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August 18, 2011

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Former Signal Oil Marine Storage and Distribution Facility
(Former Chevron Bulk Plant 20-6127)
2301-2311 Blanding Avenue
Alameda, California
LOP Case RO0002466

Dear Mr. Wickham:

The purpose of this letter is to verify that as a representative for Chevron Environmental Management Company (Chevron), I reviewed, and concur with, the comments in the *Draft Corrective Action Plan* for the referenced facility, prepared on behalf of Chevron by Conestoga-Rovers & Associates. I declare under penalty of perjury that the foregoing is true and correct.

Please feel free to contact me at (714) 671-3207 if you have any questions.

Sincerely,

Mike Bauer
Project Manager

DRAFT CORRECTIVE ACTION PLAN

FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON FACILITY 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA
AGENCY CASE NO. RO0002466

Prepared for:

Mr. Jerry Wickham
Alameda County Health Care Services Agency
Environmental Health Services

Prepared by:
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AUGUST 18, 2011
REF. NO. 631916 (21)
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DRAFT CORRECTIVE ACTION PLAN

FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON FACILITY 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA
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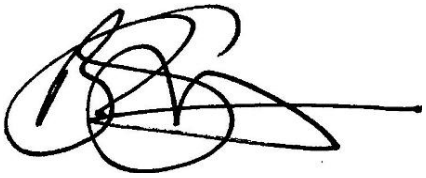
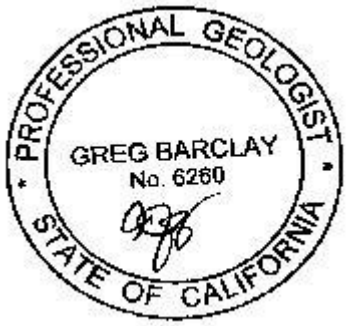


Brian Silva



Greg Barclay, PG 6260

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1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA), on behalf of Chevron Environmental Management Company (Chevron), has prepared this *Draft Corrective Action Plan* (draft CAP) for the former Signal Oil Marine Storage and Distribution facility (former Chevron facility 20-6127) located at 2301-2311 Blanding Avenue in Alameda, California. This draft CAP was requested by the Alameda County Health Care Services Agency, Environmental Health Services (ACEH) in a letter to Chevron dated May 26, 2011 (Appendix A) to evaluate potential remedial alternatives for mitigating petroleum impacts at the site.

This document complies with California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Storage Tank (UST) Regulations. A site background, previous site investigations, groundwater monitoring activities, hydrocarbon distribution, remediation goals, evaluation of remedial alternatives, and final remediation recommendations are presented below.

2.0 SITE BACKGROUND

The following sections provide a description of the site and a summary of the geologic and hydrogeologic setting at the site.

2.1 SITE DESCRIPTION

The approximately 3.5-acre site is located on the northeast side of Blanding Avenue between Oak and Park Streets in Alameda, California (Figures 1 and 2). Land use in the site vicinity is primarily commercial and industrial. The Alameda Canal and a marina are located adjacent to the northeast side of the site. The site is currently occupied by three large commercial buildings, which are used for office, retail, and storage space, and identified as Park Street Landing at 2307-2337 Blanding Avenue. A summary of the site history dating back to 1897 is included in Appendix B.

2.2 SITE GEOLOGY AND HYDROGEOLOGY

Based on past investigation, the soils encountered beneath the site generally consist of silty sand and clayey sand from just beneath grade to approximately 5 to 9 feet below grade (fbg). Fill consisting of black sand and debris, including concrete fragments, has

been reported in several borings at shallow depths. A 4 to 5 foot-thick layer of clay with some sand underlies the silty sand and clayey sand. Below the clay is silty sand and sandy silt to the maximum depth explored of approximately 20.5 fbg. Groundwater is typically encountered in site borings at approximately 14.5 to 15 fbg within the silty sand and sandy silt, and subsequently rises in the borings/wells to approximately 7 to 10 fbg suggesting the groundwater beneath the site is semi-confined. Geologic cross-sections are provided in Figures 3 and 4. Boring logs are presented in Appendix C.

2.3 PREVIOUS ENVIRONMENTAL WORK

To date, seven groundwater monitoring wells, one replacement groundwater monitoring well, six vapor wells, and seven sub-slab vapor probes have been installed at the site. Additionally, twenty-eight soil borings have been advanced and three surface soil samples have been collected at the site. Quarterly monitoring and sampling of wells MW-1 through MW-5 was initiated in 2001 is ongoing. Recently installed wells MW-1RA, MW-1RB (which was installed to replace well MW-1), and MW-6 were added to the quarterly monitoring and sampling program, beginning in the fourth quarter 2010. Well construction specifications are summarized in Table 1. A summary of previous environmental work performed at the site is presented in Appendix B.

2.4 PRODUCT RELEASES AND SOURCE AREA

No records of historical releases have been located for the site. Based on soil and groundwater data, the source area appears to be from the former AST and loading rack area. All facilities were removed between 1957 and 1965. Cumulative historical soil data is presented in Tables 2 and 3. Grab-groundwater analytical data is presented in Table 4 and historical monitoring and sampling data is included as Appendix D.

2.5 SENSITIVE RECEPTOR SURVEY

The following sections provide a summary of wells, surface water bodies and other sensitive receptors located near the site. The sensitive receptor and well survey map is shown graphically on Figure 5, and sensitive receptor and well survey data is summarized in Table 5.

2.5.1 AREA WELL SURVEY

In June 2011, CRA reviewed Department of Water Resources (DWR) well completion reports to identify wells within a 2,000-foot radius of the site, using aerial photography to measure approximate distances from the site to each well. Review of DWR files identified two industrial wells within the 2,000-foot radius. The two wells are located on the same property at 2307 Clement Avenue, approximately 310 to 340 feet southwest of the site (Figure 5). No domestic, irrigation, or municipal water supply wells were identified.

The wells identified in the survey are not considered at risk from petroleum hydrocarbons originating from the site, as these wells are located upgradient of the site and petroleum hydrocarbon concentrations detected in well MW-2 onsite, nearest to these wells, have been below environmental screening levels (ESLs) since sampling began. Given the relative lack of petroleum hydrocarbon detections in MW-2 and the direction of groundwater flow, it is unlikely that the shallow dissolved petroleum hydrocarbon plume onsite is migrating to the identified well receptors; therefore they are not considered at risk.

2.5.2 SURFACE WATER SURVEY

The nearest surface water to the site is Alameda Canal which is located along the northern property boundary. Historical grab surface water samples collected from canal sample location CS-2 indicate only minor, sporadic hydrocarbon detections (mainly total petroleum hydrocarbons as diesel [TPHd]) since July 2001. However, the origin of hydrocarbon detections in canal water cannot be accurately determined, as the source could possibly be from offsite, including the marina adjacent to the site.

2.5.3 ADDITIONAL RECEPTORS

CRA reviewed internet search engines to identify schools, daycares, and hospitals within a 2,000-foot radius of the site and used aerial photography to measure approximate distances from the site to each receptor. The search identified one school at 2226 Pacific Avenue, located approximately 1,775 feet southwest (crossgradient) of the site (Figure 5). No daycare or hospital facilities were identified within the search radius. Based on its relative direction to and distance from the site, the school identified is not considered at risk from hydrocarbons originating from the site.

2.5.4 ADJACENT LAND USE

Current land use adjacent to the site is primarily commercial and industrial. To the west and north (across Alameda Canal) are mainly industrial properties. The adjacent western property is occupied by four warehouses, a building, and two docks on Alameda Canal. The three properties to the north, across Alameda Canal are occupied by a boat electronics service shop, a boat motor shop, and a concrete/cement mixing facility. The properties immediately to the south and east are commercial properties. A commercial office building is located immediately to the east. A marina associated with the boat rigging shop located on the subject property is located immediately to the north on Alameda Canal.

3.0 HYDROCARBON DISTRIBUTION

The primary constituents of concern (COCs) are:

- TPHd – soil and groundwater.
- Total petroleum hydrocarbons as gasoline (TPHg) – soil, soil vapor, and groundwater.
- Benzene – soil vapor and groundwater.
- Ethylbenzene – soil vapor.

Toluene, xylenes, methyl tertiary butyl ether (MTBE), and other volatile organic compounds (VOCs) are not considered COCs due to the relative low concentrations detected.

3.1 SOIL

The highest hydrocarbon concentrations of 6,900 milligrams per kilogram (mg/kg) TPHd and 11,000 mg/kg TPHg were detected in vapor well VP-4 at 5 fbg. As shown on Figures 6 and 7, the horizontal extent of the soil impacts is defined in all directions within the vicinity of the former fueling facilities. Concentrations that exceed applicable ESLs[1] are primarily detected between 2 to 14 fbg. Concentrations decrease with depth and are vertically delineated outside the source area and to low levels at depth within the source area by confirmation samples collected from MW-1 (0.53 mg/kg benzene,

[1] Environmental Screening Level (ESL) from the San Francisco Regional Water Quality Control Board's (RWQCB's) *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater,* Interim Final November 2007, Revised May 2008

0.021 mg/kg toluene, 0.028 mg/kg ethylbenzene, 0.065 mg/kg xylenes), MW-4 (non-detect for TPHd, TPHg, BTEX, and MTBE), MW-6 (1.2 mg/kg TPHg, 0.12 mg/kg benzene, 0.002 mg/kg toluene, 0.003 mg/kg ethylbenzene, and 0.003 mg/kg xylenes), and SB-9 (1.2 mg/kg TPHd and 0.22 mg/kg benzene) at 15 fbg (Figures 3, 4, 6, and 7). Cumulative soil analytical data are summarized in Tables 2 and 3.

3.2 GROUNDWATER

Groundwater has been monitored for approximately 10 years. The highest hydrocarbon detections in grab-groundwater samples collected were from boring SB-18 at concentrations of 19,000 microgram per liter (µg/L) TPHd, 3,800 µg/L TPHg, and 590 µg/L benzene.

The highest hydrocarbon concentrations detected in site monitoring wells were in former well MW-1 and newly installed well MW-1RA (in the vicinity of SB-18) with maximum concentrations of 4,000 µg/L TPHd, 6,400 µg/L TPHg, and 920 µg/L benzene. The most recent data for each well (third quarter 2011) are summarized in Table A below. The third quarter 2011 monitoring and sampling event will be reported under separate cover. Hydrocarbons in groundwater are highest near well MW-1RA, which is screened within a shallow "pearched" zone adjacent to Alameda Canal to the north. The extent of hydrocarbons in groundwater is generally limited to onsite and defined laterally to the south by MW-2 and GWS-14, east by GWS-11, GWS-12, and MW-4, and west by GWS-7, GWS-13, and GWS-15 (Figures 8 through 10 and Table 4).

TABLE A
CURRENT HYDROCARBON CONCENTRATIONS IN GROUNDWATER

Well	*Most Recent Sampling Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Xylenes*
		Concentrations in µg/L					
ESL		***100***	***100***	***1***	***40***	***30***	***20***
MW-1RA	6/30/2011	**3,700**	**6,800**	**780**	13	**36**	13
MW-1RB	6/30/2011	**1,900**	**310**	**9**	<0.5	<0.5	<0.5
MW-2	6/30/2011	**120**	<50	<0.5	<0.5	<0.5	<0.5
MW-3	6/30/2011	**740**	<50	<0.5	<0.5	<0.5	<0.5
MW-4	6/30/2011	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-5	6/30/2011	**3,200**	**2,900**	**99**	6	1	7
MW-6	6/30/2011	**640**	**200**	**3**	<0.5	<0.5	<0.5

ESL Environmental Screening Level (ESL) from Table A. ESLs Shallow Soils, Groundwater is Current or Potential Source of Drinking Water from the San Francisco Bay Region RWQCB *Screening for Environmental Concern at Sites with Contaminated Soil and Groundwater*, Interim Final November 2007, Revised May 2008

Data in **bold** represent concentrations that exceed applicable ESLs.

The dissolved hydrocarbon plume is generally stable based on trends observed in site wells. Limited sampling of newly installed wells MW-1RA, MW-1RB, and MW-6 indicate generally stable concentrations; however further sampling is needed to establish a trend. Concentration trend graphs for MW-1 (replaced by MW-1RB), MW-3, and MW-5 are presented in Appendix E. Historical and current groundwater data are presented in Appendix D and grab-groundwater sample data is summarized in Table 4.

3.3 LIGHT NONAQEOUS PHASE LIQUIDS (LNAPL)

LNAPL has never been detected in any site monitoring well or in any grab-groundwater samples collected from soil borings.

3.4 SOIL VAPOR, SUB-SLAB VAPOR, INDOOR AND OUDOOR AIR

Soil vapor sampling was initiated at the site in August 2008. The highest soil vapor concentrations detected were from vapor wells VP-4 and VP-5 in August and October 2008 at concentrations of 110,000 micrograms per cubic meter (µg/m^3) TPHd in VP-5, 220,000,000 µg/m^3 TPHg in VP-4, 1,100,000 µg/m^3 benzene in VP-4, and 650,000 µg/m^3

ethylbenzene. Subsequent soil vapor sampling indicates concentrations are relatively stable or decreasing.

Sub-slab vapor sampling was initiated in July 2009. The highest sub-slab vapor concentrations were mainly detected during the first two sampling events in August and October 2009, with subsequent sampling events indicating minor or non-detect concentrations. The highest sub-slab vapor concentrations detected were from sub-slab vapor probes VP-8, VP-9, and VP-10 in July 2009 and June 2010 at concentrations of 8,800 µg/m^3 TPHg in VP-9, 24 µg/m^3 benzene and 71 µg/m^3 toluene in VP-8, and 52 µg/m^3 ethylbenzene in VP-10. During the last two sub-slab sampling events, all COCs were below ESLs except for a slight exceedance of benzene in VP-8 during the June 2010 sampling event. However benzene was below the ESL in VP-8 during the most recent (November 2010) event.

Indoor and outdoor air sampling was initiated in June 2010. Indoor and outdoor air samples collected in site buildings are at relatively low concentrations with the highest concentrations detected in sampling location IA-3 at 530 µg/m^3 TPHg, 4.20 µg/m^3 benzene, and 6.00 µg/m^3 ethylbenzene. The disparity between the sub-slab and indoor air results suggest that other sources within the buildings are contributing to the indoor air results. Each of the suites where the indoor air samples were collected had numerous sources of VOCs present/stored inside and the outdoor air sample also contained TPHg and benzene levels above the indoor air ESLs. Due to this disparity, further indoor air sampling is not recommended.

Current sub-slab results are all below ESLs for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air (Table E, SFRWQCB, 2008). This further supports that there are other indoor sources contributing to the indoor air results. While there are highly elevated concentrations observed in the vapor well samples collected at 5 fbg, sub-slab results show low level vapor impact in near surface soil suggesting vapor intrusion from deeper soil (5 fbg) into the site buildings is not a risk. The soil vapor, sub-slab vapor, and indoor and outdoor air analytical results are presented in Tables 6 and 7.

5.0 CLEANUP GOALS

The following sections summarize soil, soil vapor and groundwater cleanup goals.

5.1 SOIL AND SOIL VAPOR CLEANUP GOALS

As evidenced by the dissolved concentration degradation trend graphs for source area wells MW-1 (replaced by MW-1RB), MW-3, and MW-5 (Appendix E), the rate at which the soil mass is leaching to groundwater is less than or equal to the rate of natural degradation. Additionally as described above in Section 3.4, current soil impacts do not result in a vapor intrusion risk. Therefore, active soil remediation is not warranted. If the site is redeveloped, a soil management plan (Section 8.0) has been prepared to address potential risks from residual soil impacts.

5.2 GROUNDWATER CLEANUP GOALS

Since soil and soil vapor concentrations have been ruled out as drivers for cleanup, dissolved concentration reduction will be the measure of remedial success. The RWQCB's Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin Region states that existing and potential beneficial uses applicable to groundwater in the region include domestic and municipal water supply. Table B presents the COCs, ESLs to protect designated beneficial uses, highest historical concentrations, and current maximum concentrations (using third quarter 2011 monitoring and sampling data) for this site.

TABLE B
ESLs AND CONCENTRATIONS IN GROUNDWATER

Constituent of Concern	*ESL (µg/L)*	*Historical Maximum Detected Concentration (µg/L)*	*Current Maximum Concentration (µg/L)*
MW-1			
TPHd	100	3,300	Replaced
TPHg	100	5,210	Replaced
Benzene	1	920	Replaced
MW-1RA			
TPHd	100	4,000	3,700
TPHg	100	6,800	6,800
Benzene	1	830	780
MW-1RB (Replaced MW-1)			
TPHd	100	1,900	1,900
TPHg	100	650	310
Benzene	1	9	9

TABLE B ESLs AND CONCENTRATIONS IN GROUNDWATER			
Constituent of Concern	*ESL (µg/L)*	*Historical Maximum Detected Concentration (µg/L)*	*Current Maximum Concentration (µg/L)*
MW-2			
TPHd	100	120	120
TPHg	100	<50	<50
Benzene	1	<0.5	<0.5
MW-3			
TPHd	100	1,800	740
TPHg	100	310	<50
Benzene	1	2	<0.5
MW-4			
TPHd	100	370	<50
TPHg	100	<50	<50
Benzene	1	<0.5	<0.5
MW-5			
TPHd	100	3,200	3,200
TPHg	100	2,900	2,900
Benzene	1	99	99
MW-6			
TPHd	100	640	640
TPHg	100	620	200
Benzene	1	7	3

Current maximum TPHd, TPHg, and benzene concentrations exceed ESLs. TPHd, TPHg, and benzene concentration trends in source area wells MW-1 (replaced by MW-1RB), MW-3, and MW-5 are generally stable to decreasing over time. Concentrations in newly installed wells MW-1RA, MW-1RB, and MW-6 are generally stable; however further sampling is required to establish a trend. Concentrations in the remaining wells (MW-2 and MW-4) are below ESLs (except for a slight exceedance of the TPHd ESL in MW-2 in the most recent sampling event). Based on current concentrations onsite, the groundwater cleanup goal will be to establish declining trends that predict ESLs will be achieved within a reasonable timeframe and that the residual dissolved mass is not impacting Alameda Canal. Prior canal sampling (Appendix D) indicates that Alameda Canal is not being impacted by residual mass remaining on site. Section 7.0 proposes a tidal influence study and mass flux calculation to confirm that Alameda Canal is not being impacted.

6.0 REMEDIAL ALTERNATIVES DISCUSSION AND APPROACH

Remedial alternatives are evaluated in this draft CAP based on implementing the most cost-effective remedial approach that will meet the cleanup goals stated above. This evaluation assumes the proposed mass flux calculation verifies that Alameda Canal is not being impacted by residual mass remaining on site.

6.1 REMEDIAL ALTERNATIVES

The following remedial technologies have been evaluated in the sections below on the basis of their ability to achieve the cleanup goal:

- Groundwater extraction (GWE)
- Multi-phase extraction (MPE)
- Air sparging-enhanced soil vapor extraction (AS/SVE)
- In-situ chemical oxidation (ISCO)
- In-situ enhanced biodegradation (ISEB)
- Monitored natural attenuation (MNA)

Each of these alternatives is evaluated below based on technical feasibility. The alternatives that are retained for consideration based on technical feasibility are then compared on the basis of cost effectiveness. The most cost-effective of the viable alternatives has been recommended for implementation at this site.

6.1.1 GROUNDWATER EXTRACTION (GWE)

GWE has historically been the most common remedial technology applied for groundwater restoration at petroleum hydrocarbon release sites. Groundwater is extracted using submersible pumps and routed to a fixed treatment system, utilizing treatment equipment such as granular-activated carbon (GAC) vessels or an air stripper. The treatment system removes COCs from the extracted groundwater and the treated groundwater is then typically discharged under permit to the sanitary or storm sewer after treatment.

Source removal can only be achieved indirectly using GWE, as contaminants gradually desorb from soil and enter the dissolved phase. The rate of desorption from soil is often the limiting factor for contaminant removal using GWE, thus requiring sustained operation of the system over a relatively long timeframe. Sustained pumping of groundwater will induce drawdown of the water table, creating a gradient toward the extraction well. Sufficient dewatering of the local formation can prevent contaminants from migrating with the natural groundwater flow and remove contaminants from areas away from the extraction well. However, dewatering can also potentially induce the migration of contaminants from outside the area of groundwater impacts at the site. Use of GWE and placement of extraction wells must be performed carefully to ensure that impacts from offsite sources are not artificially commingled with the onsite source.

6.1.1.1 GWE FEASIBILITY EVALUATION

Based on the remaining impacts, a fixed GWE system would include pumping from the vicinity of MW-5 and use of GAC to treat hydrocarbons in the extracted groundwater. GWE would be implementable at this site; however, a high extraction rate would be expected, given the close proximity to Alameda Canal, producing a large volume of extracted water to treat and dispose of.

6.1.1.2 GWE RECOMMENDATION

GWE is considered a viable remedial alternative for this site. Therefore, GWE has been retained for consideration and the overall cost to implement this technology is summarized in Table C shown in Section 6.2 below.

6.1.2 MULTI-PHASE EXTRACTION (MPE)

MPE consists of the vacuum-enhanced extraction of groundwater performed simultaneously with SVE. The vacuum increases the groundwater yield compared to standard GWE in low permeability formations. The extended dewatering of the saturated zone attained through GWE allows volatile constituents adsorbed to previously saturated soil to be removed in the vapor phase. In addition, the groundwater extraction component of MPE may provide hydraulic control of the chemical plume and reduce chemical migration as well as remove dissolved chemical mass.

At this site, MPE would be performed by using a submersible groundwater pump to extract groundwater while the vacuum blower is used solely to extract soil vapors. The details of a MPE design would be based on site-specific pilot testing of the technology. The vapor extraction system would need a soil vapor treatment system (e.g., thermal destruction, GAC adsorption). Extracted groundwater would be treated and discharged to the sewer system.

6.1.2.1 MPE FEASIBILITY EVALUATION

MPE is typically used for the remediation of residual LNAPL and volatile petroleum hydrocarbons adsorbed to soil beneath the water table. Based on the close proximity to Alameda Canal and semi-confined water-bearing zone, dewatering of the remedial well may not be feasible. Additionally, MPE is not typically used to treat TPHd due to its low volatility. Therefore, MPE is not considered viable for this site.

6.1.2.2 MPE RECOMMENDATION

CRA does not recommend MPE for further consideration at this site and a cost estimate to implement this technology has not been presented below for comparison.

6.1.3 AIR SPARGING-ENHANCED SOIL VAPOR EXTRACTION (AS/SVE)

SVE is a process used to remove VOCs from soil in vapor phase by applying a vacuum in the vadose zone. SVE is a common remediation technology applied for addressing gasoline in the subsurface, such as at this site. AS is a remedial technology whereby air is injected into the saturated zone to remove VOCs from below the groundwater table. AS 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 ten 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. AS/SVE 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 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 would be sized based on the number of injection points, pressure requirements, and minimum pressure and flow delivery at the injection depth.

6.1.3.1 AS/SVE FEASIBILITY EVALUATION

AS/SVE, like MPE, is typically used for the remediation of residual LNAPL and volatile petroleum hydrocarbons adsorbed to soil beneath the water table. Based on the fine grained soils and the very low oxygen levels (<1%) observed where the highest vapor concentrations have been collected (approximately 5 fbg), the radius of influence is expected to be very limited. Furthermore vapors generated from sparging into the silty sand water-bearing zone would likely be trapped below the overlying fine grained layer and not be captured by SVE. Therefore, AS/SVE is not considered viable for this site.

6.1.3.2 AS/SVE RECOMMENDATION

CRA does not recommend AS/SVE for further consideration at this site and a cost estimate to implement this technology has not been presented below for comparison.

6.1.4 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, a strong oxidizer, is commonly applied in the form of 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 is effective when treating hydrocarbon contamination (Environmental Protection Agency Guidance Documents, 2005).

6.1.4.1 ISCO FEASIBILITY EVALUATION

While ISCO could be effective for remediating residual COC impacts in the subsurface, safety considerations outweigh the potential benefits of implementing this technology at the site. The exothermic reaction typical of most ISCO applications occurring in shallow groundwater near the existing building and underground utilities discourage the use of this technology. Therefore, CRA does not consider this technology viable for this site.

6.1.4.2 ISCO RECOMMENDATION

CRA does not recommend ISCO for further consideration at this site and a cost estimate to implement this technology has not been presented below for comparison.

6.1.5 IN-SITU ENHANCED BIODEGRADATION (ISEB)

Biodegradation is the process whereby chemicals are metabolized into less toxic or non-toxic compounds by naturally occurring microorganisms. The microorganisms utilize the chemicals as a source of carbon and energy. In order to enhance natural processes, nutrients and/or oxygen can be introduced into the subsurface, or microbial cultures appropriate for the degradation of target compounds can be introduced. ISEB manipulates site conditions to speed up degradation rates of COCs.

6.1.5.1 ISEB FEASIBILITY EVALUATION

One method for adding oxygen to the subsurface is ozone sparging. CRA would propose the use of ozone emitters in 2 to 3 wells in the remaining source area. Each emitter consists of a down-well ozone generator and delivery device, connected to an external air pump and power supply, mounted to the top of the well, and suspended below the water table. Air would be pumped from the surface down into the ozone generating device where ozone is generated and then injected from the device into the surrounding groundwater. This creates micro bubbles 0.5 to 2 millimeters in diameter

that rise through the surrounding saturated soil. The micro bubbles increase molecular oxygen, which enhances bioremediation in the source area. Monitoring of aqueous geochemical parameters and dissolved chemical concentrations would be conducted to assess the effectiveness of the ISEB.

6.1.5.2 ISEB RECOMMENDATION

ISEB is considered a viable remedial alternative for this site. Therefore, ISEB has been retained for consideration and the overall cost to implement this technology is summarized in Table C shown in Section 6.2 below.

6.1.6 MONITORED NATURAL ATTENUATION (MNA)

Biodegradation, adsorption, chemical reactions, and volatilization can all naturally degrade hydrocarbons. Natural attenuation is defined as a process whereby the mass or concentration of a chemical compound is reduced over time or distance from the source area due to naturally occurring physical, chemical, and biological processes. The processes involved in natural attenuation of petroleum hydrocarbons include aerobic and anaerobic biodegradation, dispersion, volatilization, and adsorption (Wiedemeier, et al., 1999). The primary line of evidence to demonstrate the occurrence of natural attenuation in groundwater is the plume structure; a stable or shrinking plume is direct evidence that natural attenuation is occurring at a site. To evaluate the applicability of using remediation by natural attenuation, the site must be adequately assessed.

6.1.6.1 MNA FEASIBILITY EVALUATION

MNA is implementable at the site. Concentrations in site monitoring wells are either stable or decreasing. Based on current data, CRA cannot predict a timeframe for meeting ESLs. However, applying the concentration reduction trend for MW-1 before it was replaced with MW-1RB, the predicted timeframe for meeting ESLs was 16 years (Appendix E). To be conservative, CRA has chosen 30 years to calculate the cost of MNA. With MNA, the only cost associated with the alternative is for performing periodic groundwater monitoring and reporting.

6.1.6.2 MNA RECOMMENDATION

MNA is considered a viable remedial alternative for this site; however a mass flux evaluation, including an updated tidal study is needed before MNA can be fully recommended. Therefore, MNA has been retained for consideration and the overall cost to implement this technology is summarized in Table C shown in Section 6.2 below.

6.2 SUMMARY OF REMEDIAL ALTERNATIVES

Table C below presents the cost to perform GWE, ISEB, and MNA.

TABLE C
SUMMARY OF REMEDIAL ALTERNATIVES

Alternative	*GWE*	*ISEB*	*MNA*
Pilot Testing	$25,000	NA	NA
Design and Permitting	$25,000	$5,000	NA
Equipment and Installation	$150,000	$20,000	NA
Operational Duration	5	10	NA
Average Annual Operational Cost	$75,000	$25,000	NA
Total Operational Cost	$375,000	$250,000	NA
Annual Groundwater Monitoring Cost	$20,000	$20,000	$15,000
Total Groundwater Monitoring Duration	7	12	30 years
Total Groundwater Monitoring Cost	$140,000	$240,000	$450,000
System Demo	$20,000	$5,000	NA
Closure Request/Well Destructions	$50,000	$50,000	$50,000
Total Cost	**$785,000**	**$570,000**	**$500,000**

We recommend completing a tidal influence study so that the mass flux into Alameda Canal can be evaluated. If the results are favorable, MNA will be recommended as the preferred remedial strategy. The proposed tidal influence study and mass flux calculation is summarized in the following section.

7.0 PROPOSED MASS FLUX CALCULATION AND TIDAL INFLUENCE STUDY

The primary concern with this environmental case is TPHd, TPHg, and benzene migration into Alameda Canal. However, to accurately estimate the mass flux of

contaminants at the site, tidal influence on site groundwater from Alameda Canal must be taken into account. CRA proposes to install transducers temporarily in site wells as well as a stilling well off the marina dock to evaluate changes in groundwater elevation at the site. Groundwater elevation data will be collected for a period of 3 days and once all data has been collected, CRA will evaluate the data and perform the mass flux calculation as shown below.

Mass flux calculation is a method of estimating contaminant mass flowing past a cross section, perpendicular to groundwater flow direction (Alameda Canal in relation to groundwater flow direction), in the groundwater system per unit time (grams per day or g/d). These estimations are based on the following equation:

$$M_d = \sum_i^n Q_i C_i C_f$$

Where:

M_d = Contaminant Mass Flux

Q_i = Extraction rate from well

C_i = Contaminant concentration measured in extracted groundwater (µg/L or ppb)

C_f = Conversion factor = 5.45 x 10^{-5} (min-L-g)/(d-gal-µg)

8.0 SOIL MANAGEMENT PLAN

The Soil Management Plan (SMP) has been prepared to provide information regarding residual petroleum constituents that may be present beneath the site to ensure that subsequent land owners, utility workers, and construction workers involved in future subsurface activities are made aware of the residual impact. It is recommended that site construction workers review this SMP prior to subsurface activities so that they are aware of site conditions and understand how to properly respond if residual petroleum-impacted materials are encountered during construction activities. Residual soil analytical data are presented in Tables 2 and 3. The approximate extent of TPHd and TPHg in soil is presented on Figures 6 and 7.

The extent of soil with elevated concentrations of one or more of the COCs generally appears limited to north and east of the westernmost building at the property in the vicinity of the former AST and fuel pumps. Based on the current and anticipated future land use, the only potential exposure pathway to residual impacted soil beneath the site is direct contact by construction workers. It is anticipated that the residual petroleum

hydrocarbons in soil will continue to naturally degrade. Thus, the residual impacts at the site pose no significant risk to human health or the environment currently or in the foreseeable future.

8.1 MANAGEMENT PLAN

Prior to future subsurface activities at the site, a Health and Safety Plan (HASP) should be prepared by a qualified person describing the health and safety training requirements, personal protective equipment (PPE) requirements, specific personal hygiene, and monitoring and equipment that will be used during activities to protect and verify the health and safety of the construction workers and the general public from exposure to the COCs in soil. If impacted soil is encountered, it is recommended that subsurface construction activities cease and that the ACEH, current property owner/lessee, and Chevron be contacted to assess conditions and provide oversight for continued construction activities. The contact information for these parties is provided in Section 8.3.

It is recommended that all excavated soil suspected of containing petroleum hydrocarbons be stockpiled on, and covered with, plastic sheeting onsite or contained in an appropriately covered bin. Some of the field indicators for potential petroleum hydrocarbon impact in soil include the following:

- Gasoline or petroleum odor.
- Soil discoloration or staining (i.e. green, grey, and black) that is inconsistent with surrounding native material.

Samples should be collected (using EPA-approved protocols) of any soil intended to be transported offsite for disposal or other reasons and analyzed (at a minimum) for petroleum hydrocarbons by a state-certified analytical laboratory to determine the proper management/disposal procedures. The site property owner/lessee/developer should contact Chevron to arrange for proper characterization of any excavated material intended for disposal or offsite re-use and suspected of containing petroleum hydrocarbons.

As previously mentioned, groundwater at the site is relatively shallow and, subsurface activities should cease and Chevron should be contacted to determine proper management procedures. At no time should groundwater should be discharged to

sanitary sewer lines, storm drains, the ground surface, or surface drainage systems (creeks, drainage ditches, etc.).

8.2 WORKER SAFETY AND EXPOSURE PROTECTION

It is recommended that workers who performs subsurface activities at the site have the appropriate Occupational Safety and Health Administration (OSHA) Hazardous Waste Operation and Emergency Response (HAZWOPER) training in accordance with 29 Code of Federal Regulations (CFR) 1910.120, so they are aware of proper operating procedures related to impacted materials. At a minimum, it is recommended that the construction foreman be OSHA HAZWOPER trained according to 29 CFR 1910.120 so they can provide appropriate oversight to site workers unfamiliar with proper operating procedures related to impacted materials and determine safe working areas for non-trained workers. Site workers working in areas where residual impacted soil may be encountered should wear appropriate Level D personal protective equipment consisting of gloves, steel-toed boots, safety glasses, and hard hats. Based on field conditions, the PPE may be upgraded to include respiratory protection.

8.3 CONTACT INFORMATION

As mentioned above, it is recommended that Chevron, ACEH, and the property lessee be contacted prior to initiating subsurface construction activities at the site so that they are aware of the construction schedule. If impacted material is encountered, subsurface construction activities at the site should cease and the following parties should be contacted immediately.

Chevron:	Mike Bauer	(714) 671-3207 Site Reference 20-6127
ACEH	Jerry Wickham	(510) 567-6791
Property Lessee	Monroe Wingate	(480) 551-6588
Property Manager	Tom Foley	(925) 671-7000

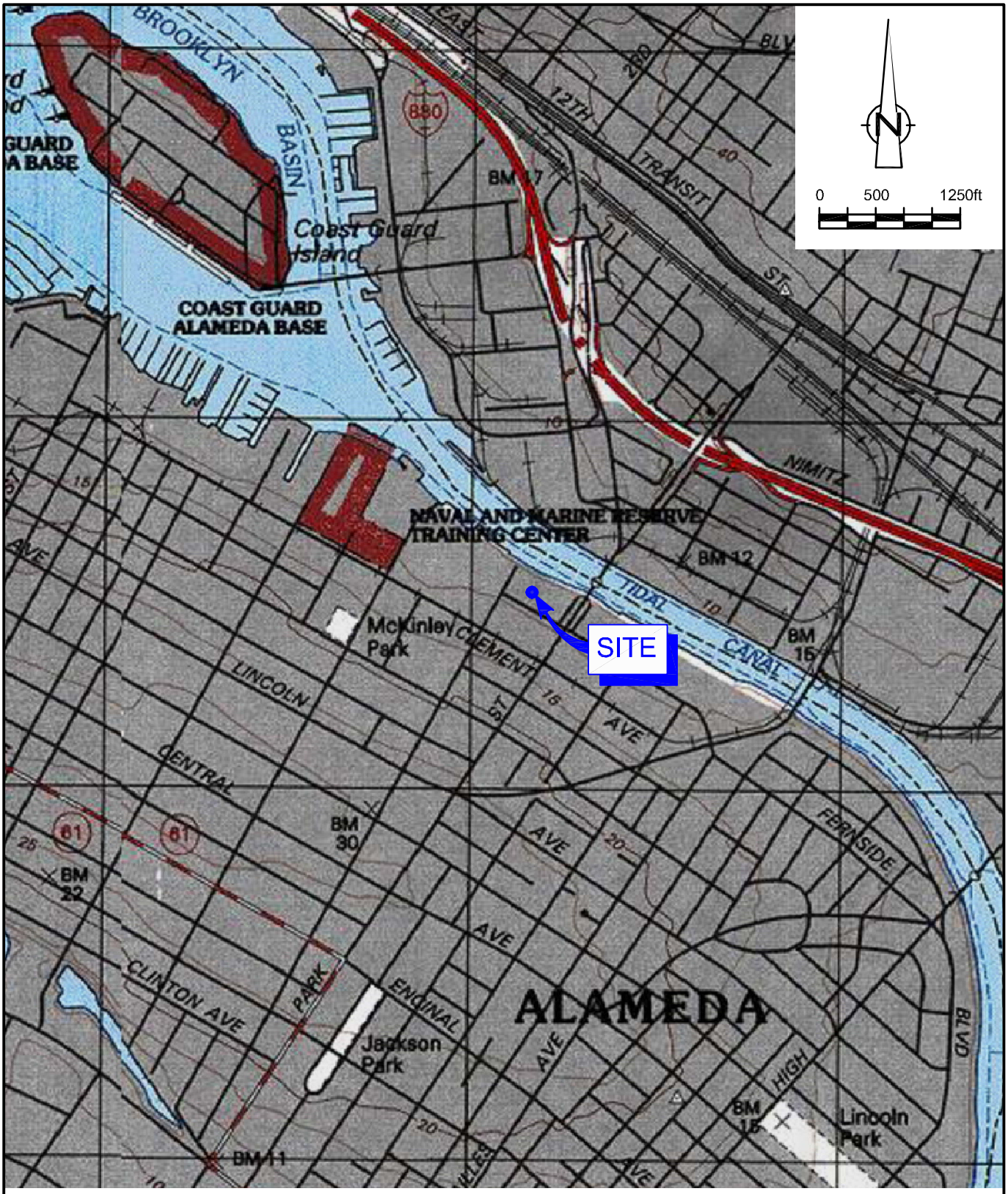
8.4 LIMITATIONS

This SMP is intended to provide the necessary background information and instructions to inform the reader of the potential for encountering petroleum hydrocarbon-impacted soil during construction work at this site. This document is not intended for use as a work plan or health and safety plan for future activities. CRA is not responsible for any activities at this site, unless performed by CRA employees.

9.0 RECOMMENDED ALTERNATIVE

Based on our evaluation of remedial alternatives, CRA selects MNA as the preferred remedial strategy contingent on the results of the mass flux calculation. Upon approval of this draft CAP, CRA will implementation activities associated with tidal influence study and mass flux calculation.

FIGURES

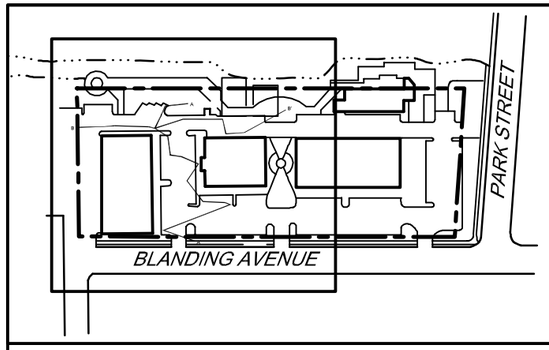


SOURCE: TOPO! MAPS.

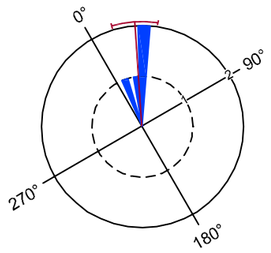
figure 1

VICINITY MAP
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

631916-2011(021)GN-WA002 JUL 27/2011



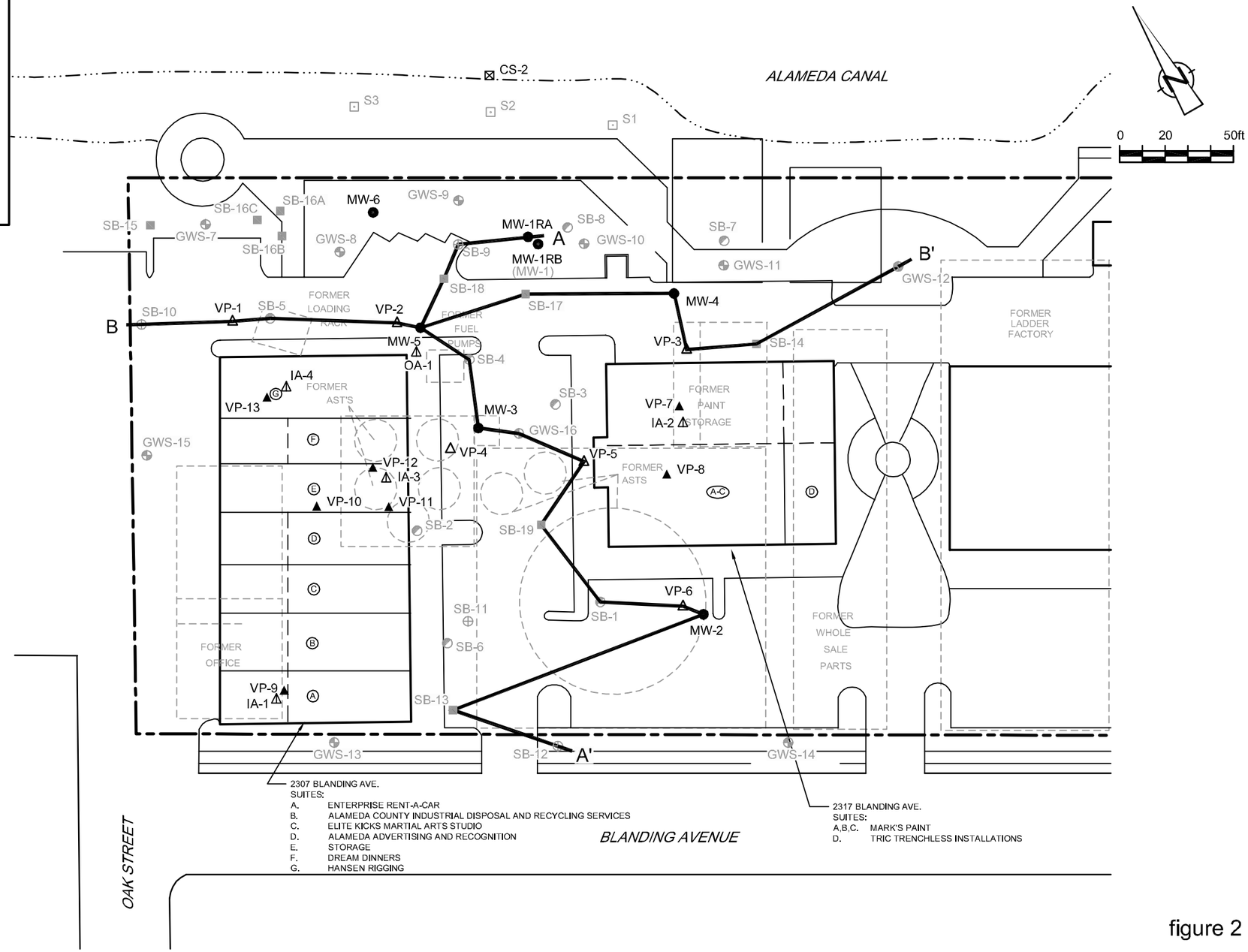
KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2010

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◔ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- A — A' CROSS-SECTION LOCATION



2307 BLANDING AVE.
SUITES:
A. ENTERPRISE RENT-A-CAR
B. ALAMEDA COUNTY INDUSTRIAL DISPOSAL AND RECYCLING SERVICES
C. ELITE KICKS MARTIAL ARTS STUDIO
D. ALAMEDA ADVERTISING AND RECOGNITION
E. STORAGE
F. DREAM DINNERS
G. HANSEN RIGGING

2317 BLANDING AVE.
SUITES:
A,B,C. MARK'S PAINT
D. TRIC TRENCHLESS INSTALLATIONS

NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

figure 2

SITE PLAN
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY (CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

A

NORTH

A'

SOUTHWEST

FORMER FUEL PUMP

FORMER TANK

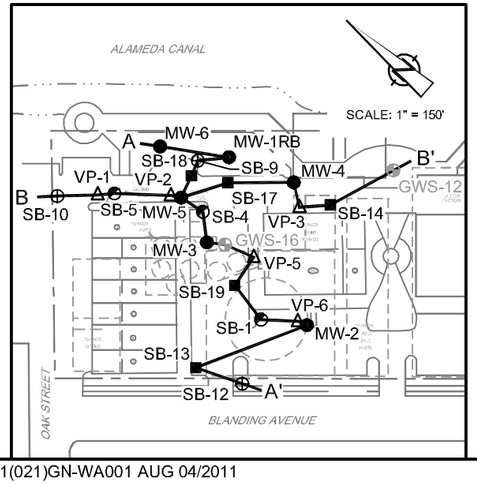
PROPERTY BOUNDARY

MW-6 | MW-1RB* | SB-9 | SB-18 | MW-5 (INTERSECTION WITH B-B') | SB-4 | MW-3 | GWS-16 | VP-5 | SB-19 | SB-1 | VP-6 | MW-2 | SB-13 | SB-12

ELEVATION (feet AMSL)

APPROXIMATE DEPTH (feet below grade)

SCALE: HORZ. 1" = 50'
VERT. 1" = 10'



LEGEND

- MW-2 — WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- CL — TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE SOIL SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE GROUNDWATER SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
- DATE — GROUNDWATER DEPTH

- *AS* - ASPHALT
- *FILL*
- *CL/ML* - CLAY, SANDY CLAY, CLAYEY SILT, SANDY SILT WITH CLAY
- *SP/SM/SC/SW* - SAND, SAND WITH CLAY, CLAYEY SAND, CLAYEY SAND WITH GRAVEL, SILTY SAND, SILTY SAND WITH CLAY AND GRAVEL

- 180 — TPHd ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)
- 180 — TPHd ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)

ND NOT DETECTED
NA NOT ANALYZED
* HYDROCARBON CONCENTRATIONS ARE FROM MW-1RA

figure 3

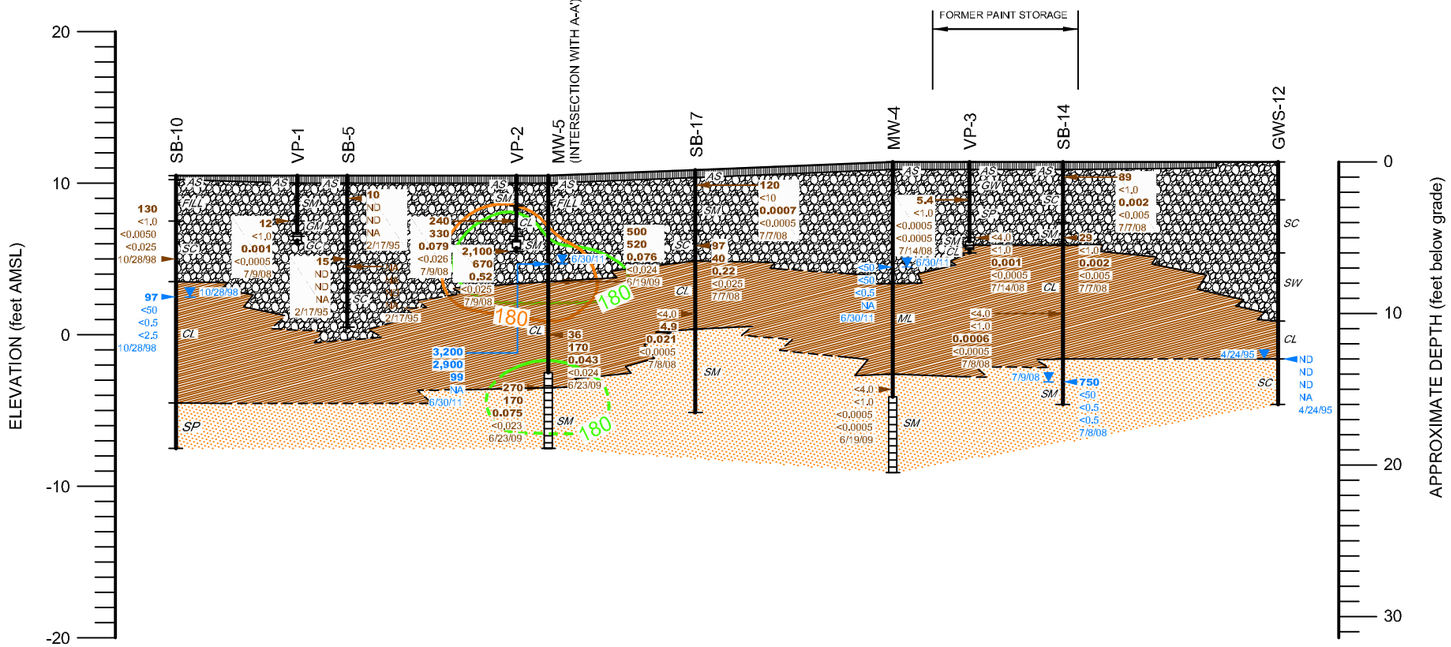
GEOLOGIC CROSS-SECTION A-A'
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

B

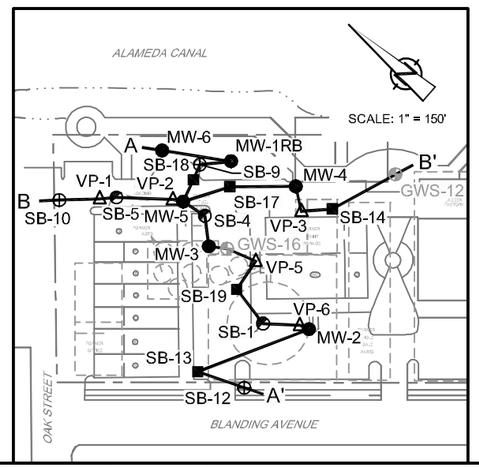
NORTHWEST

B'

EAST



SCALE: HORZ. 1" = 50'
VERT. 1" = 10'



LEGEND

- MW-5 — WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- CL — TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE SOIL SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE GROUNDWATER SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
- DATE ▼ — GROUNDWATER DEPTH

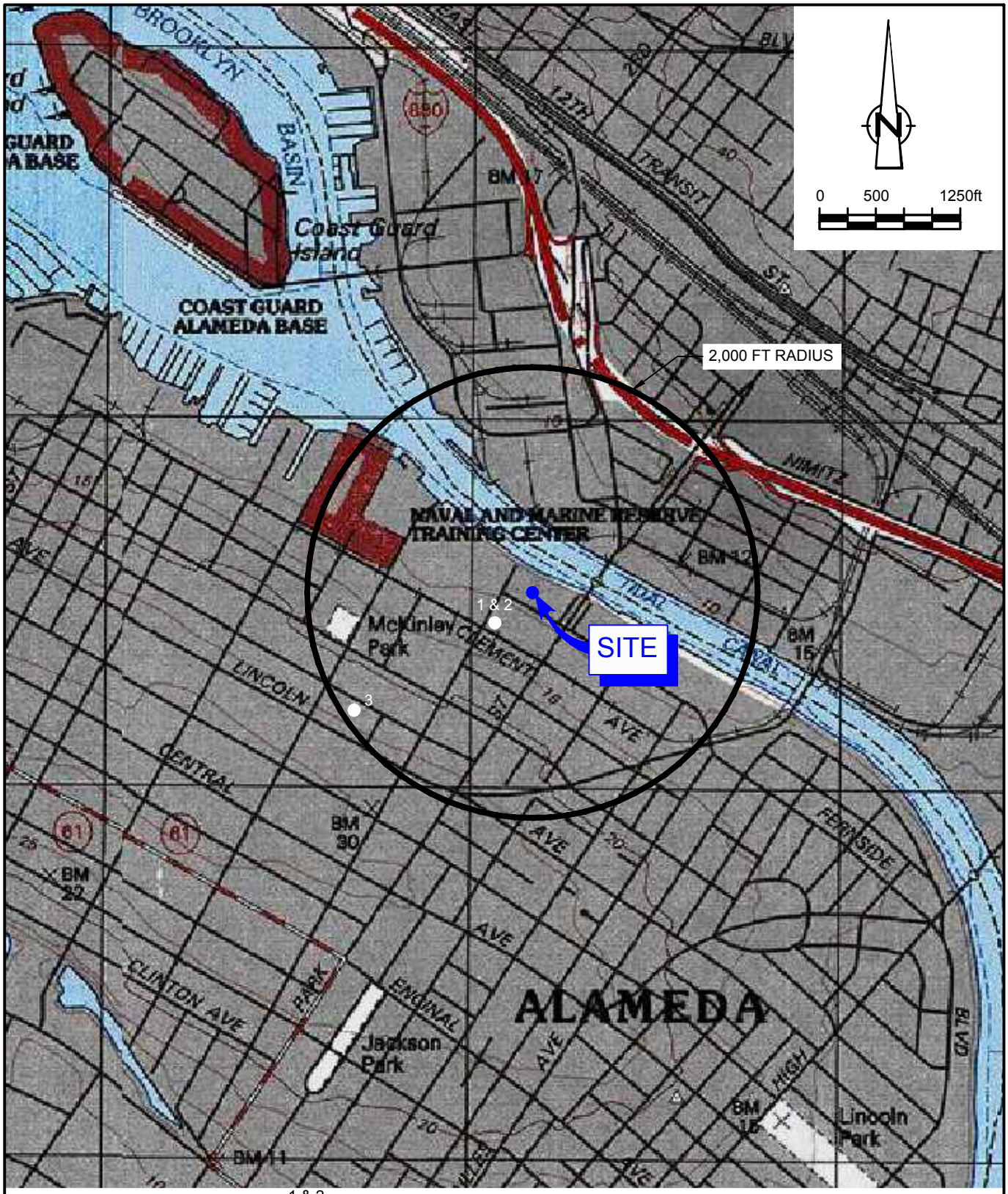
- *AS* - ASPHALT
- *FILL*
- *CL/ML* - CLAY, SANDY CLAY, CLAYEY SILT, SANDY SILT WITH CLAY
- *SP/SM/SC/SW* - SAND, SAND WITH CLAY, CLAYEY SAND, CLAYEY SAND WITH GRAVEL, SILTY SAND, SILTY SAND WITH CLAY AND GRAVEL

- ND — NOT DETECTED
- NA — NOT ANALYZED

- 180 — TPHd ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)
- 180 — TPHd ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)

figure 4

GEOLOGIC CROSS-SECTION B-B'
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

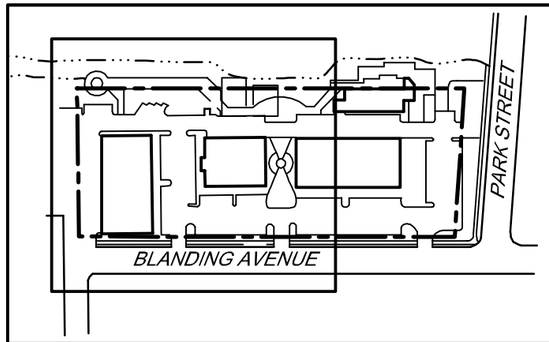


SOURCE: TOPO! MAPS.

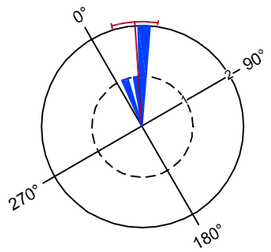
● 1 & 2 TWO INDUSTRIAL WELLS LOCATED AT 2307 CLEMENT AVE.
● 3 ALAMEDA CHRISTIAN SCHOOL

figure 5

SENSITIVE RECEPTOR AND WELL SURVEY MAP
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California



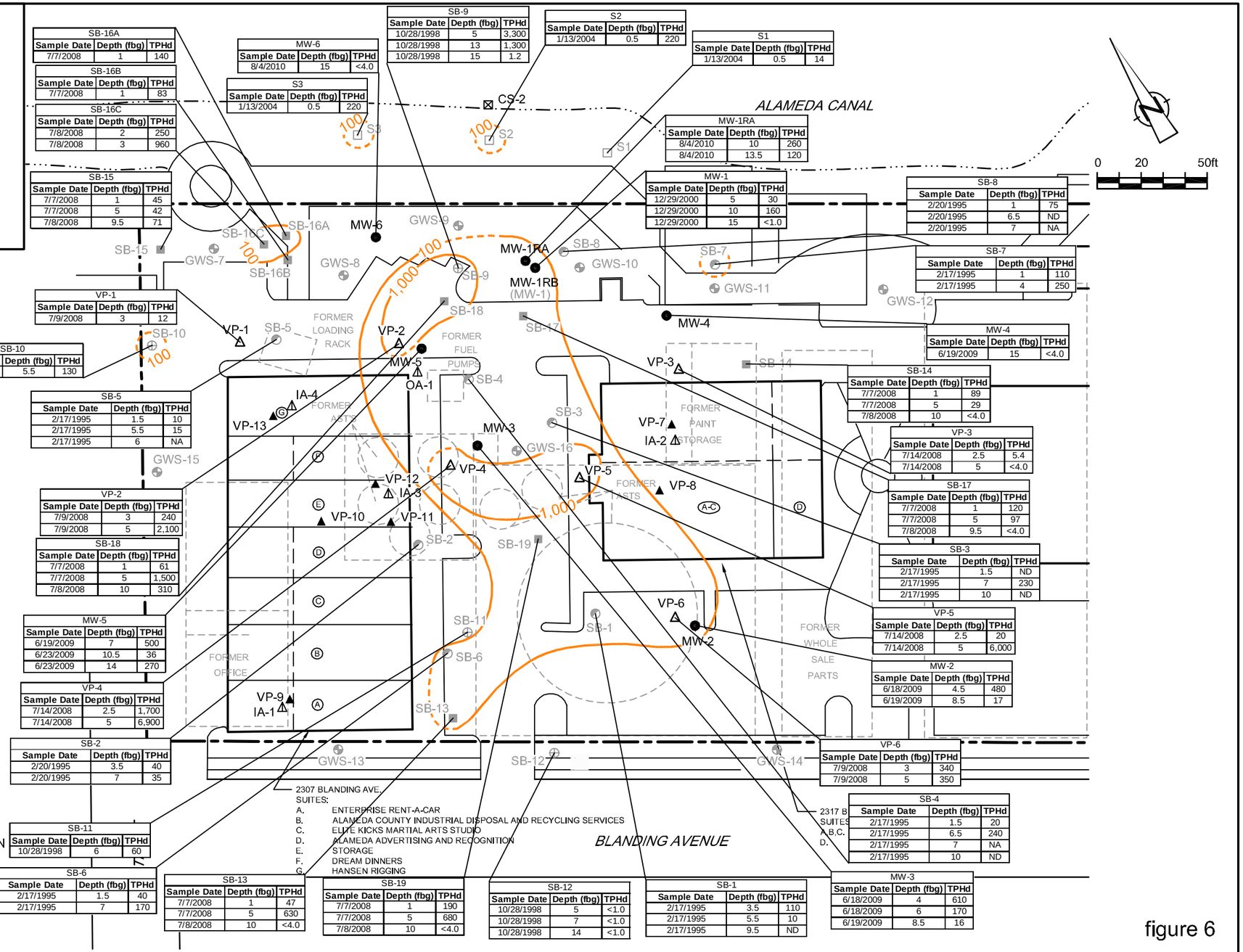
KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2010

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- 10 TPHd CONCENTRATION CONTOUR DASHED WHERE INFERRED
- NA NOT ANALYZED
- ND NOT DETECTED



SB-16A		
Sample Date	Depth (fbg)	TPHd
7/7/2008	1	140

SB-16B		
Sample Date	Depth (fbg)	TPHd
7/7/2008	1	83

SB-16C		
Sample Date	Depth (fbg)	TPHd
7/8/2008	2	250
7/8/2008	3	960

SB-15		
Sample Date	Depth (fbg)	TPHd
7/7/2008	1	45
7/7/2008	5	42
7/8/2008	9.5	71

VP-1		
Sample Date	Depth (fbg)	TPHd
7/9/2008	3	12

SB-10		
Sample Date	Depth (fbg)	TPHd
10/28/1998	5.5	130

SB-5		
Sample Date	Depth (fbg)	TPHd
2/17/1995	1.5	10
2/17/1995	5.5	15
2/17/1995	6	NA

VP-2		
Sample Date	Depth (fbg)	TPHd
7/9/2008	3	240
7/9/2008	5	2,100

SB-18		
Sample Date	Depth (fbg)	TPHd
7/7/2008	1	61
7/7/2008	5	1,500
7/8/2008	10	310

MW-5		
Sample Date	Depth (fbg)	TPHd
6/19/2009	7	500
6/23/2009	10.5	36
6/23/2009	14	270

VP-4		
Sample Date	Depth (fbg)	TPHd
7/14/2008	2.5	1,700
7/14/2008	5	6,900

SB-2		
Sample Date	Depth (fbg)	TPHd
2/20/1995	3.5	40
2/20/1995	7	35

SB-11		
Sample Date	Depth (fbg)	TPHd
10/28/1998	6	60

SB-6		
Sample Date	Depth (fbg)	TPHd
2/17/1995	1.5	40
2/17/1995	7	170

MW-6		
Sample Date	Depth (fbg)	TPHd
8/4/2010	15	<4.0

S3		
Sample Date	Depth (fbg)	TPHd
1/13/2004	0.5	220

SB-9		
Sample Date	Depth (fbg)	TPHd
10/28/1998	5	3,300
10/28/1998	13	1,300
10/28/1998	15	1.2

S2		
Sample Date	Depth (fbg)	TPHd
1/13/2004	0.5	220

S1		
Sample Date	Depth (fbg)	TPHd
1/13/2004	0.5	14

MW-1RA		
Sample Date	Depth (fbg)	TPHd
8/4/2010	10	260
8/4/2010	13.5	120

MW-1		
Sample Date	Depth (fbg)	TPHd
12/29/2000	5	30
12/29/2000	10	160
12/29/2000	15	<1.0

SB-8		
Sample Date	Depth (fbg)	TPHd
2/20/1995	1	75
2/20/1995	6.5	ND
2/20/1995	7	NA

SB-7		
Sample Date	Depth (fbg)	TPHd
2/17/1995	1	110
2/17/1995	4	250

MW-4		
Sample Date	Depth (fbg)	TPHd
6/19/2009	15	<4.0

SB-14		
Sample Date	Depth (fbg)	TPHd
7/7/2008	1	89
7/7/2008	5	29
7/8/2008	10	<4.0

VP-3		
Sample Date	Depth (fbg)	TPHd
7/14/2008	2.5	5.4
7/14/2008	5	<4.0

SB-17		
Sample Date	Depth (fbg)	TPHd
7/7/2008	1	120
7/7/2008	5	97
7/8/2008	9.5	<4.0

SB-3		
Sample Date	Depth (fbg)	TPHd
2/17/1995	1.5	ND
2/17/1995	7	230
2/17/1995	10	ND

VP-5		
Sample Date	Depth (fbg)	TPHd
7/14/2008	2.5	20
7/14/2008	5	6,000

MW-2		
Sample Date	Depth (fbg)	TPHd
6/18/2009	4.5	480
6/19/2009	8.5	17

VP-6		
Sample Date	Depth (fbg)	TPHd
7/9/2008	3	340
7/9/2008	5	350

SB-4		
Sample Date	Depth (fbg)	TPHd
2/17/1995	1.5	20
2/17/1995	6.5	240
2/17/1995	7	NA
2/17/1995	10	ND

SB-13		
Sample Date	Depth (fbg)	TPHd
7/7/2008	1	47
7/7/2008	5	630
7/8/2008	10	<4.0

SB-19		
Sample Date	Depth (fbg)	TPHd
7/7/2008	1	190
7/7/2008	5	680
7/8/2008	10	<4.0

SB-12		
Sample Date	Depth (fbg)	TPHd
10/28/1998	5	<1.0
10/28/1998	7	<1.0
10/28/1998	14	<1.0

SB-1		
Sample Date	Depth (fbg)	TPHd
2/17/1995	3.5	110
2/17/1995	5.5	10
2/17/1995	9.5	ND

MW-3		
Sample Date	Depth (fbg)	TPHd
6/18/2009	4	610
6/18/2009	6	170
6/19/2009	8.5	16

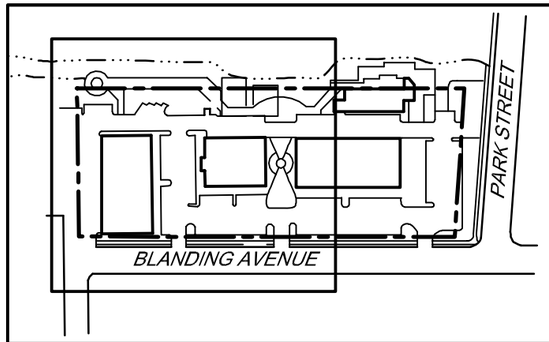
CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (mg/kg)

NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

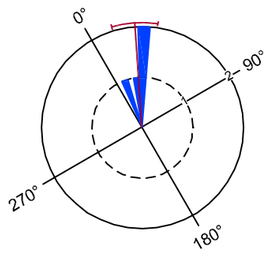
figure 6

TPHd CONCENTRATIONS IN SOIL - 0 TO 15 FBG
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

631916-2011(021)GN-WA005 AUG 04/2011



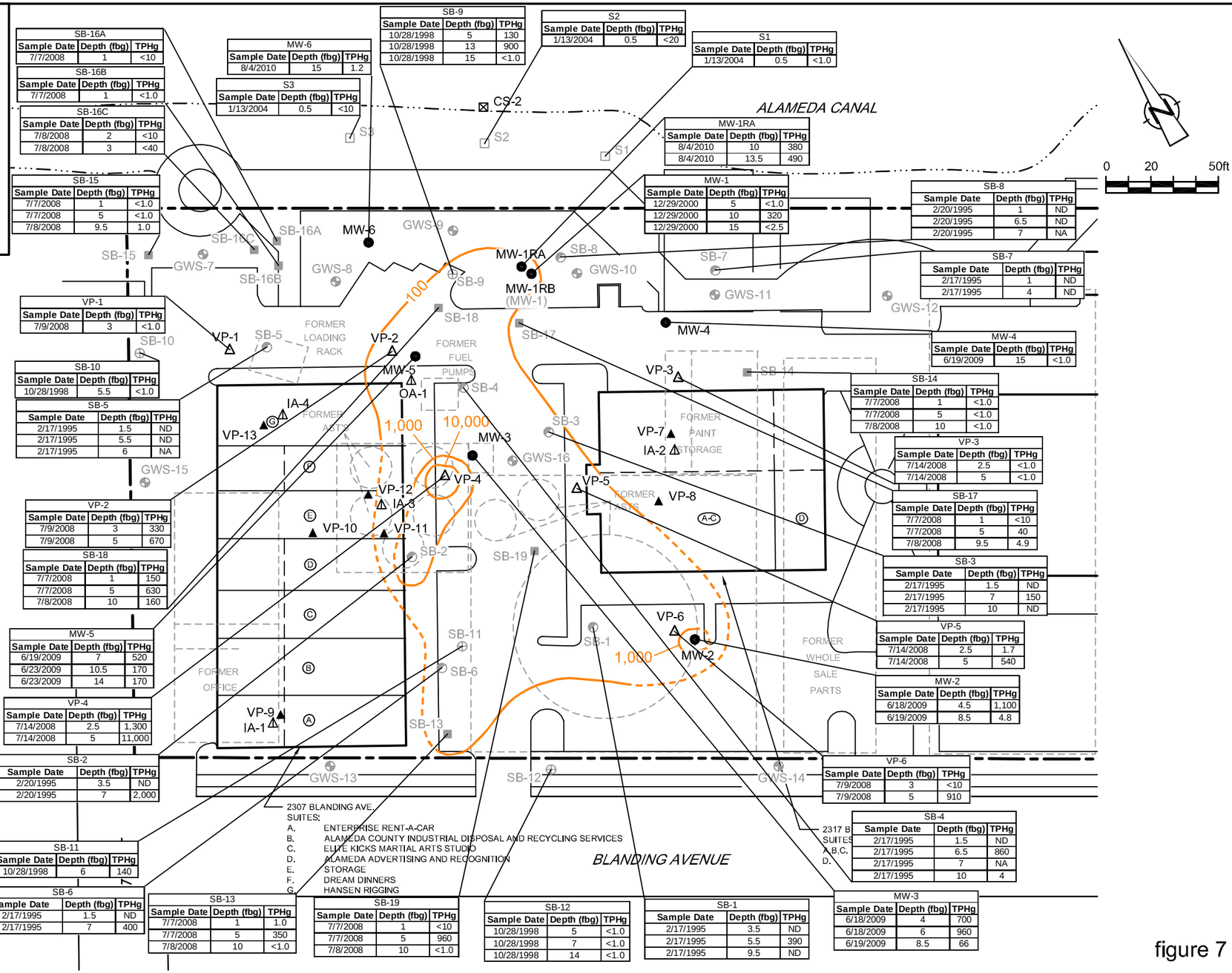
KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2010

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- 10 TPHg CONCENTRATION CONTOUR DASHED WHERE INFERRED
- NA NOT ANALYZED
- ND NOT DETECTED



SB-16A		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<10

SB-16B		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<1.0

SB-16C		
Sample Date	Depth (fbg)	TPHg
7/8/2008	2	<10
7/8/2008	3	<40

SB-15		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<1.0
7/7/2008	5	<1.0
7/8/2008	9.5	1.0

MW-6		
Sample Date	Depth (fbg)	TPHg
8/4/2010	15	1.2

S3		
Sample Date	Depth (fbg)	TPHg
1/13/2004	0.5	<10

SB-9		
Sample Date	Depth (fbg)	TPHg
10/28/1998	5	130
10/28/1998	13	900
10/28/1998	15	<1.0

S2		
Sample Date	Depth (fbg)	TPHg
1/13/2004	0.5	<20

S1		
Sample Date	Depth (fbg)	TPHg
1/13/2004	0.5	<1.0

MW-1RA		
Sample Date	Depth (fbg)	TPHg
8/4/2010	10	380
8/4/2010	13.5	490

MW-1		
Sample Date	Depth (fbg)	TPHg
12/29/2000	5	<1.0
12/29/2000	10	320
12/29/2000	15	<2.5

SB-8		
Sample Date	Depth (fbg)	TPHg
2/20/1995	1	ND
2/20/1995	6.5	ND
2/20/1995	7	NA

SB-7		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1	ND
2/17/1995	4	ND

MW-4		
Sample Date	Depth (fbg)	TPHg
6/19/2009	15	<1.0

VP-1		
Sample Date	Depth (fbg)	TPHg
7/9/2008	3	<1.0

SB-10		
Sample Date	Depth (fbg)	TPHg
10/28/1998	5.5	<1.0

SB-5		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1.5	ND
2/17/1995	5.5	ND
2/17/1995	6	NA

VP-2		
Sample Date	Depth (fbg)	TPHg
7/9/2008	3	330
7/9/2008	5	670

SB-18		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	150
7/7/2008	5	630
7/8/2008	10	160

MW-5		
Sample Date	Depth (fbg)	TPHg
6/19/2009	7	520
6/23/2009	10.5	170
6/23/2009	14	170

VP-4		
Sample Date	Depth (fbg)	TPHg
7/14/2008	2.5	1,300
7/14/2008	5	11,000

SB-2		
Sample Date	Depth (fbg)	TPHg
2/20/1995	3.5	ND
2/20/1995	7	2,000

SB-11		
Sample Date	Depth (fbg)	TPHg
10/28/1998	6	140

SB-6		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1.5	ND
2/17/1995	7	400

SB-13		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	1.0
7/7/2008	5	350
7/8/2008	10	<1.0

SB-19		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<10
7/7/2008	5	960
7/8/2008	10	<1.0

SB-12		
Sample Date	Depth (fbg)	TPHg
10/28/1998	5	<1.0
10/28/1998	7	<1.0
10/28/1998	14	<1.0

SB-1		
Sample Date	Depth (fbg)	TPHg
2/17/1995	3.5	ND
2/17/1995	5.5	390
2/17/1995	9.5	ND

SB-14		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<1.0
7/7/2008	5	<1.0
7/8/2008	10	<1.0

VP-3		
Sample Date	Depth (fbg)	TPHg
7/14/2008	2.5	<1.0
7/14/2008	5	<1.0

SB-17		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<10
7/7/2008	5	40
7/8/2008	9.5	4.9

SB-3		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1.5	ND
2/17/1995	7	150
2/17/1995	10	ND

VP-5		
Sample Date	Depth (fbg)	TPHg
7/14/2008	2.5	1.7
7/14/2008	5	540

MW-2		
Sample Date	Depth (fbg)	TPHg
6/18/2009	4.5	1,100
6/19/2009	8.5	4.8

VP-6		
Sample Date	Depth (fbg)	TPHg
7/9/2008	3	<10
7/9/2008	5	910

SB-4		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1.5	ND
2/17/1995	6.5	860
2/17/1995	7	NA
2/17/1995	10	4

MW-3		
Sample Date	Depth (fbg)	TPHg
6/18/2009	4	700
6/18/2009	6	960
6/19/2009	8.5	66

CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (mg/kg)

NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

figure 7

TPHg CONCENTRATIONS IN SOIL - 0 TO 15 FBG
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

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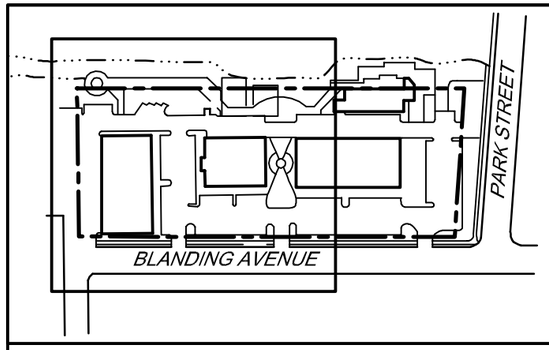
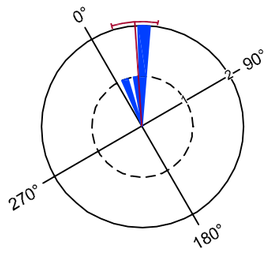


KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2010

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◔ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- ▭ SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- 10 TPHd CONCENTRATION CONTOUR DASHED WHERE INFERRED
- (1,200) TPHd CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)
- * NOT USED IN CONTOURING; CONSTRUCTED IN SHALLOW ZONE

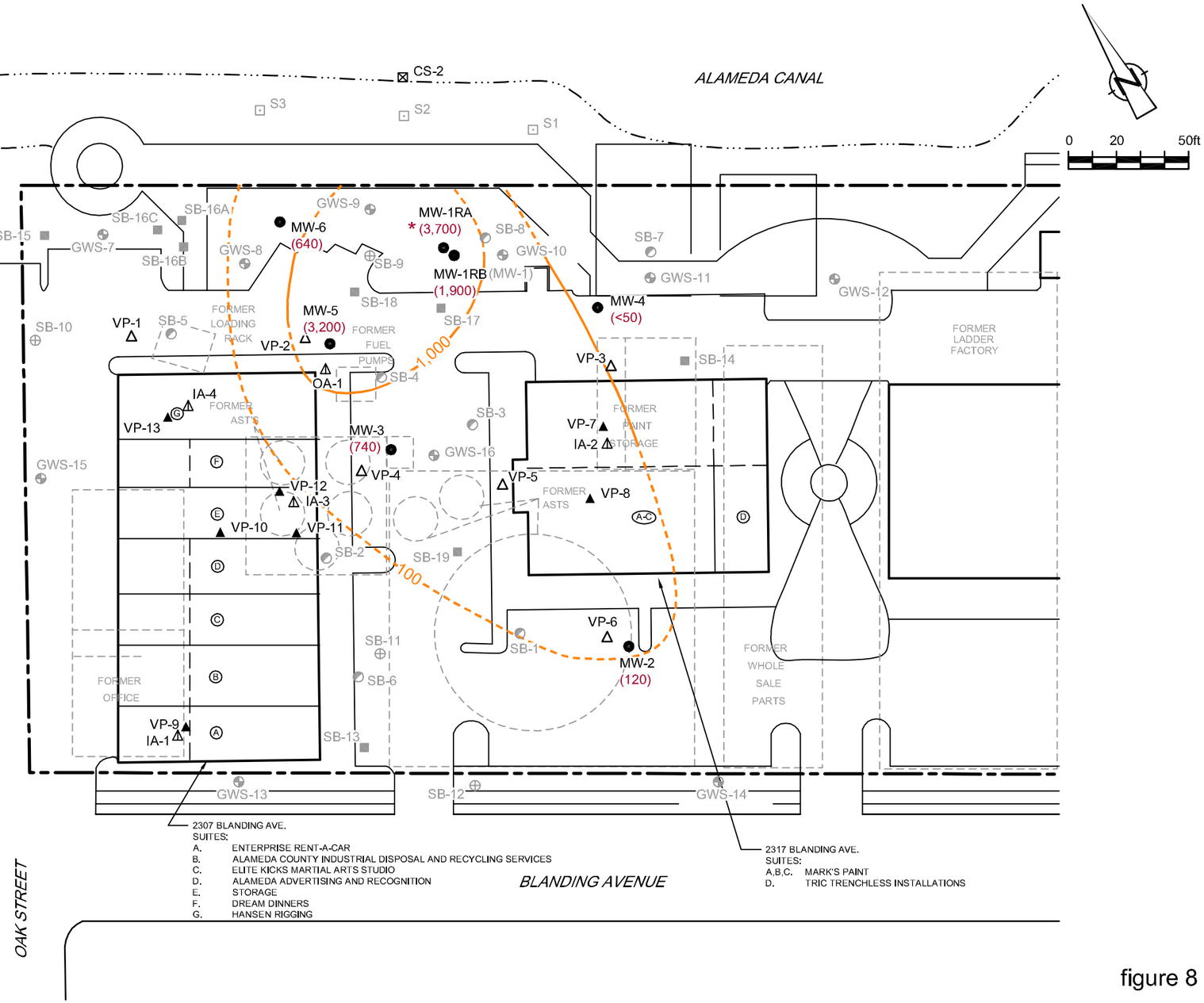
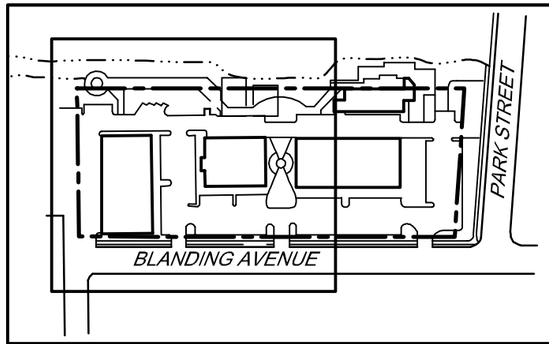


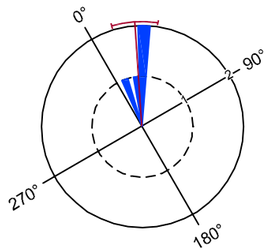
figure 8

TPHd CONCENTRATIONS IN GROUNDWATER - JUNE 30, 2011
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.



KEY PLAN
SCALE: 1=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2010

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◴ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- ⬚ SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⍋ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- 10 TPHg CONCENTRATION CONTOUR DASHED WHERE INFERRED
- (1,200) TPHg CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)
- * NOT USED IN CONTOURING; CONSTRUCTED IN SHALLOW ZONE

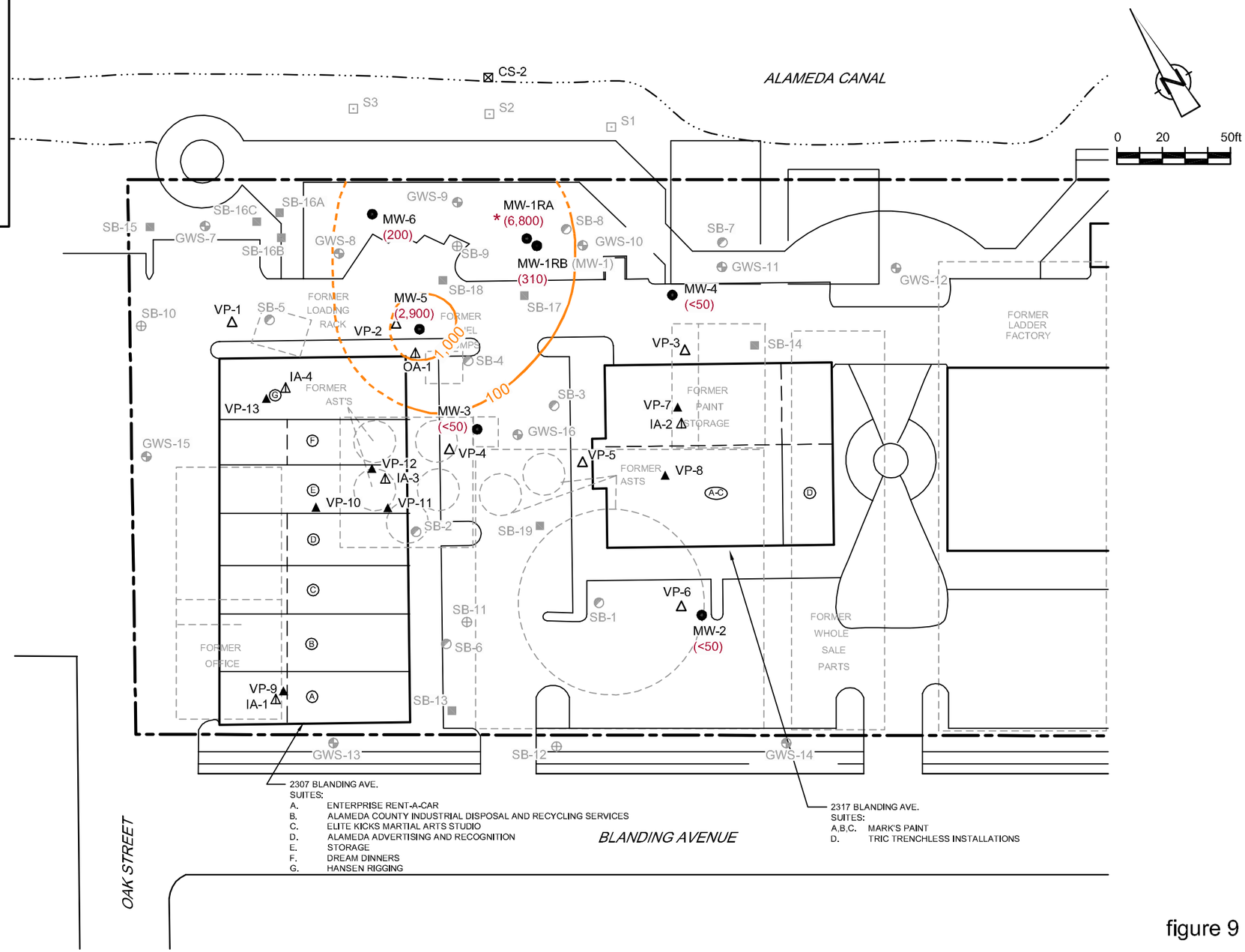


figure 9

TPHg CONCENTRATIONS IN GROUNDWATER - JUNE 30, 2011
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

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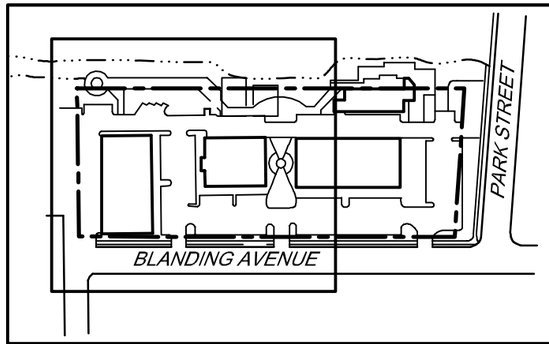
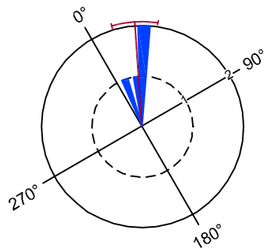


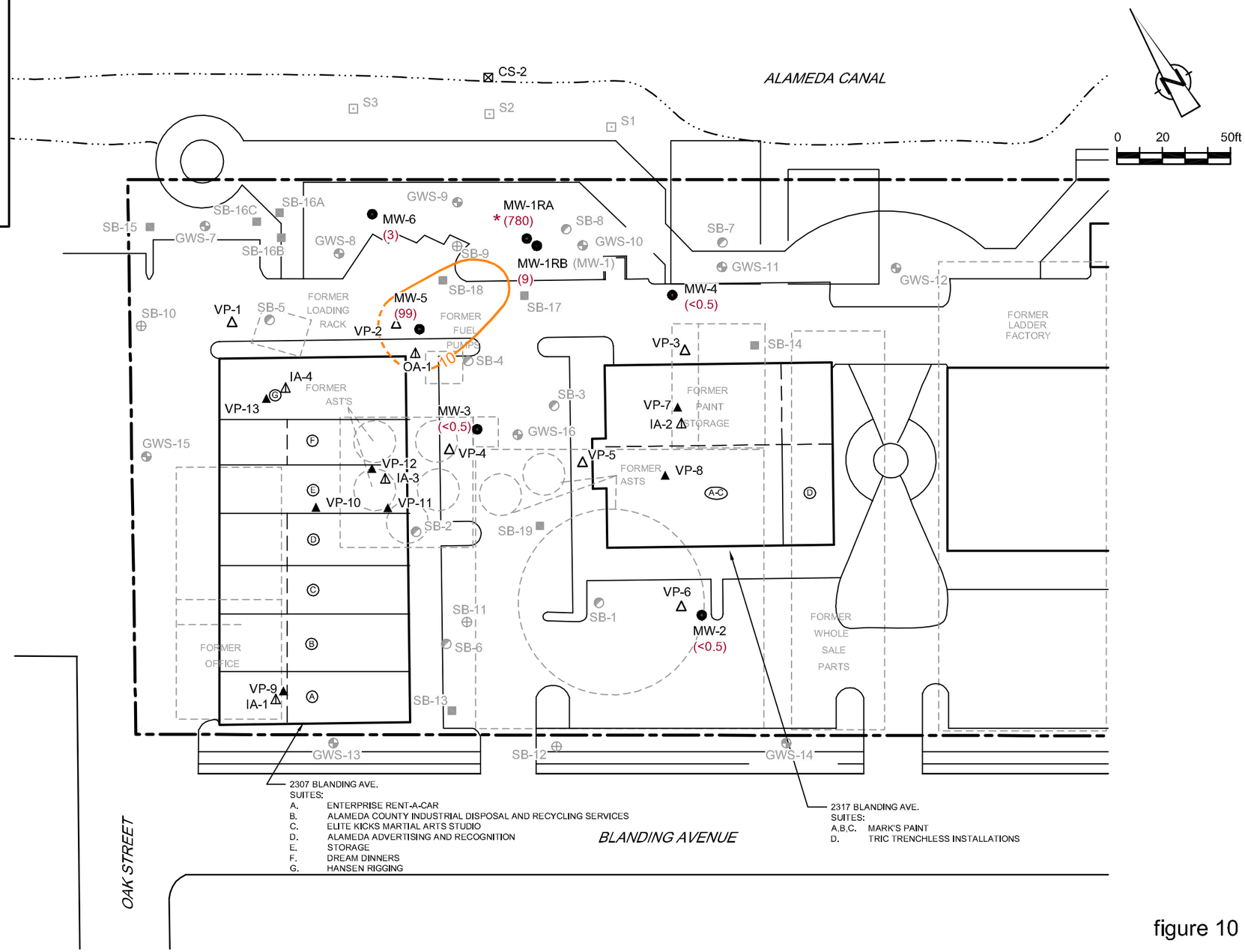
KEY PLAN
SCALE: 1=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2010

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- ⬚ SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- 10 BENZENE CONCENTRATION CONTOUR DASHED WHERE INFERRED
- (1,200) BENZENE CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)
- * NOT USED IN CONTOURING; CONSTRUCTED IN SHALLOW ZONE



NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

figure 10

BENZENE CONCENTRATIONS IN GROUNDWATER - JUNE 30, 2011
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

631916-2011(021)GN-WA009 AUG 04/2011

TABLES

TABLE 1

WELL CONSTRUCTION SPECIFICATIONS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON BULK PLANT 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Well ID	*Date Installed*	*TOC*	*Total Depth (fbg)*	*Casing Diameter [1] (inches)*	*Slot Size (inches)*	*Screen Interval (fbg)*	*Filter Pack (fbg)*	*Status*
Monitoring Wells								
MW-1	8/15/1990	13.49	19.5	2	0.020	4-19	3-19.5	Replaced w/MW-1RB
MW-1RA	8/4/2010	13.02	13	2	0.020	8-13	7-13	Active
MW-1RB	8/4/2010	13.21	20	2	0.020	16.5-20	15.5-20	Active
MW-2	6/19/2009	10.63	18	2	0.020	10.5-15.5	10-16	Active
MW-3	6/19/2009	10.72	18.5	2	0.020	13.5-18.5	12.5-18.5	Active
MW-4	6/19/2009	11.40	20.5	2	0.020	15.5-20.5	14.5-20.5	Active
MW-5	6/23/2009	10.50	18	2	0.020	13-18	12-18	Active
MW-6	8/4/2010	12.98	20	2	0.020	16.5-20	15.5-20	Active
Vapor Wells								
VP-1	7/9/2008	NS	4.25	1	0.020	3.75-4.25	3.5-4.5	Vapor only
VP-2	7/9/2008	NS	4.75	1	0.020	4.25-4.75	4-5	Vapor only
VP-3	7/14/2008	NS	5.75	1	0.020	5.25-5.75	5-6	Vapor only
VP-4	7/14/2008	NS	5.75	1	0.020	5.25-5.75	5-6	Vapor only
VP-5	7/14/2008	NS	5.75	1	0.020	5.25-5.75	5-6	Vapor only
VP-6	7/9/2008	NS	5.75	1	0.020	5.25-5.75	5-6	Vapor only
Sub-Slab Vapor Probes								
VP-7	7/17/2009	NS	0.5	0.25	NA	NA	NA	Vapor only
VP-8	7/17/2009	NS	0.5	0.25	NA	NA	NA	Vapor only
VP-9	7/22/2009	NS	0.5	0.25	NA	NA	NA	Vapor only
VP-10	7/22/2009	NS	0.5	0.25	NA	NA	NA	Vapor only
VP-11	7/17/2009	NS	0.5	0.25	NA	NA	NA	Vapor only
VP-12	7/22/2009	NS	0.5	0.25	NA	NA	NA	Vapor only
VP-13	7/22/2009	NS	0.5	0.25	NA	NA	NA	Vapor only

Abbreviations / Notes

TOC = Top of casing elevation (feet above mean sea level)

[1] = Schedule 40 PVC casing material

fbg = Feet below grade

NA = Not applicable

NS = Not surveyed

TABLE 2

SOIL ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Boring ID	*Depth (fbg)*	*Sample Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m+p-Xylene*	*o-Xylene*	*Total Xylenes*	*MTBE*	*Acetone*	*Carbon Disulfide*	*2-Butanone*	*Isopropyl-benzene*	*n-Propyl-benzene*	*1,3,5 - Trimethyl-benzene*	*tert-Butyl-benzene*	*1,2,4-Trimethyl-benzene*	*sec-Butyl-benzene*	*p-Isopropyl-toluene*	*n-Butyl-benzene*	*Naphthalene*
										Concentrations reported in milligram per kilogram - mg/kg												
SB-1	3.5	2/17/1995	110	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-1	5.5	2/17/1995	10	390	0.08[1]	0.20[1]	0.58[1]	--	--	0.86[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-1	9.5	2/17/1995	ND	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-2	3.5	2/20/1995	40	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-2	7	2/20/1995	35	2,000	3.7[1]	34[1]	14[1]	--	--	46[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-3	1.5	2/17/1995	ND	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-3	7	2/17/1995	230	150	ND[1]	0.46[1]	0.58[1]	--	--	0.51[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-3	10	2/17/1995	ND	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-4	1.5	2/17/1995	20	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-4	6.5	2/17/1995	240	860	2.0[1]	0.81[1]	3.6[1]	--	--	13[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-4	7	2/17/1995	--	--	2.3[2]	8.7[2]	3.5[2]	--	--	35[2]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-4	10	2/17/1995	ND	4	0.34[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-5	1.5	2/17/1995	10	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-5	5.5	2/17/1995	15	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-5	6	2/17/1995	--	--	ND[2]	ND[2]	ND[2]	--	--	ND[2]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-6	1.5	2/17/1995	40	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-6	7	2/17/1995	170	400	ND[1]	0.12[1]	0.56[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-7	1	2/17/1995	110	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-7	4	2/17/1995	250	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-8	1	2/20/1995	75	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-8	6.5	2/20/1995	ND	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-8	7	2/20/1995	--	--	ND[2]	ND[2]	ND[2]	--	--	ND[2]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-9	5	10/28/1998	3,300[3]	130	0.36[1]	<0.12[1]	<0.12[1]	--	--	0.28[1]	<0.62[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-9	13	10/28/1998	1,300[3]	900	3.3[1]	<1.2[1]	2.1[1]	--	--	2.0[1]	<12[4]	--	--	--	--	--	--	--	--	--	--	--	--
SB-9	15	10/28/1998	1.2[3]	<1.0	0.22[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-10	5.5	10/28/1998	130[3]	<1.0	<0.0050[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-11	6	10/28/1998	60[3]	140	<0.10[1]	0.12[1]	0.24[1]	--	--	0.49[1]	<0.50[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-12	5	10/28/1998	<1.0	<1.0	<0.0050[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-12	7	10/28/1998	<1.0	<1.0	<0.0050[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-12	14	10/28/1998	<1.0	<1.0	<0.0050[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	5	12/29/2000	30	<1.0	<0.0050	<0.0050	<0.0050	--	--	0.017	<0.050	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	10	12/29/2000	160	320	0.40	1.6	0.90	--	--	1.1	<1.2	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	15	12/29/2000	<1.0	<2.5	0.53	0.021	0.028	--	--	0.065	<0.12	--	--	--	--	--	--	--	--	--	--	--	--
S1	0.5	1/13/2004	14	<1.0	<0.0005	<0.001	<0.001	--	--	<0.001	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
S2	0.5	1/13/2004	220	<20	<0.0005	<0.001	<0.001	--	--	<0.001	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
S3	0.5	1/13/2004	220	<10	<0.0005	<0.001	<0.001	--	--	<0.001	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 2

SOIL ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Boring ID	*Depth (fbg)*	*Sample Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m+p-Xylene*	*o-Xylene*	*Total Xylenes*	*MTBE*	*Acetone*	*Carbon Disulfide*	*2-Butanone*	*Isopropyl-benzene*	*n-Propyl-benzene*	*1,3,5 - Trimethyl-benzene*	*tert-Butyl-benzene*	*1,2,4-Trimethyl-benzene*	*sec-Butyl-benzene*	*p-Isopropyl-toluene*	*n-Butyl-benzene*	*Naphthalene*
										Concentrations reported in milligram per kilogram - mg/kg												
VP-1	3	7/9/2008	12	<1.0	0.001	0.003	0.002	0.004	0.002	--	<0.0005	<0.007	<0.001	<0.004	0.001	0.003	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
VP-2*	3	7/9/2008	240	330	0.079	0.080	0.080	0.18	0.066	--	<0.026	<0.36	<0.051	<0.21	0.23	0.51	0.088	0.098	0.29	0.18	<0.051	0.22	0.28
VP-2	5	7/9/2008	2,100	670	0.52	0.16	0.36	0.46	0.085	--	<0.025	0.44	<0.50	<0.20	4.6	9.9	0.065	0.84	0.11	1.8	0.051	4.4	0.48
VP-3	2.5	7/14/2008	5.4	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0009	--	<0.0005	<0.007	<0.0009	<0.004	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009
VP-3	5	7/14/2008	<4.0	<1.0	0.001	<0.0009	<0.0009	<0.0009	<0.0009	--	<0.0005	0.039	<0.0009	0.007	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009
VP-4	2.5	7/14/2008	1,700	1,300	5.0	0.54	13	8.1	0.60	--	<0.024	0.65	<0.048	<0.19	3.7	5.9	4.1	0.32	41	1.4	2.5	2.0	3.4
VP-4	5	7/14/2008	6,900	11,000	16	2.4	120	15	2.8	--	<0.093	<1.3	<0.19	<0.74	27	48	11	3.0	5.0	11	13	23	42
VP-5	2.5	7/14/2008	20	1.7	0.0008	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	0.001	<0.001	<0.001	0.001	<0.001	0.001	0.001	0.010
VP-5	5	7/14/2008	6,000	540	0.11	0.051	0.11	0.23	0.072	--	<0.023	<0.33	<0.047	<0.19	1.1	1.6	0.13	<0.047	0.33	0.37	0.42	0.37	0.83
VP-6	3	7/9/2008	340	<10	<0.0005	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
VP-6	5	7/9/2008	350	910	<0.026	<0.053	0.31	0.37	<0.053	--	<0.026	<0.37	<0.053	0.33	2.1	3.3	0.10	0.060	<0.053	1.1	0.26	1.7	2.9
SB-13	1	7/7/2008	47	1.0	<0.0005	<0.001	<0.001	0.002	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001
SB-13	5	7/7/2008	630	350	<0.027	<0.054	<0.054	<0.054	<0.054	--	<0.027	<0.38	<0.054	<0.22	0.12	0.14	<0.054	<0.054	<0.054	0.23	<0.054	0.12	0.16
SB-13	10	7/8/2008	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SB-14	1	7/7/2008	89	<1.0	0.002	0.004	0.002	0.005	0.003	--	<0.0005	0.018	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001
SB-14	5	7/7/2008	29	<1.0	0.002	0.003	0.002	0.003	0.002	--	<0.0005	0.026	<0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SB-14	10	7/8/2008	<4.0	<1.0	0.0006	0.001	<0.001	0.002	0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
SB-15	1	7/7/2008	45	<1.0	0.0007	0.001	<0.001	0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SB-15	5	7/7/2008	42	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SB-15	9.5	7/8/2008	71	1.0	0.002	0.006	0.005	0.012	0.006	--	<0.0005	<0.007	<0.001	<0.004	0.001	0.001	0.001	<0.001	0.002	<0.001	0.008	<0.001	0.001
SB-16A	1	7/7/2008	140	<10	0.004	0.012	0.008	0.024	0.013	--	<0.0005	<0.007	<0.001	<0.004	0.001	0.001	0.001	<0.001	0.003	<0.001	0.007	<0.001	<0.001
SB-16B	1	7/7/2008	83	<1.0	0.004	0.013	0.012	0.035	0.019	--	<0.0005	<0.007	<0.0009	<0.004	0.002	0.002	0.002	<0.0009	0.006	<0.0009	0.015	<0.0009	<0.0009
SB-16C	2	7/8/2008	250	<10	0.003	0.009	0.006	0.018	0.011	--	<0.0005	<0.007	<0.001	<0.004	0.001	0.001	0.002	<0.001	0.004	<0.001	0.007	<0.001	<0.001
SB-16C	3	7/8/2008	960	<40	0.005	0.008	0.006	0.018	0.011	--	<0.0005	0.063	0.002	0.012	0.001	0.002	0.003	<0.001	0.006	<0.001	0.01	<0.001	0.001
SB-17	1	7/7/2008	120	<10	0.0007	0.001	<0.001	0.002	0.001	--	<0.0005	0.015	0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
SB-17	5	7/7/2008	97	40	0.22	0.053	0.63	1.3	0.19	--	<0.025	<0.35	<0.050	<0.20	0.14	0.35	0.73	<0.050	2.7	0.063	0.18	0.13	0.96
SB-17	9.5	7/8/2008	<4.0	4.9	0.021	0.003	0.025	0.013	0.003	--	<0.0005	0.015	<0.001	<0.004	0.016	0.015	0.003	0.001	0.002	0.005	0.003	0.004	0.007
SB-18	1	7/7/2008	61	150	0.0008	0.002	0.003	0.005	0.003	--	<0.0005	<0.007	0.002	<0.004	0.003	0.003	<0.001	0.005	0.002	0.013	0.003	0.005	0.013
SB-18	5	7/7/2008	1,500	630	0.21	<0.052	0.053	0.098	<0.052	--	<0.026	<0.37	<0.052	<0.21	0.36	0.61	0.089	<0.052	0.57	0.44	0.45	0.72	4.9
SB-18	10	7/8/2008	310	160	0.056	<0.049	<0.049	<0.049	<0.049	--	<0.024	<0.34	<0.049	<0.19	0.10	0.11	<0.049	<0.049	<0.049	0.053	0.079	0.095	<0.049
SB-19	1	7/7/2008	190	<10	0.001	0.002	<0.001	0.002	0.001	--	<0.0005	<0.008	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.002	<0.001	<0.001
SB-19	5	7/7/2008	680	960	0.29	0.92	3.9	7.6	3.3	--	<0.023	0.43	<0.047	<0.19	4.5	4.7	3.2	0.28	5.3	1.4	42	2.0	3.8
SB-19	10	7/8/2008	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-2	4.5	6/18/2009	480	1,100	<0.027	<0.055	0.19	--	--	0.19	<0.027	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	8.5	6/19/2009	17	4.8	<0.0005	<0.001	<0.001	--	--	<0.001	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 2

SOIL ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Boring ID	*Depth (fbg)*	*Sample Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m+p-Xylene*	*o-Xylene*	*Total Xylenes*	*MTBE*	*Acetone*	*Carbon Disulfide*	*2-Butanone*	*Isopropyl-benzene*	*n-Propyl-benzene*	*1,3,5 - Trimethyl-benzene*	*tert-Butyl-benzene*	*1,2,4-Trimethyl-benzene*	*sec-Butyl-benzene*	*p-Isopropyl-toluene*	*n-Butyl-benzene*	*Naphthalene*
											Concentrations reported in milligram per kilogram - mg/kg												
MW-3	4	6/18/2009	610	700	0.64	0.099	6.1	--	--	0.85	<0.026	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	6	6/18/2009	170	960	0.39	0.069	2.5	--	--	0.67	<0.025	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	8.5	6/19/2009	16	66	0.062	0.003	0.058	--	--	0.012	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	15	6/19/2009	<4.0	<1.0	<0.0005	<0.0009	<0.0009	--	--	<0.0009	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	7	6/19/2009	500	520	0.076	<0.049	0.061	--	--	<0.080	<0.024	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	10.5	6/23/2009	36	170	0.043	<0.048	<0.048	--	--	0.048	<0.024	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	14	6/23/2009	270	170	0.075	<0.047	<0.047	--	--	<0.047	<0.023	--	--	--	--	--	--	--	--	--	--	--	--
MW-1RA[5]	10	8/4/2010	260[3]	380	0.54	<0.050	0.43	--	--	0.12	<0.025	--	--	--	--	--	--	--	--	--	--	--	--
MW-1RA[5]	13.5	8/4/2010	120[3]	490	0.24	<0.050	0.068	--	--	0.057	<0.025	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	15	8/4/2010	<4.0[3]	1.2	0.12	0.002	0.003	--	--	0.003	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
	ESLs		180	180	0.27	9.3	4.7	11	11	11	8.4	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	2.8

Abbreviations and Notes:
fbg = Feet below grade
TPHd = Total petroleum hydrocarbons as diesel by EPA Method 8015
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method 8015
<x = not detected at or above stated laboratory reporting limit
[1] = EPA Method 8020
[2] = EPA Method 8240
[3] = Additional analyses were performed with silica gel cleanup
[4] = RRM reported as a false positive associated with EPA Method 8020
[5] = The GC/MS volatile analysis was performed according to the high level soil method due to the level of non-target compounds. Therefore, the reporting limits were raised.
-- = Not Analyzed
* 1,2,3-Trichlorobenzene also detected at 0.067 mg/kg
ND = Not detected
VOCs = Volatile organic compounds by EPA method 8260B
Note: Other VOCs not included in the table were not detected in any of the samples.
ESL = Environmental screening level for shallow soil (<3m fbg) at commercial/industrial sites where groundwater is not a current or potential source of drinking water (Table B)-RWQCB May 2008
NE = Not established
Benzene, toluene, ethylbenzene, and xylenes EPA Method 8260B
MTBE = Methyl tertiary butyl ether EPA Method 8260B

TABLE 3

SOIL ANALYTICAL DATA - METALS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON BULK PLANT 20-6127)
2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA

Boring ID	*Depth (ft)*	*Sample Date*	*Mercury*	*Thallium*	*Arsenic*	*Selenium*	*Antimony*	*Barium*	*Beryllium*	*Cadmium*	*Chromium*	*Cobalt*	*Copper*	*Lead*	*Molybdenum*	*Nickel*	*Silver*	*Vanadium*	*Zinc*
			Concentrations reported in milligram per kilogram (mg/kg)																
SB-1	3	2/17/1995	0.43	7	**6.1**	ND	2	110	0.2	0.7	39	9.6	51	110	ND	30	0.1	37	210
SB-2	2	2/20/1995	0.7	ND	**9.7**	ND	2	120	0.1	ND	89	11	170	77	0.7	49	0.1	35	280
SB-3	1	2/17/1995	0.71	6	**68**	ND	2	56	0.2	ND	12	7.4	19	22	0.3	16	0.2	32	90
SB-4	1	2/17/1995	0.63	4	**46**	ND	2	59	0.2	ND	17	9.3	36	30	0.7	22	0.3	34	110
SB-5	1	2/17/1995	0.37	3	**12**	ND	1	46	0.2	ND	19	7.7	21	12	ND	22	0.2	32	74
SB-6	1	2/17/1995	0.94	8	**130**	ND	4	67	0.2	ND	16	8.7	31	32	1.1	23	0.7	34	100
SB-7	1.5	2/17/1995	0.16	ND	ND	ND	2	150	0.1	0.3	36	7.1	44	89	ND	24	0.1	47	200
SB-8	0.5	2/20/1995	0.09	ND	**4.5**	ND	2	88	0.2	ND	23	7.8	30	30	ND	15	ND	29	110
VP-1	3	7/9/2008	0.0756	<1.25	**2.32**	<0.961	<0.980	92.6	0.225	<0.137	5.68	2.95	23	42.1	0.565	6.08	0.184	27.6	117
VP-2	3	7/9/2008	0.247	<1.26	**6.78**	<0.970	<0.990	137	0.392	<0.139	17.9	7.01	47.4	185	1.04	15.8	0.302	38.3	167
VP-2	5	7/9/2008	0.025	<1.21	**1.78**	<0.933	<0.952	78.8	0.166	<0.133	24.9	4.13	7.19	9.67	0.463	9.17	<0.162	22.2	10.7
VP-3	2.5	7/14/2008	0.285	2.26	**9.45**	<0.980	2.64	164	0.235	<0.700	101	7	175	189	3.26	45.7	0.393	51.3	**690**
VP-3	5	7/14/2008	0.155	<1.22	**3.46**	<0.942	<0.962	94.5	0.149	<0.135	34.5	3.47	13.7	19.5	<0.423	33.7	<0.163	23.6	45.5
VP-4	2.5	7/14/2008	0.883	<1.25	**8.37**	<0.961	4.15	1,090	0.221	2.44	41.4	3.41	139	903	0.743	21.4	0.351	27.9	**1,670**
VP-4	5	7/14/2008	0.0134	<1.25	**3.19**	<0.961	<0.980	70.4	0.149	<0.137	34.4	2.46	5.91	16.3	<0.431	13.7	<0.167	32.6	15.5
VP-5	2.5	7/14/2008	0.256	2.24	**5.74**	<0.970	1.23	198	0.3	<0.139	29.4	7.44	40.8	63.9	0.582	26.1	0.421	61.7	190
VP-5	5	7/14/2008	0.0849	<1.26	**3.2**	<0.970	<0.990	94.2	0.136	<0.139	27.6	3.17	11.2	21.9	<0.436	10.8	<0.168	25.5	138
VP-6	3	7/9/2008	0.154	<1.27	**5.86**	<0.980	<1.00	80.6	0.562	<0.140	18.6	7.43	27.7	50.6	1.08	29.3	0.203	27.9	88.5
VP-6	5	7/9/2008	0.0342	<1.25	**3.72**	<0.961	<0.980	188	0.325	<0.137	46.4	2.12	11.1	5.24	<0.431	42.2	<0.167	39.1	29.3
SB-13	1	7/7/2008	0.118	<1.25	**21.6**	<0.961	<0.980	105	0.265	0.329	34.7	6.84	28.4	141	0.559	20.2	<0.167	30.5	144
SB-13	5	7/7/2008	0.0529	<1.26	**3.27**	<0.970	<0.990	98.2	0.364	<0.137	55.2	5.13	8.47	4.08	<0.436	48.7	<0.168	32.1	23
SB-13	10	7/8/2008	0.0223	<1.26	**3.14**	<0.970	<0.990	127	0.3	<0.139	52.1	5.77	12.5	3.8	<0.436	45	<0.168	36.6	30.2
SB-14	1	7/7/2008	0.114	<1.25	**8.17**	<0.961	<0.980	111	0.242	<0.139	29.9	8.27	59.4	115	1.02	28.9	<0.167	42.4	369
SB-14	5	7/7/2008	0.0353	<1.21	**5.39**	<0.933	<0.952	53.4	0.272	<0.139	12	5.29	15.3	14	<0.419	4.9	<0.162	25.2	84.6
SB-14	10	7/8/2008	0.028	<1.27	**3.04**	<0.980	<1.00	397	0.306	<0.140	51.4	9.57	11.8	3.29	<0.440	51.1	0.547	37.2	28.8
SB-15	1	7/7/2008	0.117	<1.27	**7.1**	<0.980	1.75	126	0.303	0.267	71.5	11.3	116	107	0.809	**167**	0.191	42.7	283
SB-15	5	7/7/2008	0.157	<1.22	**34.7**	<0.942	<0.962	112	0.249	0.169	41.5	7.66	58.7	74.1	0.888	27.5	<0.163	30.4	153
SB-15	9.5	7/8/2008	<0.0109	<1.25	**3.23**	<0.961	<0.980	132	0.362	<0.137	43.9	3.25	11.7	5.77	0.673	42.1	<0.167	27.6	30.1
SB-16A	1	7/7/2008	0.14	<1.27	**22.2**	<0.980	<1.00	230	0.459	0.263	45.9	9.07	184	115	0.958	34.3	0.387	37.4	**1,340**
SB-16B	1	7/7/2008	0.112	<1.22	**9.6**	<0.942	5.8	181	0.228	<0.135	275	12.7	180	125	10.6	129	0.469	42.7	**876**
SB-16C	2	7/8/2008	0.219	<1.27	**9.74**	<0.980	2.4	184	0.229	0.272	66.3	6.54	**254**	204	1.63	39.1	0.363	36.1	408
SB-16C	3	7/8/2008	0.233	<1.27	**12.5**	<0.980	<1.0	183	0.263	2.61	49.5	4.8	90.7	264	1.25	39.4	0.247	31.4	268

TABLE 3

SOIL ANALYTICAL DATA - METALS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON BULK PLANT 20-6127)
2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA

Boring ID	*Depth (ft)*	*Sample Date*	*Mercury*	*Thallium*	*Arsenic*	*Selenium*	*Antimony*	*Barium*	*Beryllium*	*Cadmium*	*Chromium*	*Cobalt*	*Copper*	*Lead*	*Molybdenum*	*Nickel*	*Silver*	*Vanadium*	*Zinc*
			Concentrations reported in milligram per kilogram (mg/kg)																
SB-17	1	7/7/2008	0.144	<1.25	**4.49**	<0.961	<0.980	121	0.322	0.316	63.1	9.16	65.2	81.5	0.678	49.5	0.177	38.3	162
SB-17	5	7/7/2008	0.0337	<1.22	**2.47**	<0.942	<0.962	87.8	0.209	<0.137	26.2	5.37	12.2	22.4	<0.423	10.7	<0.163	24.1	38.5
SB-17	9.5	7/8/2008	<0.0113	1.52	**14.9**	<0.961	<0.980	118	0.154	<0.137	48.5	6.3	12.2	3.69	<0.431	47.6	0.34	38.5	29
SB-18	1	7/7/2008	0.0528	<1.27	**3.1**	<0.980	<1.00	106	0.293	<0.136	53.7	7.41	43.5	30.5	<0.440	42.1	<0.170	31.8	58.1
SB-18	5	7/7/2008	0.361	<1.25	**3.14**	<0.961	<0.980	117	0.206	0.605	30.4	7.15	32.9	164	0.544	12.9	0.338	24	478
SB-18	10	7/8/2008	0.0163	4.78	**6.05**	<0.942	<0.962	82.3	0.123	<0.135	48	5.14	13.6	3.56	<0.423	44.8	0.244	35.9	27.2
SB-19	1	7/7/2008	0.184	<1.21	**8.31**	0.965	3.11	313	0.455	**60.6**	29.7	6.81	26.7	353	0.438	24.4	0.296	25.3	318
SB-19	5	7/7/2008	0.033	<1.22	**3.63**	<0.942	<0.962	114	0.397	<0.133	52.9	6.51	10.2	10.4	<0.423	66.6	<0.163	39.7	30.9
SB-19	10	7/8/2008	0.0568	<1.25	**1.78**	<0.961	<0.980	91.8	0.145	<0.137	54.1	5.19	11.1	2.9	<0.431	44.3	0.201	35.7	29.8
	ESLs		10	16	1.6	10	40	1,500	8.0	7.4	750*	80	230	750	40	150	40	200	600

Abbreviations / Notes

CAM 17 Metals by EPA Method 6010B/7471A
<x = not detected at or above the stated laboratory reporting limit
Concentrations in **bold** indicate that the constituent exceed their respective ESL
ND = Not detected at or above the stated laboratory reporting limit
ESL = Environmental screening level for shallow soil (<3m fbg) at commercial/industrial sites where groundwater is not a current or potential source of drinking water (Table B)-RWQCB May 2008
* ESL is for Chromium III

TABLE 4

HISTORICAL GRAB GROUNDWATER ANALYTICAL DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON BULK PLANT 20-6127)
2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA

Boring/ Well ID	*Sample Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*m+p Xylene*	*o-Xylene*	*MTBE*	*Vinyl Chloride*	*cis-1,2-DCE*	*TCE*	*Isopropyl-benzene*	*n-Propyl-benzene*	*1,3,5-Trimethyl-benzene*	*tert-Butyl-benzene*	*1,2,4-Trimethyl-benzene*	*sec-Butyl-benzene*	*p-Isopropyl-toluene*	*n-Butyl-benzene*	*Naphthalene*	*TBA*	*Acetone*	*Metals*
												Concentrations in micrograms per liter (µg/L)												
GWS-7	4/24/1995	**ND**	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-8	4/24/1995	**0.06**	3.7	0.036	0.0069	0.027	0.011[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-9	4/24/1995	**1.2**	22	6.2	0.14	1.1	1.2[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-10	4/24/1995	**0.24**	11	0.88	0.04	0.1	0.05[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-11	4/24/1995	**0.07**	1.4	ND	0.001	0.0014	0.0084[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-12	4/24/1995	**ND**	ND	ND	0.0006	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-13	4/24/1995	**ND**	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-14	4/24/1995	**ND**	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-15	4/24/1995	**ND**	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-16	4/24/1995	**ND**	0.07	ND	ND	0.002	0.0011[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-13	7/8/2008	**600**	<50	<0.5	<0.5	<0.5	<0.5	<0.5	**3.0**	<1.0	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<6.0	--
SB-14	7/8/2008	**750**	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<6.0	--
SB-15	7/8/2008	**430**	<50	<0.5	<0.5	<0.5	<0.5	<0.5	**0.8**	**1.0**	**69**	**5.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<6.0	--
SB-18	7/8/2008	**19,000**	**3,800**	**590**	**18**	**7.0**	**15**	**3.0**	<0.5	<1.0	<0.8	<1.0	**45**	**67**	**1.0**	**2.0**	**3.0**	**5.0**	**2.0**	**5.0**	**2.0**	**15**	**35**	--
SB-19	7/8/2008	**1,600**	**650**	**3.0**	**8.0**	**9.0**	**26**	**16**	<0.5	<1.0	<0.8	<1.0	**4.0**	**4.0**	**5.0**	<1.0	**13**	<1.0	**58**	<1.0	**2.0**	<5.0	**6.0**	--
MW-1	7/8/2008	**2,800**	**120**	**0.8**	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.8	<1.0	<1.0	<1.0	<1.0	**1.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	**8.0**	ND[2]
ESLs		210	210	46	130	43	100*		1,800	3.8	590	360	NE	NE	NE	NE	NE	NE	NE	NE	24	18,000	1,500	1,000**

Abbreviations/notes:
TPHg/TPHd = Total petroleum hydrocarbons as gasoline/diesel by EPA Method 8015
VOCs = Volatile Organic Compounds by EPA Method 8260B
MTBE = Methyl tertiary butyl ether
cis-1,2-DCE = cis-1,2-Dichloroethene
TCE = Trichloroethene
TBA = Tertiary butyl alcohol
<x = not detected at or above stated laboratory detection limit
- - = Not analyzed
ND = Not detected; detection limits vary
[1] Total xylenes
[2] Metals not detected except barium at 451 ug/L
* ESL is for total xylenes
NE = Not established
** ESL for barium

TABLE 5

SENSITIVE RECEPTOR AND WELL SURVEY
FORMER SIGNAL OIL BULK PLANT
(FORMER CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

ID on Map	*Sensitive Receptor Type*	*DWR Well Drillers Report Number*	*Address*	*Owner*	*Well Type*	*Date Installed*	*Depth (fbg)*	*Screened (fbg)*	*Approximate Distance From Site*
	Surface Water	NA	Alameda Canal		NA	NA	NA	NA	20 feet north
1	Well	32164	2307 Clement Avenue	Bob Tennant	Industrial	4/9/1977	80	20-80; 40-80	310 feet sounthwest
2	Well	32163	2307 Clement Avenue	Bob Tennant	Industrial	4/9/1977	71	20-71; 30-71	340 feet southwest
3	School	NA	2226 Pacific Avenue	Alameda Christian School	NA	NA	NA	NA	1775 feet southwest

Notes and Abbreviations
fbg = feet below grade
NA = not applicable
Well locations provided by the California Department of Water Resources (June 2011)

TABLE 6

SOIL VAPOR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	Sample Date	TPHd ($\mu g/m^3$)	TPHg ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethyl-benzene ($\mu g/m^3$)	m,p-Xylene ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	Chloromethane ($\mu g/m^3$)	Bromomethane ($\mu g/m^3$)	Hexane ($\mu g/m^3$)	Cyclohexane ($\mu g/m^3$)	Heptane ($\mu g/m^3$)	Cumene ($\mu g/m^3$)	Propyl-benzene ($\mu g/m^3$)	1,3,5-Trimethyl-benzene ($\mu g/m^3$)	4-Ethyl-toluene ($\mu g/m^3$)	O_2 (%)	N_2 (%)	CO_2 (%)	CH_4 (%)	He (%)
Soil Vapor Wells																						
VP-1	08/19/08	13,000	**1,300,000**	**300**	140	240	540	--	<160	<75	9,400	12,000	27,000	1,600	2,800	<95	660	17	--	4.00	--	<0.12
	10/22/09	--	<88	<3.4	<4.1	<4.7	<4.7	--	<8.9	<4.2	<3.8	<3.7	<4.4	<5.3	<5.3	<5.3	<5.3	9.4	--	5.70	--	<0.11
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VP-2	08/19/08	24,000	**1,500,000**	140	<86	130	300	--	<190	<89	5,500	19,000	12,000	900	1,700	<110	370	8.9	--	11.00	--	<0.11
	10/22/09	--	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	13	--	8.00	--	<0.12
	06/29/10	--	<280	<4.3	<5	<5.9	<5.9	<28	--	--	--	--	--	--	--	--	--	16	79	5.10	0.0005	<0.14
	06/29/10[1]	--	820	<4.3	<5.0	<5.8	<5.8	<28	--	--	--	--	--	--	--	--	--	16	79	5.10	<0.00027	<0.13
	11/16/10[2]	--	<160	<3.8	<4.4	<5.1	<5.1	<25	--	--	--	--	--	--	--	--	--	18	79	3.10	<0.00024	<0.12
VP-3	08/19/08	**53,000E**	**4,100,000**	<700	<830	<960	1,200	--	<1,800	<850	38,000	47,000	77,000	4,000	5,700	1,200	<1100	1.7	--	11.00	--	<0.11
	10/22/09	--	**1,800,000**	<130	<150	<180	<180	--	<330	<160	6,200	6,200	1,800	<200	<200	<200	<200	1.4	--	8.10	--	<0.12
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	--	**340,000**	<38	<45	<52	<52	<250	--	--	--	--	--	--	--	--	--	4.1	87	8.10	0.66	<0.12
VP-4	08/19/08	**91,000S**	**220,000,000**	**1,100,000**	49,000	**570,000**	**70,000**	--	**3,900,000**	**70,000**	8,400,000	3,600,000	5,100,000	57,000	84,000	<19,000	37,000	0.55	--	16.00	--	<0.13
	10/22/09	--	**140,000,000**	**1,100,000**	<48,000	**650,000**	**71,000**	--	<100,000	<49,000	7,700,000	3,400,000	4,900,000	64,000	110,000	<62,000	<62,000	0.64	--	15.00	--	<0.13
	10/22/09[1]	--	**130,000,000**	**1,000,000**	<46,000	**540,000**	57,000	--	<100,000	<47,000	7,300,000	3,200,000	4,600,000	<59,000	92,000	<59,000	<59,000	0.62	--	14.00	--	<0.12
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	--	**130,000,000**	**830,000**	30,000	**470,000**	44,000	<25,000	--	--	--	--	--	--	--	--	--	1.1	43	12.00	41	0.28
VP-5	08/19/08	**110,000S**	**29,000,000**	**28,000**	<4,400	<5,000	<5,000	--	<9,600	<4,500	630,000	430,000	660,000	7,000	<5,700	<5,700	<5,700	2.0	--	15.00	--	<0.12
	10/22/09	--	**20,000,000**	**16,000**	<4,800	<5,500	<5,500	--	<10,000	<4,900	370,000	310,000	490,000	12,000	15,000	<6,200	<6,200	1.3	--	17.00	--	<0.13
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	--	**18,000,000**	**11,000**	1,600	<1600	1,600	<8000	--	--	--	--	--	--	--	--	--	1.5	82	16.00	0.030	<0.11
	11/16/10[1]	--	**18,000,000**	**12,000**	1,500	<1600	1,700	<8000	--	--	--	--	--	--	--	--	--	1.4	82	16.00	0.030	<0.11
VP-6	08/19/08	**96,000S**	**150,000,000**	**20,000**	<10,000	<12,000	<12,000	--	**1,200,000**	**25,000**	3,300,000	3,200,000	2,800,000	17,000	<14,000	<14,000	<14,000	3.9	--	9.80	--	<0.11
	08/19/08[1]	22,000	**840,000**	100	<86	130	290	--	<190	<89	4,400	9,800	12,000	890	1,700	<110	390	9.2	--	10.00	--	<0.11
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 6

SOIL VAPOR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	Sample Date	TPHd ($\mu g/m^3$)	TPHg ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethyl-benzene ($\mu g/m^3$)	m,p-Xylene ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	Chloromethane ($\mu g/m^3$)	Bromomethane ($\mu g/m^3$)	Hexane ($\mu g/m^3$)	Cyclohexane ($\mu g/m^3$)	Heptane ($\mu g/m^3$)	Cumene ($\mu g/m^3$)	Propyl-benzene ($\mu g/m^3$)	1,3,5-Trimethyl-benzene ($\mu g/m^3$)	4-Ethyl-toluene ($\mu g/m^3$)	O_2 (%)	N_2 (%)	CO_2 (%)	CH_4 (%)	He (%)
Sub-Slab Soil Vapor Probes																						
VP-7	07/24/09	--	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	19	--	0.60	--	<0.12
	06/29/10	--	<240	<3.7	<4.3	<5.0	<5.0	<24	--	--	--	--	--	--	--	--	--	21	78	0.30	<0.00023	0.21
	11/16/10	--	<260[3]	<4.1	<4.9	<5.6	<5.6	<27	--	--	--	--	--	--	--	--	--	20	79	0.50	<0.00026	0.54
VP-8	07/24/09	--	490	<3.5	<4.1	<4.8	<4.8	--	<9.1	<4.3	<3.9	<3.8	<4.5	<5.4	<5.4	<5.4	<5.4	21	--	0.56	--	<0.11
	07/24/09[1]	--	8,200	7	48	24	100	--	<9.1	<4.3	<3.9	<3.8	<4.5	<5.4	14	33	79	21	--	0.56	--	<0.11
	06/29/10	--	310	24	71	5.9	47	<25	--	--	--	--	--	--	--	--	--	20	79	0.61	<0.00024	0.57
	06/29/10[1]	--	340	24	70	5.3	44	<25	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/16/10	--	<250[3]	<3.9	<4.6	<5.2	<5.2	<25	--	--	--	--	--	--	--	--	--	19	79	0.98	<0.00024	1.10
VP-9	07/24/09	--	8,800	<3.8	38	<5.3	19	--	<9.8	<4.6	<4.2	<4.1	<4.9	<5.8	<5.8	<5.8	<5.8	15	--	0.14	--	29.00
	10/22/09	--	<90	<3.5	<4.1	<4.8	<4.8	--	<9.1	<4.3	<3.9	<3.8	<4.5	<5.4	<5.4	<5.4	<5.4	20	--	0.73	--	<0.11
	06/29/10	--	<230	<3.6	<4.3	<4.9	<5.0	<24	--	--	--	--	--	--	--	--	--	19	80	1.10	<0.00023	<0.11
	11/16/10	--	<250[3]	<3.9	<4.6	<5.3	<5.3	<26	--	--	--	--	--	--	--	--	--	19	80	1.20	<0.00024	<0.12
VP-10	07/24/09	--	2,500B	<3.7	7	52	130	--	<9.6	<4.5	<4.1	<4.0	12	<5.7	12	21	59	17	--	0.48	--	16.00
	10/22/09	--	2,100	16	6.1	12	<5.2	--	<10	<4.7	100	45	91	<5.9	<5.9	<5.9	<5.9	20	--	0.29	--	2.40
	06/29/10	--	<250	<3.8	<4.5	<5.2	<5.2	<25	--	--	--	--	--	--	--	--	--	19	73	0.43	<0.00024	7.30
	11/16/10	--	260[3]	<4.0	6.3	<5.4	<5.4	<26	--	--	--	--	--	--	--	--	--	18	72	0.42	<0.00025	10.00
VP-11	07/24/09	--	450B	<3.9	13	<5.2	8	--	<10	<4.7	<4.3	<4.2	<5.0	<5.9	<5.9	<5.9	<5.9	16	--	0.26	--	22.00
	10/22/09	--	<99	<3.9	<4.6	<5.2	<5.2	--	<10	<4.7	<4.3	<4.2	<5.0	<5.9	<5.9	<5.9	<5.9	14	--	4.00	--	<0.12
	06/29/10	--	<240	<3.8	<4.5	<5.1	<5.1	<25	--	--	--	--	--	--	--	--	--	18	80	1.90	<0.00024	<0.12
	11/16/10	--	<260	<4.0	<4.7	<5.4	<5.4	<26	--	--	--	--	--	--	--	--	--	18	80	1.70	<0.00025	<0.12
	11/16/10[1]	--	<260[3]	<4.0	<4.7	<5.4	<5.4	<26	--	--	--	--	--	--	--	--	--	18	80	1.70	<0.00025	<0.12
VP-12	07/24/09	--	190B	<3.6	<4.2	<4.9	<4.9	--	<9.2	<4.3	<3.9	<3.8	<4.6	<5.5	<5.5	<5.5	<5.5	19	--	0.73	--	0.43
	07/24/09[1]	--	1,600B	<3.6	<4.2	<4.9	<4.9	--	<9.2	<4.3	<3.9	<3.8	<4.6	<5.5	<5.5	<5.5	<5.5	19	--	0.73	--	0.44
	10/22/09	--	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	18	--	1.40	--	<0.12
	06/29/10	--	<220	<3.5	<4.1	<4.8	<4.8	<23	--	--	--	--	--	--	--	--	--	20	80	0.45	<0.00022	<0.11
	11/16/10	--	<240[3]	<3.8	<4.5	<5.2	<5.2	<25	--	--	--	--	--	--	--	--	--	20	80	0.50	<0.00024	<0.12
VP-13	07/24/09	--	8,600B	<3.6	200	<5.0	9	--	<9.4	<4.4	<4.0	<3.9	<4.7	<5.6	<5.6	<5.6	<5.6	15	--	0.16	--	26.00
	10/22/09	--	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	20	--	1.30	--	<0.12
	06/29/10	--	<240	<3.8	<4.4	<5.1	<5.1	<25	--	--	--	--	--	--	--	--	--	16	82	2.00	<0.00024	<0.12
	11/16/10	--	450[3]	<3.9	<4.6	<5.3	<5.3	<26	--	--	--	--	--	--	--	--	--	15	78	2.60	<0.00024	4.70
SFRWQCB ESLs [a]		***29,000***	***29,000***	***280***	***180,000***	***3,300***	***58000[4]***	***240***	***53,000***	***2,900***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***
SFRWQCB ESLs [b]		***1,400***	***1,400***	***14***	***8,800***	***160***	***2,900[4]***	***12***	***2,600***	***150***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***

TABLE 6

SOIL VAPOR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	Sample Date	TPHd ($\mu g/m^3$)	TPHg ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethyl-benzene ($\mu g/m^3$)	m,p-Xylene ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	Chloromethane ($\mu g/m^3$)	Bromomethane ($\mu g/m^3$)	Hexane ($\mu g/m^3$)	Cyclohexane ($\mu g/m^3$)	Heptane ($\mu g/m^3$)	Cumene ($\mu g/m^3$)	Propyl-benzene ($\mu g/m^3$)	1,3,5-Trimethyl-benzene ($\mu g/m^3$)	4-Ethyl-toluene ($\mu g/m^3$)	O_2 (%)	N_2 (%)	CO_2 (%)	CH_4 (%)	He (%)

Abbreviations and Notes:

Bold = indicates that measured concentration exceeds the ESL for shallow soil gas under commercial/industrial land use.
Underline = indicates that measured concentration exceeds the ESL for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air.
TPHd = Total petroleum hydrocarbons as diesel by EPA Method TO-17
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method TO-3 (8/19/08) or TO-15 GC/MS
Volatile Organic Compounds by EPA Method TO-15
Oxygen (O_2), nitrogen (N_2), carbon dioxide (CO_2), methane (CH_4) and helium (He) by ASTM Method D-1946
NE = Not established
NS = Not sampled due to the presence of water in vapor well
B = Compound present in laboratory blank greater than reporting limit, background subtraction not per
[a] = Environmental Screening Levels for shallow soil gas associated with potential vapor intrusion concerns at commercial/industrial sites (Table E, SFRWQCB, 2008).
[b] = Environmental Screening Levels for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air (Table E, SFRWQCB, 2008).
[1] = Field duplicate sample
[2] = TPHg analysis by TO-15 APH
[3] = Estimated value due to laboratory error
[4] = ESL is for total xylenes
< = Not detected at or above stated laboratory reporting limit
-- = Not analyzed

TABLE 7

INDOOR AND OUTDOOR AIR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	*Sample Date*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m,p-Xylene*	*Naphthalene*	*O_2*	*N_2*	*CO_2*	*CH_4*	*He*
		($\mu g/m^3$)										
IA-1	06/29/10	**290**	**0.52**	4.50	0.27	0.97	<4.0	--	--	--	--	--
	11/16/10[2]	**220**	**1.70**	7.70	0.61	2.20	<4.1	22	78	0.042	0.00021	<0.078
IA-2	06/29/10	**490**	**0.57**	5.20	**2.30**	8.3	<4.1	--	--	--	--	--
	11/16/10[2]	**390**	**0.97**	15.00	**1.80**	5.7	<4.4	22	78	0.048	0.00021	<0.084
IA-3	07/09/10	**110**	**0.39**	1.80	0.27	0.92	<4.3	22	78	0.040	0.00019	<0.082
	07/09/10[3]	**100**	**0.41**	2.00	0.26	0.91	<4.3	--	--	--	--	--
	11/16/10[2]	**530**	**4.20**	35.00	**6.00**	23.00	<4.2	22	78	0.046	0.00021	<0.081
IA-4	06/29/10	**490**	**1.80**	16.00	**2.10**	7.9	<4.0	--	--	--	--	--
	11/16/10[2]	**200**	**0.77**	4.40	0.74	2.5	<4.4	22	78	0.041	0.00020	<0.084
OA-1	06/29/10	<160	**0.24**	0.78	0.15	0.48	<4.0	--	--	--	--	--
	11/16/10[2]	**110**	**0.61**	2.10	0.38	1.20	<4.1	22	78	0.043	0.00021	<0.078
SFRWQCB ESLs		***14***	***0.14***	***88.00***	***1.60***	***29[1]***	***0.12***	***NE***	***NE***	***NE***	***NE***	***NE***

Abbreviations and Notes:

Bold = indicates that measured concentration exceeds the ESL for indoor air under commercial/industrial land use.
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method TO-15 GC/MS SIM.
Volatile organic compounds by EPA Method TO-15 GC/MS SIM.
Oxygen (O_2), nitrogen (N_2), carbon dioxide (CO_2), methane (CH_4) and helium (He) by ASTM Method D-1946.
ESLs = Environmental Screening Levels associated with ambient and indoor air at commercial/industrial sites (Table E, SFRWQCB, 2008).
[1] = ESL is for total xylenes.
[2] = Samples analyzed by Modified TO-15 APH
[3] = Field duplicate sample
NE = Not established.
< = Not detected at or above stated laboratory reporting limit.
-- = Not analyzed/not applicable.

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

May 26, 2011

Mr. Mike Bauer
Chevron Environmental Management Company
145 S. State College Blvd.
Brea, CA 92821

Ms. Julie Beck Ball
Mr. Peter Reinhold Beck
2720 Broderick Street
San Francisco, CA 94123

Subject: Case File Review for SLIC Case No. RO0002466 and GeoTracker Global ID T06019744728, Park Street Landing 2301-2337 Blanding Avenue, Alameda, CA 94501

Dear Mr. Bauer and Ms. Ball:

Alameda County Environmental Health (ACEH) staff has reviewed the Spills, Leaks, Investigations, and Cleanups (SLIC) case file for the above referenced site including the recently submitted documents entitled, "*Second Soil Vapor, Sub-Slab, and Indoor Air Sampling Report*," dated March 30, 2011 and "*First Quarter 2011 Groundwater Monitoring and Sampling Report*," dated March 18, 2011. Both documents were prepared on Chevron's behalf by Conestoga-Rovers & Associates. The "*Second Soil Vapor, Sub-Slab, and Indoor Air Sampling Report*," dated March 30, 2011, presents soil vapor, sub-slab, and indoor air sampling results from November 16, 2010. Total petroleum hydrocarbons as gasoline (TPHg) and benzene were detected in soil vapor samples at concentrations up to 130,000,000 and 830,000 micrograms per cubic meter ($\mu g/m^3$), respectively. TPHg was detected in sub-slab vapor samples at estimated concentrations up to 450 $\mu g/m^3$. TPHg and benzene were detected in indoor air at concentrations up to 530 and 4.2 $\mu g/m^3$, respectively.

The "*Groundwater Monitoring and Sampling Report*," dated March 18, 2011, presents results from groundwater sampling conducted on January 14, 2011. TPHg and benzene were detected in groundwater from downgradient well MW-1RA at concentrations of 790 and 160 micrograms per liter. The concentrations of TPHg and benzene in groundwater exceed the surface water screening levels for estuary habitats (San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels May 2008).

Based on the results of investigations conducted to date, a significant mass of petroleum hydrocarbons remains in the subsurface at this site. Based on sub-slab and soil vapor sampling results to date, the residual petroleum hydrocarbons may not pose a significant risk for vapor intrusion to indoor air for current use of the site; however, there is some uncertainty in the soil vapor, indoor air, and sub-slab results due to significant temporal and spatial variability in the results. Based on the highly elevated concentrations of volatile petroleum hydrocarbons in soil vapor beneath portions of the site, the residual contamination poses a potential risk for future development of the site.

Elevated concentrations of petroleum hydrocarbons are present in groundwater beneath the site including the downgradient wells located nearest to the Alameda Canal. The site represents a chronic source for petroleum hydrocarbons discharging to the adjacent surface water. Based on these considerations, remediation is required for this site. Therefore, we request that you address the following technical comments and submit a Draft Corrective Action Plan.

TECHNICAL COMMENTS

1. **Corrective Action Plan.** Based on the highly elevated concentrations of volatile petroleum hydrocarbons in soil vapor beneath portions of the site, the significant mass of petroleum hydrocarbons remaining in the subsurface, and the discharge of groundwater containing elevated concentrations of petroleum hydrocarbons to the Alameda Canal, site cleanup is required. We request that you prepare a Draft Corrective Action Plan (Draft CAP) that meets the provisions of section 2725 of the UST regulations (CCR, Title 23, Chapter 16, section 2600, et seq.) and includes the following minimum information:

    - Proposed cleanup goals and the basis for cleanup goals.
    - Summary of site characterization data.
    - Receptor information including likely future land use scenarios, adjacent land use and sensitive receptors, and potential groundwater receptors.
    - Evaluation of a minimum of three active remedial alternatives including discussion of feasibility, cost effectiveness, estimated time to reach cleanup goals, and limitations for each remedial alternative.
    - Detailed description of proposed remediation including confirmation sampling and monitoring during implementation.
    - Post-remediation monitoring.
    - Schedule for implementation of cleanup.

    Public participation is a requirement for the Corrective Action Plan process. Therefore, we request that you submit a Draft CAP for ACEH review. Upon ACEH approval of a Draft CAP, ACEH will notify potentially affected members of the public who live or own property in the surrounding area of the proposed remediation described in the Draft CAP. Public comments on the proposed remediation will be accepted for a 30-day period.

2. **Vapor Sample Quality.** Helium was detected in several of the sub-slab vapor samples at concentrations up to 10 percent, indicating that there was a leak of ambient air into the samples. The "*Second Soil Vapor, Sub-Slab, and Indoor Air Sampling Report,"* concludes that the vapor sampling results are valid based on low concentrations of hydrocarbon vapor detected and "minor detection of helium." However, the concentration of helium in the sampling shroud during sampling was not reported. Unless the concentration of helium in the shroud is known, it is not possible to know the degree of leakage of ambient air and the validity of the results. Therefore, we do not concur that the samples can be assumed to be valid based on the factors cited. Vapor samples may generally be considered valid if the concentration of helium in the sample is less than 10 percent of the helium concentration in the shroud. A soil vapor sample with 10 percent helium would generally not be considered a valid result. The results for VP-10 and VP-13 are questionable based on the information presented. Please use a more rigorous approach in assessing the validity of future vapor sampling results.

3. **Sub-slab Attenuation Factor.** The "*Second Soil Vapor, Sub-Slab, and Indoor Air Sampling Report*," (Report) includes several statements indicating that the application of a factor of 0.01 for attenuation between the sub-slab and indoor air is overly conservative. We believe this statement cannot be supported by the data presented. The repeated statements that a sub-slab attenuation factor of 0.01 is overly conservative for the site appears to be based on a comparison of indoor air sampling results to sub-slab sampling results. Table 3 of the Report uses indoor air results to predict sub-slab soil vapor results and then compares the predicted value to actual sub-slab results. Since the actual sub-slab results are less than the predicted values in Table 3, the Report concludes that a sub-slab attenuation factor of 0.01 is overly conservative. However, most of the indoor air concentrations exceed both the outdoor air concentrations and sub-slab concentrations. We concur with the conclusion stated elsewhere in the Report that the indoor air concentrations may be affected by sources within the building. Given that the indoor air concentrations are likely affected primarily by an indoor source, they cannot then be compared to sub-slab concentrations to estimate a sub-slab to indoor air attenuation factor.

4. **Groundwater Monitoring.** We concur with the proposal in the "First Quarter 2011 Groundwater Monitoring Report," to continue quarterly groundwater monitoring. Please present the results from quarterly groundwater monitoring in the reports requested below.

TECHNICAL REPORT REQUEST

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

- **June 30, 2011** – Second Quarter 2011 Groundwater Monitoring Report
- **July 21, 2011** – Draft Corrective Action Plan
- **September 30, 2011** – Third Quarter 2011 Groundwater Monitoring Report

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: Mr. Brian Silva, Conestoga-Rovers & Associates, 10969 Trade Center Drive, Suite 107, Rancho Cordova, CA 95670 (*Sent via E-mail to: bsilva@craworld.com*)

Mr. Monroe Wingate, C/o Alan Wingate, 18360 Carriger Road, Sonoma, CA 95476

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, e-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.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/).

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 deh.loptoxic@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 deh.loptoxic@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

PREVIOUS ENVIRONMENTAL INVESTIGATION

PREVIOUS ENVIRONMENTAL INVESTIGATION
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY 20-6127
(CHEVRON 20-6127)

Site History

A Sanborn map dated 1897 showed the site as occupied by several residential structures and outbuildings; the southeast portion of the site was shown as occupied by a laundry facility and a blacksmith. From at least 1930 until approximately 1961, the northwestern portion of the site was occupied by a petroleum bulk plant operated by Signal Oil & Gas Company. Former bulk plant facilities consisted of one large and seven smaller gasoline aboveground storage tanks (ASTs) within concrete secondary containment, underground piping, an office building, a loading rack, and a small structure containing gasoline pumps (Figure 2). The northeast portion of the facility was shown as occupied by a structure identified as an auto garage and also used for paint storage on Sanborn maps dated between 1932 and 1950. A rail spur was shown to service the facilities on Blanding Avenue. The central portion of the site was shown as occupied by two structures identified as wholesale tires and a can warehouse. An additional larger structure was shown in the central portion of the site that was identified as vacant on the 1948 Sanborn map and as a ladder factory on the 1950 Sanborn map. Several structures appeared to be present in the southeast portion of the site in the 1939 aerial photograph. However, only one or two small sheds were shown in this area on the 1948 and 1950 Sanborn maps. In the 1958 aerial photograph, the ladder factory structure no longer appeared present and the southeast portion of the site appeared vacant and used for parking. Between 1957 and 1963, the buildings at the site were reportedly removed; it is assumed that the ASTs and piping were also removed at this time. In the 1965 aerial photograph, all the bulk plant facilities appear to have been removed and the majority of the site appears occupied by a construction materials yard with several small structures. Several additional structures also appear present in the southeast portion of the site. From 1973 to 1983, the northwestern portion of the site reportedly was used as a construction yard and for boat repair activities; and the southeastern portion was occupied by a restaurant, paved parking area, and a possible automobile sales lot. In 1987, the site was redeveloped with the current configuration.

1995 Soil and Groundwater Investigation

In February 1995, Geomatrix Consultants, Inc. (Geomatrix) advanced eight soil borings (SB-1 through SB-8) to approximately 10 feet below grade (fbg) in the northwestern portion of the site to evaluate if previous site uses had impacted soil and groundwater quality. Groundwater was not encountered in the borings. Two to three soil samples were collected at various depths from each boring for laboratory analysis. Nineteen samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd); and benzene, toluene, ethylbenzene, and xylenes (BTEX). TPHg was detected in six of the samples at concentrations ranging from 4.0 to 2,000 milligrams per kilogram (mg/kg). TPHd was detected in the majority of the samples at concentrations ranging from 10 to 250 mg/kg. BTEX were also detected in several of the samples (benzene up to 3.7 mg/kg). The highest concentrations of petroleum hydrocarbons generally were detected in borings SB-2 and SB-4 located in the vicinity of the former ASTs and

gasoline pump, respectively, between 4 and 7 fbg. One sample from each boring (depths ranging from 0.5 to 3 fbg) was also analyzed for CAM 17 metals. The detected metals concentrations generally appeared to be within the range of natural background levels with the exception of slightly elevated arsenic in a few samples. Arsenic was detected in the samples collected at 1 fbg from borings SB-3, SB-4, and SB-6 at 68 mg/kg, 46 mg/kg, and 130 mg/kg, respectively. As a result, deeper samples collected from borings SB-3 (6.5 fbg) and SB-6 (8 fbg) were also analyzed for arsenic; arsenic was not detected in the sample collected from SB-3, but was detected at 2.5 mg/kg in the sample collected from SB-6. Based on these results, the soil impacted with arsenic appeared to be of limited vertical extent. Three soil samples (SB-4-7', SB-5-6', and SB-8-7') were also analyzed for VOCs, which were not detected. Based on the soil analytical results, a shallow groundwater survey was recommended to evaluate if groundwater had been impacted by petroleum hydrocarbons.

In April 1995, Geomatrix collected grab-groundwater samples from 10 shallow borings (GWS-7 through GWS-16) drilled to depths of 15 to 21.5 fbg at the site. Borings GWS-7 through GWS-12 were located in the northeastern portion of the site adjacent to Alameda Canal to evaluate if impacted groundwater was flowing toward the canal; based on an assumed groundwater flow direction toward the canal. Borings GWS-13 through GWS-15 were located on the southwest and northwest property boundaries in the assumed upgradient and perimeter crossgradient directions to evaluate the quality of groundwater coming onto the site. Boring GWS-16 was located to the northeast of the former ASTs and was drilled approximately 6 feet deeper than the remaining borings to evaluate deeper groundwater quality. The groundwater samples were analyzed for TPHg, BTEX, and TPHd; the samples were filtered by the laboratory to remove turbidity and a silica-gel cleanup was performed to remove non-petroleum organic matter prior to the TPHd analysis. TPHg was detected in the samples collected from borings GWS-8 through GWS-11 and GWS-16 at concentrations ranging from 70 (GWS-16) to 22,000 micrograms per liter (µg/L) (GWS-9). TPHd was detected in the samples collected from borings GWS-8 through GWS-11 at concentrations ranging from 60 (GWS-8) to 1,200 µg/L (GWS-9). Benzene was detected in the samples collected from borings GWS-8 through GWS-10 and GWS-16 at concentrations of 36 µg/L, 6,200 µg/L, and 880 µg/L, respectively. Toluene, ethylbenzene, and xylenes (up to 1,200 µg/L) were also detected in several of the samples. The maximum concentrations were detected in boring GWS-9 located downgradient of the gasoline pump and loading rack. Petroleum hydrocarbons were not detected in the upgradient borings GWS-13 through GWS-15. The deeper sample (GWS-16) contained only low to trace hydrocarbon concentrations.

A black granular material was encountered in boring GWS-7 in the northern corner of the site from approximately 2.5 to 6 fbg. This material appeared similar to a small pile of black granular material observed on the northwestern property boundary that appeared to have originated from the adjacent property (a metal fabrication company). A sample of this material was collected and analyzed for TPHd, VOCs, semi-VOCs, and CAM 17 metals. An elevated concentration of copper (1,700 mg/kg) was detected in the sample. The detected concentration did not exceed the Total Threshold Limit Concentration (TTLC) of 2,500 mg/kg, which is the concentration above which a waste may be considered hazardous in California. The sample was also analyzed for soluble copper using the Waste Extraction Test (WET) method; which

was detected at 0.04 milligrams per liter (mg/L). The detected soluble lead concentration did not exceed the Soluble Threshold Limit Concentration (STLC) of 25 mg/L, which is also the concentration above which a waste may be considered hazardous in California. Details of this investigation were presented in the report titled *Soil Investigation and Shallow Groundwater Survey, Northwestern Portion of the Park Street Landing Site*, prepared by Geomatrix and dated September 1995.

1998 RBCA Tier 1 Evaluation

In July 1998, RRM, Inc. (RRM) performed a Tier 1 Risk-Based Corrective Action (RBCA) assessment to evaluate the potential health risks posed by residual petroleum hydrocarbons in soil and groundwater at the site. Based on the results, RRM recommended the collection of site-specific data to complete a Tier 2 RBCA evaluation; the identification of the beneficial uses of groundwater beneath the site; an evaluation of background water quality in Alameda Canal; and to provide evidence that biodegradation was reducing hydrocarbon concentrations. Details of this investigation were presented in the report entitled *Risk-Based Corrective Action (RBCA) Tier 1 Evaluation, Park Street Landing Site*, prepared by RRM and dated July 24, 1998.

1998 Soil and Groundwater Investigation

In October 1998, RRM performed an additional soil and groundwater investigation at the site. The purpose of the investigation was to

1) collect site-specific data to complete a Tier 2 RBCA evaluation; 2) identify the beneficial uses of groundwater beneath the site; 3) evaluate the background water quality in Alameda Canal; and 4) evaluate whether biodegradation of petroleum hydrocarbons was occurring beneath the site. Four additional borings (SB-9 through SB-12) were advanced to depths of 15 to 18 fbg during the investigation. A total of eight soil samples were collected at various depths from the borings and analyzed for TPHg, TPHd, BTEX, and methyl tertiary butyl ether (MTBE). TPHg was detected in the soil samples collected at 5 and 13 fbg from boring SB-9 (130 and 900 mg/kg, respectively); and in the sample collected at 6 fbg from boring SB-11 (140 mg/kg). TPHd was detected in the soil samples collected at 5, 13, and 15 fbg from boring SB-9 (3,300 mg/kg, 1,300 mg/kg, and 1.2 mg/kg, respectively); in the sample collected at 5.5 fbg from boring SB-10 (130 mg/kg); and in the sample collected at 6 fbg from boring SB-11 (60 mg/kg). BTEX (up to 3.3 mg/kg) were detected in the soil samples collected from borings SB-9 and SB-11; MTBE (using EPA Method 8020) was only detected in the sample collected at 13 fbg from boring SB-9 (12 mg/kg). Following the initial TPHd analysis, two rounds of silica gel cleanup followed by TPHd analysis were performed on the soil samples from boring SB-9. The detected TPHd concentrations were reduced after each round, indicating that biodegradation was occurring, and natural organic matter was present in the subsurface.

Grab-groundwater samples were collected from each boring and analyzed for TPHg, TPHd, BTEX, and MTBE. TPHg was only detected in the samples collected from borings SB-9 (14,000 µg/L) and SB-11 (310 µg/L). TPHd was detected in the samples collected from borings SB-9 (83,000 µg/L), SB-10 (97 µg/L), and SB-11 (270 µg/L). Benzene and MTBE (using

EPA Method 8020) were only detected in the sample collected from boring SB-9 (1,400 and 260 µg/L, respectively); the sample was re-analyzed for MTBE using EPA Method 8260, and MTBE was not detected. Toluene, ethylbenzene, and xylenes (up to 630 µg/L) were detected in the samples collected from borings SB-9 and SB-11. As with the soil samples, a silica-gel cleanup reduced the detected TPHd concentrations. Based on the depth to water in the borings, and the elevation of the borings, the groundwater flow direction was calculated to be northerly. Based on natural biodegradation indicator parameters in groundwater (dissolved oxygen, oxidation-reduction potential, nitrate, and sulfate), it appeared that petroleum hydrocarbons were being degraded both aerobically and anaerobically; although it appeared that anaerobic processes dominated.

Three grab-water samples (CS-1 through CS-3) were collected from Alameda Canal (Figure 2) and analyzed for TPHg, TPHd, BTEX, and MTBE; which were not detected. Water level measurements were collected from the Alameda Canal and the four temporary wells placed in borings SB-9 through SB-12 to evaluate potential tidal influence on groundwater beneath the site. The fluctuations in borings SB-10 through SB-12 were minimal indicating that groundwater was tidally influenced to a limited degree in these areas. A more significant fluctuation was observed in SB-9; suggesting that groundwater in this area was tidally influenced, and tidal fluctuations would tend to stabilize the petroleum hydrocarbon plume in this area. Two concrete sea walls separated shallow groundwater beneath the site from canal water; likely causing the limited tidal influence. Based on the site data, relevant beneficial uses, and associated water quality parameters, the most applicable beneficial use of groundwater beneath the site was determined to be freshwater replenishment to surface water.

A well survey was performed for a ½-mile radius around the site. Nine wells were identified within the search radius (one recovery well, one irrigation well, five extraction wells, and two industrial wells). All the wells were either located up-gradient of the site or across the Alameda Canal. Based on the results of the Tier 2 RBCA evaluation, soil and groundwater petroleum hydrocarbon concentrations at the site did not exceed the site-specific target levels (SSTLs). Details of this investigation were presented in the report entitled *Soil and Groundwater Investigation Results, Former Signal Oil Marine Terminal*, prepared by RRM and dated May 7, 1999.

2000 Monitoring Well Installation

In December 2000 Gettler-Ryan Inc., under the supervision of Delta Environmental Consultants, Inc. (Delta), installed one groundwater monitoring well (MW-1) along the northeastern portion of the site adjacent to the Alameda Canal. Soil samples were collected at depths of 5, 10, and 15 fbg from the well boring and analyzed for TPHg, TPHd, BTEX, and MTBE. TPHg was only detected in the sample collected at 10 fbg (320 mg/kg). TPHd was only detected in the samples collected at 5 and 10 fbg (30 and 160 mg/kg, respectively). Low concentrations of BTEX were detected in all the samples; MTBE was not detected in any of the samples. The initial groundwater sample collected from the well contained TPHg, TPHd, and benzene at 5,210 µg/L, 1,100 µg/L, and 868 µg/L, respectively. Details of this investigation were presented

in the report entitled *Monitoring Well Installation Report*, prepared by Delta and dated April 10, 2001.

2004 Soil Investigation

In January 2004, Cambria Environmental Technology, Inc. (Cambria) collected three surface soil samples (S1, S2, and S3) from the bank above the western shore of the Alameda Canal. Sample S2 was collected directly down-slope of well MW-1 near a water seep observed on the slope above the canal. Samples S1 and S3 were collected approximately 70 feet east and 90 feet north of well MW-1, respectively, to evaluate background concentrations. The three samples were analyzed for TPHg, TPHd, BTEX, and MTBE. TPHg, BTEX, and MTBE were not detected in any of the samples. TPHd was detected in samples S1, S2, and S3 at 14 mg/kg, 220 mg/kg, and 220 mg/kg, respectively. The laboratory chromatographs indicated that the hydrocarbon pattern observed in these soil samples was not typical of diesel fuel. Therefore, it was concluded the TPHd detections may have represented either highly-degraded diesel fuel from various historical onsite and nearby operations, or residual organic material of unknown origin present in local fill material. Details of this investigation were presented in the report entitled *Soil Sampling Report*, prepared by Cambria and dated February 18, 2004.

Based on generally decreasing petroleum hydrocarbon concentrations in well MW-1 observed during quarterly monitoring, Cambria submitted a case closure request to ACEH dated January 10, 2006. In response to this request, and in a letter dated October 17, 2007, the ACEH requested the collection of additional data to substantiate the conclusion that petroleum hydrocarbons were not migrating and discharging into Alameda Canal. In addition, the potential for vapor intrusion was to be evaluated. Therefore, CRA prepared and submitted *Soil Boring and Vapor Point Installation Work Plan*, dated January 10, 2008. In a letter dated January 30, 2008, the ACEH approved the work plan, with several provisions.

2008 Site Investigation

In July 2008, CRA advanced six soil borings (SB-13 through SB-15 and SB-17 through SB-19) to a maximum depth of 16 fbg, and installed and sampled six permanent soil vapor wells (VP-1 through VP-6) to depths of 4.5 to 6 fbg. Soil boring SB-16 was cleared to 3 fbg but could not be completed due to refusal encountered at three locations (16A, B, and C).
Soil boring SB-16 was cleared to 3 fbg but could not be completed due to refusal encountered at three locations (16A, B, and C).

Soil analytical data indicated that the majority of TPHd and TPHg concentrations in soil are generally located in the area of and downgradient of the former ASTs. The highest concentrations were detected in boring VP-4 at 5 fbg. Relatively low concentrations of TPHd and TPHg were detected in the perimeter borings. Low concentrations of petroleum-related VOCs were also detected in the majority of the soil samples. The BTEX and VOC concentrations generally did not exceed the ESLs, with the exception of a few samples. Concentrations generally appeared to attenuate or were significantly reduced at 10 fbg. Generally, concentrations of metals were consistent with background levels and only exceeded

the ESLs in a few of the samples. Metals in shallow soil across the northwest portion of the site do not appear to be a result of former bulk plant operations. The metals do not appear to have impacted groundwater as only barium was detected in well MW-1.

The highest concentrations of hydrocarbons in groundwater were generally located downgradient of the former ASTs. TPHd, TPHg, and benzene were detected in downgradient boring SB-18 at 19,000 µg/L, 3,800 µg/L, and 590 µg/L, respectively; but only at 1,600 µg/L, 650 µg/L, and 3 µg/L, respectively, in boring SB-19 adjacent to the former large AST. Only relatively low concentrations of TPHd (up to 750 µg/L) were detected in perimeter borings SB-13, SB-14, and SB-15; and as evidenced by the work performed by RRM, some or most of the detected TPHd may be due to natural organic matter. The extent of the impacted groundwater is well-defined by borings GWS-7, GWS-12 through GWS-15, SB-10 (following silica gel cleanup), and SB-12. Chlorinated solvents were not detected in any of the soil samples collected, and generally were not detected in the groundwater samples with the exception of low concentrations of TCE, cis-1,2-DCE, and vinyl chloride in the sample collected from boring SB-15 in the northeast corner of the site.

The highest hydrocarbon concentrations in soil gas were detected in vapor wells VP-4, VP-5, and VP-6 located in the area of the former ASTs. Significantly lower concentrations were detected in vapor wells VP-1 and VP-2 located downgradient of VP-4. Chlorinated solvents were not detected in the soil vapor samples. Additional details of this investigation are presented in CRA's report entitled *Site Investigation Report*, dated October 2008.

2009 Monitoring Well Installation and Sub-Slab Vapor Sampling

In June 2009, CRA installed monitoring wells MW-2 through MW-5 to total depths of 16 to 20.5 fbg in order to further evaluate groundwater quality beneath the site. The new monitoring wells were installed within the former ASTs (MW-3), and north (MW-5), south (MW-2), and east (MW-4) of the former ASTs. Soil analytical data indicated that the majority of TPHd and TPHg concentrations in soil are located north to south through the former ASTs and generally decreases with depth. The highest TPHd concentration detected was from well boring MW-3 at 4 fbg at a concentration of 610 mg/kg. The highest TPHg concentration detected was from well boring MW-2 at 4.5 fbg at 1,100 mg/kg. No petroleum hydrocarbons were detected in perimeter well boring MW-4. No grab-groundwater samples were collected.

CRA also installed sub-slab vapor points beneath the two western buildings at the site in order to further evaluate potential vapor intrusion beneath the buildings. Two sub-slab vapor points (VP-7 and VP-8) were installed inside 2317 Blanding Avenue and five sub-slab vapor points (VP-9 through VP-13) were installed inside 2307 Blanding Avenue. The highest hydrocarbon concentrations in soil gas were detected in vapor points VP-9 and VP-13, located west-southwest of the former ASTs. Lower concentrations were detected in vapor points VP-8, and VP-10 through VP-12. All detected concentrations were below the shallow soil gas ESL of 29,000 micrograms per cubic meter (µg/m^3). Target chlorinated solvents were not detected in the soil vapor samples. Additional details of this investigation are presented in CRA's *Well Installation and Sub-Slab Vapor Sampling Report*, dated September 8, 2009.

2009 Vapor Sampling

In October 2009, CRA re-install and re-sample sub-slab vapor points VP-9 through VP-13 due to ambient air leaks detected during the initial sampling and to further evaluate the elevated soil vapor concentrations detected in vapor wells VP-1 through VP-6. The results of the re-sampling of the vapor wells VP-1 through VP-5 located outside of the buildings were consistent with previous results for vapor wells VP-3 through VP-5. However, results of the re-sampling of vapor wells VP-1 and VP-2 indicated no TPHg or benzene vapor concentrations at each of these locations, which is not consistent with the initial sample results from August 2008. Additional details of this investigation are presented in CRA's *Vapor Sampling Report*, dated December 2, 2009.

2010 Well Installation

In August 2010, CRA replaced well MW-1 with a more discretely screened well, MW-1RB, and installed wells MW-1RA and MW-6 to depths between 13 to 20 fbg to further evaluate shallow groundwater near Alameda Canal. Well MW-1RA and MW-1RB are located in the vicinity of former well MW-1 and MW-6 is located downgradient of well MW-5. Soil analytical data indicated that minor hydrocarbon impact to soil remains in the vicinity of MW-1 and generally decreases with depth. The highest TPHd and TPHg concentrations detected were from well boring MW-1RA at 10 fbg at a concentration of 260 mg/kg and at 13.5 fbg at 490 mg/kg, respectively. Only trace concentrations of hydrocarbons were detected in well boring MW-6. No grab-groundwater were collected from the well boring as the wells will be incorporated into the site's monitoring and sampling program. Additional details of this investigation are presented in CRA's *Well Installation Report*, dated September 29, 2010.

APPENDIX C

BORING LOGS

Log of Boring No. SB1

PROJECT: PARK STREET LANDING Alameda, California	ELEVATION AND DATUM: Ground surface
BORING LOCATION:	DATE STARTED: 2/17/95 / DATE FINISHED: 2/17/95
DRILLING CONTRACTOR: Precision Sampling	TOTAL DEPTH: 10 feet bgs. / MEASURING POINT: Ground surface
DRILLING METHOD: Direct push	DEPTH TO WATER: FIRST --- / COMPL. --- / 24 HRS. --
DRILLING EQUIPMENT: XD 1	LOGGED BY: T. F. Wood
SAMPLING METHOD: Enviro Core System	RESPONSIBLE PROFESSIONAL: A. L. Spencer / REG. NO. RG 5713
HAMMER WEIGHT: --- / DROP: ---	

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
					Asphalt	
1					CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1); moist; 40% fine to medium sand; 40% fine to coarse subangular gravel; 20% medium plasticity fines; firm	
2						
3	SB1-3.0			7		
	SB1-3.5			7		
4					CLAYEY SAND (SC) Dark greenish gray (5BG 4/1); moist; 60-70% fine to medium sand; 30-40% medium plasticity fines; firm	
5	SB1-5.0			357		
	SB1-5.5			491		
6						
7						
8					Color change to dark gray (5Y 4/1); mottled with dark greenish gray (5BG 4/1)	
9	SB1-9.5			9		
	SB1-10.0			15		
10					Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB2

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/20/95

DATE FINISHED: 2/20/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 2

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
		core cut			Concrete - sidewalk	
1					POORLY GRADED SAND with CLAY AND GRAVEL (SP-SC) Dark brown (10YR 3/3); moist; 70% fine to medium sand (trace coarse sand); 20% fine to coarse angular gravel; 10% low to medium plasticity fines; loose	
2	SB2-2.0			0		
3	SB2-3.5			0		
4	SB2-4.0			0		
5					----------?----------?----------?---------- SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60-65% fines; 35-40% fine to medium sand; medium plasticity; firm	
6						
7	SB2-7.0			848		
8						
9	SB2-9.5			158		
10	SB2-10.0			178	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

2436.02.003

Geomatrix Consultants

Project No. 2436.02

Figure ---

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB3

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95

DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
					Asphalt	
1	SB3-1.0			7	CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1); dry; 40% fine to medium sand; 40% fine to coarse angular gravel; 20% medium plasticity fines; loose	
1	SB3-1.5			36		
2						
3						
4					SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60 -65% fines; 35-40% fine sand; medium plasticity; firm	
5						
6	SB3-6.5			244		
7	SB3-7.0			338		
8						
9					Mottled with dark gray (5Y 4/1)	
9	SB3-9.5			11		
10	SB3-10.0			19	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

2436.02.004

Geomatrix Consultants | Project No. 2436.02 | Figure ---

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB4

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95 | DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs | MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER | FIRST: --- | COMPL.: --- | 24 HRS.: --

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: --- | DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer | REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	REMARKS
					Surface Elevation:	
					Asphalt	
1	SB4-1.0			59	CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1) to dark yellowish brown (10YR 4/4); dry; 40% fine to coarse sand; 40% fine to coarse angular gravel; 20% medium plasticity fines; loose	
1	SB4-1.5			19		
2						
3						
4					SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60-65% fines; 35-40% fine sand; medium plasticity fines; firm	
5						
6	SB4-6.5			726		
7	SB4-7.0			1247	Black mottling	
8						
9	SB4-9.5			270		
10	SB4-10.0			111	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

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Geomatrix Consultants | Project No. 2436.02 | Figure ---

2436.02.005

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB5

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95

DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER: FIRST ---; COMPL. ---; 24 HRS. --

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	REMARKS
					Surface Elevation:	
					Asphalt	
1	SB5-1.0			532	POORLY GRADED SAND with CLAY AND GRAVEL (SP-SC) Dark yellowish brown (10YR4/4); dry, 60% fine to coarse sand;	
	SB5-1.5			1643	30% fine to coarse angular gravel; 10% medium plasticity fines; loose	
2						
3					Color change to dark brown (7.5YR 3/2)	Brick and plastic pieces present
4					CLAYEY SAND (SC) Black (2.5YR 2.5/0); moist; 60-65% fine sand; 35-40% medium plasticity fines; soft	
5	SB5-5.5			2350		
	SB5-6.0			1763		
6						
7					Color change to dark greenish gray (5BG 4/1)	
8						
9	SB5-9.5			86		
	SB5-10.0			240		
10					Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

2436.02.006

Geomatrix Consultants | Project No. 2436.02 | Figure ---

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB6

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95 | DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs | MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER | FIRST --- | COMPL. --- | 24 HRS. --

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: --- | DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer | REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	PID Reading (ppm)	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
					Asphalt	
1	SB6-1.0			26	CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1); dry; 40% fine to medium sand; 40% fine to coarse angular gravel; 20% medium plasticity fines; loose	
1	SB6-1.5			36		
2						
3						
4					SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60-65% fines; 35-40% fine sand; medium plasticity; firm	
5						
6						
7	SB6-7.0			248		
8	SB6-8.0			26		
9					Black mottling	
9	SB6-9.5			86		
10	SB6-10.0			32	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

Geomatrix Consultants | Project No. 2436.02 | Figure --

2436.02.007

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB7

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95 | DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs | MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER | FIRST: --- | COMPL.: --- | 24 HRS.: --

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: --- | DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer | REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	PID Reading (ppm)	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
0					Asphalt	
1	SB7-1.0			13		Poor recovery-- Unable to log
	SB7-1.5			3		
2					?	
3						Concrete in shoe
4	SB7-4.0			15		
5						
6					?	
7	SB7-7.0			17		
8						
9	SB7-9.5			94		
10	SB7-10.0			19	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

Geomatrix Consultants | Project No. 2436.02 | Figure ---

2436.02.008

Log of Boring No. SB8

PROJECT: PARK STREET LANDING Alameda, California	
BORING LOCATION: Approx. 15 feet N of North corner of trash house	ELEVATION AND DATUM: Ground surface
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 2/20/95 / DATE FINISHED: 2/20/95
DRILLING METHOD: Direct push	TOTAL DEPTH: 10 feet bgs / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD 2	DEPTH TO WATER: FIRST ---, COMPL. ---, 24 HRS. --
SAMPLING METHOD: Enviro Core System	LOGGED BY: T. F. Wood
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer / REG. NO. RG 5713

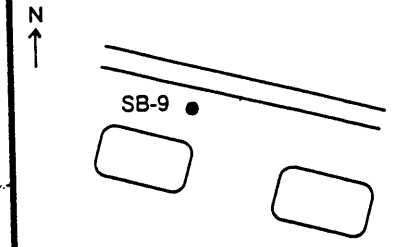
DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0	SB8-0.5			37	POORLY GRADED SAND with CLAY AND GRAVEL (SP-SC) Dark brown (10YR 3/3); moist; 70% fine to medium sand (trace coarse sand); 15-20% fine to coarse angular gravel; 10-15% low to medium plasticity fines; loose	Samples SB8-0.5 and SB8-1.0 collected from new hole approximately 1 foot north of SB8 due to poor recovery. New hole only 18 inches deep -- samples collected with split spoon
1	SB8-1.0			10		
2						
3						
4					? Increase in fine gravel to 40%; decrease in sand to 55% fine to coarse sand; decrease in fines to 5%	
5						
6	SB8-6.5			+9999		
7	SB8-7.0			974	? ? ? CLAYEY SAND (SC) Black (5Y 2.5/1); moist; 80-90% fine to medium sand; 10-20% medium plasticity fines; firm	Rock in shoe One 1 inch subrounded gravel at gradational contact
8						
9	SB8-9.5			451	SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60-70% fines; 30-40% fine sand; medium plasticity; firm	
10	SB8-10.0			463	Bottom of boring at 10 feet bgs at 10:40	
11						
12						
13						
14						

B-1 (11/92)

Geomatrix Consultants | Project No. 2436.02 | Figure ---

2436.02.009

WELL/BORING LOCATION MAP



REMEDIATION RISK MANAGEMENT, INC. | WELL/BORING:SB-9

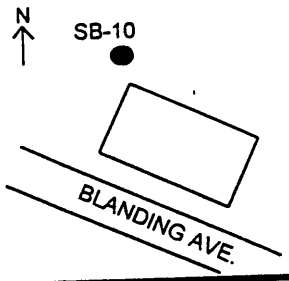
DATE:10/28/98	DRILLING METHOD:GEOPROBE
PROJECT:AA46	SAMPLING METHOD:CONTINUOUS CORE
CLIENT:CHEVRON	BORING DIAMETER:2"
LOCATION:BLANDING AVE.	BORING DEPTH:16'
CITY:ALAMEDA	WELL CASING:Temporary 1" sch 40 PVC
CO./STATE:ALAMEDA	WELL SCREEN:
DRILLER:ECA	SAND PACK:

WATER LEVEL:	6.59	6.60'	
TIME:	13:55	14:10	
DATE:	10/28/98	10/28/98	

DESCRIPTION/LOGGED BY:DR

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / ft.	FIELD TEST HNU	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	DESCRIPTION
CEMENTGROUT				P			2				Fill	0-3": Asphalt 3"-3':Fill Material; native clayey sandy soil with debris
			D			SB-9 4-5'	4				CL	3'-13.5':Sandy Clay; greenish gray; 80% low to moderate plasiticity clayey fines; 20% fine sand;roots common
		▼	D		162	SB-9 5-6'	6					
					137		8					
			M			SB-9 9-10.5'	10					
					287		12					@13': 40% fine sand
			M		323	SB-9 13-14'						
					158		14				SP	13.5-16': Sand; greenish gray; trace clayey silty fines; fine sand
			W		4.4		16					16': Bottom of Boring
							18					
							20					
							22					
							24					
							26					
							28					
							30					
							32					
							34					
							36					
							38					
							40					
							42					
							44					

WELL/BORING LOCATION MAP



REMEDIATION RISK MANAGEMENT, INC. | WELL/BORING:SB-10

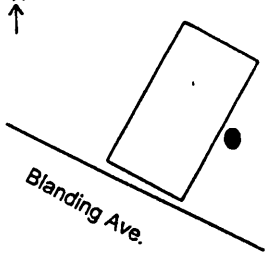
DATE:10/28/98	DRILLING METHOD:GEOPROBE
PROJECT:AA46	SAMPLING METHOD:CONTINUOUS CORE
CLIENT:CHEVRON	BORING DIAMETER:2"
LOCATION:BLANDING AVE.	BORING DEPTH:18'
CITY:ALAMEDA	WELL CASING:Temporary 1" sch 40 PVC
CO./STATE:ALAMEDA	WELL SCREEN:
DRILLER:ECA	SAND PACK:

WATER LEVEL:	9.60'		
TIME:	14:05		
DATE:	10/28/98		

DESCRIPTION/LOGGED BY:DR

WELL/BORING COMPLETION	FIRST ▽	STABILIZED ▼	MOISTURE	DENSITY BLOWS / ft.	FIELD TEST HNU	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	DESCRIPTION
CEMENTGROUT		▼	D	P		SB-10 3-4'	2				Fill	0-3":Asphalt;
							4					3"-3':fill is a siltiy to clayey sand; olive brown
			D			SB-10 5.5-6.5'	6				SC	3-7':Clayey Sand: dark brown; 20% clayey fines; 80% fine sand; organic matter; dark brown to black
					1.0		8					
			M		1.0	SB-10 6.5-7'	10				CL	7-14':Sandy Clay:dark brown; low plasticity clayey fines; 25% fine sand; roots common
			M				12					
					1.7		14					14-16': No Recovery
			W			SB-10 17-18'	16					16-18':Sand: greenish gray; trace fines; fine sand
					1.0		18				SP	18': Bottom of Boring
							20					
							22					
							24					
							26					
							28					
							30					
							32					
							34					
							36					
							38					
							40					
							42					
							44					

WELL/BORING LOCATION MAP



REMEDIATION RISK MANAGEMENT, INC. | WELL/BORING:SB-11

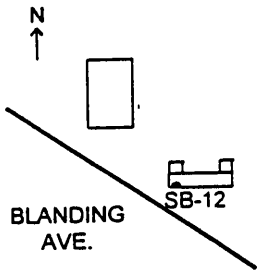
DATE:10/28/98	DRILLING METHOD:GEOPROBE
PROJECT:AA46	SAMPLING METHOD:CONTINUOS CORE
CLIENT:CHEVRON	BORING DIAMETER:2"
LOCATION:BLANDING AVE	BORING DEPTH:~15'
CITY:ALAMEDA	WELL CASING:Temporary 1" sch 40 PVC
CO./STATE:ALAMEDA	WELL SCREEN:
DRILLER:ECA	SAND PACK:

WATER LEVEL:	8.19'	7.57'	6.50'
TIME:	09:30	09:47	10:10
DATE:	10/28/98	10/28/98	10/28/98

DESCRIPTION/LOGGED BY:DR

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / ft.	FIELD TEST HNU	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	
CEMENTGROUT			D	p	16.8	SB-11 2.5-3.5'	2				Fill	0-3":Asphalt 3"-5.5':Fill: baserock-native-debris; silty to clayey sand; olive brown; 15% silty to clayey fines; 85% sand
			D				4					
		▼	M		0.3	SB-11 6-7'	6				CL	5.5-14': Sandy Clay: greenish gray; 85% moderate plasticity clayey fines; 15% sand; some iron-oxide staining as veinlets
						SB-11 7-8'	8					
			W		1.0	SB-11 10-11'	10					@11':Increase in sand content to 20-25%; fine sand
					0.3							@13':25% fine sand; occasional sand stringers and root holes
			W		0.3	SB-11 14-15'	12				SP	@14': Sand; greenish gray; trace clayey to silty fines; fine sand
							14					15': Bottom of Boring
							16					
							18					
							20					
							22					
							24					
							26					
							28					
							30					
							32					
							34					
							36					
							38					
							40					
							42					
							44					

WELL/BORING LOCATION MAP



REMEDIATION RISK MANAGEMENT, INC. | WELL/BORING:SB-12

DATE:10/28/98	DRILLING METHOD:GEOPROBE
PROJECT:AA46	SAMPLING METHOD:CONTINUOS CORE
CLIENT:CHEVRON	BORING DIAMETER:2"
LOCATION:BLANDING AVE.	BORING DEPTH:~15'
CITY:ALAMEDA	WELL CASING:Temporary 1" sch 40 PVC
CO./STATE:ALAMEDA	WELL SCREEN:
DRILLER:CA	SAND PACK:

WATER LEVEL:	4.63'		
TIME:	11:35		
DATE:	10/28/98		
DESCRIPTION/LOGGED BY:DR			

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / ft.	FIELD TEST HNU	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	
CEMENTGROUT			D	P		SB-12 2-3'	2				Fill	Planter Fill Top Soil; silty to clayey sand; olive brown
			M		1.0	SB-12 6-7'	4					
					1.0	SB-12 7-8'	6				CL	4-12.5':Sandy Clay: dark grayish brown; low plasticity 80% fines; 20% fine sand
			M		1.0		8					@9':Sandy Clay: olive yellow;; low plasticity 80% fines; 25% fine sand
			VM			SB-12 14-15'	10					@11':Sandy Clay: greenish gray; low plasticity 80% fines; 20% fine sand
					1.0		12				SC	12.5-14.5': Clayey Sand; greenish gray; 25% fines; 75% sand
							14				SP	14.5-15': Sand; greenish gray; trace fines
							16					15': Bottom of Boring
							18					
							20					
							22					
							24					
							26					
							28					
							30					
							32					
							34					
							36					
							38					
							40					
							42					
							44					

Conestoga Rovers & Associates
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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-13
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	15.0 fbg (08-Jul-08) ▽
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
43.2		SB-13 -1					**Silty SAND :**Dark brown; dry; 60% sand, 25% silt, 10% gravel, 5% clay; low plasticity.		
					SM				
249		SB-13 -5		5			**Silty SAND :**Greenish grey; moist; 50% sand, 30% silt, 10% sand, 10% gravel; medium plasticity.		
								9.0	Portland Type I/II
		SB-13 -10		10			**CLAY :** Greenish grey; moist; 55% clay, 30% silt, 15% sand; medium plasticity.		
					CL			13.0	
							Silty SAND : Greenish grey; wet; 65% sand, 20% silt, 15% sand; medium plasticity; poorly graded medium to fine grained sand.		
					SM		▽		
				15				16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-14
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	14.5 fbg (08-Jul-08)
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
2.0		SB-14 -1			SC		**Clayey SAND :**Dark brown; dry; 65% sand, 15% clay, 10% silt, 10% gravel; low plasticity.		
								4.0	
					SM		**Silty SAND:**Black; moist; 45% sand, 30% silt, 25% clay; low plasticity.		
1.6		SB-14 -5		5				5.5	
					CL		**CLAY:** Grey; moist; 55% clay, 30% silt, 15% sand (well-sorted fined grained); medium plasticity;		Portland Type I/II
		SB-14 -10		10				10.5	
					CL		**CLAY with sand:** Grey; moist; 55% clay, 30% silt, 15% sand; medium plasticity.	11.5	
					CL		**Sandy CLAY:**Brown; moist; 50% clay, 35% sand, 15% silt; medium plasticity.	13.0	
					SM		**Silty SAND:**Brown with grey mottling; moist 55% sand, 30% silt, 10% clay; low plasticity.		
							▽	14.5	
				15	SM		**Silty SAND:**Brown; wet; 75% sand, 15% silt, 10% clay; low plasticity.		
								16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-15
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	15.0 fbg (08-Jul-08) ▽
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
0		SB-15 -1			SM		**Silty SAND :**Dark brown; moist; 65% sand, 20% silt, 15% clay, 5% gravel; low plasticity.		
								4.0	
0.4		SB-15 -5		5	SC		**Clayey SAND:**Black; moist; 60% sand, 20% clay, 10% silt, 10% gravel; low plasticity. **Clayey SAND:**Dark brown; moist; 60% sand, 20% clay, 10% silt, 10% gravel; low plasticity.		
52.1		SB-15 -9.5		10	CL		**CLAY with sand:** Green; moist; 45% clay, 30% sand, 20% silt, 5% gravel; medium plasticity.	9.5	Portland Type I/II
				15	SM		**Silty SAND:**Greenish grey; wet; 55% sand (medium to fine grained), 30% silt, 10% clay; low plasticity. ▽	14.5	
								16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-16
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	J. Kiernan, PE# C68498	**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
					SM		**Silty SAND:** Brown; dry; 50% sand, 20 gravel, 20% silt, 10% clay; low plasticity.	3.0	
							Refusal at 3 feet.		Bottom of Boring @ 3 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--1\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-17
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
1.7		SB-17 -1			SM		**Silty SAND :**Grey; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity.	4.0	
122		SB-17 -5		5	SC		**Clayey SAND:**Black; moist; 55% sand, 20% clay, 15% silt, 10% gravel (coarse angular); low plasticity.	6.0	
		SB-17 -9.5		10	CL		**CLAY with sand:** Greenish grey; moist; 45% 5 clay, 25% silt, 20% sand; medium plasticity.	10.5	Portland Type I/II
				15	SM		**Silty SAND:**Greenish grey; moist 55% sand (medium to fine grained), 30% silt, 10% clay; low plasticity.	16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-18
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	14.5 fbg (08-Jul-08)
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
56.3		SB-18 -1			SM		**Silty SAND :**Grey; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity.		
								4.0	
					SC		**Clayey SAND:**Black; moist; 55% sand, 20% clay, 15% silt, 10% gravel (coarse angular); low plasticity.		
114		SB-18 -5		5				6.0	
					CL		**CLAY with sand:** Grey with green mottling; moist; 45% clay, 30% sand, 20% silt, 5% gravel; medium plasticity.		Portland Type I/II
		SB-18 -9.5		10				10.5	
					SM		**Silty SAND:**Greenish grey; moist 55% sand (medium to fine grained), 30% silt, 10% clay; low plasticity.		
							Brown with grey mottling; moist 55% sand, 30% silt, 10% clay; low plasticity.		
				15			Brown; wet; 75% sand, 15% silt, 10% clay; low plasticity.	16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

Conestoga Rovers & Associates
10969 Trade Center Drive, Suite 107
Rancho Cordova, CA
Telephone: 916-889-8900
Fax: 916-889-8999

BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-19
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	14.5 fbg (08-Jul-08)
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
362		SB-19 -1			SM		**Silty SAND :**Dark brown; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity; conrete fragements. Brown; wet; 75% sand, 15% silt, 10% clay; low plasticity.		
1,373		SB-19 -5		5			Black; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity. Grey; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity. Greenish grey; moist; 70% sand, 20% silt, 10% clay; low plasticity.	7.0	
		SB-19 -10		10	CL		**CLAY with sand:** Greenish grey with balck mottling; moist; 45% clay, 30% sand, 25% silt; medium plasticity.		Portland Type I/II
				15	SM		**Silty SAND:**Greenish grey; wet; 65% sand (poorly graded), 20% silt, 15% clay; low plasticity.	14.0 16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-7A

BORING LOCATION: Northwest corner by canal

ELEVATION AND DATUM: Gravel sidewalk

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/24/95

DATE FINISHED: ---

DRILLING METHOD: Direct push

TOTAL DEPTH: 6 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
0					Gravel sidewalk	
1						
2					CLAYEY SAND (SC) Very dark grayish brown (10Y 3/2), dry, 60% medium sand, 30% low plasticity fines, 10% small gravel, loose	
3					Gray concrete and brick fragments	
4					GRANULAR MATERIAL Black (7.5YR 2.5/1), moist, 60% fine to medium grains, 35% low plasticity fines, 5% small gravel, loose	
5						
6					Refusal at 6 feet bgs	
7						
8						
9						
10						
11						
12						
13						
14						

PROJECT: PARK STREET LANDING Alameda, California	**Log of Boring No. GWS-7B**
BORING LOCATION: Northwest corner by canal	ELEVATION AND DATUM: Gravel sidewalk
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95 / DATE FINISHED: ---
DRILLING METHOD: Direct push	TOTAL DEPTH: 6 feet / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER: FIRST ---, COMPL. ---, 24 HRS. --
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer / REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					Gravel sidewalk	
1						
2					CLAYEY SAND (SC) Very dark grayish brown (10Y 3/2), dry, 60% medium sand, 30% low plasticity fines, 10% small gravel, loose	
3					Gray concrete / brick	
4					GRANULAR MATERIAL Black (7.5YR 2.5/1), moist, 60% fine to medium grains, 35% low plasticity fines, 5% small gravel, loose	
5	GWS7 5'					
6					Refusal at 6 feet bgs	
7						
8						
9						
10						
11						
12						
13						
14						

PROJECT: PARK STREET LANDING Alameda, California	**Log of Boring No. GWS-7**	
BORING LOCATION: Northwest corner of property	ELEVATION AND DATUM: Gravel sidewalk	
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95	DATE FINISHED: 4/24/95 1000 hrs.
DRILLING METHOD: Direct push	TOTAL DEPTH: 15 feet	MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER bgs: FIRST 9 feet; COMPL. 9.6 feet; 24 HRS. --	
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich	
HAMMER WEIGHT: --- DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer	REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					CLAYEY SAND (SC) Very dark grayish brown (10YR 3/2), dry, 60% medium sand, 30% low plasticity fines, 10% small gravel, loose	
3					GRANULAR MATERIAL Black (7.5YR 2.5/1), loose, dry	
4					CLAYEY SAND (SC) Light olive brown (2.5Y 5/3), dry, 60% fine to medium sand, 35% low plasticity fines, 5% small gravel, loose	
6					CLAYEY SAND (SC) Light olive brown (2.5Y 5/3) with brick fragments, moist, 60% fine sand, 35% low plasticity fines, 5% small gravel, loose	
8					LEAN CLAY with SAND (CL) Black (10YR 2/1), moist, 80% fines, 20% sand, low plasticity, soft	
10					▽	
11					1-inch lense of coarse gravel	
12					LEAN CLAY (CL) Black (10YR 4/1), wet, 95% fines, 5% sand, high plasticity, hard	
13					LEAN CLAY (CL) Greenish gray gley (5G 5/1), moist, 95% fines, 5% sand, medium plasticity	
14						

2436.02.016	Geomatrix Consultants	Project No. 2436.02	Figure ---

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-7 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					LEAN CLAY (CL) (continued) Orange mottling Bottom of boring at 15 feet bgs	
16						
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PROJECT: PARK STREET LANDING Alameda, California			**Log of Boring No. GWS-8**
BORING LOCATION: Sidewalk, northwest corner		ELEVATION AND DATUM: Grassy area	
DRILLING CONTRACTOR: Precision Sampling		DATE STARTED: 4/24/95	DATE FINISHED: 4/24/95 - 1130 hrs
DRILLING METHOD: Direct push		TOTAL DEPTH: 16 feet	MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD-3		DEPTH TO WATER: FIRST ---; COMPL. 9' 0"; 24 HRS. --	
SAMPLING METHOD: Enviro Core System		LOGGED BY: S. L. Anich	
HAMMER WEIGHT: ---	DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer	REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0						No recovery in upper 2 feet
2					CLAYEY SAND (SC) Very dark gray (10YR 3/1) with abundant organics (roots, grass), moist, 65% medium sand, 25% low plasticity fines, 10% fine to coarse gravel, loose	
6					Increased sand content to 80%, 20% low plasticity fines	
7.5					LEAN CLAY with SAND (CL) Black (10YR 2/1), moist, 75% fines, 25% fine sand, low plasticity	
9					LEAN CLAY (CL) Greenish gray (10GY 5/1), moist, 95% fines, 5% fine sand, low plasticity	
12						
14						

2436.02.018	Geomatrix Consultants	Project No. 2436.02	Figure ---

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-8 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM - Reading	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					LEAN CLAY (CL) (continued) Increase sand content to 20%	
16					CLAYEY SAND (SC) Light olive brown (2.5Y 5/4) with green and brown mottling, moist, 60% fine sand, 40% low plasticity fines Bottom of boring at 16 feet bgs	
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PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-9

BORING LOCATION: Along canal - middle	ELEVATION AND DATUM: Sidewalk (gravel)		
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95	DATE FINISHED: 4/24/95 - 1330 hrs	
DRILLING METHOD: Direct push	TOTAL DEPTH: 16 feet	MEASURING POINT: Ground surface	
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER: FIRST ---	COMPL. ---	24 HRS. --
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich		
HAMMER WEIGHT: --- DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer	REG. NO. RG 5713	

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						No recovery in upper 3 feet
2						
3					SANDY LEAN CLAY with GRAVEL (CL) Very dark gray (10YR 3/1), dry, 60% fines, 25% fine to medium sand, 15% medium gravel, low plasticity	
4					CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1), calcium deposits, dry, 60% fine to medium sand, 25% low plasticity fines, 15% fine gravel, loose	
5						
6					Increase sand content to 80% ▽	
7					LEAN CLAY with SAND (CL) Black (10YR 2/1), moist, 85% fines, 15% fine sand, low plasticity	
8					Increase sand content to 30%	
9					LEAN CLAY (CL) Greenish gray (10GY 5/1), moist, 95% fines, 5% fine sand, low plasticity	
10					Orange mottling	
11						
12						
13					Increase sand content to 30%	
14						

Geomatrix Consultants | Project No. 2436.02 | Figure ---

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-9 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					LEAN CLAY (CL) (continued)	
16					CLAYEY SAND (SC) Greenish gray (10Y 5/1) with orange mottling, moist, 60% fine sand, 40% low plasticity fines	
17					Bottom of boring at 16 feet bgs	
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B-2 (11/92)

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-10

BORING LOCATION: Along canal - middle

ELEVATION AND DATUM: Gravel sidewalk

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/24/95

DATE FINISHED: 4/24/95 - 1430 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 16 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						No recovery in upper 2 feet
2					CLAYEY SAND (SC) Very dark gray (10YR 3/1), moist, 70% fine sand, 25% low plasticity fines, 5% fine to coarse subangular gravel	
3						
4						
5					Increase gravel content to 15%	
6				>1200		
7					SANDY LEAN CLAY (CL) Black (5Y 2.5/1), moist, 60-70% fines, 30-40% fine to coarse sand, low plasticity, soft	
8					Increase moisture	
9					LEAN CLAY (CL) Dark greenish gray (5G 4/1), moderate amount yellow to brown organics, moist, 80-90% fines, 10-20% fine to coarse sand, trace fine gravel, low plasticity, firm	
10						
11					Organics and orange mottling	
12						
13						
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-10 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15				>1200	LEAN CLAY (CL) (continued)	
16					POORLY GRADED SAND WITH CLAY (SP - SC) Gray (N5/), moist, 90% fine to medium sand, 10% low plasticity fines, loose Bottom of boring at 16 feet bgs	
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23						
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26						
27						
28						
29						
30						
31						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-11

BORING LOCATION: Along canal - southeast side

ELEVATION AND DATUM: Gravel sidewalk

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/24/95

DATE FINISHED: 4/24/95 - 1530 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 16 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					GRAVEL SIDEWALK	No recovery in upper 1 1/2 feet
1						
2					SANDY LEAN CLAY (CL) Very dark grayish brown (10YR 3/2), moist, 60% fines, 30% fine to coarse sand, 10% subangular gravel, low plasticity, soft	
3					Increase organic content, wood fragments	
4						
5				1300		
6					LEAN CLAY with SAND (CL) Black (10YR 2/1) with tan mottling, moist, 85% fines, 15% fine to coarse sand, trace fine to coarse gravel, low plasticity, medium hard	
7				50		
8					LEAN CLAY (CL) Bluish gray (10B 6/1), moist, 90% fines, 10% medium to coarse sand, low plasticity, firm	
9						
10					Color change to pale olive with green and orange mottling	
11				50		
12					Increase sand content to 25%	
13						
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-11 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15				100	SANDY LEAN CLAY (CL) Greenish gray (10Y 5/1), moist, 60% fines, 40% fine to coarse sand, low plasticity, firm	
16					CLAYEY SAND (SC) Dark bluish gray (10B 4/1), moist, 70% fine to coarse sand, 30% low plasticity fines, dense	
17					Bottom of boring at 16 feet bgs	
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PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-12

BORING LOCATION: Along canal - southeast side	ELEVATION AND DATUM: Gravel sidewalk		
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95	DATE FINISHED: 4/24/95 - 1630 hrs	
DRILLING METHOD: Direct push	TOTAL DEPTH: 16 feet	MEASURING POINT: Ground surface	
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER	FIRST: ---	COMPL.: --- / 24 HRS.: --
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich		
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer	REG. NO. RG 5713	

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						No recovery in upper 2 1/2 feet
2						
3					CLAYEY SAND (SC) Dark gray (7.5YR 4/1), moist, 70% fine to coarse sand, 25% low plasticity fines, 5% rounded and subangular gravel, medium density, glass fragments	
4					Increase in low plasticity fines to 30%	
5					White "chalky" mottling or inclusions	
6					WELL-GRADED SAND (SW) Light olive brown (2.5Y 5/3), moist, 95% fine to coarse sand, 5% low plasticity fines, loose	
7				700		
8						
9					Color change to very dark gray (2.5Y 3/1), increase low plasticity fines to 20%	
10						
11				50	LEAN CLAY with SAND (CL) Olive (5Y 5/4) with green mottling, moist, 85% fines, 15% fine to medium sand, low plasticity , soft	
12					Increase sand content to 30% with orange mottling	
13					CLAYEY SAND (SC) Olive (5Y 5/4) with green and orange mottling, very moist, 65% fine to coarse sand, 35% low plasticity fines	
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-12 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					CLAYEY SAND (SC) (continued) Increase sand content to 80% and color change to greenish gray (10GY 5/1)	
16					Bottom of boring at 16 feet bgs	
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29						
30						
31						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-13

BORING LOCATION: Along Blanding Ave., N side of driveway, next to bldg

ELEVATION AND DATUM: Vegetated area

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/25/95

DATE FINISHED: 4/25/95 - 1045 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 16 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER | FIRST: --- | COMPL.: --- | 24 HRS.: --

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: --- | DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer | REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						Did not encounter petroleum-like odors; however, PID readings were measured. No recovery in upper 2 1/2 feet.
2					CLAYEY SAND (SC) Black (2.5Y 2.5/1), orange organic nodules, very moist, 60-70% fine to coarse sand, 30-40% low plasticity fines, loose	
3					Color change to olive brown (2.5Y 4/3)	
4					LEAN CLAY (CL) Dark grayish brown (2.5Y 4/2), organic nodules (roots, black nodules), moist, 80-90% fines, 10-20% fine to medium sand, low plasticity, firm	
5					Gravel content to 5% (medium, angular)	
6				162	CLAYEY SAND (SC) Dark greenish gray (10GY 4/1), moist, 70% fine to coarse sand, 30% low plasticity fines, dense	
7					ATD ▽	
8				120	CLAYEY SILT (ML) Greenish gray (5GY 5/1), moist, 90-95% fines, 5-10% fine to medium sand, low plasticity, firm	
9				120		
10				170	Orange mottling and organic nodules, increasing clay content	
11				190		
12				380	CLAYEY SAND (SC) Dark greenish gray (10Y 4/1), moist, 60 % fine to coarse sand, 40% low plasticity fines, including 10% silt, medium dense	
13					LEAN CLAY (CL) Olive gray (5Y 4/2), moist, 80% fines, 20% fine to coarse sand, low plasticity	
14				650		

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-13 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					WELL-GRADED SAND with CLAY (SW-SC) Dark greenish gray (10GY 4/1), moist, 90% fine to coarse sand, 40% low plasticity fines, loose Color change to olive brown (2.5Y 4/4)	
16					Bottom of boring at 16 feet bgs	
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B-2 (11/92)

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-14

BORING LOCATION: Along Blanding Ave., south side of driveway

ELEVATION AND DATUM: Vegetated area

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/25/95

DATE FINISHED: 4/25/95 - 930 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 16 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
1						Did not encounter petroleum-like odors; however, PID readings were measured. No recovery in upper 2 1/2 feet.
2						
3					CLAYEY SAND (SC) Reddish black (10R 2.5/1), moist, 60-70% fine to coarse sand, 30-40% low plasticity fines, loose	
4					Increased sand content to 80-85%, color change to brown (10YR 5/3)	
				80		
5					SANDY LEAN CLAY (CL) Light yellowish brown (2.5Y 6/4), moist, 60% fines, 30% fine to coarse sand, 10% fine gravel, low plasticity, firm	
6						
7					Color change to pale olive (5Y 6/4)), increase fines to 75%	
8					CLAYEY SAND (SC) Greenish gray (5G 5/1) with orange mottling and black organic pockets, moist, 60-70% fine to coarse sand, 30-40% low plasticity fines, medium dense to dense	
9				160		
10				271	LEAN CLAY with SAND (CL) Olive (5Y 5/3) with orange mottling and black organic pockets (some roots), moist, 80% fines (including silt), 20% fine to medium sand, low plasticity, firm	
11					▽	
12				600	CLAYEY SAND (SC) Olive (5Y 5/6) with orange and black mottling, very moist, 60-70% fine to coarse sand, 30-40% low plasticity fines, medium dense	
13						
14				25		

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-14 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					SANDY LEAN CLAY (CL) Dark greenish gray (5G 3/1), moist, 70% fines, 30% fine to coarse sand, low plasticity, dense	
16					WELL-GRADED SAND with CLAY (SW-SC) Olive (5Y 4/3), moist, 90% fine to coarse sand, 10% low plasticity fines, loose	
17					Bottom of boring at 16 feet bgs	
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

PROJECT: PARK STREET LANDING Alameda, California	**Log of Boring No. GWS-15**
BORING LOCATION: North side of property--driveway	ELEVATION AND DATUM: Asphalt driveway
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/25/95 / DATE FINISHED: 4/25/95 - 1200 hrs
DRILLING METHOD: Direct push	TOTAL DEPTH: 16 feet / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER: FIRST ---, COMPL. ---, 24 HRS. --
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer / REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						No recovery in upper 2 1/2 feet
2						
3				300	GRAVEL CLAYEY SAND (SC) Very dark grayish brown (10YR 3/2), moist, 70-80% fine to coarse sand, 20-30% low plasticity fines, loose	
4						
5				8700	LEAN CLAY with SAND (CL) Black (10YR 2/1), some orange organic nodules, moist, 60-70% fines (5-10% silt), 30-40% fine to coarse sand, low plasticity, soft	
6				250		
7					CLAYEY SAND (SC) Dark yellowish brown (10YR 4/4), moist to very moist, 75-85% fine to coarse sand, 15-25% low plasticity fines, loose to medium dense	
8				50	SANDY LEAN CLAY (CL) Olive (5Y 5/3), moist, 70% fines, 30% fine to coarse sand, low plasticity, firm	
9				122	Decreasing sand content to 20%	
10					Black organic nodules, greenish gray (5G 5/1) pockets, orange mottling	
11				200		
12				+9000		
13					Increasing sand content to 30-40%, color change to yellowish brown (10YR 5/6)	
14				1200		

B-1 (11/92)

2436.02.032	Geomatrix Consultants	Project No. 2436.02	Figure ---

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-15 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	REMARKS
15			470		SANDY LEAN CLAY (CL) (Continued) CLAYEY SAND (SC) Light olive brown (2.5Y 5/4) black organic nodules, green mottling, moist, 60% fine to coarse sand, 40% low plasticity fines, soft to firm,	
16					Increase sand content to 70-80% Bottom of boring at 16 feet bgs	
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

B-2 (11/92)

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-16

BORING LOCATION: Main driveway

ELEVATION AND DATUM: Asphalt driveway

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/25/95

DATE FINISHED: 4/25/95 - 1415 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 21.5 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						No recovery in upper 2 1/2 feet
2					GRAVEL	
3				1000	CLAYEY SAND (SC) Black (7.5YR 2.5/1), moist, 70% fine to coarse sand, 30% low plasticity fines, loose to medium dense	
4					Increased sand content to 80%	
5						
6				200	SANDY LEAN CLAY (CL) Dark greenish gray (5GY 4/1), moist, 60-70 % fines, 30-40% fine to coarse sand, low plasticity, medium hard	
7						
8						
9					Orange organic nodules	
10					LEAN CLAY with SAND (CL) Olive (5Y 5/4), with green and orange mottling, moist, 70-80% fines, 20-30% fine to coarse sand, low plasticity, hard	
11				14		
12					WELL-GRADED SAND with CLAY (SW-SC) Greenish gray (5G 5/1), moist, 85-90% fine to coarse sand, 10-15% low plasticity fines, loose to medium dense	
13				8		
14						

B-1 (11/92)

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-16 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					WELL-GRADED SAND with CLAY (SW-SC) (Continued) Increase sand content to 90-95%	
16						
17					Color change to olive (5Y 4/3)	
18						
19					Orange mottling	
20						
21						
22					Bottom of boring at 21.5 feet bgs	
23						
24						
25						
26						
27						
28						
29						
30						
31						

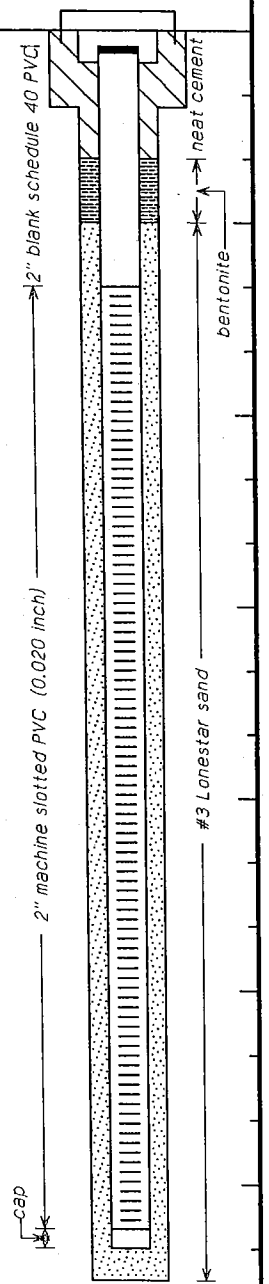
Gettler-Ryan, Inc.

Log of Boring MW-1

PROJECT: *Former Chevron Service Station No. 20-6127*	LOCATION: *2801-2337 Blanding Avenue, Alameda, CA*
GR PROJECT NO. : *346498.03*	CASING ELEVATION: *10.62 Ft. (MSL)*
DATE STARTED: *12/29/00*	WL (ft. bgs): *17* DATE: *12/29/00* TIME: *16:50*
DATE FINISHED: *12/29/00*	WL (ft. bgs): *8* DATE: *12/30/00* TIME: *11:00*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *19.5 feet*
DRILLING COMPANY: *Gregg Drilling*	GEOLOGIST: *Andrew Smith*

DEPTH (feet)	PID (ppm)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						Native material.
					CL	CLAY WITH SAND (CL) - very dark brown (7.5YR 2.5/2), moist, soft; 85% clay, 15% fine sand.
3						Trace of coarse gravel.
	57	MW-1-5				Concrete fragments at 4.5 feet.
6					SC	CLAYEY SAND (SC) - dark brown (7.5YR 3/2), moist, very loose; 75% fine to medium sand, 15% clay, 10% silt.
9	98	MW-1-10				
12					SP	POORLY GRADED SAND (SP) - blueish gray (Gley 5B6/1), moist, very loose; 95% fine to medium sand, 5% silt.
15	118	MW-1-15				Color changes to black (7.5YR, N 2/0) at 14.5 feet. Color changes to blueish gray (Gley 5B6/1) at 15 feet.
18	109	MW-1-19				Saturated at 17.5 feet.
21						Bottom of boring at 19.5 feet bgs.

WELL DIAGRAM



JOB NUMBER: *346498.03*

Conestoga-Rovers & Associates
2000 Opportunity Drive, Suite 110
Roseville, CA
Telephone: (916) 677-3407
Fax: (916) 677-3687

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-2
JOB/SITE NAME	Former Signal Oil Bulk Plant 20-6127	**DRILLING STARTED**	18-Jun-09
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	19-Jun-09
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	30-Jun-09
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	10.87 ft above msl
DRILLING METHOD	Direct Push / Hollow-Stem Auger	**TOP OF CASING ELEVATION**	10.63 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	10.5 to 15.5 fbg
LOGGED BY	E. Namba	**DEPTH TO WATER (First Encountered)**	11.5 fbg (18-Jun-09)
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	4.0 fbg (19-Jun-09)
REMARKS	Cleared to 8 fbg with air-knife		

PID (ppm)	SAMPLE ID	DEPTH (fbg)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)
				Asphalt	0.5
0.0			SM	**Silty SAND with gravel:** Brown; dry	
				▼	4.0
189	MW-2- 4.5		ML	**Sandy SILT:** Grey; dry	5.0
		5	SM	**Silty SAND:** Greyish green; dry	7.0
0.0	MW-2- 7.5		ML	**Sandy SILT with clay:** Greyish green with brown; dry; moderate plasticity	
0.0	MW-2- 8.5			Grey staining observed	
		10		Less grey staining observed	
0.0				▽	11.5
0.0			SM	**Silty SAND with clay:** Grey; wet; fine grain; grey staining observed; decreasing clay content with depth	
0.0	MW-2- 13				
		15			
0.0	MW-2- 15.5				16.0

WELL DIAGRAM

- Portland Type I/II
- 2" diam., Schedule 40 PVC
- Bentonite Seal
- Monterey Sand #2/12
- 2"-diam., 0.020" Slotted Schedule 40 PVC
- Bottom of Boring @ 16 fbg

WELL LOG (PID) C:\DOCUMENTS AND SETTINGS\NALLEN\DESKTOP\631916-GINT.GPJ DEFAULT.GDT 8/26/09

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-3
JOB/SITE NAME	Former Signal Oil Bulk Plant 20-6127	**DRILLING STARTED**	18-Jun-09
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	19-Jun-09
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	30-Jun-09
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	11.08 ft above msl
DRILLING METHOD	Direct Push / Hollow-Stem Auger	**TOP OF CASING ELEVATION**	10.72 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	13.5 to 18.5 fbg
LOGGED BY	E. Namba	**DEPTH TO WATER (First Encountered)**	8.5 fbg (18-Jun-09)
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	4.8 fbg (19-Jun-09)
REMARKS	Cleared to 8 fbg with air-knife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	
					SM		**Silty SAND**: Dark brown; dry		
206		MW-3- 4		5					
								6.0	Portland Type I/II
141		MW-3- 6					**Sandy SILT**: Grayish green; dry; moderate plasticity		
							Clayey SILT Moist; moderate to high plasticity		2" diam., Schedule 40 PVC
12		MW-3- 8.5					Wet at 8.5 fbg		
				10	ML				
0.0									Bentonite Seal
								14.0	Monterey Sand #2/12
				15			**Silty SAND**: Grayish green; wet		
0.0		MW-3- 15.5			SM				2"-diam., 0.020" Slotted Schedule 40 PVC
							Decreasing silt content with depth. Brown at 17 fbg		
0.0		MW-3- 18						18.5	Bottom of Boring @ 18.5 fbg

WELL LOG (PID) C:\DOCUMENTS AND SETTINGS\NALLEN\DESKTOP\631916-GINT.GPJ DEFAULT.GDT 8/26/09

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-4
JOB/SITE NAME	Former Signal Oil Bulk Plant 20-6127	**DRILLING STARTED**	18-Jun-09
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	19-Jun-09
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	30-Jun-09
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	11.65 ft above msl
DRILLING METHOD	Direct Push / Hollow-Stem Auger	**TOP OF CASING ELEVATION**	11.40 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	15.5 to 20.5 fbg
LOGGED BY	E. Namba	**DEPTH TO WATER (First Encountered)**	17.0 fbg (18-Jun-09)
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	6.8 fbg (19-Jun-09)
REMARKS	Cleared to 8 fbg with air-knife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Portland Type I/II
							Gravelly SILT: Brown; dry; low to moderate plasticity; coarse		
0.0		MW-4- 5		5	ML		**Sandy SILT:** Dark brown; damp		
0.0							**Clayey SILT with sand:** Light green to brown; moderate plasticity Slight grey staining		2" diam., Schedule 40 PVC
0.0		MW-4- 10		10			Light brown with some light green; iron oxide staining		
								14.0	Bentonite Seal
							Silty SAND: Light green to light brown; damp; fine grain		Monterey Sand #2/12
0.0		MW-4- 15		15	SM		Wet; decreasing silt content with depth		
0.0		MW-4- 19.5		20			Greyish brown		2"-diam., 0.020" Slotted Schedule 40 PVC
								20.5	Bottom of Boring @ 20.5 fbg

WELL LOG (PID) C:\DOCUMENTS AND SETTINGS\NALLEN\DESKTOP\631916-GINT.GPJ DEFAULT.GDT 8/26/09

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-5
JOB/SITE NAME	Former Signal Oil Bulk Plant 20-6127	**DRILLING STARTED**	23-Jun-09
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	23-Jun-09
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	30-Jun-09
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	11.01 ft above msl
DRILLING METHOD	Direct Push / Hollow-Stem Auger	**TOP OF CASING ELEVATION**	10.50 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	13 to 18 fbg
LOGGED BY	E. Namba	**DEPTH TO WATER (First Encountered)**	14.0 fbg (18-Jun-09)
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	5.9 fbg (23-Jun-09)
REMARKS	Cleared to 8 fbg with air-knife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	
				5			**FILL:** Silty Gravel; coarse; dark brown; dry; bricks and debris		Portland Type I/II
404		MW-5- 7					**Sandy CLAY:** Greenish grey; dry; moderate to high plasticity; fine grain Moist	7.0	2" diam., Schedule 40 PVC
78.1 98.4		MW-5- 10.5		10	CL				Bentonite Seal
12.8		MW-5- 14		15	SM		**Silty SAND:** Greenish grey; wet	14.0	Monterey Sand #2/12
3.4		MW-5- 17.5					Decreasing silt content with depth	18.0	2"-diam., 0.020" Slotted Schedule 40 PVC Bottom of Boring @ 18 fbg

WELL LOG (PID) C:\DOCUMENTS AND SETTINGS\NALLEN\DESKTOP\631916-GINT.GPJ DEFAULT.GDT 8/26/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-1RA
JOB/SITE NAME	Former Signal Oil Bulk Plant (Chevron 20-6127)	**DRILLING STARTED**	04-Aug-10
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	04-Aug-10
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Penecore	**GROUND SURFACE ELEVATION**	13.68 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	13.02 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVALS**	8 to 13 fbg
LOGGED BY	B. Yifru	**DEPTH TO WATER (First Encountered)**	8.0 fbg (04-Aug-10) ▽
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Cleared to 8 fbg with Air Knife		

PID (ppm)	SAMPLE ID	DEPTH (fbg)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)
		0		**FILL:** concrete fragments and debris; brown; moist	
1,149		5		**Sandy SILT with clay:** dark grey; moist; low plasticity; fine sand ▽	7.5
816	MW-1R A -S-10	10	ML	@ 8 fbg: wet @ 10 fbg: greenish grey	
305					
249					
360	MW-1R A -S-13.5			@ 13 fbg: mottled	14.0
49.0		15		**Silty SAND with clay:** greenish grey; fine sand	
370				**SAND with silt:** wet	
4.9			SP		
1.1					
1.5					
0.8		20			20.0

WELL DIAGRAM

- Portland Type I/II
- 2" diam., Schedule 40 PVC
- Bentonite Seal
- Monterey Sand #2/12
- 2"-diam., 0.020" Slotted Schedule 40 PVC
- Portland Type I/II
- Bottom of Boring @ 20 fbg

WELL LOG (PID) I:\CHEVRON\6319--\631916~1\634E63~1\631916-GINT-082010.GPJ DEFAULT.GDT 9/15/10

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-1RB
JOB/SITE NAME	Former Signal Oil Bulk Plant (Chevron 20-6127)	**DRILLING STARTED**	04-Aug-10
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	04-Aug-10
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Penecore	**GROUND SURFACE ELEVATION**	13.65 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	13.21 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVALS**	16.5 to 20 fbg
LOGGED BY	B. Yifru	**DEPTH TO WATER (First Encountered)**	8.0 fbg (04-Aug-10) ▽
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Cleared to 8 fbg with Air Knife; re-installed well, previously MW-1		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				5			Please refer to boring log MW-1RA for lithology. ▽		2" diam., Schedule 40 PVC Portland Type I/II Bentonite Seal Monterey Sand #2/12 2"-diam., 0.020" Slotted Schedule 40 PVC
				10					
				15					
				20				20.0	Bottom of Boring @ 20 fbg

WELL LOG (PID) I:\CHEVRON\6319--\631916~1\634E63~1\631916-GINT-082010.GPJ DEFAULT.GDT 9/15/10

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-6
JOB/SITE NAME	Former Signal Oil Bulk Plant (Chevron 20-6127)	**DRILLING STARTED**	04-Aug-10
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	04-Aug-10
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Penecore	**GROUND SURFACE ELEVATION**	13.21 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	12.98 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVALS**	16.5 to 20 fbg
LOGGED BY	B. Yifru	**DEPTH TO WATER (First Encountered)**	8.0 fbg (04-Aug-10) ▽
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Cleared to 8 fbg with Air Knife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				0			**FILL:** concrete fragments and debris; brown; moist		2" diam., Schedule 40 PVC
				5					Portland Type I/II
1,421							**Sandy SILT with clay:** dark grey; moist; low plasticity ▽	7.0	
1,054							@ 8 fbg: Wet		
471				10	ML		@ 10 fbg: greenish grey		
888									
1,053									
82							@ 13 fbg: mottled		
71.7							**Silty SAND with clay:** greenish grey	14.0	Bentonite Seal
10.0		MW-6- S-15		15			**SAND with silt:** wet; fine sand		
8.0									Monterey Sand #2/12
0.9					SP				
0.0							@ 18.5 fbg: light brown		2"-diam., 0.020" Slotted Schedule 40 PVC
0.0				20				20.0	Bottom of Boring @ 20 fbg

WELL LOG (PID) I:\CHEVRON\6319--\631916~1\634E63~1\631916-GINT-082010.GPJ DEFAULT.GDT 9/15/10

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-1
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	09-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	09-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	3.75 to 4.25 fbg
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**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
							Asphalt	0.5	Concrete
					SM		**Silty SAND with gravel** Brown; dry; 45% sand, 25% silt, 15% clay, 15% coarse gravel; low plasticity; 1/2-3/4 inch subangular pebbles.		Portland Type I/II 1/4"-inner diam. Nylaflow® tubing Bentonite Seal
		VP-1- 3			GM		**Silty GRAVEL with sand** Brown; dry; 45% gravel, 30% sand, 15% silt, 10% clay; low plasticity.	3.0	Monterey Sand #3
					GC		**Clayey GRAVEL with sand** Brown; dry; 60% gravel, 20% clay, 10% silt, 10% sand; low plasticity.	4.0 4.5	1"-diam., 0.020" Slotted Schedule 40 PVC Bottom of Boring @ 4.5 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-2
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	09-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	09-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	4.25 to 4.75 fbg
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**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
							Asphalt	0.5	Concrete
					SM		**Silty SAND :**Brown; dry; 45% sand, 35% silt, 20% clay; low plasticity.		Portland Type I/II
									1/4"-inner diam. Nylaflow® tubing
								2.0	
		VP-2- 3			CL		**CLAY with sand :**Brown; dry; 45% clay, 30% silt, 25% sand; medium plasticity.		Bentonite Seal
								4.0	
649		VP-2- 5			SM		**Silty SAND :**Brown; moist; 55% sand, 30% silt, 15% clay; low plasticity.		Monterey Sand #3
									1"-diam., 0.020" Slotted Schedule 40 PVC
				5				5.0	Bottom of Boring @ 5 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-3
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	14-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	14-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	5.25 to 5.75 fbg
LOGGED BY	B. Campbell	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**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
							Asphalt	0.5	Concrete
					GW		**GRAVEL with sand:** Brown; dry; 60% gravel, 30% sand, 5% clay, 5% silt; low plasticity.		Portland Type I/II
									1/4"-inner diam. Nylaflow® tubing
								2.0	
1.5		VP-3- 2.5					**Silty SAND with gravel:** Dark brown; moist; 30% sand, 30% silt, 30% gravel,10% clay; low-medium plasticity.		
					SP				Bentonite Seal
				5				5.0	
4.5		VP-3- 5			SM		**Silty SAND with clay:** Dark brown; moist; 40% sand, 35% silt, 25% clay; medium plasticity.	5.5	Monterey Sand #3
					CL		**CLAY:** Grey; moist; 55% clay, 35% silt, 25% clay; medium plasticity.	6.0	1"-diam., 0.020" Slotted Schedule 40 PVC
									Bottom of Boring @ 6 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319-\631916-\632941-1\BORING-1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-4
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	14-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	14-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	5.25 to 5.75 fbg
LOGGED BY	B. Campbell	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**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
							Asphalt	0.5	Concrete
					GM		**Silty GRAVEL with sand** Brown; dry; 45% gravel, 40% sand, 10% silt, 5% clay; low plasticity.		Portland Type I/II
									1/4"-inner diam. Nylaflow® tubing
								2.0	
121		VP-4- 2.5					**Silty SAND with clay:** Brown; moist; 40% sand, 35% silt, 25% clay; medium plasticiy.		
					SM				Bentonite Seal
								4.5	
							CLAY: Brown; moist; 50 % clay, 30% sand, 20% silt; medium plasticity.		
408		VP-4- 5		5	CL				Monterey Sand #3
									1"-diam., 0.020" Slotted Schedule 40 PVC
								6.0	Bottom of Boring @ 6 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-5
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	14-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	14-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	5.25 to 5.75 fbg
LOGGED BY	B. Campbell	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**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
							Asphalt	0.5	Concrete
					GM		**Silty GRAVEL with sand**:Brown; dry; 45% gravel, 40% sand, 10% silt, 5% clay; low plasticity.		Portland Type I/II 1/4"-inner diam. Nylaflow® tubing
45		VP-5- 2.5							Bentonite Seal
					CL		**CLAY with sand**:Brown; moist; 55% clay, 25% silt, 10% sand, 10% gravel; medium plasticity.	4.0	
566		VP-5- 5		5	CL		**CLAY with sand**:Brown; moist; 50% clay, 20% silt, 30% sand; medium plasticity.	5.0	Monterey Sand #3 1"-diam., 0.020" Slotted Schedule 40 PVC
								6.0	Bottom of Boring @ 6 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-6
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	09-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	09-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	5.25 to 5.75 fbg
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**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
							Asphalt	0.5	Concrete
					GM		**Silty GRAVEL with sand** Brown; dry; 45% gravel, 40% sand, 10% silt, 5% clay; low plasticity; 1-10 inch conrete fragments.		Portland Type I/II 1/4"-inner diam. Nylaflow® tubing
3.2		VP-6- 3							Bentonite Seal
					CL		**CLAY with sand**: Brown; moist; 55% clay, 25% silt, 10% sand, 10% gravel; medium plasticity.	3.5	
		VP-6- 5		5			**Sandy CLAY**: Brown; moist; 50% clay, 20% silt, 30% sand; medium plasticity.	5.0	Monterey Sand #3
					CL			6.0	1"-diam., 0.020" Slotted Schedule 40 PVC Bottom of Boring @ 6 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

APPENDIX D

CUMULATIVE GROUNDWATER TABLES

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-1	07/21/2010	13.49	9.47	4.02	440	-	65 J	<0.5	<0.5	<0.5	<0.5	<0.5
MW-1	10/22/2010[1]	13.49	-	-	-	-	-	-	-	-	-	-
MW-1RA	10/28/2010	13.02	9.23	3.79	-	4,000	6,400	830	22	65	20	-
MW-1RA	01/14/2011	13.02	7.20	5.82	-	1,500	790	160	2	1	1	-
MW-1RA	4/19/2011	13.02	7.46	5.56	-	3,000	3,800	600	9	18	9	-
MW-1RA	**6/30/2011**	**13.02**	**7.51**	**5.51**	**-**	**3,700**	**6,800**	**780**	**13**	**36**	**13**	**-**
MW-1RB	10/28/2010	13.21	9.00	4.21	-	1,600	650	3	<0.5	0.8	<0.5	-
MW-1RB	01/14/2011	13.21	10.97	2.24	-	960	150	1	<0.5	<0.5	<0.5	-
MW-1RB	4/19/2011	13.21	12.11	1.10	-	1,200	190	6	<0.5	<0.5	<0.5	-
MW-1RB	**6/30/2011**	**13.21**	**11.86**	**1.35**	**-**	**1,900**	**310**	**9**	**<0.5**	**<0.5**	**<0.5**	**-**
MW-2	07/21/2010	10.63	4.12	6.51	65 J	-	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	10/22/2010	10.63	4.31	6.32	-	58	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	10/28/2010[2]	10.63	3.65	6.98	-	-	-	-	-	-	-	-
MW-2	01/14/2011	10.63	3.12	7.51	-	68	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	4/19/2011	10.63	3.51	7.12	-	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	**6/30/2011**	**10.63**	**3.74**	**6.89**	**-**	**120**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**-**

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-3	07/21/2010	10.72	5.09	5.63	640	-	65 J	0.6 J	<0.5	<0.5	<0.5	-
MW-3	10/22/2010	10.72	5.32	5.40	-	570	73	<0.5	<0.5	<0.5	<0.5	-
MW-3	10/28/2010[2]	10.72	4.74	5.98	-	-	-	-	-	-	-	-
MW-3	01/14/2011	10.72	4.11	6.61	-	1,000	91	<0.5	<0.5	<0.5	<0.5	-
MW-3	4/19/2011	10.72	5.03	5.69	-	1,200	180	<0.5	<0.5	<0.5	<0.5	-
MW-3	**6/30/2011**	**10.72**	**4.97**	**5.75**	**-**	**740**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**-**
MW-4	07/21/2010	11.40	6.72	4.68	<50	-	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	10/22/2010	11.40	6.87	4.53	-	91	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	10/28/2010[2]	11.40	6.38	5.02	-	-	-	-	-	-	-	-
MW-4	01/14/2011	11.40	5.32	6.08	-	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	4/19/2011	11.40	7.65	3.75	-	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	**6/30/2011**	**11.40**	**6.93**	**4.47**	**-**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**-**
MW-5	07/21/2010	10.50	5.76	4.74	2,000	-	1,500	80	2	1	2	-
MW-5	10/22/2010	10.50	5.94	4.56	-	1,500	830	47	<0.5	1	<0.5	-
MW-5	10/28/2010[2]	10.50	5.17	5.33	-	-	-	-	-	-	-	-
MW-5	01/14/2011	10.50	4.40	6.10	-	1,800	2,100	61	4	1	6	-
MW-5	4/19/2011	10.50	5.69	4.81	-	2,000	2,200	73	4	1	6	-

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-5	**6/30/2011**	**10.50**	**5.82**	**4.68**	**-**	**3,200**	**2,900**	**99**	**6**	**1**	**7**	**-**
MW-6	10/28/2010	12.98	8.35	4.63	-	300	620	7	<0.5	1	2	-
MW-6	01/14/2011	12.98	7.58	5.40	-	560	120	3	<0.5	<0.5	<0.5	-
MW-6	4/19/2011	12.98	9.90	3.08	-	590	240	7	<0.5	<0.5	<0.5	-
MW-6	**6/30/2011**	**12.98**	**9.97**	**3.01**	**-**	**640**	**200**	**3**	**<0.5**	**<0.5**	**<0.5**	**-**
QA	07/21/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5
QA	10/22/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5
QA	10/28/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	01/14/2011	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	**4/19/2011**	**-**	**-**	**-**	**-**	**-**	<50	<0.5	<0.5	<0.5	<0.5	**-**
QA	**6/30/2011**											

Abbreviations and Notes:

TOC = Top of Casing

DTW = Depth to Water

GWE = Groundwater elevation

(ft-amsl) = Feet Above Mean sea level

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*

ft = Feet

µg/L = Micrograms per Liter

TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics

TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylene

MTBE = Methyl tert butyl ether

-- = Not available / not applicable

<x = Not detected above laboratory method detection limit

* TOC elevations for all wells were surveyed on July 30, 2009, by Morrow Surveying. Vertical Datum is NAVD 88 from GPS observations. TOC elevations were surveyed on January 25, 2001, by Virgil Chacez Land Surveying. The benchmark used for the survey was a City of Alameda benchmark being a cut square at the centerline return, south corner of Oak and Blanding, (Benchmark Elevation = 8.236 feet, NGVD 29).

1 Destroyed and re-installed as MW-1RB.

2 Monitored only for the 10/28/10 Special Event

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)
2301-2337 Blanding Avenue
Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
MW-1										
01/23/01[1]	--	7.16	--	1,100[2,3]	5,210[4]	868	<50.0	<50.0	<50.0	<250
04/09/01	10.62	8.12	2.50	1,200[6]	3,000[5]	920	<20	<20	<20	<100
07/30/01	10.62	9.15	1.47	550[3,8]	2,000[7]	730	13	<5.0	<5.0	<25
10/08/01	10.62	7.86	2.76	2,200[9]	1,200	120	2.4	5.9	6.4	<2.5
01/13/02	10.62	7.02	3.60	3,300[3]	930	320	0.78	0.87	3.8	<2.5
04/08/02	10.62	9.60	1.02	1,200[3]	960	50	1.4	2.6	9.0	<2.5
07/31/02	10.62	9.27	1.35	2,800[3]	930	64	1.4	1.9	11	<5.0
10/15/02	10.62	8.00	2.62	1,000[3]	620	25	0.78	1.4	4.3	<2.5
01/14/03	10.62	7.05	3.57	960[3]	1,600	20	1.3	1.3	<1.5	<2.5
04/15/03	10.62	8.02	2.60	920[3]	870	56	1	1.4	3.1	<2.5
07/16/03[10]	10.62	10.08	0.54	1,400[3]	780	85	1	0.8	0.7	<0.5
10/18/03[10]	10.62	8.51	2.11	1,200[3]	640	42	0.8	<0.5	0.5	<0.5
01/22/04[10]	10.62	8.95	1.67	1,500[3]	440	18	<0.5	<0.5	<0.5	<0.5
04/23/04[10]	10.62	8.95	1.67	2,200[3]	410	10	<0.5	<0.5	<0.5	<0.5
07/23/04[10]	10.62	9.21	1.41	1,800[3]	400	6	<0.5	<0.5	<0.5	<0.5
10/22/04[10]	10.62	8.36	2.26	2,200[3]	150	2	<0.5	<0.5	<0.5	<0.5
01/28/05[10]	10.62	7.09	3.53	1,200[3]	55	8	<0.5	<0.5	<0.5	<0.5
04/26/05[10]	10.62	7.84	2.78	480[3]	<50	5	<0.5	<0.5	<0.5	<0.5
07/15/05[10]	10.62	8.12	2.50	610[3,11]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/14/05[10]	10.62	8.07	2.55	920[3,12]	<50	10	<0.5	<0.5	<0.5	<0.5
01/12/06[10]	10.62	6.98	3.64	960[3,12]	<50	6	<0.5	<0.5	<0.5	<0.5
04/13/06[10]	10.62	7.04	3.58	1,200[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/13/06[10]	10.62	7.13	3.49	1,200[3]	92	14	<0.5	<0.5	<0.5	<0.5
10/17/06[10]	10.62	7.64	2.98	990[3]	<50	3	<0.5	<0.5	<0.5	<0.5
01/16/07[10]	10.62	7.09	3.53	840[3]	83	4	<0.5	<0.5	<0.5	<0.5
04/17/07[10]	10.62	7.11	3.51	1,200[3]	57	<0.5	<0.5	<0.5	<0.5	<0.5
07/17/07[10]	10.62	7.41	3.21	1,100[3]	120	8	<0.5	<0.5	<0.5	<0.5
10/16/07[10]	10.62	7.55	3.07	750[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/08[10]	10.62	6.98	3.64	1,700[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/16/08[10]	10.62	7.36	3.26	1,100[3]	62	<0.5	<0.5	<0.5	<0.5	<0.5
07/16/08[10]	10.62	7.89	2.73	580[3]	93	3	<0.5	<0.5	<0.5	<0.5
10/15/08[10]	10.62	7.46	3.16	740[3]	56	0.7	<0.5	<0.5	0.8	<0.5

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)
2301-2337 Blanding Avenue
Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
MW-1 (cont)										
01/21/09[10]	10.62	7.19	3.43	390[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/15/09[10]	10.62	6.93	3.69	1,400[3]	80	0.7	<0.5	<0.5	<0.5	<0.5
07/03/09[10]	13.49	8.08	5.41	1,300[3]	51	<0.5	<0.5	<0.5	<0.5	<0.5
10/01/09[10]	13.49	9.52	3.97	1,500[3]	86	<0.5	<0.5	<0.5	<0.5	<0.5
01/19/10[10]	13.49	7.64	5.85	340[3,15]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/26/10[10]	**13.49**	**9.20**	**4.29**	**820[3]**	**66**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-2										
06/30/09[1]	10.63	3.80	6.83	--	--	--	--	--	--	--
07/03/09[14]	10.63	3.91	6.72	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	--
10/01/09[14]	10.63	4.11	6.52	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	--
01/19/10[14]	10.63	3.90	6.73	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	--
04/26/10[14]	**10.63**	**4.08**	**6.55**	**<50[3]**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**--**
MW-3										
06/30/09[1]	10.72	4.61	6.11	--	--	--	--	--	--	--
07/03/09[14]	10.72	4.57	6.15	170[3]	310	1	<0.5	2	<0.5	--
10/01/09[14]	10.72	5.22	5.50	1,000[3]	52	<0.5	<0.5	<0.5	<0.5	--
01/19/10[14]	10.72	4.84	5.88	1,800[3]	120	2	<0.5	<0.5	<0.5	--
04/26/10[14]	**10.72**	**4.86**	**5.86**	**1,700[3]**	**170**	**2**	**<0.5**	**<0.5**	**<0.5**	**--**
MW-4										
06/30/09[1]	11.40	6.02	5.38	--	--	--	--	--	--	--
07/03/09[14]	11.40	5.85	5.55	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	--
10/01/09[14]	11.40	6.95	4.45	370[3]	<50	<0.5	<0.5	<0.5	<0.5	--
01/19/10[14]	11.40	6.22	5.18	110[3]	<50	<0.5	<0.5	<0.5	<0.5	--
04/26/10[14]	**11.40**	**6.61**	**4.79**	**210[3,17]**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**--**

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)
2301-2337 Blanding Avenue
Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
MW-5										
06/30/09[1]	10.50	5.20	5.30	--	--	--	--	--	--	--
07/03/09[14]	10.50	5.17	5.33	110[3]	930	33	2	0.6	3	--
10/01/09[14]	10.50	5.66	4.84	2,500[3]	1,800	57	3	0.9	5	--
01/19/10[14]	10.50	5.48	5.02	2,600[3]	2,200	74	4	1	5	--
04/26/10[14]	**10.50**	**5.91**	**4.59**	**1,700[3]**	**2,200**	**94**	**4**	**2**	**5**	**--**
CS-2										
07/30/01	--	--	--	140[3,5]	<50	<0.50	<0.50	<0.50	<0.50	<2.5
10/08/01	--	--	--	53[9]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
01/13/02	--	--	--	<50[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
04/08/02	--	--	--	77[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
07/31/02	--	--	--	<50[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
10/15/02	--	--	--	<50[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
01/14/03	--	--	--	<50[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
04/15/03	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<1.5	<2.5
07/16/03[10]	--	--	--	<50[3]	<50	<0.5	0.7	<0.5	0.6	<0.5
10/18/03[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/22/04[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/23/04[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/23/04[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/22/04[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/28/05[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/26/05[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/15/05[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/14/05[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/12/06[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/13/06[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/13/06[10]	--	--	--	140[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/17/06[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/07[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/17/07[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)
2301-2337 Blanding Avenue
Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
CS-2 (cont)										
07/17/07[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/16/07[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/08[10]	--	--	--	85[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/16/08[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/16/08[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/15/08[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/21/09[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/15/09[10]	--	--	--	86[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/03/09[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/01/09[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/19/10[10]	--	--	--	210[3,16]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
TRIP BLANK										
TB-LB										
01/23/01	--	--	--	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50
04/09/01	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5
07/30/01	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5
QA										
10/08/01	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
01/13/02	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
04/08/02	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
07/31/02	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
10/15/02	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
01/14/03	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
04/15/03	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5
07/16/03[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/18/03[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/22/04[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/23/04[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/23/04[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/22/04[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)
2301-2337 Blanding Avenue
Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
QA (cont)										
01/28/05[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/26/05[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/15/05[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/14/05[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/12/06[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/13/06[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/13/06[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/17/06[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/07[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/17/07[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/17/07[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/16/07[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/08[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/16/08[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/16/08[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/15/08[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/21/09[10]	--	--	--	--	<50[13]	<0.5	<0.5	<0.5	<0.5	<0.5
04/15/09[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/03/09[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/01/09[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/19/10[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/26/10[10]	**--**	**--**	**--**	**--**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)
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Alameda, California

EXPLANATIONS:

TOC = Top of Casing
(ft.) = Feet
DTW = Depth to Water
GWE = Groundwater Elevation
(msl) = Mean sea level
TPH = Total Petroleum Hydrocarbons
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
MTBE = Methyl Tertiary Butyl Ether
(µg/L) = Micrograms per liter
-- = Not Measured/Not Analyzed
CS-2 = Creek Sample
QA = Quality Assurance/Trip Blank

* TOC elevations for all wells were surveyed on July 30, 2009, by Morrow Surveying. Vertical Datum is NAVD 88 from GPS observations. TOC elevations were surveyed on January 25, 2001, by Virgil Chavez Land Surveying. The benchmark used for the survey was a City of Alameda benchmark being a cut square at the centerline return, south corner of Oak and Blanding, (Benchmark Elevation = 8.236 feet, NGVD 29).

1 Well development performed.
2 Laboratory report indicates unidentified hydrocarbons <C16.
3 Analyzed with silica gel cleanup.
4 Laboratory report indicates weathered gasoline C6-C12.
5 Laboratory report indicates discrete peaks.
6 Laboratory report indicates diesel C9-C24 + unidentified hydrocarbons <C16.
7 Laboratory report indicates gasoline C6-C12.
8 Laboratory report indicates unidentified hydrocarbons C9-C24.
9 Analysis performed without silica gel cleanup although was requested on the Chain of Custody.
10 BTEX and MTBE by EPA Method 8260.
11 Laboratory report indicates the observed sample pattern is not typical of #2 fuel/diesel. It elutes in the DRO range later than #2 fuel.
12 Laboratory report indicates the observed sample pattern includes #2 fuel/diesel and an additional pattern which elutes later in the DRO range.
13 Laboratory report indicates the original analysis was performed on an instrument where the ending calibration standard failed the method criteria. The sample was originally analyzed approximately 60 minutes after the LCS/LCSD. The LCS/LCSD showed good GRO recovery and the surrogate recovery for this sample was 85%. The sample was reanalyzed from a vial with headspace since only 1 vial was submitted. The results for the original and the reanalysis were similar. The reanalysis was reported.
14 BTEX by EPA Method 8260.
15 Laboratory report indicates DRO was detected in the method blank at a concentration of 38 µg/L. Results from the reextraction are within limits. The hold time had expired prior to the reextraction therefore, all results are reported from the original extract. Similar results were obtained in both extracts.
16 Laboratory report indicates DRO was detected in the method blank at a concentration of 38 µg/L. Results from the reextraction are within limits. The hold time had expired prior to the reextraction therefore, all results are reported from the original extract. The DRO result for the reextract is 96 µg/L.
17 Laboratory report indicates DRO was detected in the method blank at a concentration of 47 µg/L. Results from the reextraction are within limits. The hold time had expired prior to the reextraction therefore, all results are reported from the original extract. Similar results were obtained in both extracts.

Table 2

Groundwater Analytical Results - Metals

Chevron #206127 (Former Signal Oil Marine Terminal)
2301-2337 Blanding Avenue
Alameda, California

WELL ID/ DATE	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Lead (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Mercury (µg/L)
MW-2																	
07/03/09	<9.7	<7.2	28.1	<1.4	<2.0	14.6	<2.1	<2.7	<6.9	<4.9	10.6	<8.9	<2.3	<14.0	12.6	11.6	<0.056
MW-3																	
07/03/09	<9.7	<7.2	143	<1.4	<2.0	8.5	<2.1	3.3	<6.9	<4.9	7.8	<8.9	<2.3	<14.0	13.8	18.8	<0.056
MW-4																	
07/03/09	<9.7	<7.2	83.5	<1.4	<2.0	10.0	<2.1	<2.7	<6.9	<4.9	4.5	<8.9	<2.3	<14.0	6.3	15.8	<0.056
MW-5																	
07/03/09	<9.7	32.7	148	<1.4	<2.0	<3.4	<2.1	3.1	<6.9	<4.9	3.6	<8.9	<2.3	<14.0	<2.5	19.2	<0.056

EXPLANATIONS

(µg/L) = Micrograms per liter

ANALYTICAL METHODS:

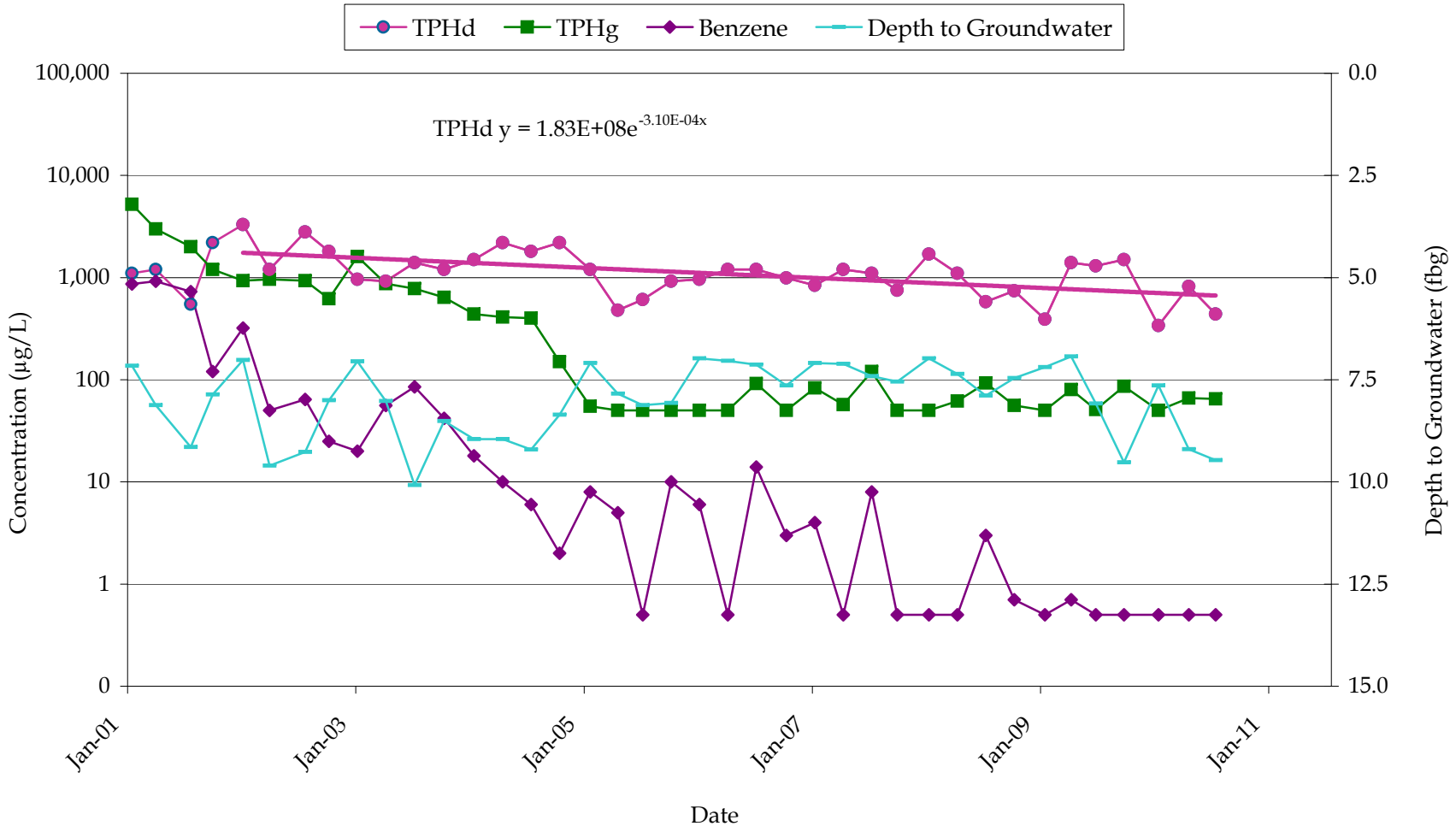
Metals analyzed by EPA Method SW-846 6010B
Mercury analyzed by Method SW-7470A

APPENDIX E

DEGRADATION RATE CALCULATIONS

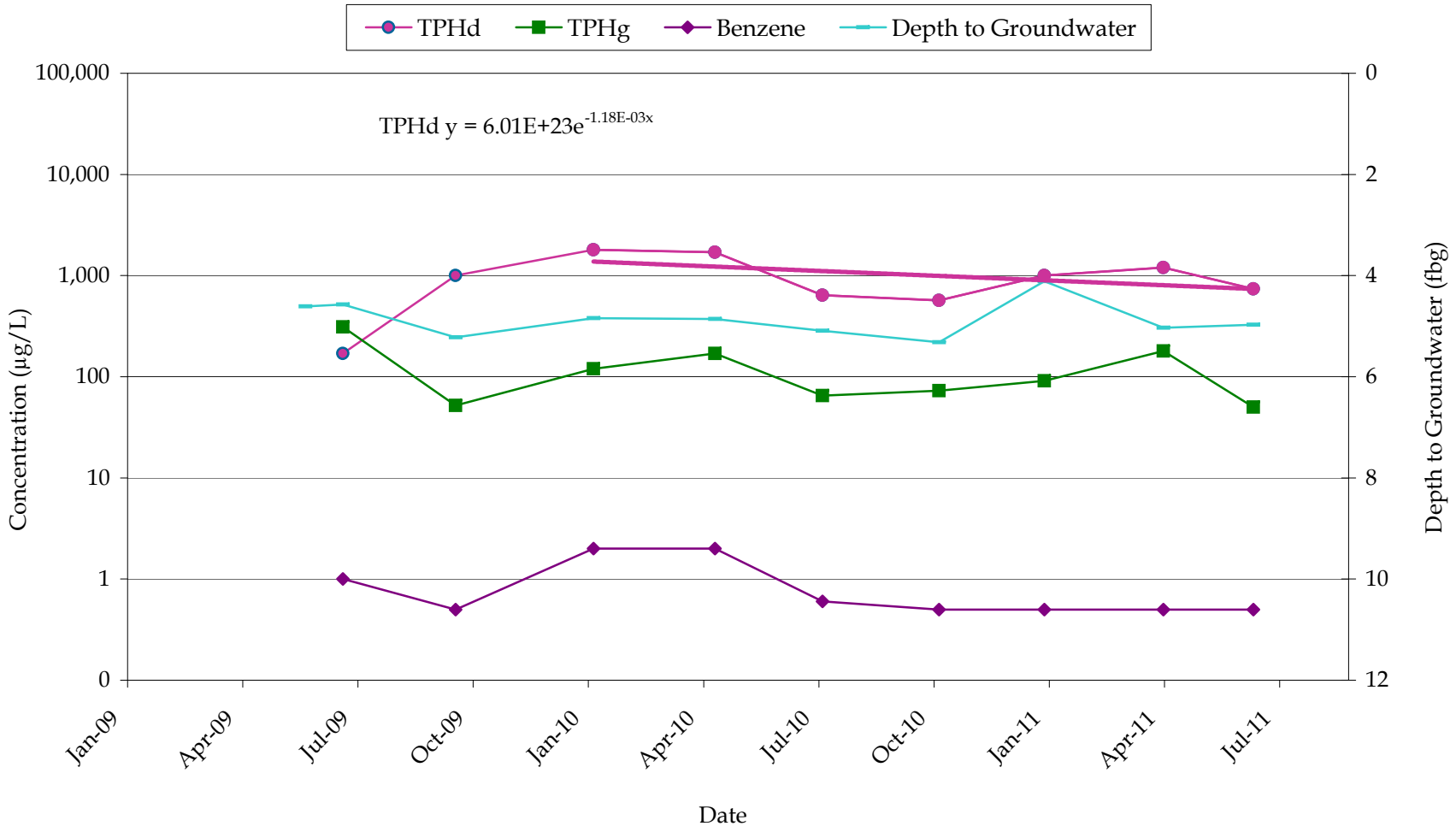
Table A - Summary of Degradation Rate Calculations
Former Signal Oil Bulk Plant (Chevron Facility 20-6127), 2301-2311 Blanding Avenue, Alameda, CA

Well	Analyte	Maximum Concentration (ug/L)	Current Concentration (ug/L)	Half-Life (years)	Date to Reach WQG
MW-1	TPHd	3,300	440	6.12	May 2027
	TPHg	5,210	65	NA	Met
	Benzene	920	<0.5	NA	Met
MW-1RA	TPHd	4,000	3,700	NA	NA
	TPHg	6,800	6,800	NA	NA
	Benzene	830	780	NA	NA
MW-1RB	TPHd	1,900	1,900	NA	NA
	TPHg	650	310	NA	NA
	Benzene	9	9	NA	NA
MW-3	TPHd	1,800	740	1.61	May 2016
	TPHg	310	<50	NA	Met
	Benzene	2	<0.5	NA	Met
MW-5	TPHd	3,200	3,200	NA	Stable
	TPHg	2,900	2,900	NA	Stable
	Benzene	99	99	NA	Stable
MW-6	TPHd	640	640	NA	NA
	TPHg	620	200	NA	NA
	Benzene	7	3	NA	NA



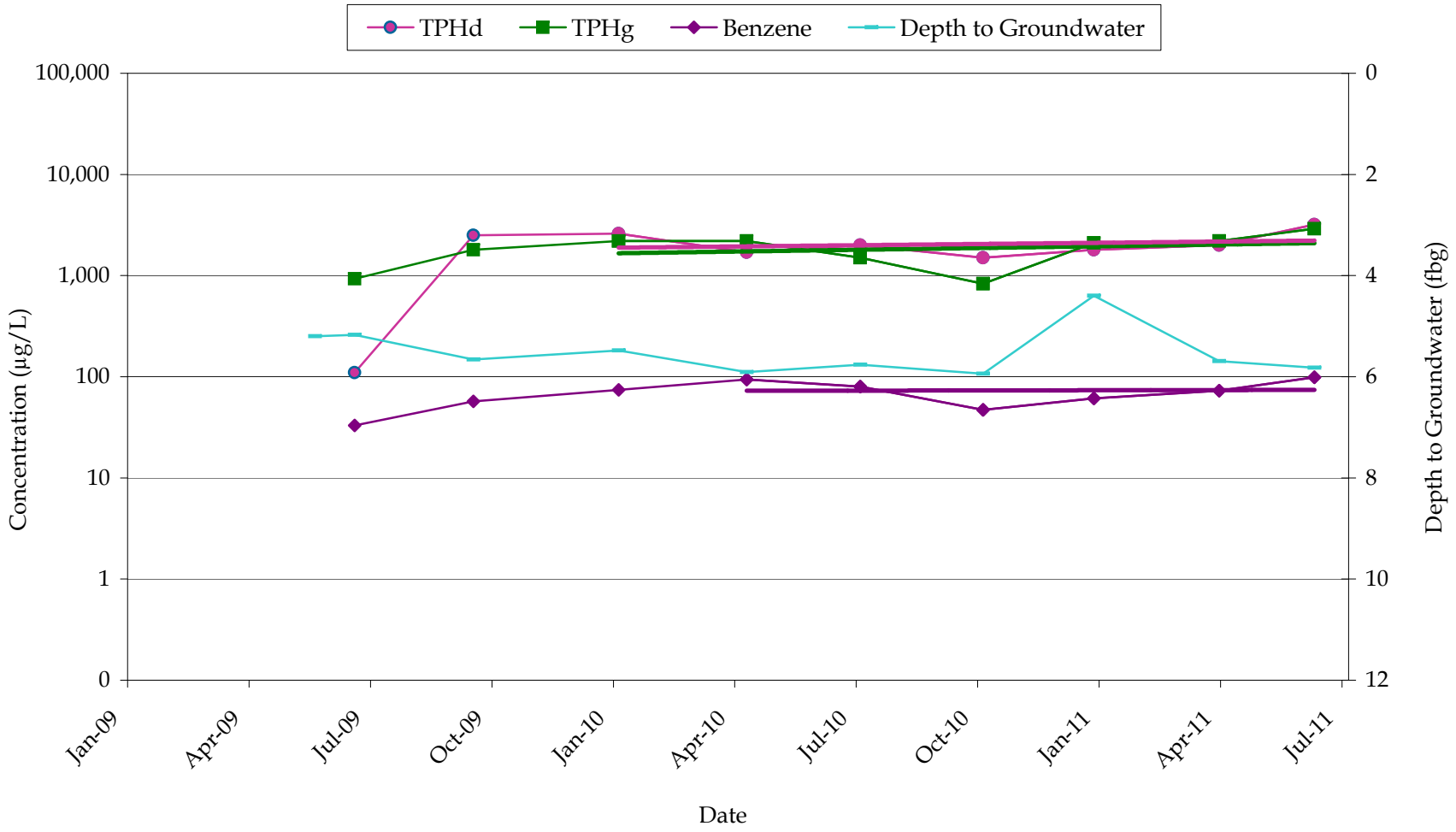
FORMER SIGNAL OIL BULK TERMINAL
CHEVRON FACILITY 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

MW-1: TPHd, TPHg BENZENE, AND DEPTH TO GROUNDWATER VERSUS TIME



FORMER SIGNAL OIL BULK TERMINAL
CHEVRON FACILITY 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

MW-3: TPHd, TPHg BENZENE, AND DEPTH TO GROUNDWATER VERSUS TIME



FORMER SIGNAL OIL BULK TERMINAL
CHEVRON FACILITY 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

MW-5: TPHd, TPHg BENZENE, AND DEPTH TO GROUNDWATER VERSUS TIME