12, 2010, which was prepared on behalf of Chevron by Conestoga-Rovers & Associates. The October 12, 2010 Response requests the collection of groundwater monitoring data for a one year period prior to preparing a Pilot Test Work Plan or evaluating remedial options in a Draft Corrective Action Plan (CAP).

Although we are not entirely convinced this delay is necessary, we will grant an extension to May 3, 2011 for submittal of a Pilot Test Work Plan or Draft CAP. Please assure that no further delays occur in this submittal. We request that you perform the proposed work and send us the reports described below.

TECHNICAL REPORT REQUEST

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

- **January 10, 2011** – Groundwater Monitoring Report – Fourth Quarter 2010
- **April 10, 2011** – Groundwater Monitoring Report – First Quarter 2011
- **May 3, 2011** – Pilot Test Work Plan or Draft Corrective Action Plan

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

Attachment: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Cheryl Dizon, QIC 80201, Zone 7 Water Agency, 100 North Canyons Parkway
Livermore, CA 94551 (*Sent via E-mail to: cdizon@zone7water.com*)

Danielle Stefani, Livermore-Pleasanton Fire Department, 3560 Nevada Street
Pleasanton, CA 94566 (*Sent via E-mail to: DStefani@lpfire.org*)

John Rigter, Livermore-Pleasanton Fire Department, 3560 Nevada Street
Pleasanton, CA 94566(*Sent via E-mail to: jrigter@lpfire.org*)

Brandon Wilken, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A
Emeryville, CA 94608 (*Sent via E-mail to: BWilken@craworld.com*)

Donna Drogos, ACEH (*Sent via E-mail to: donna.drogos@acgov.org*)
Jerry Wickham, ACEH (*Sent via E-mail to: jerry.wickham@acgov.org*)

Geotracker, File

Attachment 1
Responsible Party(ies) Legal Requirements/Obligations

REPORT REQUESTS

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/electronic_submittal/report_rqmts.shtml.

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.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**REVISION DATE:** July 20, 2010
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
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

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**.
- 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)

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
   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, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   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

PREVIOUS ENVIRONMENTAL INVESTIGATION AND REMEDIATION

FORMER TEXACO SERVICE STATION 30-7233

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. 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. 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 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 is 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. 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. remove 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. More information is available 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. 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. Additional information is available in CRA's March 5, 2009 *Subsurface Investigation Report*.

March and April 2010 Monitoring Well Installation:

On March 29 through April 12, 2010 CRA observed Gregg Drilling install deep wells MW-1 through MW-6 and shallow wells MW-7 through MW-9. Additional information is available in CRA's June 3, 2010 *Well Installation Report.*

APPENDIX C

HISTORICAL BORING AND WELL LOGS

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608
Telephone: 510-420-0700
Fax: 510-420-9170

BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-1
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	29-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	07-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	491.19 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	490.89 ft above msl
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	54 to 59 fbg
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	29.00 fbg (07-Apr-10)
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	DEPTH (fbg)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)
			0		**ASPHALT**	0.5
				GW	**GRAVEL with sand**: Brown; moist; non-plastic; gravel fine to coarse with cobbles up to 6 inches long.	
0		MW-1- S-5	5			
						8.0
				GM	**Silty GRAVEL with sand**: Brown; moist; non-plastic. Numerous cobbles up to 6 inches long.	
2		MW-1- S-9.5	10			
						13.5
				ML	**Sandy SILT with gravel**: Brown; moist; low plasticity.	
3		MW-1- S-14.5	15			
						19.5
2		MW-1- S-19.5	20	ML	**SILT**: Brown; moist; medium plasticity.	
						23.5
					Sandy SILT with gravel: Brown; wet; non-plastic.	
2		MW-1- S-24.5	25	ML		
						28.5
				GM	**Silty GRAVEL with sand** Grey; wet; non-plastic.	
324		MW-1- S-29.5	30			
						33.5
				ML	**SILT**: Brown; wet; low plasticity.	
17		MW-1- S-34.5	35			
						39.5
			40			

WELL DIAGRAM: Flush-grade 12" well box; Portland Type I/II

WELL LOG (PID) I:\CHEVRON\3122-\312264-1\31B354-1\312264-1.GPJ DEFAULT.GDT 5/28/10

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-1
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	29-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	07-Apr-10

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
2		MW-1-S-39.5			GP		**GRAVEL with sand**: Grey; wet; non-plastic.		
								43.5	
32		MW-1-S-44.5		45	ML		**SILT**: Brown; wet; medium plasticity. Sand increases with depth.		
2		MW-1-S-49.5		50					Bentonite Seal
								53.5	
6		MW-1-S-54.5		55	GP		**GRAVEL with sand** Brown; wet; non-plastic.		Monterey Sand #2/12 2"-diam., 0.010" Slotted Schedule 40 PVC
								57.5	
					SP		**SAND**: Brown; wet; non-plastic. Coarse sand.		
5		MW-1-S-59.5		60				60.0	Bottom of Boring @ 60 fbg

WELL LOG (PID) I:\CHEVRON\3122-\312264~1\131B354~1\312264~1.GPJ DEFAULT.GDT 5/28/10

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-2
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	29-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	05-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	490.08 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	489.43 ft above msl
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	54 to 59 fbg
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	44.00 fbg (05-Apr-10)
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	DEPTH (fbg)	U.S.C.S.	CONTACT DEPTH (fbg)	LITHOLOGIC DESCRIPTION
		MW-2- S-5	5	GW	0.5	**ASPHALT** **GRAVEL with sand**: Brown; moist; non-plastic; gravel fine to coarse with cobbles up to 6 inches long.
0		MW-2- S-9.5	10		8.0	**Silty GRAVEL**: Brown; moist; non plastic.
0		MW-2- S-14.5	15	GM		
2		MW-2- S-19.5	20			@ 20 fbg increasing sand.
1		MW-2- S-24.5	25		28.5	
1		MW-2- S-29.5	30			**SILT with sand**: Brown; moist; medium plasticity.
2		MW-2- S-34.5	35			@ 33.5 fbg: decreasing sand.
			40			**SILT** : Brown; moist; medium plasticity.

WELL DIAGRAM: Flush-grade 12" well box; Portland Type I/II

WELL LOG (PID) I:\CHEVRON\3122-\312264-1\31B354-1\312264-1.GPJ DEFAULT.GDT 5/28/10

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-2
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	29-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	05-Apr-10

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
2		MW-2-S-39.5			ML				
0		MW-2-S-44.5		45	ML		@44 fbg: increasing sand; wet. ▽		
2		MW-2-S-49.5		50					Bentonite Seal
								53.5	
2		MW-2-S-54.5		55	GP		**Sandy GRAVEL**: Brown; wet; non-plastic.		Monterey Sand #2/12 2"-diam., 0.010" Slotted Schedule 40 PVC
1		MW-2-S-59.5		60				60.0	Bottom of Boring @ 60 fbg

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-3
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	30-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	06-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	490.63 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	490.38 ft above msl
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	54 to 59 fbg
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	43.00 fbg (06-Apr-10)
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Top Soil	0.5	Flush-grade 8" well box
0		MW-3- S-5		5	GW		**GRAVEL with sand**: Brown; moist; fine to coarse sand; fine to coarse gravel; non-plastic.		
								8.0	
3		MW-3- S-9.5		10	GW		**GRAVEL with sand**: Brown; moist; non-plastic.		
								14.0	
0		MW-3- S-14.5		15	ML		**SILT**: Brown; moist; medium plasticity; trace sand.		
								18.5	
4		MW-3- S-19.5		20	GP		**GRAVEL with silt and sand** Brown; moist; non-plastic.		
								23.5	
1.4		MW-3- S-24.5		25			**SILT**: Brown; moist; medium plasticity; trace sand.		Portland Type I/II
1		MW-3- S-29.5		30					
2		MW-3- S-34.5		35					
				40	ML				

WELL LOG (PID) I:\CHEVRON\3122-\312264-1\31B354-1\312264-1.GPJ DEFAULT.GDT 5/28/10

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-3
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	30-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	06-Apr-10

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
2		MW-3-S-39.5					@ 43 fbg: wet		
2		MW-3-S-44.5		45					
2		MW-3-S-49.5		50			@50 fbg: trace gravel.		Bentonite Seal
								53.5	
18		MW-3-S-54.5		55	SP		**SAND with gravel** Grey; wet; non-plastic.		Monterey Sand #2/12 2"-diam., 0.010" Slotted Schedule 40 PVC
								58.5	
64		MW-3-S-59.5		60	GP		**GRAVE with sand** Grey; wet; non-plastic.	60.0	Bottom of Boring @ 60 fbg

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-4
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	30-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	12-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	492.57 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	492.27 ft above msl
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	54 to 59 fbg
LOGGED BY	Cortland Toczylowski	**DEPTH TO WATER (First Encountered)**	41.00 fbg (12-Apr-10)
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Top Soil	0.5	Flush-grade 8" well box
1		MW-4- S-5		5	GW		**GRAVEL with sand**: Brown; moist; fine to coarse sand; fine to coarse gravel; non-plastic.		
								8.0	
3.2		MW-4-S-10.5		10	SP		**SAND with gravel** Light brown to light gray; moist; fine to coarse sand; non-plastic.		
								15.0	
1.2		MW-4-S-15.5		15	ML		**Sandy SILT**: Light brown; moist; low estimated plasticity . @ 16.5: fbg decreasing sand.		
1.7		MW-4-S-20.5		20					
								22.5	
					SW SM		**SAND with silt and gravel** Dark grey to light brown; moist; non-plastic.		
				25				25.0	Portland Type I/II
3.4		MW-4-S-25.5			ML		**Silt with sand**: Mottled light brown and greenish gray; moist; medium plasticity; fine sand.		
				30				30.0	
8.5		MW-4-S-30.5					**Sandy SILT**: Green to light grey; moist; low plasticity.		
1.6		MW-4-S-35.5		35	ML				
				40					

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-4
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	30-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	12-Apr-10

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
129		MW-4-S-40.5					▽ **SILT**: Greenish gray to light gray, wet ; trace fine sand; medium plasticity.	41.0	
				45					
19.1		MW-4-S-45.5			ML				
							@ 49 fbg: orange and light brown; motlling.		
				50					
215		MW-4-S-50.5							Bentonite Seal
								52.5	
					SP		**SAND**: Greenish gray to dark gray; wet; fine sand; non-plastic.		
				55				55.0	
					SM		**Silty SAND**: Greenish gray to light gray; wet; fine sand; non-plastic.	55.5	
3.4		MW-4-S-55.5					**SAND with gravel**: Greenish gray to light gray; wet; fine to coarse; non-plastic.		Monterey Sand #2/12 2"-diam., 0.010" Slotted Schedule 40 PVC
					SW		@ 57.5 fbg: decreasing gravel; light brown.		
				60				60.5	
3.6		MW-4-S-60.5			GP		**GRAVEL with sand**: Brown; wet; non-plastic.	61.0	Bottom of Boring @ 60 fbg

WELL LOG (PID) I:\CHEVRON\3122-\312264-1\31B354-1\312264-1.GPJ DEFAULT.GDT 5/28/10

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-5
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	31-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	08-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	492.41 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	491.99 ft above msl
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	54 to 59 fbg
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	23.50 fbg (08-Apr-10)
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							FLAG STONE AND CONCRETE	0.5	Flush-grade 12" well box
1		MW-5- S-5		5	GP		**GRAVEL with sand** Brown; moist; fine to coarse gravel; fine to coarse sand; non-plastic; with cobbles upto 6 inches long.		
								8.0	
0		MW-5- S-9.5		10	GM		**Silty GRAVEL**: Brown; moist; fine to coarse gravel; non-plastic.		
								13.5	
1		MW-5- S-14.5		15	ML		**SILT**: Brown; moist; non- plasticity.		
								19.0	
0		MW-5- S-19.5		20	GM		**Silty GRAVEL**: Brown; moist; non-plastic.		
								23.5 ▽	
3		MW-5- S-24.5		25	GP		**GRAVEL with sand :** Brown and green grey; moist; non-plastic. @ 25 fbg : wet.		Portland Type I/II
721		MW-5- S-29.5		30					
								33.5	
656		MW-5- S-34.5		35			**Sandy SILT**: Brown; wet; low plasticity; trace of clay. @ 35 fbg : moist.		
				40					

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-5
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	31-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	08-Apr-10

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
59		MW-5-S-39.5			ML				
17		MW-5-S-44.5		45					
								48.5	
4		MW-5-S-49.5		50			**GRAVEL with sand** Brown; wet; non-plastic.		Bentonite Seal
6		MW-5-S-54.5		55	GP				Monterey Sand #2/12 2"-diam., 0.010" Slotted Schedule 40 PVC
							@ 58.5 : grey.		
2		MW-5-S-59.5		60				60.0	Bottom of Boring @ 60 fbg

WELL LOG (PID) I:\CHEVRON\3122-\312264-1\31B354-1\312264-1.GPJ DEFAULT.GDT 5/28/10

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-6
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	01-Apr-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	09-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	491.89 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	491.52 ft above msl
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	54 to 59 fbg
LOGGED BY	Cortland Toczylowski	**DEPTH TO WATER (First Encountered)**	37.50 fbg (09-Apr-10) ▽
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Top Soil	0.5	Flush-grade 8" well box
							Silty GRAVEL with sand Light brown to light gray; moist; fine to coarse gravel; fine to coarse sand; non-plastic; cobbles up to 10 inches long. @ 2 fbg : wood and brick debris.		
4		MW-6- S-5		5	GP				
							@ 8 fbg : thin sandy silt lens; brown; moist; trace gravel.		
1.4		MW-6- S-10		10					
							Sandy SILT: Light brown; moist; low plasticity.	12.5	
6.4		MW-6- S-15		15	ML				
							SAND with gravel Light grey; moist; fine to coarse sand; non-plastic.	17.5	
1.4		MW-6- S-19.5		20	SW				
							Sandy SILT: Light grey to greenish grey; moist;fine sand; low plasticity.	22.5	
1.4		MW-6- S-25		25					Portland Type I/II
1.0		MW-6- S-30		30	ML				
							@34 fbg : light brown.		
1.6		MW-6- S-35		35					
							▽	37.5	
							SILT with gravel: Light grey; wet; medium plasticity.		
				40					

WELL LOG (PID) I:\CHEVRON\3122-\312264-1\31B354-1\312264-1.GPJ DEFAULT.GDT 5/28/10

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-6
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	01-Apr-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	09-Apr-10

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
1.4		MW-6- S-40			ML		@39 fbg : light brown to light gray; moist.		
							Sandy SILT: Light gray; moist; coarse sand; low plasticity.	42.5	
					ML			44.5	
2.3		MW-6- S-45		45			**SILT**: Mottled light brown and greenish gray; moist; medium plasticity.		
33		MW-6- S-50		50	ML				Bentonite Seal
116		MW-6- S-54		55				55.5	Monterey Sand #2/12
					SM		**Silty SAND**: Greenish gray to light gray; moist; fine sand; non-plastic.	56.0	2"-diam., 0.010" Slotted Schedule 40 PVC
					SW		**SAND**: Greenish gray to light gray, wet; medium to coarse sand; non-plastic.		
1.6		MW-6- S-59.5		60				60.0	Bottom of Boring @ 60 fbg

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-7
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	31-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	08-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	492.69 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	492.29 ft above msl
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	28 to 33 fbg
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				0			**TOP SOIL**	0.5	Flush-grade 8" well box
				5	GP		**Sandy GRAVEL**: Brown; moist; fine to coarse gravel; non-plastic; with cobbles u pto 5 inches long.		
								8.0	
				10			Not logged from 8 to 25 fbg due to adequate nearby data. Refer to MW-5 log.		
				15					Portland Type I/II
				20					
896				25				25.0	Bentonite Seal
					SM		**Silty SAND** Olive grey; moist; coarse sand non-plastic.		
809				30					Monterey Sand #2/12 2"-diam., 0.010" Slotted Schedule 40 PVC
								32.0	
							SILT: Mottled brown; moist; medium plasticity.		
234				35	ML				Bentonite Seal
850									Portland Type I/II
				40				40.0	
							@ 40 fbg : significant motlling.		Bottom of Boring @ 40 fbg

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-8
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	29-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	07-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	491.30 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	490.86 ft above msl
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	34 to 39 fbg
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				0			FOR LIThOLOGICAL DESCRIPTION PLEASE REFERE TO BORING LOG OF MW-1 WHICH IS 5 FEET FROM THIS WELL		Portland Type I/II Bentonite Seal Monterey Sand #2/12 2"-diam., 0.010" Slotted Schedule 40 PVC Bottom of Boring @ 40 fbg

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	MW-9
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	01-Apr-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	09-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	491.98 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	498.64 ft above msl
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	35 to 40 fbg
LOGGED BY	Cortland Toczylowski	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				5, 10, 15, 20, 25, 30, 35, 40			FOR LITHOLOGICAL DESCRIPTION PLEASE REFERE TO BORING LOG OF MW-6 WHICH IS 5 FEET FROM THIS WELL		Portland Type I/II; Bentonite Seal; Monterey Sand #2/12; 2"-diam., 0.010" Slotted Schedule 40 PVC; Bottom of Boring @ 40 fbg

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB-1
JOB/SITE NAME	30-7233	**DRILLING STARTED**	23-Oct-06
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	26-Oct-06
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co., C57 #710079	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 3/8"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Williams and S. McNaboe	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Cleared by air-knife-assisted vaccum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	DEPTH (ft bgs)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
			5	SM	**Silty SAND with gravel** : Brown; dry; 70% sand, 20% silt, 10% gravel; non-plastic, high estimated permeability.		
0		SB-1-10	10			12.0	
				GM	**Silty GRAVEL** : Brown; dry; 65% gravel, 35% silt; non-plastic; high estimated permeability.	14.0	
118		SB-1-15	15	MH	**Clayey SILT** : Brown; dry; 60% silt, 40% clay; low to moderate estimated plasticity; low estimated permeability.	16.0	
				CL	**Silty CLAY** : Gray; dry; 60% clay, 40% silt; low to moderate estimated plasticity; low estimated permeability.	19.0	
570		SB-1-22	20	GM	**Silty GRAVEL** : Gray; moist; 70% gravel, 20% silt, 10% sand; non-plastic; moderate to high estimated permeability.		Portland Type I/II
286		SB-1-26	25	ML	**SILT** : Gray; moist; 100% silt; moderate estimated plasticity; low estimated permeability.	25.0	
			30			31.5	
947		SB-1-32		SM	**Silty SAND** : Brown; moist; 60% sand, 40% silt; low estimated plasticity; moderate estimated permeavility.	33.5	
			35		**SILT** : Light Brown; moist; 100% silt; moderate estimated plasticity; low estimated permeability.		

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB-1
JOB/SITE NAME	30-7233	**DRILLING STARTED**	23-Oct-06
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	26-Oct-06

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
778		SB-1-35.5			ML				
1133		SB-1-39.5		40				40.0	Bottom of Boring @ 40 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB-2
JOB/SITE NAME	30-7233	**DRILLING STARTED**	23-Oct-06
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	23-Oct-06
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co., C57 #710079	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 3/8"	**SCREENED INTERVAL**	NA
LOGGED BY	J. WIlliams	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Cleared by air-knife-assisted vaccum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
			◯		SM		**Silty SAND with gravel** : Brown; dry; 70% sand; 20% silt; 10% gravel; non-plastic; medium estimated permeability.	3.0	Bottom of Boring @ 3 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB-3
JOB/SITE NAME	30-7233	**DRILLING STARTED**	23-Oct-06
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	23-Oct-06
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co., C57 #710079	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 3/8"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Williams	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Cleared by air-knife-assisted vaccum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	DEPTH (ft bgs)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
			0		**Silty SAND with gravel** : Brown; damp; 70% sand, 20% silt, 10% gravel; non-plastic; medium estimated permeability.		
0		SB3-5	5	SM			
0		SB3-10	10				
						14.0	
189		SB3-15	15		**Clayey SILT** : Brown; moist; 75% silt, 20% clay, 5% sand; high estimated plasticity; low estimated permeability.		
			20		@ 19 fbg - change in composition to 70% silt, 30% clay.		Portland Type I/II Cement
299		SB3-21			@ 21 fbg - color change to gray/brown; change in composition to 50% silt, 45% sand, 5% gravel; change to low estimated plasticity.		
					@ 23.5 fbg - color change to gray; change in composition to 70% silt, 30% clay; change to high estimated plasticity.		
1777		SB3-25	25	ML			
					@ 28.5 fbg - color change to brown with mottled black streaks; change in composition to 60% silt, 40% clay.		
1650		SB3-30	30				
			35				

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB-3
JOB/SITE NAME	30-7233	**DRILLING STARTED**	23-Oct-06
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	23-Oct-06

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
120		SB3-35							
402		SB3-39.5		40				40.0	Bottom of Boring @ 40 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB-4
JOB/SITE NAME	30-7233	**DRILLING STARTED**	11-Sep-06
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	12-Sep-06
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co., C57 #710079	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 3/8"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Williams	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Cleared by air-knife-assisted vaccum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	DEPTH (ft bgs)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
			0	SM	**Clayey SAND with gravel** : Brown; damp; 70% sand, 20% clay, 10% gravel; non-plastic; medium estimated permeability.	
0		SB4-10	10			
				GW	@ 11.5 fbg - color change to gray; change in composition to 75% sand, 15% silt, 5% clay, 5% gravel.	12.0
					Gravely SAND : Brown; damp; 55% sand, 20% gravel, 15% silt, 10% clay; non-plastic; medium to high estimated permeability.	
347		SB4-15	15			15.0
				ML	**Clayey SILT** : Brown; moist; 60% silt, 40% clay; high estimated plasticity; low estimated permeability.	
9		SB4-20	20			
				SM		22.0
					Silty SAND with clay : Gray/brown; moist; 45% sand, 35% silt, 20% clay; moderate estimated plasticity; low estimated permeability.	23.0
76		SB4-25	25		**Silty CLAY** : Brown; moist; 60% clay, 40% silt; high estimated plasticity, low estimated permeability.	
825		SB4-27.5				
50		SB4-30	30	CL		
					@ 33 fbg - color change to gray; change in composition to 50% clay, 35% silt, 15% sand.	
			35			

WELL DIAGRAM: Portland Type I/II Cement

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB-4
JOB/SITE NAME	30-7233	**DRILLING STARTED**	11-Sep-06
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	12-Sep-06

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
211		SB4-35							
55		SB4-39.5		40				40.0	Bottom of Boring @ 40 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB-5
JOB/SITE NAME	30-7233	**DRILLING STARTED**	23-Oct-06
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	26-Oct-06
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co., C57 #710079	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 3/8"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Williams and S. McNaboe	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Cleared by air-knife-assisted vaccum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	DEPTH (ft bgs)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
			5	SM	**Silty SAND with gravel** : Brown; damp; 70% sand, 20% silt, 10% gravel; non-plastic; high estimated permeability.		
0		SB5-10	10			12.0	
				ML	**Graveley SILT with clay** : Brown; damp; 60% silt, 25% gravel, 15% clay; moderate estimated plasticity; moderate estimated permeabiltiy.	13.0	
0		SB5-15	15	ML	**Clayey SILT** : Brown; dry; 70% silt, 30% clay; moderate estimated plasticity; low estimated permeability.		
						17.5	
2		SB5-19.5	20	SM	**Silty SAND** : Gray; moist; 60% sand, 40% silt; low estimated plasticity; moderate estimated permeability.		Portland Type I/II Cement
				SW	**Sandy GRAVEL with silt** : Gray; dry; 50% gravel, 25% sand, 15% silt, 10% clay; non-plastic; high estimated permeability.	21.5	
			25			24.8	
767		SB5-26			**Gravelly Clayey SILT** : Gray; moist; 45% silt, 30% clay, 25% gravel; moderate estimated plasticity; low estimated permeability.		
873		SB5-30	30	ML	@ 32.5 fbg - color change to brown; change in composition to 60% silt, 40% clay.		
853		SB5-34	35		@ 33.25 fbg - change in composition to 60% silt, 20% clay, 20% gravel.		

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB-5
JOB/SITE NAME	30-7233	**DRILLING STARTED**	23-Oct-06
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	26-Oct-06

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
1129		SB5-39.5		40			@ 36 fbg - change in composition to 60% silt, 40% clay.	40.0	Bottom of Boring @ 40 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB6
JOB/SITE NAME	30-7233	**DRILLING STARTED**	28-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	30-Jan-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	5"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	22.0 ft (30-Jan-08) ▽
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
0		Composite soil sample SB6-SHALLOW		5	SM		**Silty SAND with gravel:** Brown; damp; 70% well graded sand, 20% silt, 10% gravel; non-plastic; high estimated permeability.		Native Soil
0		SB6-9.5		10	GW		**Sandy GRAVEL with silt:** Brown; moist; 50% gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.	9.0	
							Silty SAND: Brown with green mottling; moist; 80% fine sand, 15% silt, 5% clay; non-plastic; moderate estimated permeability.	12.0	Portland Type I/II Cement
0		SB6-19.5		15 20	SM		@22 fbg soil becomes wet ▽		
1		SB6-24		25				25.0	Bottom of Boring @ 25 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB7
JOB/SITE NAME	30-7233	**DRILLING STARTED**	28-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	30-Jan-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	5"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	31.0 ft (30-Jan-08) ▽
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SM		**Silty SAND with gravel:** Brown; damp; 70% well graded sand, 20% silt, 10% gravel; non-plastic; high estimated permeability.	2.0	Native Soil
0		Composite soil sample SB7-SHALLOW		5	GW		**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.	8.0	
0		SB7-9.5		10			**Sandy SILT:** Brown; damp; 60% silt, 35% sand, 5% clay; moderate plasticity; low estimated permeability.		
				15	ML				
0		SB7-19.5		20					Portland Type I/II Cement
					GW		**Sandy GRAVEL with silt:** Brown; moist; 50% gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.	22.0	
				25			**Sandy SILT:** Brown; stiff; moist; 80% silt, 20% fine sand; low plasticity; moderate estimated permeability.	24.0	
					ML				
1		SB7-29.5		30			@31 fbg soil becomes wet ▽		
					SM		**Silty SAND:** Grey; wet; 80% coarse sand, 20% silt; non-plastic; high estimated permeability.	33.0	
0		SB7-34.5		35			@34 fbg sand becomes well graded, change in	35.0	

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB7
JOB/SITE NAME	30-7233	**DRILLING STARTED**	28-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	30-Jan-08

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM	
							composition: 60% sand, 30% silt, 10% gravel.			Bottom of Boring @ 35 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB8
JOB/SITE NAME	30-7233	**DRILLING STARTED**	28-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	31-Jan-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	5"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	34.0 ft (31-Jan-08)
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	DEPTH (ft bgs)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
0		Composite soil sample SB8-SHALLOW	0	SM	**Silty SAND with gravel:** Brown; damp; 70% well graded sand, 20% silt, 10% gravel; non-plastic; high estimated permeability.	1.0	Native Soil
			5	GW	**Sandy GRAVEL with silt:** Brown; moist; 50% gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		
			10			11.0	
			15		**Sandy SILT:** Brown; stiff; moist; 80% silt, 20% fine sand; low plasticity; moderate estimated permeability.		
0		SB8-19.5	20				Portland Type I/II Cement
			25	ML			
0		SB8-29.5	30				
1520		SB8-34.5	35		@34 fbg soil becomes wet	35.0	

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB8
JOB/SITE NAME	30-7233	**DRILLING STARTED**	28-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	31-Jan-08

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
23		SB8-39.5		40	SM		**Silty SAND:** Brown; wet; 60% sand, 35% silt, 5% gravel; non-plastic; moderate estimated permeability.	40.0	Bottom of Boring @ 40 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB9
JOB/SITE NAME	30-7233	**DRILLING STARTED**	28-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	29-Jan-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push and Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	5"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	SAMPLE ID	DEPTH (ft bgs)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
2	Composite soil sample SB9-SHALLOW	0	SM	**Silty SAND with gravel:** Brown; damp; 70% well graded sand, 20% silt, 10% gravel; non-plastic; high estimated permeability.	1.0
				Sandy GRAVEL with silt: Brown; moist; 50% 1/4" to 4" gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.	
		5			
			GW		
		10			
					15.0
0	SB9-15	15	SM	**Silty SAND:** Brown; damp; 70% sand, 30% silt; non-plastic; moderate estimated permeability.	16.0
			GW	**Sandy GRAVEL with silt:** Brown; dry; 60% coarse gravel, 30% well graded sand, 10% silt; non-plastic; high estimated permeability.	
					18.5
		20		**Sandy SILT:** Tan; soft; damp; 60% silt, 30% fine sand, 10% clay; moderate plasticity; moderate estimated permeability.	
			ML		
0				@23 fbg decrease in sand: 75% silt, 15% sand; 10% clay.	24.0
		25		No Recovery	
					26.0
	SB9-27.5			**Sandy SILT:** Tan; stiff; moist; 60% silt, 40% sand; moderate plasticity; moderate estimated permeability.	
		30	ML		
0					
					34.0
0	SB9-34.5	35		**Silty SAND with gravel:** Tan; dry; 60% sand, 30% silt,	

WELL DIAGRAM: Native Soil; Portland Type I/II Cement

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB9
JOB/SITE NAME	30-7233	**DRILLING STARTED**	28-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	29-Jan-08

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SM		10% fine gravel; non-plastic; moderate estimated permeability.		
				40				40.0	
							No Recovery		
								44.0	
				45			**Silty SAND:** Tan; soft; moist; 70% sand, 30% silt; non-plastic; moderate estimated permeability.		
3		SB9-46.5							
					SM				
				50			@50 fbg becomes stiff, composition changes: 60% sand, 40% silt.		
							@53 fbg gravel lens 6" thick: green; moist; 50% sand, 10% silt, 40% fine gravel; non-plastic; moderate to high estimated permeability.	54.0	
30		SB9-54.5		55	SM		**SAND with gravel:** Green; soft; moist; 70% well graded sand, 30% fine gravel; non-plastic; moderate to high estimated permeability.	55.0	Bottom of Boring @ 55 ft

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB10
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	23-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	04-Nov-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	5"	**SCREENED INTERVALS**	NA
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	Brandon S. Wilken, P.G. #7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
0		SB10- S-5		5	GM		**Sandy GRAVEL with cobbles:** Brown; damp; 10% silt, 30% sand, 60% sub-angular to rounded gravel; non-plastic; high estimated permeability.	8.0	Portland Type I/II Cement
0		SB10- S-16		10, 15, 20			**Clayey sandy SILT:** Brown; damp; 10% clay, 80% silt, 10% sand; medium plasticity; low estimated permeability.		

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB10
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	23-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	04-Nov-08

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				25	ML				
0		SB10- S-26							
				30			@ 30fbg composition changes to: 5% clay, 65% silt, 30% sand; low plasticity; low estimated permeability.		
				35				35.0	
0		SB10- S-36					**Clayey sandy SILT:** Mottled brown; damp; 10% clay, 80% silt, 10% sand; medium plasticity; low estimated permeability.		
				40					

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB10
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	23-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	04-Nov-08

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				45	ML				
1		SB10- S-46							
				50					Portland Type I/II Cement
				55			**Sandy GRAVEL:** Brown; wet; 30% sand, 70% gravel; non-plastic; moderate estimated permeability.	55.0	
0		SB10- S-56			GP				
				60			**SAND:** Brown; wet; 5% clay, 5% silt, 90% sand; non-plastic; moderate estimated permeability.	60.0	
					SP				
0		SB10- S-62						62.5	Bottom of Boring @ 62.5 fbg

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB11
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	24-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	03-Nov-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	5"	**SCREENED INTERVALS**	NA
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	Brandon S. Wilken, P.G. #7564	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
0		SB11- S-5		5	GM		**Sandy GRAVEL with cobbles:** Brown; damp; 10% silt, 20% sand, 70% gravel and round to angular cobbles up to 6" long; non-plastic; high estimated permeability.		
				10			**Clayey sandy SILT:** Brown; damp; 10% clay, 80% silt, 10% sand; medium plasticity; low estimated permeability.	10.0	
1		SB11- S-16		15					Portland Type I/II Cement
				20					

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB11
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	24-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	03-Nov-08

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				25	ML				
0		SB11- S-26							
				30					
				35				35.0	
1		SB11- S-36					@35 fbg composition and color change: mottled brown; 5% clay, 80% silt, 15% sand; low plasticity; low estimated permeability.		
				40			@40 fbg, composition changes: 10% clay, 80% silt, 10% sand; low plasticity; low estimated permeability.		
					ML				

WELL LOG (PID) I:\CHEVRON\3122-\312264-1\312264-4\BORING-1\312264-BORING LOGS.GPJ DEFAULT.GDT 3/5/09

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB11
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	24-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	03-Nov-08

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				45					
278		SB11-S-45.5							
				50					Portland Type I/II Cement
							Silty SAND: Light brown; damp; 5% clay, 25% silt, 70% sand; non-plastic; moderate estimated permeability.	50.0	
20		SB11- S-51			SM				
				55				55.0	
							Gravely SAND: Brown; wet; 10% clay, 80% silt, 10% sand; non-plastic; moderate estimated permeability.		
74		SB11- S-56			SP				
				60					
5		SB11- S-61						61.5	Bottom of Boring @ 61.5 fbg

WELL LOG (PID) I:\CHEVRON\3122-\312264-1\312264-4\BORING-1\312264-BORING LOGS.GPJ DEFAULT.GDT 3/5/09

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB12
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	24-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	03-Nov-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	5"	**SCREENED INTERVALS**	NA
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	Brandon S. Wilken, P.G. #7564	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
0		SB12- 5		5	GM		**Sandy GRAVEL with cobbles:** Light to dark brown; damp; 10% silt, 35% sand, 55% gravel with round and angular cobbles up to 6" long; non-plastic; high estimated permeability.		
								9.0	
							Clayey sandy SILT: Brown; damp; 10% clay, 80% silt, 10% sand; medium plasticity; low estimated permeability.		
				10					
				15			@15 fbg addition of gravel: 10% clay, 75% silt, 10% sand, 5% gravel.		
0		SB12- 15.5							Portland Type I/II Cement
				20					

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB12
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	24-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	03-Nov-08

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					ML				
1		SB12- 25.5		25					
114		SB12- 30		30					
				35				35.0	
1		SB12- 35.5							
				40			@40 fbg composition and color change: mottled light brown and grey; 85% silt, 10% sand, 5% gravel.		

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB12
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	24-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	03-Nov-08

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PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				45	ML				
28		SB12- 45.5							
				50					Portland Type I/II Cement
485		SB12- 50.5							
				55				55.0	
935		SB12- 55.5			GP		**Sandy GRAVEL:** Grey; damp; 5% clay, 10% silt, 30% sand, 55% gravel; non-plastic; moderate estimated permeability.		
				60					
6		SB12- 60.5						61.0	Bottom of Boring @ 61 fbg

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB13
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	30-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	12-Apr-10
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	8-inch	**SCREENED INTERVALS**	NA
LOGGED BY	Cortland Toczylowski	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	B. Wilken, PG# 7564	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				0			**Top Soil**	0.5	
					GW		**GRAVEL with sand**: Brown; moist; gravel fine to coarse; non-plastic; cobbles up to 5-inches long.		
				5					
								8.0	
							Not Logged.		
				10					
				15				16.0	
					ML		**Sandy SILT**: Light brown; moist; fine sand; low plasticity.		
				20				20.0	
					ML		**Sandy SILT with gravel**: Light brown; moist; fine to coarse sand; low plasticity.		Portland Type I/II
							@ 22.5 fbg : decreasing sand.	24.0	
				25	SM		**Silty SAND**: Light brown; moist; fine to medium sand; non-pastic.	27.5	
							Sandy SILT: Light brown; moist; fine sand; low estimated plasticity.		
				30	ML				
							@ 34 fbg : decreasing sand.		
				35				37.0	
							Sandy SILT: Light brown; moist; fine sand; low estimated plasticity.		
				40					

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SB13
JOB/SITE NAME	Chevron #30-7233	**DRILLING STARTED**	30-Mar-10
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	12-Apr-10

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					ML		@ 42 fbg : decreasing sand.	44.0	Bottom of Boring @ 44 fbg

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB1
JOB/SITE NAME	30-7233	**DRILLING STARTED**	31-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	01-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	RSI Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	S. McNaboe	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
0		SSB1-1.5			ML		**Sandy SILT with gravel:** Brown; damp; 50% well graded sand, 40% 0.2-inch gravel, 10% silt; low plasticity; moderate estimated permeability.	2.0	Native Soil
0		SSB1-2.5			GW		**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		Portland Type I/II Cement
0		SSB1-4.5		5			Refusal @ 5 fbg	5.0	Bottom of Boring @ 5 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB2
JOB/SITE NAME	30-7233	**DRILLING STARTED**	01-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	01-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	RSI Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	S. McNaboe	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.		Native Soil
4		SSB2-1.5						2.0	
1		SSB2-2.5					**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		
0		SSB2-4.5		5	GW				Portland Type I/II Cement
0		SSB2-8						8.5	
							Refusal @ 8.5 fbg		Bottom of Boring @ 8.5 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB3
JOB/SITE NAME	30-7233	**DRILLING STARTED**	30-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	06-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	RSI Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
4		SSB3-1.5			SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.		Native Soil
2		SSB3-3			GW		**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.	3.0	Portland Type I/II Cement
2		SSB3-5		5			Refusal @ 5.5 fbg	5.5	Bottom of Boring @ 5.5 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB4
JOB/SITE NAME	30-7233	**DRILLING STARTED**	01-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	01-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	RSI Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	E. Namba	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	DEPTH (ft bgs)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
0		SSB4-1.5		SM	**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.	2.0	Native Soil
0		SSB4-2.5			**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		
0		SSB4-4.5	5	GW			Portland Type I/II Cement
0		SSB4-9				9.5	
					Refusal @ 9.5 fbg		Bottom of Boring @ 9.5 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB5
JOB/SITE NAME	30-7233	**DRILLING STARTED**	06-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	06-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
2		SSB5-1.5			SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.		Native Soil
1		SSB5-3			GW		**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.	3.0	
1		SSB5-5.5		5					Portland Type I/II Cement
2		SSB5-7						7.5	
							Refusal @ 7.5 fbg		Bottom of Boring @ 7.5 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB6
JOB/SITE NAME	30-7233	**DRILLING STARTED**	06-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	06-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	RSI Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
3		SSB6-1.5			SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.		Native Soil
1		SSB6-3						4.0	Portland Type I/II Cement
				5	GW		**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.	5.0	
							Refusal @ 5 fbg		Bottom of Boring @ 5 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB7
JOB/SITE NAME	30-7233	**DRILLING STARTED**	06-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	06-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Williams	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.	1.0	Native Soil
4		SSB7-1.5					**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		
0		SSB7-3.5			GW				Portland Type I/II Cement
				5					
0		SSB7-5.5							
3		SSB7-7						7.5	
							Refusal @ 7.5 fbg		Bottom of Boring @ 7.5 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB8
JOB/SITE NAME	30-7233	**DRILLING STARTED**	01-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	01-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
0		SSB8-1.5			SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.	1.0	Native Soil
0		SSB8-4.5		5	GW		**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		Portland Type I/II Cement
0		SSB8-9					Refusal @ 9.5 fbg	9.5	Bottom of Boring @ 9.5 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB9
JOB/SITE NAME	30-7233	**DRILLING STARTED**	06-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	06-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Williams	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
1		SSB9-1.5			SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.	2.0	Native Soil
1		SSB9-3					**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		
2		SSB9-5		5	GW				Portland Type I/II Cement
0		SSB9-9						9.5	
							Refusal @ 9.5 fbg		Bottom of Boring @ 9.5 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB10
JOB/SITE NAME	30-7233	**DRILLING STARTED**	06-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	06-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Williams	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.	2.0	Native Soil
0		SSB10-3					**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		
0		SSB10-5		5	GW				Portland Type I/II Cement
0		SSB10-9						9.5	
							Refusal @ 9.5 fbg		Bottom of Boring @ 9.5 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	SSB11
JOB/SITE NAME	30-7233	**DRILLING STARTED**	06-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	06-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Williams	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
0		SSB11-1.5			SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.	2.5	Native Soil
0		SSB11-3			GW		**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		
2		SSB11-5		5					Portland Type I/II Cement
1		SB11-8.5					Refusal @ 9 fbg	9.0	Bottom of Boring @ 9 ft

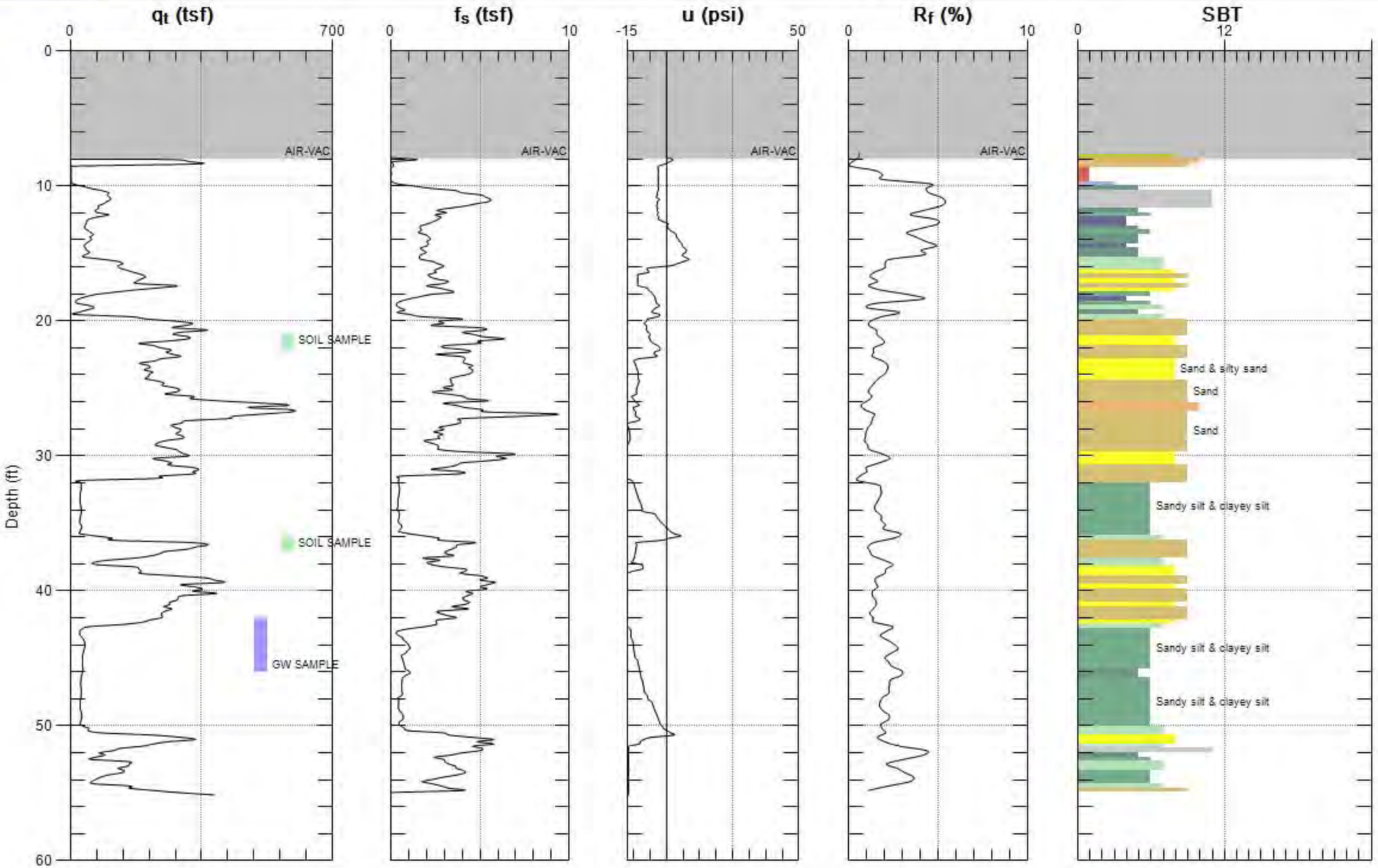
WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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)

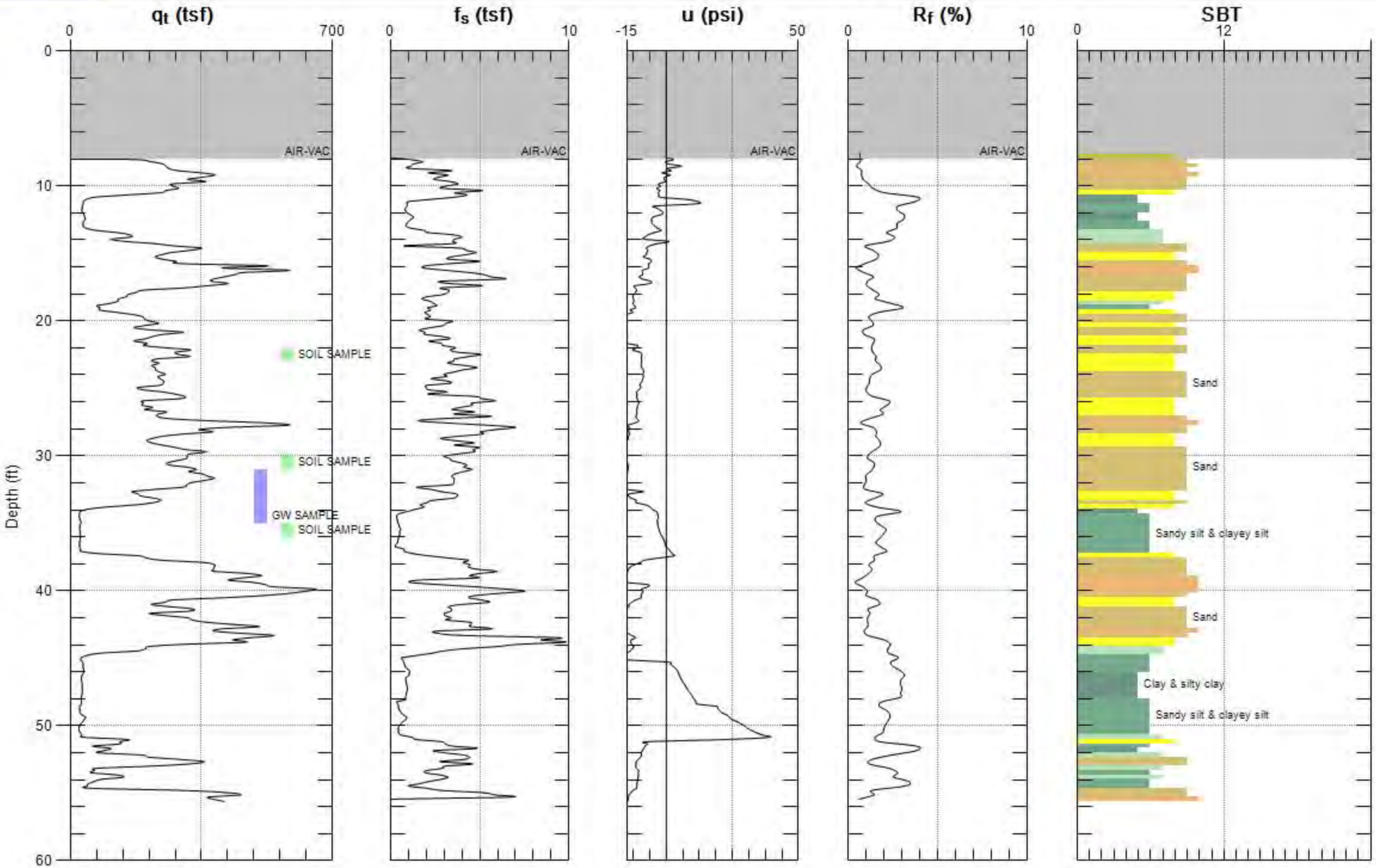
SBT: Soil Behavior Type (Robertson 1990)

GREGG

CRA

Site: FMR. TEXACO 30-7233 Engineer: C.EVANS

Sounding: CPT-02 Date: 2/4/2008 08:26



Max. Depth: 55.610 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	CPT3
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	23-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	23-Oct-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Cone Penetration Testing (CPT)	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVALS**	NA
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	Brandon S. Wilken, P.G. #7564	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

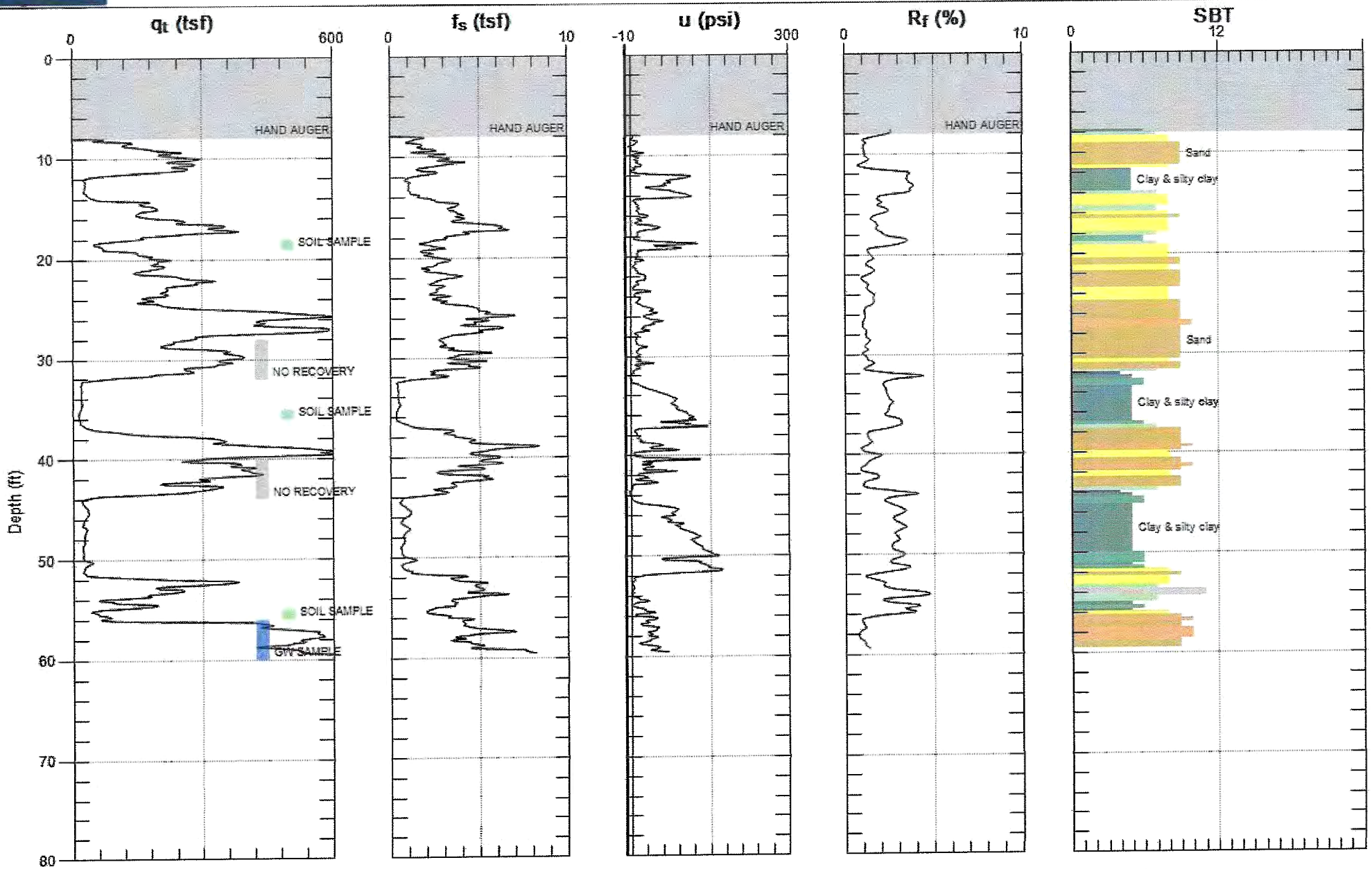
PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							ASPHALT	1.0	
					GM		**Silty GRAVEL (roadbase)**	2.0	
0		CPT3- 5		5	GM		**Silty GRAVEL:** Light brown; damp; 25% silt, 75% fine to coarse gravel; non-plastic; high estimated permeability.		Portland Type I/II Cement
								8.0	Bottom of Boring @ 8 fbg
							Boring log continues in Gregg CPT report		

WELL LOG (PID) I:\CHEVRON\3122-\312264-\131B354-1\312264-BORING LOGS.GPJ DEFAULT.GDT 2/19/09

CONESTOGA ROVERS

Site: CHEVRON 30-7233
Sounding: CPT3

Engineer: I.HULL
Date: 11/4/2008 09:18



Max. Depth: 59.547 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Cambria Environmental Technology, Inc.
5900 Hollis Street, Suite A
Emeryville, CA 94608
Telephone: 510-420-0700
Fax: 510-420-9170

BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	CPT4
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	24-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	24-Oct-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Cone Penetration Testing (CPT)	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVALS**	NA
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	Brandon S. Wilken, P.G. #7564	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

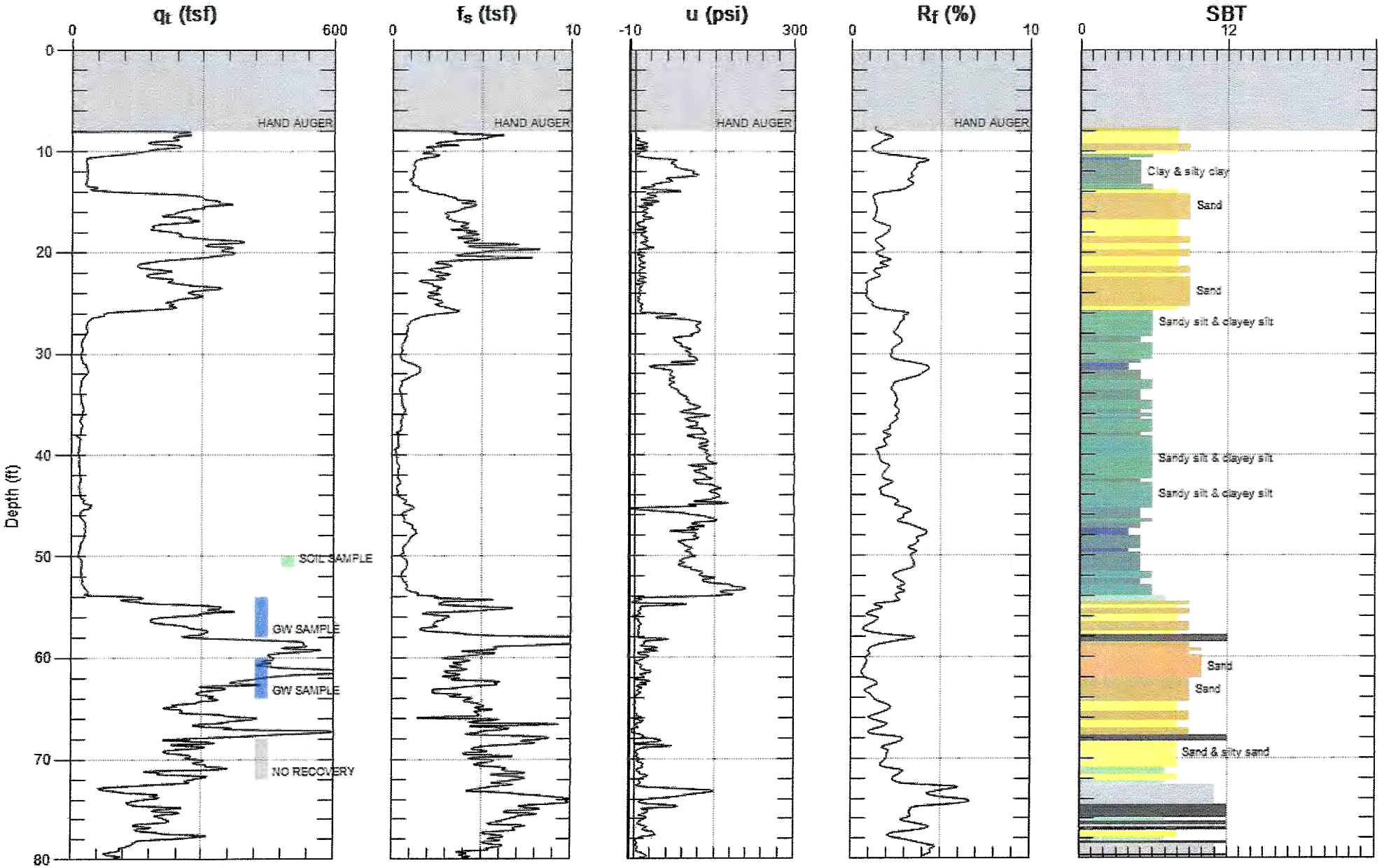
PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							ASPHALT	1.0	
0		CPT4- 5		5	GW		**Sandy GRAVEL with cobbles and silt:** Light to dark brown; damp; 10% silt, 25% fine to coarse sand, 65% fine to coarse gravel; non-plastic; high estimated permeability.	8.0	Portland Type I/II Cement Bottom of Boring @ 8 fbg
							Boring log continues in Gregg CPT report		

WELL LOG (PID) I:\CHEVRON\3122-\312264-1\31B354-1\312264-BORING LOGS.GPJ DEFAULT.GDT 2/19/09

CONESTOGA ROVERS

Site: CHEVRON 30-7233
Sounding: CPT4

Engineer: I.HULL
Date: 11/5/2008 09:10



Max. Depth: 80.052 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

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BORING / WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	CPT5
JOB/SITE NAME	Chevron site #30-7233	**DRILLING STARTED**	31-Oct-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	31-Oct-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, C57 #485165	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Cone Penetration Testing (CPT)	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVALS**	NA
LOGGED BY	Belew Yifru	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	Brandon S. Wilken, P.G. #7564	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

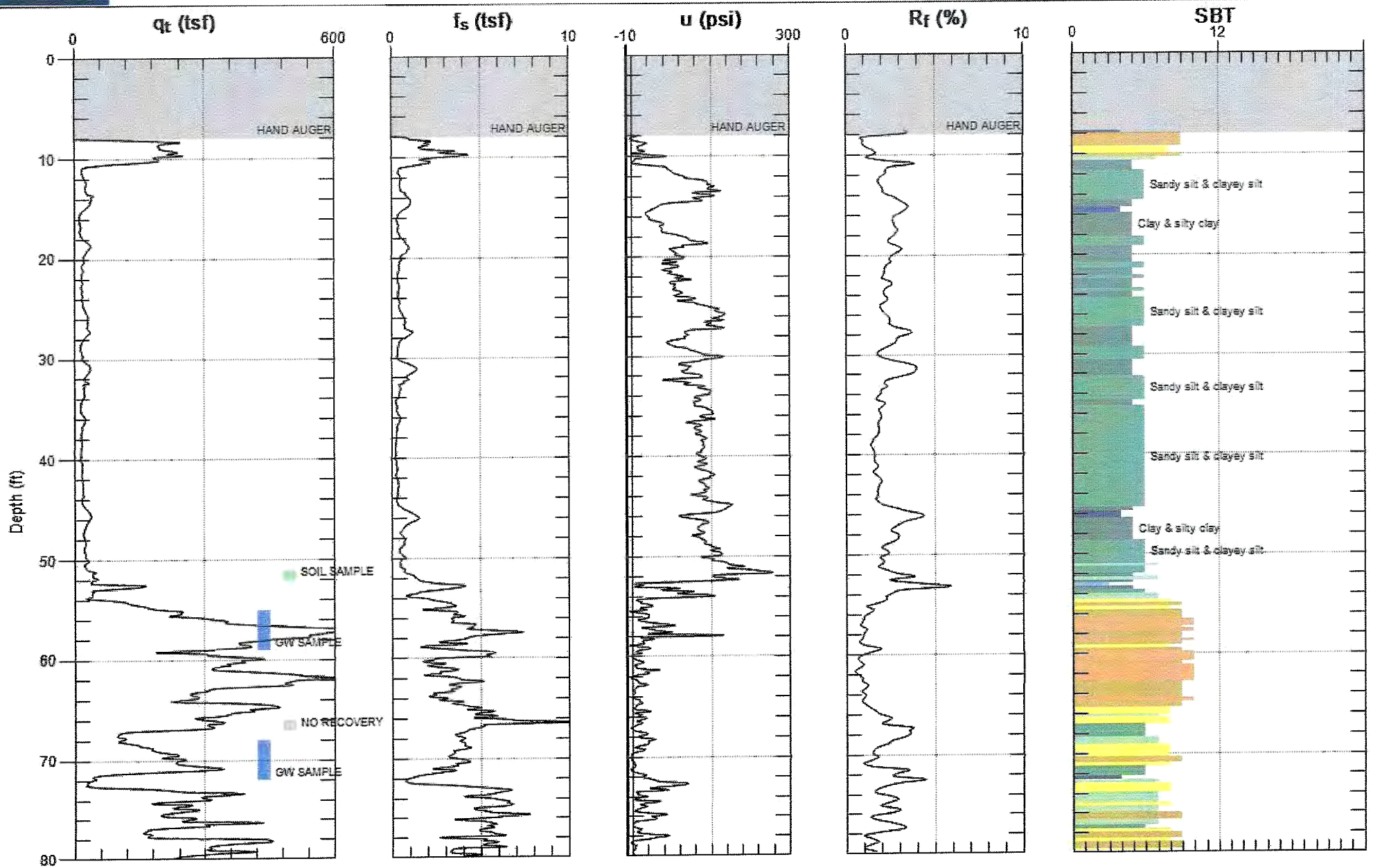
PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							ASPHALT	1.0	
0		CPT5- 5		5	GW		**Sandy GRAVEL with cobbles and silt:** Light to dark brown; damp; 10% silt, 35% fine to coarse sand, 55% fine to coarse gravel; non-plastic; high estimated permeability.	8.0	Portland Type I/II Cement Bottom of Boring @ 8 fbg
							Boring log continues in Gregg CPT report		

WELL LOG (PID) I:\CHEVRON\3122-\312264-\131B354-1\312264-BORING LOGS.GPJ DEFAULT.GDT 2/19/09

CONESTOGA ROVERS

Site: CHEVRON 30-7233
Sounding: CPT5

Engineer: I.HULL
Date: 11/3/2008 09:42



Max. Depth: 80.052 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	VP1
JOB/SITE NAME	30-7233	**DRILLING STARTED**	31-Jan-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	31-Jan-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vironex, C57 #705927	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.	2.0	Portland Type I/II Cement
							Sandy GRAVEL with silt: Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		Bentonite Seal
0		VP1-4.5		5	GW				Monterey Sand #2/12
									Portland Type I/II Cement
0		VP1-8						8.5	Bentonite Seal
				10			Refusal @ 8.5 fbg		Monterey Sand #2/12
									Vapor well installed past 8.5 fbg by advancing a 0.5 inch rod to total depth, installing well, and then removing rod.
									Bottom of Boring @ 10 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	VP2
JOB/SITE NAME	30-7233	**DRILLING STARTED**	01-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	01-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vironex, C57 #705927	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	I. Hull	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.	3.0	Portland Type I/II Cement
0		VP2-4.5		5	GW		**Sandy GRAVEL with silt:** Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		Bentonite Seal Monterey Sand #2/12
0		VP2-9.5		10				10.0	Portland Type I/II Cement Bentonite Seal Monterey Sand #2/12 Bottom of Boring @ 10 ft

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	**BORING/WELL NAME**	VP3
JOB/SITE NAME	30-7233	**DRILLING STARTED**	01-Feb-08
LOCATION	2259 First Street, Livermore, California	**DRILLING COMPLETED**	01-Feb-08
PROJECT NUMBER	312264	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vironex, C57 #705927	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	S. McNaboe	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Utility cleared with an air-knife-assisted vacuum truck to 8 feet below grade		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SM		**Silty SAND:** Brown; moist; 55% well graded sand, 40% silt, 5% gravel; low plasticity; moderate estimated permeability.	2.0	Portland Type I/II Cement
							Sandy GRAVEL with silt: Brown; moist; 50% fine to coarse gravel, 40% well graded sand, 10% silt; non-plastic; high estimated permeability.		Bentonite Seal
0		VP3-4.5		5	GW				Monterey Sand #2/12
									Portland Type I/II Cement
0		VP3-8						8.5	Bentonite Seal
				10					Monterey Sand #2/12
									Vapor well installed past 8.5 ft by advancing a 0.5 inch rod to total depth, installing well, and then removing rod.
									Bottom of Boring @ 10 ft

WELL LOG (PID) I:\CHEVRON\307233~1\BORING~1\307233 BORING LOGS.GPJ DEFAULT.GDT 5/15/08

APPENDIX D

MONITORING WELL INSTALLATION SOP

STANDARD FIELD PROCEDURES FOR SOIL BORING AND 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.

SOIL BORINGS

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 ASTM D2488-06 Unified Soil Classification System by a trained geologist working under the supervision of a California Professional Geologist (PG).

Soil Boring and Sampling

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

Grouting
If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

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. A rinsed and graded sand 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°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.