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November 22, 2013

Ms. Keith Nowell  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**Subject: Corrective Action Plan**  
**Site: 76 Station No. 5191/5043**  
**449 Hegenberger Road**  
**Oakland, California**  
**Fuel Leak Case No. RO0000219**

Dear Mr. Nowell;

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please call:

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Sincerely,

**PACIFIC CONVENIENCE & FUEL**



**WALTER SPRAGUE**  
Director of Retail Services

Attachment

# *Corrective Action Plan*

*76 Station No. 5191/5043  
449 Hegenberger Road  
Oakland, California*

*Alameda County Health Care Services  
Agency Fuel Leak Case No. R00000219*

*San Francisco Bay, Regional Water Quality  
Control Board Case No. 01-1601*

*GeoTracker Global ID No. T0600101476*

*Antea Group Project No. I42705191  
November 22, 2013*

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# Corrective Action Plan

76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California  
Antea Group Project No. I42705191

## 1.0 INTRODUCTION

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Antea®Group is pleased to submit this *Corrective Action Plan (CAP)*, for the referenced site in Oakland, CA (**Figure 1**). This *CAP* reviews the technical and cost feasibility of selected remediation technologies to address the residual petroleum hydrocarbon impacts and makes a recommendation for remedial implementation. This report also addresses comments made by the Alameda County Health Care Services Agency (ACHCSA) in a letter dated June 21, and October 8, 2013. A copy of these letters are presented as **Appendix A**. This report has received a technical review by Mr. Dennis Dettloff, California Professional Geologist No. 7480.

## 2.0 SITE LOCATION AND DESCRIPTION

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### 2.1 Site Location

The subject site is an operating 76 station located on the southwestern corner of Hegenberger Road and Edgewater Drive in Oakland, California.

### 2.2 Site Description

This site contains six fuel dispensers on two islands under a single canopy, three fuel underground storage tanks (USTs) on the north side of the site, a carwash facility on the west side of the site, and a station building in the central portion of the site. The current site features are shown on **Figure 2**. A summary of previous site assessment, environmental investigations, remedial activities, and sensitive receptors are presented in **Appendix B**.

## 3.0 SITE SETTING

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The following sections provide a summary of the regional geological and hydrological setting.

### 3.1 Regional Geological Setting

The site is located on the western portion of the East Bay Plain Subbasin near the Oakland Airport. This area is primarily underlain by bay mud and artificial fill.

### 3.2 Regional Hydrogeologic Setting

According to the California Department of Water Resources' (DWR) *California's Groundwater, Bulletin 118* –

*Update 2004*, the site is located in the Santa Clara Valley Groundwater Basin – East Bay Plain Subbasin. Groundwater bearing formations in the subbasin include the Early Pleistocene Santa Clara Formation, Late Pleistocene Alameda Formation, Early Holocene Temescal Formation, and artificial fill. The East Bay Plain Subbasin has existing beneficial uses as irrigation, municipal, and domestic water supplies (DWR, 2004).

### **3.3 Site Hydrogeologic Conditions**

The site is underlain by Holocene-age bay mud. The bay mud typically consists of unconsolidated, saturated clay and sandy clay that is rich in organic material. The bay mud locally contains lenses and stringers of silt, well-sorted sand and gravel, and beds of peat. Based on the boring log from monitoring well MW-12A the bay mud continues to a depth of approximately 32 feet below ground surface (bgs). From 32 feet bgs to a depth of approximately 37 feet bgs the bay mud is mixed with well graded sand (transition zone). Below this transition zone is well graded sand to a depth of 43 feet bgs. Cross-sections are presented as **Figures 3 and 4**.

The most recent monitoring and sampling event was conducted at the site on September 10, 2013 (Antea Group, 2013). The measured depth to groundwater ranged from 2.63 feet to 6.54 feet below top of casing (TOC). The groundwater flow direction was south with a hydraulic gradient of 0.014 foot per foot (**Figure 5**).

### **3.4 Sensitive Receptors**

On April 24, 2006 TRC completed a sensitive receptor survey for the site (TRC, 2006). According to the Department of Water Resources (DWR) records, there are two irrigation wells and one industrial well located within one-half mile of the site. The nearest well, is an irrigation well located approximately 1,080 feet southeast of the site. The other irrigation well is located approximately 2,623 feet southeast of the site and the industrial well is located approximately 2,570 feet northeast of the site. In addition, two surface water bodies were observed within a one-half mile radius of the site. San Leandro Creek is located approximately 1,400 feet southwest of the site and flows into the San Leandro Bay and Elmhurst Creek is located approximately 2,220 feet north of the site and also flows into the San Leandro Bay.

## **4.0 NATURE AND EXTENT OF SOURCES**

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The following sections provide a summary of the extent of the site's primary COCs: total petroleum hydrocarbons as gasoline (TPHg), total petroleum hydrocarbons as diesel (TPHd), benzene, ethylbenzene, and methyl tertiary-butyl ether (MTBE) in soil and groundwater. Refer to Delta and Antea Group's site assessment reports dated February 15, 2010, July 26, 2010, and August 26, 2011 for more details regarding recent soil data. Refer to

Antea Group's Quarterly Summary Report – Third Quarter 2013 for additional details regarding current groundwater conditions.

On July 25<sup>th</sup> and 26<sup>th</sup>, Cascade Drilling (Cascade) advanced ten direct push borings, SB-1 through SB-10, under the direction of an Antea Group geologist. The borings were advanced in the southwest portion of the site, in the vicinity of monitoring wells, MW-6 and MW-14. The purpose of this investigation was to determine the horizontal and vertical extent of the petroleum hydrocarbon and MTBE impact, in soil, in this area for potential excavation. Antea Group is currently preparing a Site Investigation Report describing this work. A brief summary of this work and the findings are presented below in section 4.4.

#### **4.1 Former USTs**

In October 1991, the product lines were excavated during dispenser island modifications. During the excavation four (4) soil samples were collected at 3 feet bgs. Maximum concentrations of petroleum hydrocarbons reported in the soil samples were 9,000 milligrams per kilogram (mg/kg) TPHg, 8,400 mg/kg TPHd, 48 mg/kg benzene, and 330 mg/kg ethylbenzene. The excavation was completed to 4.5 feet bgs.

In September 1994, a 280-gallon waste oil tank was removed from the site. The tank was reported to be in good condition upon removal with no visible holes or cracks. Soil around the tank was excavated to a depth of nine (9) feet bgs. A confirmation soil sample was collected from beneath the tank at nine (9) feet bgs. Concentrations of TPHg, TPHd, benzene, and ethylbenzene were reported below the laboratory's indicated reporting limits for each constituent.

In September 1994, one (1) oil-water separator and three (3) hydraulic hoists were removed from the site. Maximum concentrations of petroleum hydrocarbons reported in the soil samples were 1.6 mg/kg TPHg, <1.0 mg/kg TPHd, 0.014 mg/kg benzene, and 0.15 mg/kg ethylbenzene.

In March and April 1995, two 10,000-gallon gasoline USTs and one 10,000-gallon diesel UST were removed during a site rebuild. The product lines, dispenser islands, and the station building were also removed and excavation in those areas took place. Approximately 2,729 cubic yards of soil were removed from the site during the excavations. Maximum concentrations of petroleum hydrocarbons reported in the soil samples were 3,300 mg/kg TPHg, 330 mg/kg TPHd, 18 mg/kg benzene, and 110 mg/kg ethylbenzene.

#### **4.2 Distribution of Contaminants in Groundwater**

Monitoring well and boring construction details are presented in **Table 1**. The historical groundwater monitoring well, analytical data is summarized in **Table 2**. The most recent grab groundwater samples were collected at the site during a 2009 investigation. The highest concentrations of petroleum hydrocarbons in groundwater during the

2009 investigation were reported in grab groundwater samples collected from boring B-5 at a depth of 20 feet bgs, located east of the dispenser islands. TPHg was reported in the sample at a concentration of 23,500,000 micrograms per liter ( $\mu\text{g/L}$ ), TPHd was reported at a concentrations of 20,400,000  $\mu\text{g/L}$ , benzene was reported at a concentration of 324,000  $\mu\text{g/L}$ , and MTBE was reported at  $<50 \mu\text{g/L}$ . MTBE was reported at a maximum concentration of 632  $\mu\text{g/L}$  in a grab groundwater sample collected from boring B-5, at a depth of 32 feet bgs.

Based on the recent third quarter 2013 groundwater sampling data, the dissolved-phase plume extends off-site in the east direction from MW-17 and to the west from MW-14. The greatest concentrations of COCs are reported in the vicinity of the southeast dispenser island and planter and south-southwest of the station building. Aerial Photograph figures depicting site features, the estimated benzene plume, and potential sensitive receptors are presented as **Appendix C**.

### 4.3 Distribution of Contaminants in Soil

Lateral and vertical extents of the COCs in soil are depicted in **Figure 6 and 7** which includes historical concentrations reported in soil samples collected at the site and in the site vicinity. Historical soil analytical data collected during site investigations are presented in **Table 3**. The following table contains maximum concentrations of COCs in soil before the excavations that took place in 1995.

| <b>Constituent</b> | <b>Maximum Concentration (mg/kg)</b> | <b>Sample Location</b> |
|--------------------|--------------------------------------|------------------------|
| TPHg               | 14,000                               | P2 at 3 feet bgs       |
| TPHd               | 8,400                                | MW-1 at 2.5 feet bgs   |
| Benzene            | 160                                  | MW-1 at 2.5 feet bgs   |
| Ethylbenzene       | 470                                  | MW-1 at 2.5 feet bgs   |
| MTBE               | *                                    | *                      |

Notes:

bgs = below ground surface

\*= No MTBE reported in soil samples collected prior to 1995

In 1995, the USTs, the product piping, and the fuel dispenser islands were removed and upgraded. During this time the soils in the vicinity of the USTs, product piping, and the fuel dispensers were excavated to varying depths ranging from four feet bgs, underneath the current station building, to 16 feet bgs in the vicinity of the USTs and former monitoring wells MW-1 and MW-2. The location, size, and depths of the excavated areas are shown on **Figure 8**. In some areas (SW2 and SW8), in the vicinity of the USTs, the soil was over excavated to remove known petroleum hydrocarbon impact.



Based on the analytical data from this investigation and subsequent investigations conducted at this site, the remaining soil impact appears to be east of the fuel dispenser islands and south-southwest of the current station building. All other remaining petroleum hydrocarbon impact appears to be residual in nature and not a source for the current groundwater plume. Maximum concentrations of COCs reported in soil since the 1995 excavation are detailed in the table below.

| <b>Constituent</b> | <b>Maximum Concentration<br/>(mg/kg)</b> | <b>Sample Location</b> |
|--------------------|--|------------------------|
| TPHg               | 31,000                                   | SB-1 at 5.5 feet bgs   |
| TPHd               | 900                                      | SB-8 at 8 feet bgs     |
| Benzene            | 85                                       | SB-1 at 5.5 feet bgs   |
| Ethylbenzene       | 650                                      | SB-1 at 5.5 feet bgs   |
| MTBE               | 0.19                                     | MW-15 at 8 feet bgs    |

Antea Group does not believe that the soil data collected during the installation of MW-12A is representative of actual soil impacts at depth.

Analytical data obtained from soil samples collected from the borings advance east of the fuel dispenser islands appear to indicate that the soil is significantly impacted to depths ranging from 26.5 feet bgs (B-5) to 32 feet bgs (MW-12A). However, soils samples collected from adjacent borings B-6 and MW-12 indicated that the soil in this area is significantly impacted only to a maximum depth of 14 feet bgs (B-6).

As stated above, the boring log from monitoring well MW-12A indicates that fill is present to a depth of 1 foot bgs. Below the fill is bay mud to a depth of approximately 32 feet bgs. From 32 feet bgs to a depth of approximately 37 feet bgs the bay mud is mixed with well graded sand (transition zone). Below this transition zone is well graded sand to a depth of 43 feet bgs. In addition, based on the groundwater sampling and monitoring data collected at the site, no significant vertical gradient is indicated using monitoring wells MW-12 (shallow) and MW-12A (deep). Historical depth to groundwater beneath the site ranges from 0.07 feet BTOC to 8.42 BTOC.

Monitoring well MW-12A is screened from 30 to 34 feet bgs and has been sampled 14 times since installation. The groundwater samples collected during the initial sampling event in July, 2010 contained 664 µg/L TPHg, 18 µg/L benzene, and 14 µg/L MTBE. In September of 2010, three months later, all constituents tested were below the laboratory's indicated report limits, except for MTBE which was reported at 8.5 µg/L. With the exception of occasional MTBE and TPHd, at low concentrations, in the samples collected from this monitoring well, this well has not been impacted since the initial sampling event conducted in July, 2010. This indicates that the initial impact

reported in the groundwater samples collected from monitoring well MW-12A was introduced into the well, likely during borehole advancement, and not representative of site conditions.

Due to the lack of significant impact to the groundwater samples collected from monitoring well MW-12A, the lack of a vertical gradient between monitoring wells MW-12 and MW-12A, and bay mud with their low permeability extending from 2 feet bgs to a depth of 32 feet bgs, it is unlikely that the impacted soils indicated at depths ranging from 26.5 feet bgs (B-5) to 32 feet bgs (MW-12A) are representative of conditions beneath the site on the east side of the fuel dispenser islands. It is more likely that the petroleum hydrocarbon impact to the soils in this area do not extend below a depth of approximately 14 feet bgs as indicated in boring B-6, and that the impact indicated in borings B-5 and MW-12A was introduced (brought down) to these lower depths during borehole advancement.

#### **4.4 Soil Borings Advancement**

On July 26<sup>th</sup> and 27<sup>th</sup> Cascade, under supervision of an Antea Group field geologist, advanced ten direct push soil borings SB-1 through SB-10. Boring locations are shown on **Figure 2**. The purpose of these borings was to determine the extent of the potential excavation in the southwest portion of the site. Each of the ten borings, were advanced to a maximum depth of 15 feet bgs. The soil samples collected and submitted for analysis from these ten borings were analyzed by Kiff Analytical LLC (Kiff) for TPHg, TPHd, benzene, toluene, ethylbenzene, and total xylenes (BTEX), MTBE, tertiary amyl-methyl ether (TAME), diisopropyl ether (DIPE), ethyl tertiary-butyl ether (ETBE), tertiary butyl alcohol (TBA), 1,2 dichloroethane (1,2-DCA), ethylene dibromide (EDB), naphthalene, and ethanol by Environmental Protection Agency (EPA) Method 8260B and TPHd by EPA Method 8015. The analytical results are presented in **Table 3**. The boring logs are included as **Appendix D**.

Based on the analytical data from this investigation, the proposed excavation will likely extend to the north as far as borings SB-3 and SB-7, to the west as far as boring SB-3 and monitoring well MW-14, to the south as far as borings SB-4 and SB-6, and to the east as far as borings SB-6 and SB-7. Most of the impacted soil is located at depths ranging from 5.5 feet to 8 feet bgs with minor impact as deep as 11 feet bgs. The proposed extent of the excavation is shown on **Figure 9**.

## **5.0 CLEAN-UP TARGET LEVELS**

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### **5.1 Groundwater Clean-up Target Levels**

The California Regional Water Quality Control Board (RWQCB) has published Environmental Screening Levels (ESLs) for chemicals commonly found in soil and groundwater at sites where releases of chemicals have occurred. The RWQCB notes “The ESLs are considered to be conservative.” The tables below compare site specific soil and groundwater concentrations for TPHg, TPHd, benzene, ethylbenzene, and MTBE with ESLs for various potential

sensitive receptors. The ESL tables for various sensitive receptors as found in the May 2013 publication are referenced below.

|   | ESL Table | TPHg<br>(µg/L)            | TPHd<br>(µg/L)        | Benzene<br>(µg/L)        | Ethyl<br>Benzene<br>(µg/L) | MTBE<br>(µg/L)         |
|---|-----------|---------------------------|-----------------------|--------------------------|----------------------------|------------------------|
| <b>Current Concentration Groundwater (09/10/13)</b> |           | <b>36,000<br/>(MW-17)</b> | <b>470<br/>(MW-6)</b> | <b>8,200<br/>(MW-17)</b> | <b>2,300<br/>(MW-14)</b>   | <b>820<br/>(MW-16)</b> |
| RWQCB ESL   | F-1a      | 100                       | 100                   | 1.0                      | 30                         | 5                      |
| California Maximum Contaminant Level (MCL)          | F-3       | 100                       | 100                   | 1.0                      | 300                        | 13                     |

Alternative groundwater cleanup target levels determined by risk based closure evaluations, including the State Water Resources Control Board Low-Threat Underground Storage Tank Case Closure Policy (LTCP) (Resolution No. 2012-0016), will be discussed during the remediation evaluation discussion.

## 5.2 Soil Clean-up Target Levels

The following table reports the general ESLs and the LTCP screening levels for COCs in soil and the greatest concentration of each COC reported to date:

|  | ESL Table | TPHg<br>(mg/Kg)                           | TPHd<br>(mg/Kg)                      | Benzene<br>(mg/Kg)                    | Ethyl<br>Benzene<br>(mg/Kg)            | MTBE<br>(mg/Kg)                        | Naphthalene<br>(mg/kg)                 | PAH<br>(mg/kg) |
|--|-----------|---|--------------------------------------|---------------------------------------|--|--|--|----------------|
| <b>Maximum Soil Concentrations</b>           |           | <b>31,000<br/>(SB-1@5.5<br/>feet bgs)</b> | <b>900<br/>(SB-8@8<br/>feet bgs)</b> | <b>85<br/>(SB-1@5.5<br/>feet bgs)</b> | <b>650<br/>(SB-1@5.5<br/>feet bgs)</b> | <b>0.19<br/>(MW-15@8<br/>feet bgs)</b> | <b>150<br/>(SB-1@5.5<br/>feet bgs)</b> | <b>NS</b>      |
| RWQCB ESL                                    | A-2       | 580                                       | 580                                  | 0.044                                 | 3.3                                    | 0.023                                  | 1.2                                    | NA             |
| RWQCB ESL                                    | C-2       | 580                                       | 530                                  | 0.044                                 | 3.3                                    | 0.023                                  | 1.2                                    | NA             |
| LTCP 0 to 5 fbgs<br>(Commercial/Industrial)  | Table 1   | NA  | NA                                   | 8.2                                   | 89                                     | NA                                     | 45                                     | 0.68           |
| LTCP 5 to 10 fbgs<br>(Commercial/Industrial) | Table 1   | NA  | NA                                   | 12                                    | 134                                    | NA                                     | 45                                     | NA             |

## **6.0 PREVIOUS REMEDIATION EFFORTS**

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### **6.1 Product Line Overexcavation**

In their December 17, 1991 *Stockpiled Soil Sampling* report, Kaprealian Engineering, Inc. (KEI) documented activities related to the excavation and disposal of impacted soil reported beneath product piping lines and canopy footers to a depth of approximately 4.5 feet below grade. In October and November 1991, approximately 110 cubic yards of soil were excavated and transported off-site for disposal (KEI, 1991).

### **6.2 Waste Oil Tank Removal**

In their *Third Quarter 1994 Quarterly Summary Report*, KEI reported that a 280 gallon waste oil tank was removed from the site on September 20, 1994. Details of this over-excavation were further summarized in a KEI report dated October 7, 1994 (KEI, 1994). A copy of Third Quarter 1994 Summary Report was unavailable for review during this report preparation.

### **6.3 Hoist and Oil/Water Separator Removal and Overexcavation**

In September 1994, Geostrategies Incorporated (GSI) oversaw the removal of an oil/water separator and hydraulic hoists from the site. These activities are summarized in GSI's December 14, 1994 *Abandonment of Hydraulic Hoists and Oil/Water Separator* report. According to GSI, approximately 20 cubic yards of soil were removed from the former hoist locations (GSI, 1994).

### **6.4 UST Fueling /Waste Oil and Dispenser Island Removal and Site Restoration Activities**

In March and April 1995, KEI oversaw the excavation and removal of the site fueling USTs and the over-excavation and disposal of impacted soil discovered during the removal of the fueling system and site renovation activities. A detailed accounting of these activities is summarized in KEI's June 2, 1995 *Soil Sampling Report and Continuing Groundwater Investigation* report. Generally, the scope of work conducted in 1995 as part of this site restoration included the following: removal of the two 10,000 gallon underground unleaded gasoline storage tanks and one 10,000 gallon underground diesel storage tank; excavation of former product dispenser islands, demolition of the station building, over-excavation of impacted soils beneath the former station building and adjacent areas, as well as the dewatering, treatment and disposal of a total of 125,000 gallons of groundwater recovered from the open excavation areas (KEI, 1995).

This report did not provide a total summary of the amount of impacted soil removed during these excavation activities. The site history summary on Geotracker estimates that approximately 6,000 cubic yards of soil were excavated in 1995.

## 6.5 Dual Phase Extraction (DPE) Pilot Test

On May 24, 2005, TRC submitted a *Dual-Phase Extraction* report summarizing the results of a 24-hour DPE test at the site using monitoring well MW-6. The 24-hour DPE test was only moderately successful at removing vapor-phase petroleum hydrocarbons from the subsurface (TRC, 2005).

## 7.0 CORRECTIVE ACTION PLAN

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Antea Group has evaluated the following remedial approaches for addressing the COCs identified beneath the site. Three remediation alternatives were subjected to comparative analysis identifying the relative performance, implementability, cost, timeframe to achieve clean-up goals, and advantages and disadvantages of each alternative. Each of the alternative strategies is discussed below.

### 7.1 Alternative 1: Soil Excavation and Off-Site Disposal

According to the United States Environmental Protection Agency (EPA), *“the excavation of contaminated soil from a site involves digging it up for “ex situ” (above-ground) treatment or for disposal in a landfill. Removing these potential sources of contamination keeps people from coming into contact with contamination and helps speed the cleanup of contaminated groundwater that may be present.”* Soil excavations generally involve more upfront capital investments than some traditional remediation technologies, however when the lifecycle costs for site remediation are taken into account, the excavation of residual hydrocarbons either adsorbed onto soil or entrained in the pore space can provide long-term costs savings and provides a guaranteed mass removal.

In order to adequately design a soil excavation cleanup strategy, the proposed areas of excavation must be adequately delineated to determine the contaminant mass distribution, evaluate the total mass of hydrocarbons remaining and gather geotechnical information for shoring and/or dewatering designs and other safety considerations. In the April 23, 2013 *Remedial Action Plan (RAP)*, Antea Group proposed conducting such a site assessment to further delineate the proposed area A2, prior to finalizing our excavation design (Antea 2013). In July 2013, ten soil borings (SB-1 through SB-10) were advanced to a maximum depth of 15 feet bgs in the vicinity of the proposed excavation area A2. Based on analytical results of soil samples collected during the investigation, most of the impacted soil is located at depths ranging from 5.5 feet to 8 feet bgs with minor impact as deep as 11 feet bgs. It is worth noting that in the proposed excavation areas, in the April 2013 *RAP*, there is some overlap of former excavation areas, although the depth of these former excavations averages approximately 5 feet below grade. However, boring logs from borings B-5, B-6, MW-12, and MW-12A indicated the fill in area A1 to depths ranging from one to two feet bgs. This appears to indicate that this area was not previously excavated. Former excavation areas as well as the proposed excavation areas are shown on **Figure 9**.

At this site, there is also a limited window of opportunity to coordinate the source excavation of the areas with the current landowner, Convenience Retailers, LLC, also known as Pacific Convenience & Fuels (PC&F). PC&F is in the process of permitting a complete station renovation, which involves removing the current station building, canopy, fueling dispensers and product lines and reinstalling a new station layout in an effort to modernize the station facility. At the time of this CAP preparation, it is our understanding that only the current location of the USTs will remain the same. PC&F has offered to coordinate their site renovation efforts with our recommendation to conduct a soil source excavation. PC&F now estimates that their site renovation work will take place in the second or third quarter of 2014.

Using the areas and depths initially recommended in the April 2013 RAP and updated with the results of the recent soil delineation event, we estimate that the costs to conduct the soil excavation including monitoring well abandonment & replacement, shoring installation, dewatering and treatment, soil excavation and disposal and backfill of the excavations to range from \$375,000 to \$425,000. Depending on the results of the soil assessment conducted in the two proposed areas, this cost could change based on a reduced (likely) or increased (unlikely) soil excavation footprint.

### **7.1.1 Soil Excavation Amendment: Oxygen Release Compound**

Following the removal of impacted soils during an excavation, a residual groundwater plume can remain in the pore space of soils located outside of the excavation limits. Once backfill of the excavation is completed and dewatering is halted, this formation water can flow back into the former excavation area. In addition, due to financial and risk based considerations, there is the possibility minor soil impacts being left in place below or adjacent to the proposed excavation areas. As a preemptive measure, and to accelerate biodegradation of the remaining hydrocarbon plume, a common industry practice is to apply Regenesis brand Advanced Formula Oxygen Release Compound®- Advanced (ORC®-A) to the excavated area prior to backfilling. Case studies of ORC-A based remediation strategies are presented as **Appendix E**.

According to Regenesis, ORC-A is a proprietary formulation of food-grade, calcium oxy-hydroxide that produces a controlled-release of molecular oxygen for periods of up to 12 months upon hydration. ORC-A will supply controlled-release molecular oxygen to the subsurface environment where it will accelerate the rate of naturally occurring aerobic contaminant biodegradation in groundwater and saturated soils for periods of up to 12 months on a single application. ORC-A was not evaluated during the in-situ chemical oxidation (ISCO) pilot testing as a chemical that could be used for oxidation of the residual impacts. Based on the extensive use of ORC-A on previous remediation cleanups of petroleum hydrocarbons, we do not believe that a pilot test of ORC-A is warranted or cost

effective. A discussion of the limitations of using a slurry injection of ISCO technologies as a sole remediation strategy is presented in Section 7.3.

ORC-A is normally applied in one of two methods, either with direct push technologies into boreholes at continuous / discrete depth intervals, or applied via mixed slurry by spraying it onto an open excavation. In the case of this site, the recommended injection method would be via spray onto the excavation. As presented in the April 2013 *RAP*, approximately 1,200 pounds of ORC-A is proposed. The cost for this application event is approximately \$10,000.

## **7.2 Alternative 2: Dual Phase Extraction**

Based on the 24-Hour DPE pilot testing TRC summarized in their May 24, 2005 *Dual –Phase Extraction Report*, and taking into consideration the former dewatering data summarized during the UST excavation and site renovation work, a tight network of DPE wells could be used to recover dissolved phase impacts in a limited source area. This cleanup strategy would have significant limitations and expenses if implemented. During the 24-hour pilot test, an estimated 2,000 gallons of water were extracted from the pilot test extraction well. Based on analytical data; an estimated 1.77 pounds of hydrocarbons were removed in recovered groundwater. Influent air concentrations decreased substantially after only 5 hours of run time. This low extracted mass, along with an average extraction rate of only 6.6 cubic feet per minute (CFM), led TRC to conclude that *“DPE is not a viable long-term remedial alternative for removing source hydrocarbons from this site”*.

Based on a review of the DPE Pilot Test report, site boring logs and groundwater sampling logs, the likelihood of a successful implementation of DPE to address any adsorbed soil impacts would be poor. The native and fill soils, consisting of bay mud and fine grained materials, are not ideal matrixes for DPE technology to remove vapors and adsorbed petroleum hydrocarbons from a wide radius. Compared to other technologies presented herein, utilizing DPE for a complete remediation would increase the overall required remediation timeframe cost and would be significantly limited by its ability to recover vapors from the subsurface at this site.

We agree with TRC’s assessment in 2005 that DPE is not the optimal remediation technology to address adsorbed and dissolved phase impacts across the entire site. A focused DPE system installed in the remaining source area could be used to reduce the source impacts, although the cost would be high. Antea Group estimates that implementing DPE strategy would achieve source area clean-up in approximately 3-5 years. The estimated cost of permitting, installing and operating a fixed, DPE system to remediate the site to acceptable closure levels would range from \$800,000 to \$1,000,000.

### **7.3 Alternative 3: In-Situ Chemical Oxidation (ISCO)**

The remediation of groundwater contamination using ISCO involves injecting oxidants and potentially co-amendments or activators directly into the source zone and down gradient and lateral gradient plume areas. The injected or applied chemicals react with the contaminants, oxidizing them, and eventually producing innocuous substances such as carbon dioxide and water. However, there may be many chemical reaction steps required to reach those end points, and some reaction intermediates can be toxic. In most cases if an adequate oxidant dose is applied in a targeted radius and depth interval, oxidation of petroleum hydrocarbons is successful. There is significant case study and peer-reviewed that shows that degradation of petroleum hydrocarbons can be achieved using a wide variety of ISCO chemicals.

Based on data presented in the May 15, 2012 *ISCO Pilot Test Work Plan*, injections of water based solutions appear to be technically feasible in the fine-grained formation found beneath this site. Based on data presented in Appendix B of the April 23, 2013 *RAP*, Total Oxidant Demand (TOD) testing using a proprietary blend of calcium peroxide activated sodium persulfate called OxygenBioChem (OBC) could be used to remediate residual petroleum hydrocarbons at the site. It should be noted that in the text of the April 2013 *RAP* described the ISCO feasibility test as using hydrogen peroxide activated sodium persulfate. This was an incorrect statement; as the lab report in Appendix B of the 2013 *RAP* details, the actual ISCO amendment solution used for the TOD test was OBC.

In order to determine the efficacy of a full-scale remediation effort using OBC ISCO injections, a pilot test would need to be implemented in targeted areas to measure the true potential of injecting a slurry OBC amendment solution into the formation. The previous ISCO feasibility work conducted to date provides cursory information about the potential for the formation to accept injected water at a given pressure and flow rate. ISCO amendment solutions like OBC are significantly more viscous in nature than water and could create injection back pressure, leading to formation fracturing and unequal distribution issues in the fine grained formation at this site. The cost to perform an initial pilot test injection and required post ISCO monitoring are approximately \$60,000. Assuming the ISCO injection pilot test was successful and showed that a full scale injection schema could be developed, the tentative design model for further injection events calls for one large scale injection and several smaller, polishing, injection events. A tight network of injection points would be required to provide adequate lateral and even depth coverage. In addition to the required pilot testing, the cost to implement the full scale ISCO injections, three polishing injection events and monitoring program at this site are estimated to be \$250,000.

In our professional opinion, based on our firms and our injection contractors experience with ISCO injections into fine-grained formations like the one at this site, there is a moderate probability of a successful remediation of soil and groundwater impacts using ISCO injections. Fine grained soils often resist injections of most slurry solutions to the point of formation fracturing, resulting in rapid injection or possible surfacing of the injection solution along a



preferential pathway. It is unlikely that the injections will get an equal distribution around an injection point, resulting in the need for a tighter spacing of injection points during each event. These additional injection events can quickly increase the lifecycle remediation costs for site cleanup.

#### 7.4 Alternatives Comparison Matrix

| Alternative   | Relative Performance Result  | Implementability  | Cost Effectiveness /Estimate                                  | Implementation Time Frame   | Advantages and Disadvantages   |
|---|--|---|---|---|--|
| <b>Soil Excavation with ORC-A application and off-site disposal</b> | Very good for addressing soil source impacts. Good for addressing residual dissolved phase (removes leaching source to groundwater, and ORC-A provides bioremediation enhancements). | Good. Additional site assessment warranted to finalize excavation footprint. Dewatering and shoring needed. Work will only be conducted if it can be coordinated with the planned site renovation by the current land/business owner. | Fair<br>>\$375,000  | Estimated 2-4 weeks to complete work, pre-excavation permitting and a CEQA review may be needed by the owner for their site restoration plans. There is a small window of opportunity to coordinate this excavation effort with the business stakeholder's site renovation efforts. | <p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>-Removes bulk hydrocarbon mass in smear zone and effectively would remove soil impacts locked-up in tight clay formation</li> <li>-If ORC-A application is used in conjunction with the proposed excavation activities, enhanced bioremediation of the residual groundwater plume can occur.</li> </ul> <p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>-Must be coordinated with stakeholder activities.</li> <li>- There is the potential to remove 4-6 feet of previously excavated areas for parts of the proposed footprint.</li> <li>-Excavation backfill using controlled density fill to support new building foundation, limiting replacement MW locations.</li> </ul> |
| <b>DPE</b>  | Fair for GW impacts, poor for soil impacts.  | Fair. System installation and permitting is straightforward. Design of well network would be substantial to account for low effective radius of influence.  | Poor. \$800,0000 to \$1,000,000 to complete site remediation. | 4-6 months for permitting and system installation. 3 to 5 years for system operation and monitoring.  | <p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>-Targets removal of COCs in both saturated and unsaturated zones</li> <li>-Can effectively remove non-aqueous phase liquids</li> </ul> <p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>-High operational requirements for O&amp;M</li> <li>-low air flow recovery rate would limit influence on unsaturated impacted zones.</li> </ul>  |

| Alternative                                       | Relative Performance Result | Implementability   | Cost Effectiveness /Estimate | Implementation Time Frame   | Advantages and Disadvantages   |
|---|-----------------------------|--|------------------------------|---|--|
|   |                             |  |                              |   | <ul style="list-style-type: none"> <li>-Low air flow recovery rates would extend the remediation timeframe</li> <li>-Extensive discharge permitting for air and groundwater recovered</li> <li>-Stakeholder issues for compound footprint on newly renovated site.</li> </ul>  |
| <b>ISCO Injections using Oxygen BioChem (OBC)</b> | Fair                        | Fair to Good. Pilot test warranted with 3 month monitoring period. Subsequent injections via direct push would likely include at least 1 large and 3 or more polishing events. | Good to Fair. \$310,000      | Estimated 1.5 to 2 years to complete pilot testing, main/polishing injections and performance monitoring. | <p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>-Targets removal of COCs in both saturated and unsaturated zones</li> <li>-With effective volumes and applications, can effectively oxidize petroleum hydrocarbons to carbon dioxide and water.</li> </ul> <p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>- Site lithology would require a tight network of injection points.</li> <li>-Presence of NAPL or other unidentified hotspots of contamination could reduce the effectiveness of injections.</li> <li>-Potential for formation fracturing or uneven distribution of product in the subsurface could increase the required number of injections and overall timeframe.</li> </ul> |

## 8.0 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Antea Group analyzed site conditions from the potential sources, the fuel dispenser, the product piping, and the USTs in an attempt to determine the source of the petroleum hydrocarbon impact in the vicinity of monitoring wells, MW-6 and MW-14. In the vicinity of these monitoring wells there are utilities and the sumps from the

nearby carwash that potentially could act as preferential pathways in this area. However, this does not explain how the impact got to this location and is not found in monitoring wells MW-15, located between the fuel dispensers and the station building and monitoring well, MW-16, located between the known impact on the east side of the site, the fuel dispensers and monitoring wells MW-6 and MW-14. However, based on the boring logs from monitoring wells MW-6 and MW-14, it appears that the fill located in these areas extends down to a depth of approximately three feet bgs. Boring logs are presented in **Appendix D**. Historically, groundwater beneath the site has been as shallow as 0.7 feet below the top of casing in monitoring well, MW-9. Therefore, this fill material with hydraulic conductivity (K) values ranging from  $10^{-5}$  to  $10^{-3}$  centimeters per second (cm/sec), when compared to clay (bay mud) with K values ranging from  $10^{-9}$  to  $10^{-6}$  cm/sec could be acting as a preferential pathway. This still does not explain how the free product got into monitoring well, MW-6 in 1996, after the excavation work conducted at the site in 1995.

**Appendix F** contains email correspondence and fingerprint analysis of a sample of the free product collected from monitoring well MW-6 in 1996. Based on this correspondence and the subsequent fingerprint analysis, it appears that the free product found in monitoring well MW-6 came from an outside source and did not originate from a release at this site. The fingerprint analysis indicates that the collected sample contained leaded gasoline and was not representative of the fuel refined by Unocal at that time.

In addition, the petroleum hydrocarbon impact observed in monitoring well MW-14 is also likely a result of the introduction of gasoline into monitoring well MW-6 from an outside source, due to the shallow depth to groundwater, the fill material found in the vicinity of monitoring wells MW-6 and MW-14, and groundwater flow direction periodically being to the southwest beneath the site (**Figure 2, Appendix C**). It is likely that the petroleum hydrocarbon impacted groundwater in the area of monitoring well MW-6, caused by the introduction of gasoline into MW-6 from an outside source, flowed from MW-6, through the fill material, to the area of monitoring well MW-14.

Under the LTCP there are three COCs for petroleum hydrocarbon impacted soils. The COCs are benzene, ethylbenzene and naphthalene. During previous investigations soil samples were not collected and analyzed for naphthalene. However, during the most recent investigation conducted by Antea Group in July 2013, naphthalene was analyzed for in the soil samples collected. In each of these collected soil samples, the reported naphthalene concentrations were below the limits allowed under the LTCP, except for the sample collected from boring SB-1 at 5.5 feet bgs.

As indicated above, based on the analytical data from the 1995 UST, product piping, and fuel dispenser over excavation investigation and subsequent investigations done at this site, the remaining soil impact appears to be east of the fuel dispenser islands and south-southwest of the current station building. All other remaining impact

appears to be residual in nature and not a source for the current groundwater plume. COC's (benzene, and ethylbenzene) remaining in the soil subsequent to the 1995 UST, product piping, and fuel dispenser over excavation were below the limits allowed by the LTCP. However, benzene, ethylbenzene, and naphthalene concentrations reported in borings advanced east of the current fuel dispensers and south-southwest of the current station building contain benzene, ethylbenzene, and naphthalene concentrations greater than those allowed under the LTCP.

Therefore, based on the evaluation and comparison of the three alternatives, and taking into consideration the opportunity to conduct work concurrently with a planned site renovation, Antea Group recommends implementing the soil source excavation and ORC-A. This source removal also appears to be the best current option to help reduce remaining petroleum hydrocarbon and MTBE impact to the groundwater beneath and down-gradient of the site. Upon approval of this CAP and the recommendations made herein, Antea Group will submit an updated Remedial Action Plan for consideration.

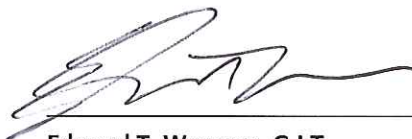
## 9.0 REMARKS

The recommendations contained in this report represent Antea USA, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. For any reports cited that were not generated by Delta or Antea Group, the data from those reports is used "as is" and is assumed to be accurate. Antea Group does not guarantee the accuracy of this data for the referenced work performed nor the inferences or conclusions stated in these reports. The contract between Antea USA, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA, Inc.'s client and anyone else specifically identified in writing by Antea USA, Inc. as a user of this report. Antea USA, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA, Inc. makes no express or implied warranty as to the contents of this report.

Prepared by:



**Josh Mahoney**  
Senior Project Manager  
Antea Group



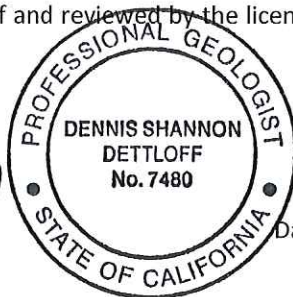
**Edward T. Weyrens, G.I.T.**  
Project Professional  
Antea Group

Information, conclusions, and recommendations provided by Antea Group in this document regarding the site have been prepared under the supervision of and reviewed by the licensed professional whose signature appears below.

Licensed Approver:



**Dennis S. Dettloff, P.G.**  
Senior Project Manager  
California Registered Professional Geologist No. 7480  
Antea Group



Date: \_\_\_\_\_

11/22/13

cc: GeoTracker (upload)

## 10.0 REFERENCES

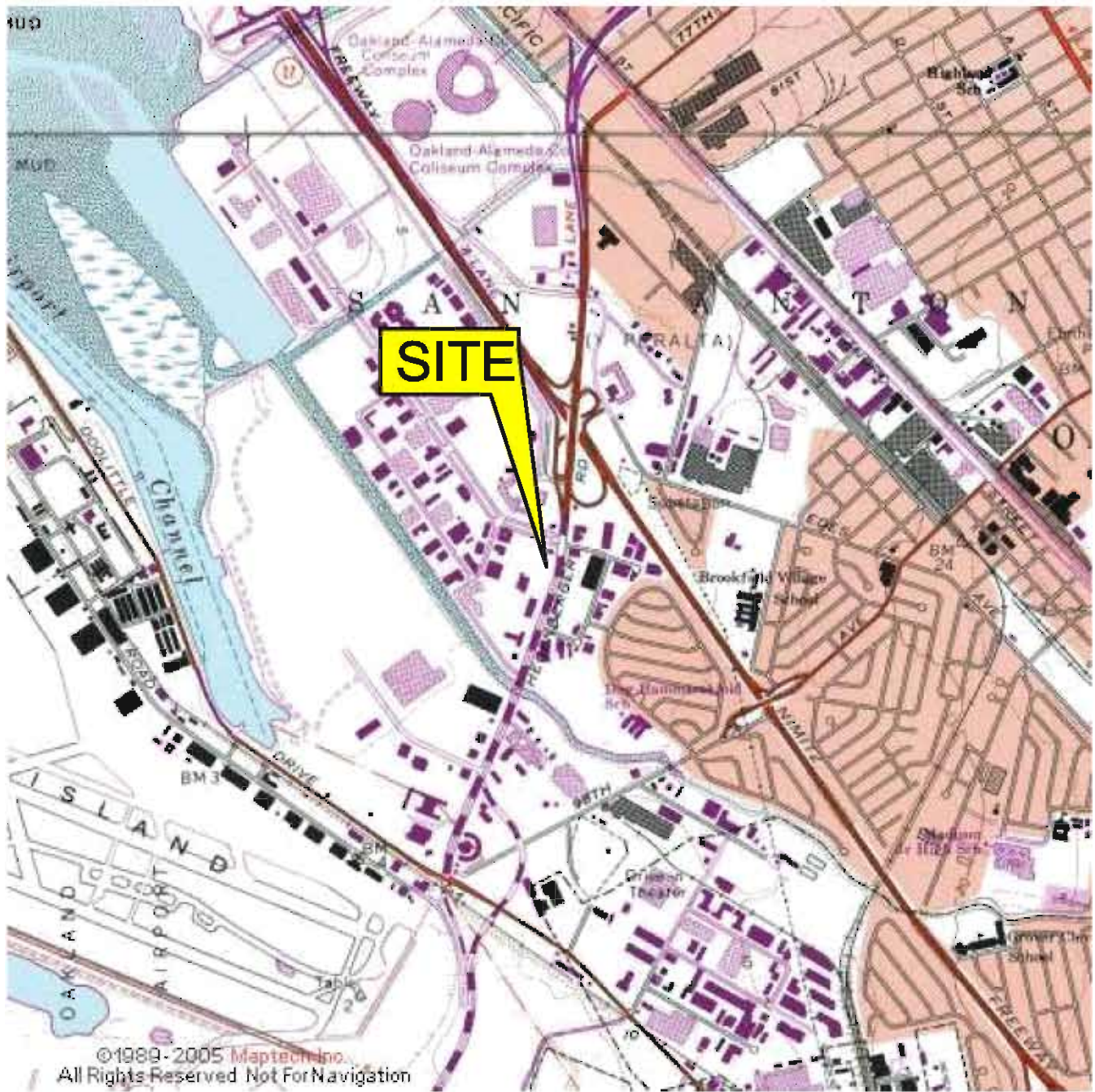
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## **Figures**


|          |   |
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| Figure 6 | Site Plan with Historical Sample Locations and Concentrations - A |
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| Figure 9 | Site Plan with Proposed Excavations                               |





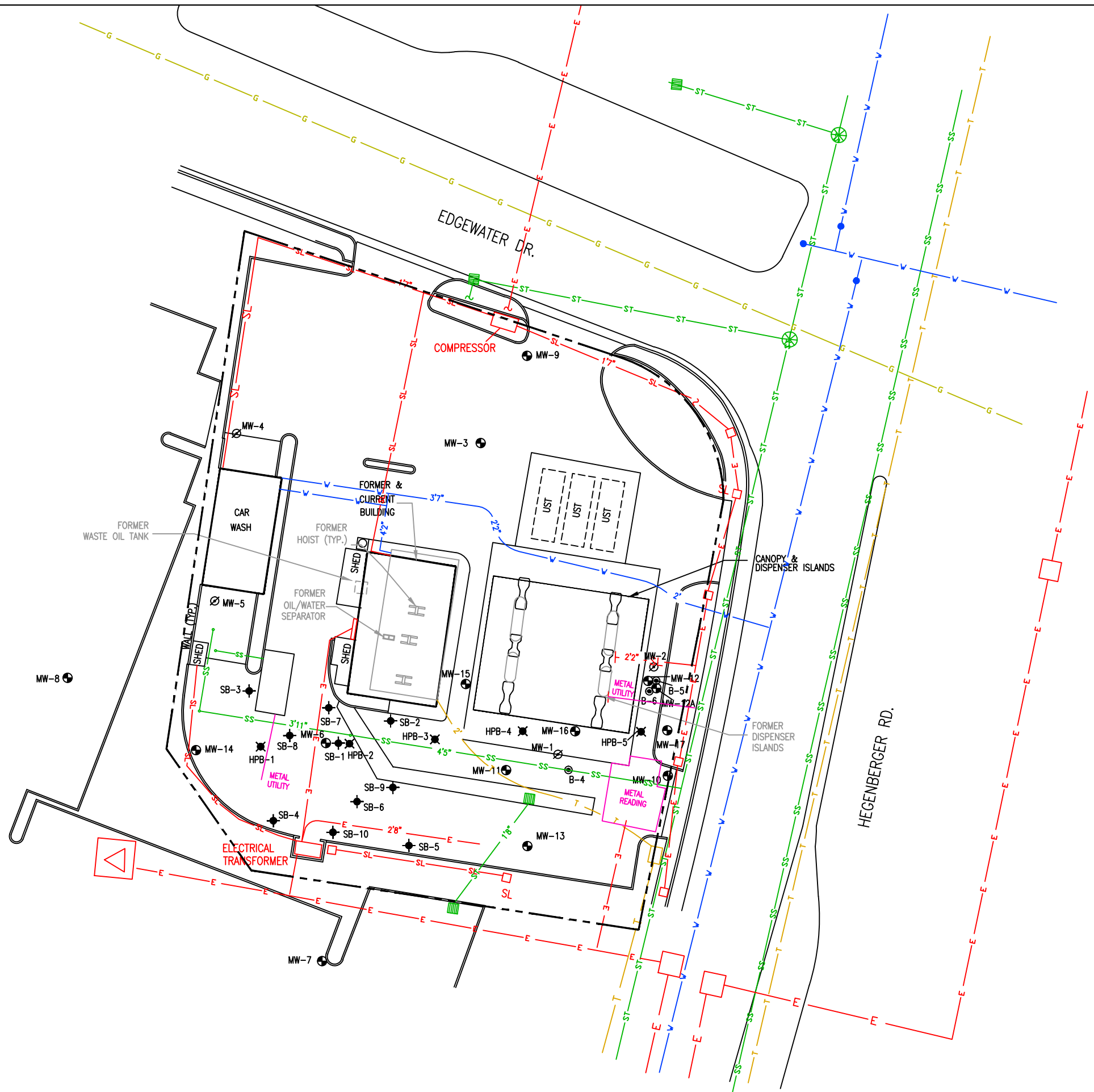
**FIGURE 1**  
**SITE LOCATION MAP**

76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA

|                          |                   |                               |   |
|--------------------------|-------------------|-------------------------------|---|
| PROJECT NO.<br>142705191 | PREPARED BY<br>EW | DRAWN BY<br>DR/JH             |  |
| DATE<br>1/31/11          | REVIEWED BY<br>DD | FILE NAME<br>5043-SiteLocator |   |

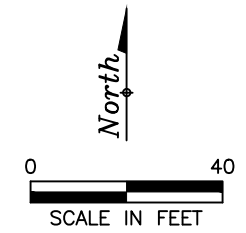
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, OAKLAND EAST QUADRANGLE (1973)





**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- MW- MONITORING WELL
- MW- ABANDONED MONITORING WELL
- ◆ SB- SOIL BORING LOCATION (ANTEA GROUP 2013)
- ◆ HPB- SOIL BORING LOCATION (ANTEA GROUP 2012)
- B- BORING LOCATION
- T — TELEPHONE
- SS — SEWER
- W — WATER
- ST — STORM DRAIN
- E — ELECTRIC
- G — GAS
- SL — STREET LIGHT



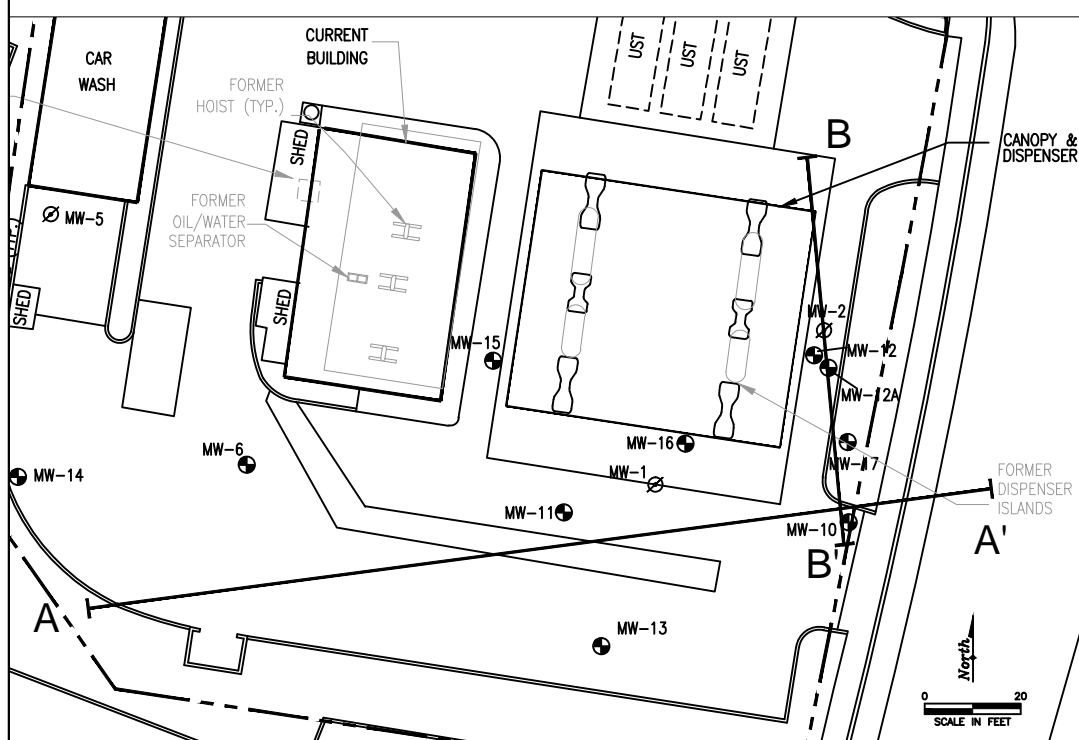
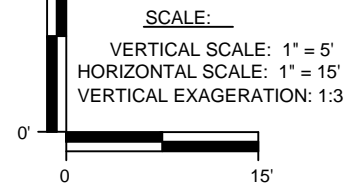
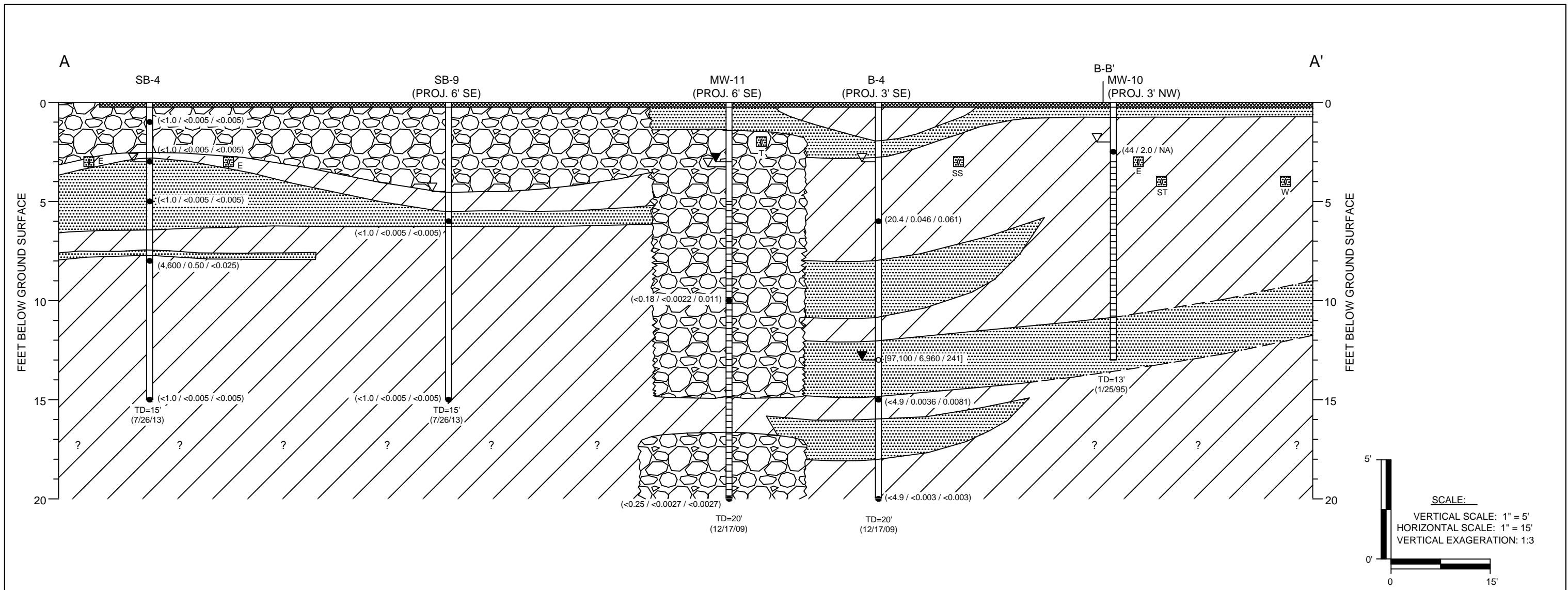
ADAPTED FROM A MORROW SURVEY ON 5/23/11

**FIGURE 2  
SITE PLAN WITH UTILITIES**

76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA

|                          |                   |                         |
|--------------------------|-------------------|-------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>JF | DRAWN BY<br>JH          |
| DATE<br>8/15/13          | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS |





**EXPLANATION**

- MW-11 (PROJ.) MONITORING WELL/BORING LOCATION PROJECTED DISTANCE (FEET)
- EXPLORATORY BORING / WELL CASING
- SOIL ANALYTICAL SAMPLE IN mg/kg (TPHg / BENZENE / MTBE)
- WELL SCREEN
- DEPTH TO STATIC WATER LEVEL WITH GROUNDWATER ANALYTICAL SAMPLE IN  $\mu\text{g/L}$  (TPHg / BENZENE / MTBE)
- DEPTH TO FIRST ENCOUNTERED GROUNDWATER
- TD=20' (6/23/10) TOTAL DEPTH OF BORING DATE INSTALLED
- FINE GRAINED MATERIAL (CLAY)
- MEDIUM GRAINED MATERIAL (SAND)
- COARSE GRAINED MATERIAL (GRAVEL/FILL)
- ASPHALT / CONCRETE
- E ELECTRICAL LINE
- T TELEPHONE LINE
- ST STORM DRAIN
- SS SANITARY SEWER
- W WATER LINE
- APPROXIMATE STRATIGRAPHIC BOUNDARY

**NOTES:**

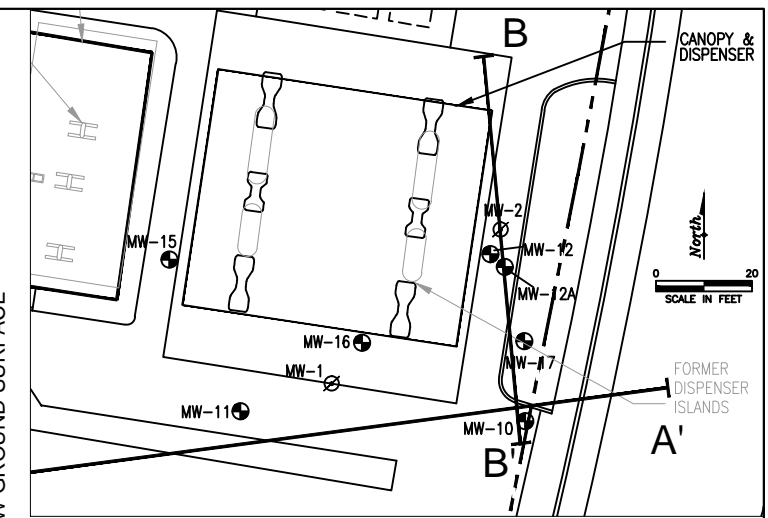
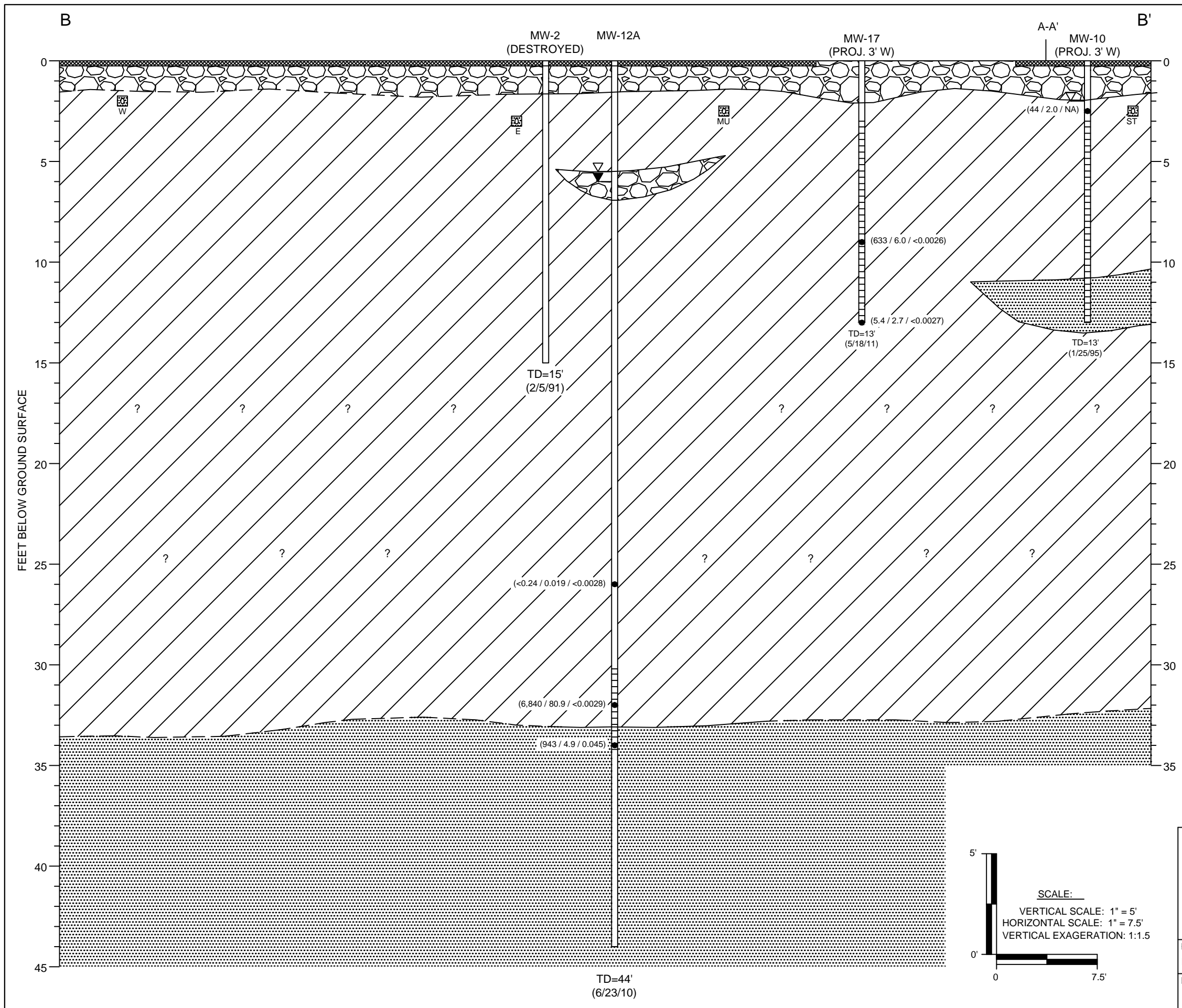
- mg/kg = MILLIGRAMS PER KILOGRAM
- GRO = GASOLINE RANGE ORGANICS
- MTBE = METHYL TERTIARY BUTYL ETHER
- NA = NOT ANALYZED
- < = LESS THAN LABORATORY INDICATED REPORTING LIMITS

STRATIGRAPHY BETWEEN BORINGS IS INTERPRETIVE.

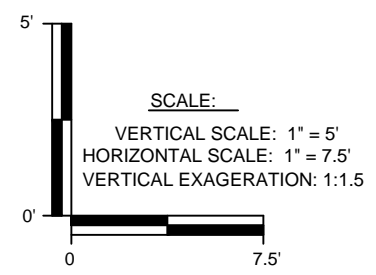
**FIGURE 3**  
GEOLOGIC CROSS SECTION A-A'

76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA

|                          |                   |                         |
|--------------------------|-------------------|-------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>EW | DRAWN BY<br>JH          |
| DATE<br>11/15/13         | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS |



- EXPLANATION**
- MW-11 (PROJ.) MONITORING WELL/BORING LOCATION PROJECTED DISTANCE (FEET)
  - EXPLORATORY BORING / WELL CASING
  - SOIL ANALYTICAL SAMPLE IN mg/kg (TPHg / BENZENE / MTBE)
  - WELL SCREEN
  - DEPTH TO STATIC WATER LEVEL WITH GROUNDWATER ANALYTICAL SAMPLE IN µg/L (TPHg / BENZENE / MTBE)
  - DEPTH TO FIRST ENCOUNTERED GROUNDWATER
  - TD=20' (6/23/10) TOTAL DEPTH OF BORING DATE INSTALLED
  - FINE GRAINED MATERIAL (CLAY)
  - MEDIUM GRAINED MATERIAL (SAND)
  - COARSE GRAINED MATERIAL (GRAVEL/FILL)
  - ASPHALT / CONCRETE
  - APPROXIMATE STRATIGRAPHIC BOUNDARY
  - E ELECTRICAL LINE
  - ST STORM DRAIN
  - MU METAL UTILITY
  - W WATER LINE
- NOTES:**
- mg/kg = MILLIGRAMS PER KILOGRAM
  - GRO = GASOLINE RANGE ORGANICS
  - MTBE = METHYL TERTIARY BUTYL ETHER
  - NA = NOT ANALYZED
  - < = LESS THAN LABORATORY INDICATED REPORTING LIMITS
- STRATIGRAPHY BETWEEN BORINGS IS INTERPRETIVE.



**FIGURE 4**  
GEOLOGIC CROSS SECTION B-B'

76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA

|                          |                   |                         |
|--------------------------|-------------------|-------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>EW | DRAWN BY<br>JH          |
| DATE<br>11/15/13         | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS |



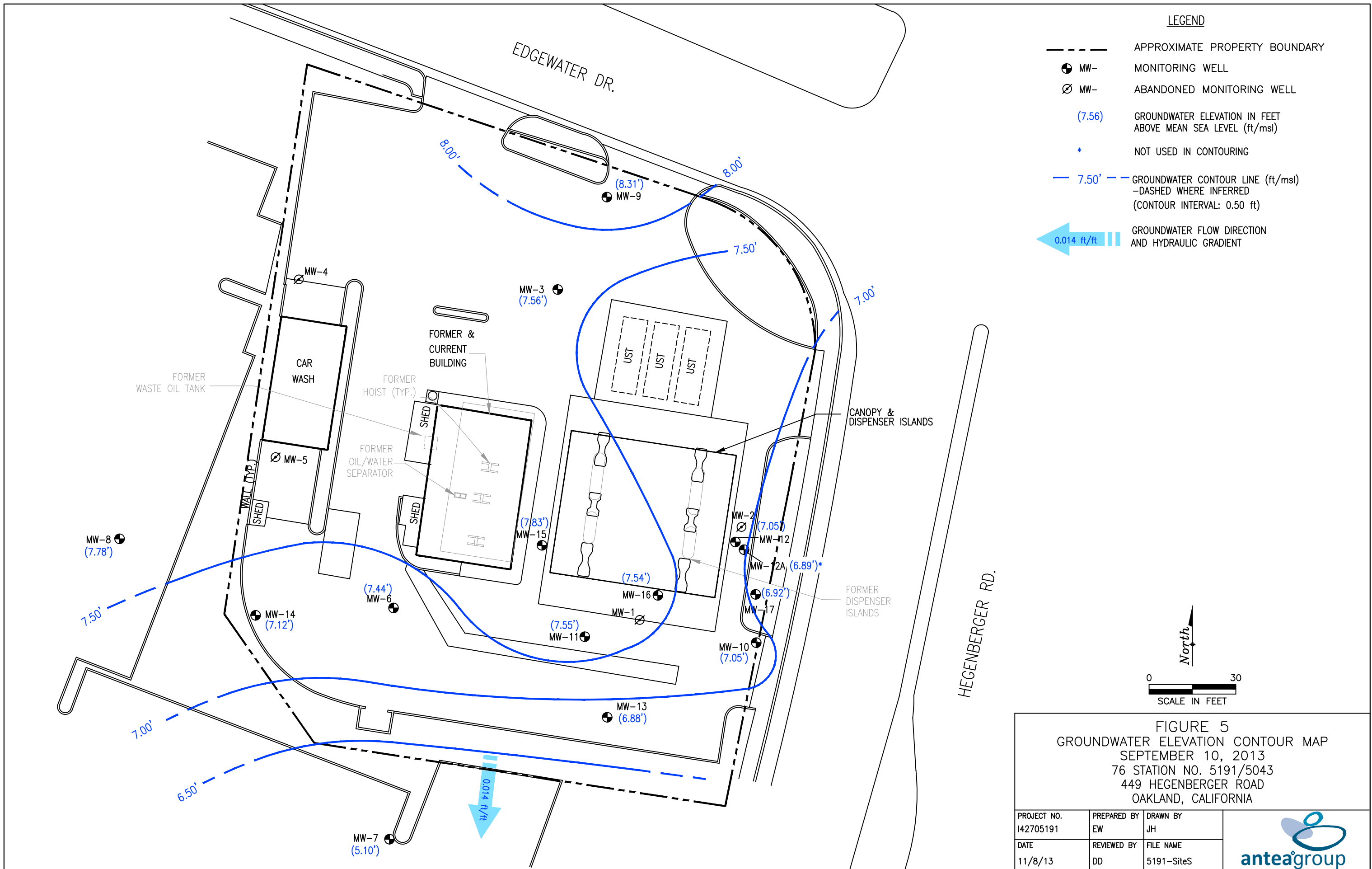


FIGURE 5  
 GROUNDWATER ELEVATION CONTOUR MAP  
 SEPTEMBER 10, 2013  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

|                          |                   |                         |
|--------------------------|-------------------|-------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>EW | DRAWN BY<br>JH          |
| DATE<br>11/8/13          | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS |





EDGEWATER DR.

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- ⊕ MW- MONITORING WELL
- ⊖ MW- ABANDONED MONITORING WELL
- ⊗ HPB- SOIL BORING LOCATION (ANTEA GROUP 2012)
- ⊙ B- BORING LOCATION
- SOIL SAMPLE LOCATION
- [ ] 1995 EXCAVATION AREA

| MW-12     |  |
|-----------|--|
| (6/22/10) | SAMPLE NAME                              |
| Dp 8      | SAMPLE DATE                              |
| G 210     | DEPTH (FEET)                             |
| D 45.7    | TOTAL PETROLEUM HYDROCARBONS AS GASOLINE |
| B 5.2     | DIESEL RANGE ORGANICS WITH SILICA GEL    |
| M <0.0028 | BENZENE                                  |
|           | METHYL TERTIARY BUTYL ETHER              |

NOTES:

- NA = NOT ANALYZED
- < = LESS THAN LABORATORY INDICATED REPORTING LIMITS
- \* = RESULT DID NOT MATCH LABORATORY STANDARD
- BOLD** = ABOVE LABORATORY DETECTED REPORTING LIMITS

ALL CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg).

| SB-2      |           |            |            |         |               |
|-----------|-----------|------------|------------|---------|---------------|
| (7/25/13) |           |            |            |         |               |
| Dp        | 1         | 3          | 5          | 11      | 15            |
| G         | <1.0      | <1.0       | <1.0       | <1.0    | <1.0          |
| D         | <b>10</b> | <b>2.1</b> | <b>5.9</b> | <1.0    | <1.0          |
| B         | <0.0050   | <0.0050    | <0.0050    | <0.0050 | <0.0050       |
| M         | <0.0050   | <0.0050    | <0.0050    | <0.0050 | <b>0.0059</b> |

| SB-7      |              |             |              |
|-----------|--------------|-------------|--------------|
| (7/26/13) |              |             |              |
| Dp        | 6            | 11          | 13           |
| G         | <b>21</b>    | <b>57</b>   | <b>1.8</b>   |
| D         | <b>11</b>    | <b>17</b>   | <b>1.5</b>   |
| B         | <b>0.019</b> | <b>0.17</b> | <b>0.018</b> |
| M         | <0.0050      | <0.0050     | <0.0050      |

| SB-3      |             |         |
|-----------|-------------|---------|
| (7/25/13) |             |         |
| Dp        | 7.5         | 15      |
| G         | <b>310</b>  | <1.0    |
| D         | <b>330</b>  | <1.0    |
| B         | <b>0.13</b> | <0.0050 |
| M         | <0.0050     | <0.0050 |

| SB-1      |               |            |               |
|-----------|---------------|------------|---------------|
| (7/25/13) |               |            |               |
| Dp        | 5.5           | 11         | 15            |
| G         | <b>31,000</b> | <b>73</b>  | <b>5.0</b>    |
| D         | <b>450</b>    | <b>3.1</b> | <b>3.1</b>    |
| B         | <b>85</b>     | <b>1.2</b> | <b>0.0085</b> |
| M         | <2.5          | <0.0050    | <0.0050       |

| SB-8      |              |         |
|-----------|--------------|---------|
| (7/26/13) |              |         |
| Dp        | 8            | 11      |
| G         | <b>3,300</b> | <1.0    |
| D         | <b>900</b>   | <1.0    |
| B         | <0.50        | <0.0050 |
| M         | <0.50        | <0.0050 |

| MW-14     |         |              |            |
|-----------|---------|--------------|------------|
| (5/17/11) |         |              |            |
| Dp        | 7       | 10           | 13         |
| G         | <0.23   | <b>1,740</b> | <b>1.0</b> |
| D         | <2.0    | <b>45.9*</b> | <2.0       |
| B         | <0.0027 | <b>1.8</b>   | <0.0027    |
| M         | <0.0027 | <0.0026      | <0.0027    |

| SB-9      |            |         |
|-----------|------------|---------|
| (7/26/13) |            |         |
| Dp        | 6          | 15      |
| G         | <1.0       | <1.0    |
| D         | <b>5.9</b> | <1.0    |
| B         | <0.0050    | <0.0050 |
| M         | <0.0050    | <0.0050 |

| SB-4      |           |            |            |              |         |
|-----------|-----------|------------|------------|--------------|---------|
| (7/25/13) |           |            |            |              |         |
| Dp        | 1         | 3          | 5          | 8            | 15      |
| G         | <1.0      | <1.0       | <1.0       | <b>4,600</b> | <1.0    |
| D         | <b>13</b> | <b>2.6</b> | <b>4.7</b> | <b>31</b>    | <1.0    |
| B         | <0.0050   | <0.0050    | <0.0050    | <b>0.50</b>  | <0.0050 |
| M         | <0.0050   | <0.0050    | <0.0050    | <0.025       | <0.0050 |

| SB-6      |              |         |
|-----------|--------------|---------|
| (7/26/13) |              |         |
| Dp        | 6.5          | 15      |
| G         | <b>1,900</b> | <1.0    |
| D         | <b>360</b>   | <1.0    |
| B         | <b>0.57</b>  | <0.0050 |
| M         | <0.25        | <0.0050 |

| SB-10     |            |         |
|-----------|------------|---------|
| (7/26/13) |            |         |
| Dp        | 8          | 11      |
| G         | <1.0       | <1.0    |
| D         | <b>1.9</b> | <1.0    |
| B         | <0.0050    | <0.0050 |
| M         | <0.0050    | <0.0050 |

| SB-5      |              |         |
|-----------|--------------|---------|
| (7/25/13) |              |         |
| Dp        | 6            | 15      |
| G         | <b>100</b>   | <1.0    |
| D         | <b>52</b>    | <1.0    |
| B         | <b>0.020</b> | <0.0050 |
| M         | <0.0050      | <0.0050 |

| MW-11     |              |             |
|-----------|--------------|-------------|
| (6/22/10) |              |             |
| Dp        | 10           | 20          |
| G         | <0.18        | <0.25       |
| D         | <b>3.2</b>   | <b>27.3</b> |
| B         | <0.0022      | <0.0027     |
| M         | <b>0.011</b> | <0.0027     |

| MW-13     |              |         |
|-----------|--------------|---------|
| (6/22/10) |              |         |
| Dp        | 8            | 15      |
| G         | <0.21        | <0.24   |
| D         | <2.0         | <2.0    |
| B         | <0.0026      | <0.0029 |
| M         | <b>0.064</b> | <0.0029 |

| MW-16     |             |         |
|-----------|-------------|---------|
| (5/17/11) |             |         |
| Dp        | 8           | 13      |
| G         | <0.23       | <0.23   |
| D         | <2.0        | <2.0    |
| B         | <0.0027     | <0.0028 |
| M         | <b>0.15</b> | <0.0028 |

| B-6       |         |         |              |             |              |
|-----------|---------|---------|--------------|-------------|--------------|
| (5/18/11) |         |         |              |             |              |
| Dp        | 9       | 14      | 21           | 26          |              |
| G         | <0.23   | <0.23   | <b>2,490</b> | <b>194</b>  | <b>7.2</b>   |
| D         | <2.0    | <2.0    | <b>68.6*</b> | <b>250*</b> | <2.0         |
| B         | <0.0027 | <0.0028 | <b>26.4</b>  | <b>3.6</b>  | <b>0.67</b>  |
| M         | <0.0031 | <0.0025 | <b>0.036</b> | <b>0.83</b> | <b>0.086</b> |

| MW-17     |              |             |
|-----------|--------------|-------------|
| (5/18/11) |              |             |
| Dp        | 9            | 13          |
| G         | <b>633</b>   | <b>5.4</b>  |
| D         | <b>39.6*</b> | <b>2.9*</b> |
| B         | <b>6</b>     | <b>2.7</b>  |
| M         | <0.0026      | <0.0027     |

| MW-12     |             |             |              |
|-----------|-------------|-------------|--------------|
| (6/22/10) |             |             |              |
| Dp        | 8           | 10          | 20           |
| G         | <b>210</b>  | <b>422</b>  | <0.24        |
| D         | <b>45.7</b> | <b>73.6</b> | <2.0         |
| B         | <b>5.2</b>  | <b>4</b>    | <b>0.019</b> |
| M         | <0.0028     | <0.0029     | <0.0028      |

| B-5        |              |             |              |              |
|------------|--------------|-------------|--------------|--------------|
| (12/17/09) |              |             |              |              |
| Dp         | 8            | 17.5        | 26.5         | 32           |
| G          | <b>1,060</b> | <b>136</b>  | <b>1,570</b> | <4.8         |
| D          | <b>269</b>   | <b>26.9</b> | <b>346</b>   | <5.9         |
| B          | <b>6.2</b>   | <b>0.55</b> | <b>16.2</b>  | <b>0.007</b> |
| M          | <0.0029      | <0.003      | <b>0.02</b>  | <0.0029      |

| MW-12A    |              |              |         |
|-----------|--------------|--------------|---------|
| (6/23/10) |              |              |         |
| Dp        | 26           | 32           | 34      |
| G         | <b>6,840</b> | <b>943</b>   | <0.22   |
| D         | <b>2,210</b> | <b>267</b>   | <1.9    |
| B         | <b>80.9</b>  | <b>4.9</b>   | <0.0027 |
| M         | <0.0027      | <b>0.045</b> | <0.0027 |

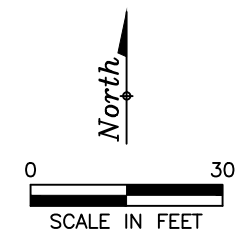
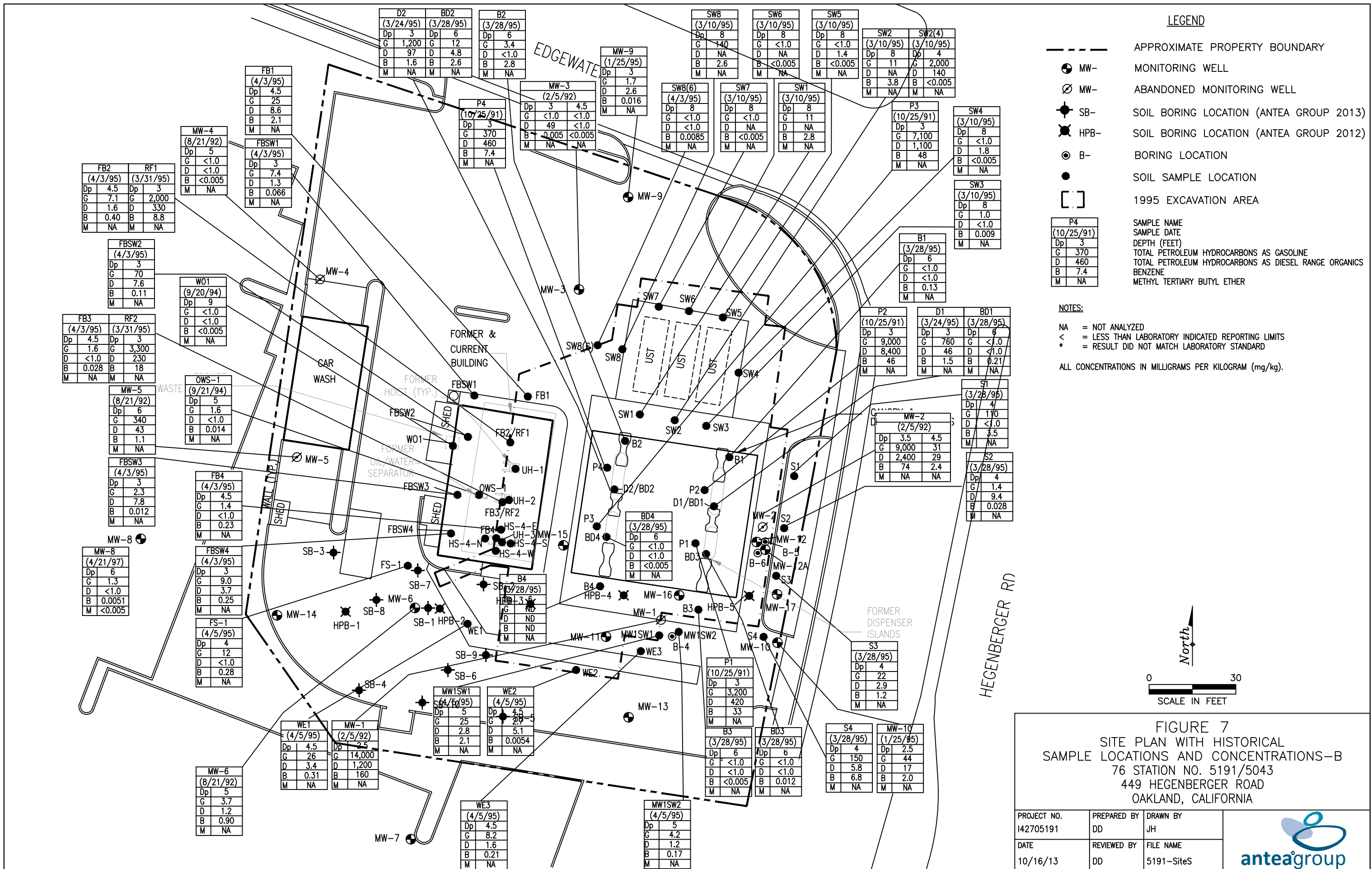


FIGURE 6  
SITE PLAN WITH HISTORICAL SAMPLE  
LOCATIONS AND CONCENTRATIONS-A  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA

|                          |                   |                         |
|--------------------------|-------------------|-------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>EW | DRAWN BY<br>JH          |
| DATE<br>07/14/11         | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS |





**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
  - MW- MONITORING WELL
  - MW- ABANDONED MONITORING WELL
  - SB- SOIL BORING LOCATION (ANTEA GROUP 2013)
  - HPB- SOIL BORING LOCATION (ANTEA GROUP 2012)
  - B- BORING LOCATION
  - SOIL SAMPLE LOCATION
  - [ ] 1995 EXCAVATION AREA
- | P4         |   |
|------------|---|
| (10/25/91) | SAMPLE NAME   |
| Dp 3       | SAMPLE DATE   |
| G 370      | DEPTH (FEET)  |
| D 460      | TOTAL PETROLEUM HYDROCARBONS AS GASOLINE              |
| B 7.4      | TOTAL PETROLEUM HYDROCARBONS AS DIESEL RANGE ORGANICS |
| M NA       | BENZENE   |
|            | METHYL TERTIARY BUTYL ETHER                           |

**NOTES:**

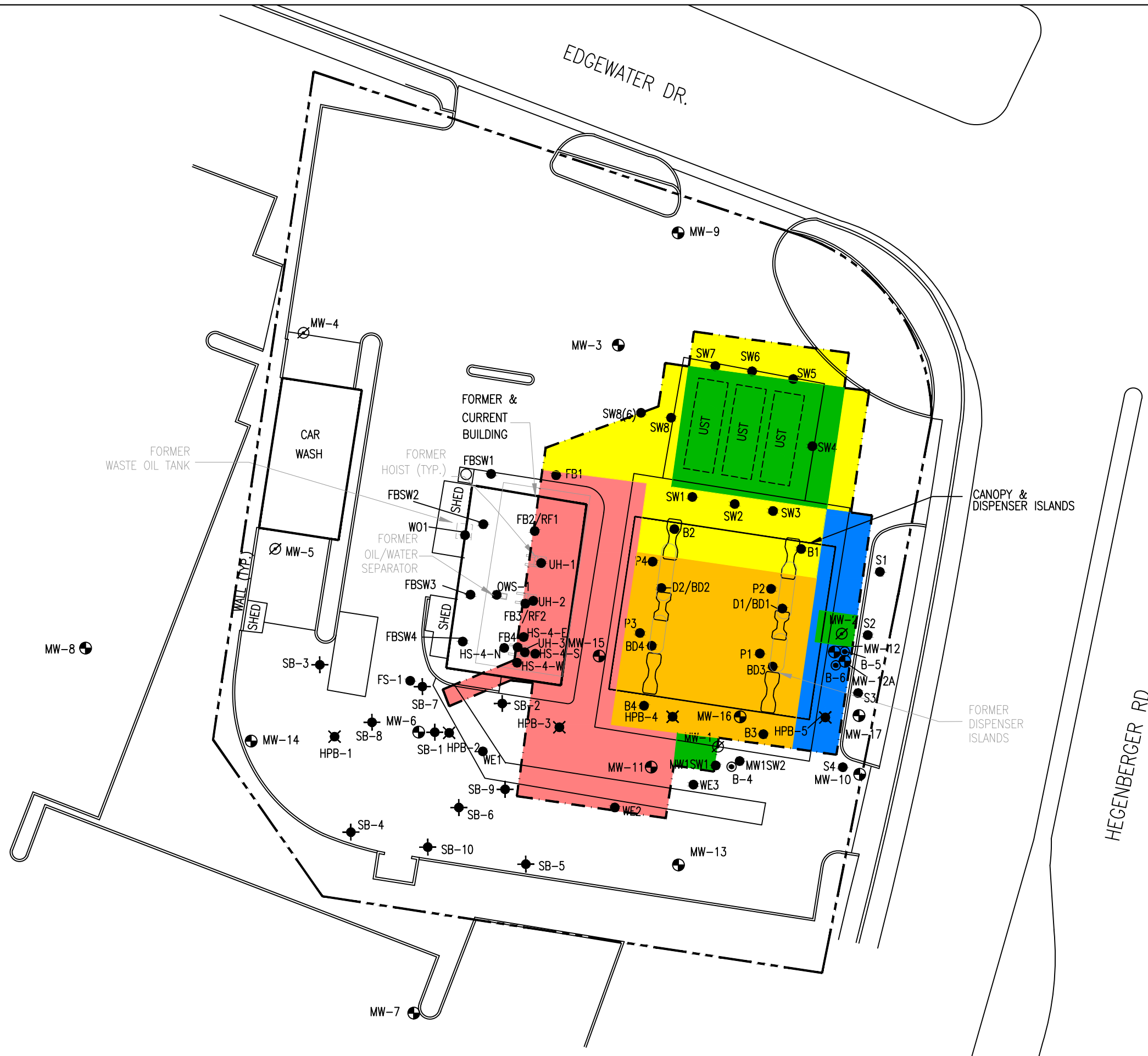
- NA = NOT ANALYZED
- < = LESS THAN LABORATORY INDICATED REPORTING LIMITS
- \* = RESULT DID NOT MATCH LABORATORY STANDARD

ALL CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg).

**FIGURE 7**  
 SITE PLAN WITH HISTORICAL  
 SAMPLE LOCATIONS AND CONCENTRATIONS-B  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

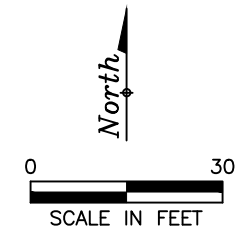
|                          |                   |                         |
|--------------------------|-------------------|-------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>DD | DRAWN BY<br>JH          |
| DATE<br>10/16/13         | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS |





**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- ⊕ MW- MONITORING WELL
- ⊘ MW- ABANDONED MONITORING WELL
- ⊙ SB- SOIL BORING LOCATION (ANTEA GROUP 2013)
- ⊙ HPB- SOIL BORING LOCATION (ANTEA GROUP 2012)
- ⊙ B- BORING LOCATION
- SOIL SAMPLE LOCATION
- [ ] 1995 EXCAVATION AREA
- EXCAVATED TO 4 FT BGS
- EXCAVATED TO 5 FT BGS
- EXCAVATED TO 6 FT BGS
- EXCAVATED TO 8 FT BGS
- EXCAVATED TO 16 FT BGS



ADAPTED FROM A MORROW SURVEY ON 5/23/11 AND A SOIL SAMPLING REPORT AND CONTINUING GROUNDWATER INVESTIGATION BY KAPREALIAN ENGINEERING, INC., 6/2/95

**FIGURE 8**  
 SITE PLAN WITH HISTORICAL SAMPLE LOCATIONS  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

|                          |                   |                         |
|--------------------------|-------------------|-------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>JF | DRAWN BY<br>JH          |
| DATE<br>10/23/13         | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS |

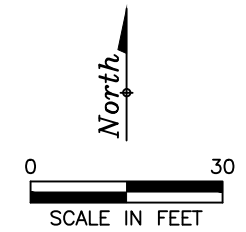






**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- ⊕ MW- MONITORING WELL
- ⊘ MW- ABANDONED MONITORING WELL
- ⊙ SB- SOIL BORING LOCATION (ANTEA GROUP 2013)
- ⊙ HPB- SOIL BORING LOCATION (ANTEA GROUP 2012)
- ⊙ B- BORING LOCATION
- SOIL SAMPLE LOCATION
- [ ] 1995 EXCAVATION AREA
- [X] PROPOSED EXCAVATION AREA



ADAPTED FROM A MORROW SURVEY ON 5/23/11 AND A SOIL SAMPLING REPORT AND CONTINUING GROUNDWATER INVESTIGATION BY KAPREALIAN ENGINEERING, INC., 6/2/95

**FIGURE 9**  
SITE PLAN WITH PROPOSED EXCAVATION

76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA

|                          |                   |                         |
|--------------------------|-------------------|-------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>JF | DRAWN BY<br>JH          |
| DATE<br>11/22/13         | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS |





## ***Tables***

|         |  |
|---------|--|
| Table 1 | Monitoring Well and Boring Construction Details    |
| Table 2 | Historical Groundwater Gauging and Analytical Data |
| Table 3 | Historical Soil Analytical Data                    |

**Table 1**  
**Monitoring Well and Boring Construction Details**  
76 Station No. 5191/5043  
449 Hegenberger Road  
Oakland, CA

| Well I.D.   | Drill Date | Well             |                   | Screen         |                   | Screen Length (feet) | Comments  |
|---|------------|------------------|-------------------|----------------|-------------------|----------------------|-----------|
|   |            | Depth (feet bgs) | Diameter (inches) | Top (feet bgs) | Bottom (feet bgs) |                      |           |
| <b>Monitoring Wells</b>                             |            |                  |                   |                |                   |                      |           |
| MW-1  | 02/05/91   | 13.5             | 2                 | 2.0            | 13.0              | 11.0                 | Abandoned |
| MW-2  | 02/05/91   | 15.0             | 2                 | 3.0            | 15.0              | 12.0                 | Abandoned |
| MW-3  | 02/05/91   | 14.0             | 2                 | 2.0            | 14.0              | 12.0                 |           |
| MW-4  | 08/21/92   | 13.5             | 2                 | 2.5            | 13.5              | 11.0                 | Abandoned |
| MW-5  | 08/21/92   | 13.5             | 2                 | 2.5            | 13.5              | 11.0                 | Abandoned |
| MW-6  | 08/21/92   | 13.5             | 2                 | 2.5            | 13.5              | 11.0                 |           |
| MW-7  | 04/21/97   | 13.0             | 2                 | 3.0            | 13.0              | 10.0                 |           |
| MW-8  | 04/21/97   | 15.0             | 2                 | 3.0            | 15.0              | 12.0                 |           |
| MW-9  | 01/25/95   | 13.0             | 2                 | 3.0            | 13.0              | 10.0                 |           |
| MW-10   | 01/25/95   | 13.0             | 2                 | 3.0            | 13.0              | 10.0                 |           |
| MW-11   | 06/22/10   | 20.0             | 4                 | 5.0            | 20.0              | 15.0                 |           |
| MW-12   | 06/22/10   | 20.0             | 4                 | 5.0            | 20.0              | 15.0                 |           |
| MW-12A  | 06/23/10   | 34.0             | 2                 | 30.0           | 34.0              | 4.0                  |           |
| MW-13   | 06/22/10   | 15.0             | 2                 | 5.0            | 15.0              | 10.0                 |           |
| MW-14   | 05/17/11   | 13.0             | 2                 | 3.0            | 13.0              | 10.0                 |           |
| MW-15   | 05/17/11   | 13.0             | 2                 | 3.0            | 13.0              | 10.0                 |           |
| MW-16   | 05/17/11   | 13.0             | 2                 | 3.0            | 13.0              | 10.0                 |           |
| MW-17   | 05/18/11   | 13.0             | 2                 | 3.0            | 13.0              | 10.0                 |           |
| <b>Soil Borings</b>                                 |            |                  |                   |                |                   |                      |           |
| B-4   | 12/17/09   | 20.0             | --                | --             | --                | --                   |           |
| B-5   | 12/17/09   | 32.0             | --                | --             | --                | --                   |           |
| B-6   | 05/18/11   | 26.0             | --                | --             | --                | --                   |           |
| SB-1  | 07/25/13   | 15.0             | --                | --             | --                | --                   |           |
| SB-2  | 07/25/13   | 15.0             | --                | --             | --                | --                   |           |
| SB-3  | 07/25/13   | 15.0             | --                | --             | --                | --                   |           |
| SB-4  | 07/25/13   | 15.0             | --                | --             | --                | --                   |           |
| SB-5  | 07/25/13   | 15.0             | --                | --             | --                | --                   |           |
| SB-6  | 07/26/13   | 15.0             | --                | --             | --                | --                   |           |
| SB-7  | 07/26/13   | 15.0             | --                | --             | --                | --                   |           |
| SB-8  | 07/26/13   | 15.0             | --                | --             | --                | --                   |           |
| SB-9  | 07/26/13   | 15.0             | --                | --             | --                | --                   |           |
| SB-10   | 07/26/13   | 15.0             | --                | --             | --                | --                   |           |
| <b>Explanation</b>                                  |            |                  |                   |                |                   |                      |           |
| Wells are of poly-vinyl-chloride (PVC) construction |            |                  |                   |                |                   |                      |           |
| bgs = Below ground surface                          |            |                  |                   |                |                   |                      |           |

TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA



| Well I.D. | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |             |                |                |                     |                      |                       |                       |             |             |             |            |                |                                |                           |     |
|-----------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|------------|----------------|--------------------------------|---------------------------|-----|
|           |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L) | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |     |
| MW-1      | 2/18/1992  | NSVD                     | NG                  | NG                   | NG                    | 13,000                      | 150,000     | 17,000         | 26,000         | 5,200               | 26,000               | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 5/20/1992  | NSVD                     | NG                  | NG                   | NG                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 8/31/1992  | NSVD                     | NG                  | NG                   | NG                    | 8,900                       | 64,000      | 13,000         | 12,000         | 2,500               | 22,000               | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 11/30/1992 | NSVD                     | NG                  | NG                   | NG                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 2/4/1993   | NSVD                     | NG                  | NG                   | NG                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 5/4/1993   | 8.96                     | 2.13                | 0.10                 | 6.91                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |
|           | 8/4/1993   | 8.96                     | 2.92                | 0.03                 | 6.06                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |
|           | 11/3/1993  | 7.38                     | 3.04                | NP                   | 4.34                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |
|           | 2/7/1994   | 7.38                     | 2.55                | 0.03                 | 4.85                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |
|           | 5/19/1994  | 7.38                     | 2.23                | 0.01                 | 5.16                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |
|           | 6/25/1994  | 7.38                     | 2.49                | 0.01                 | 4.90                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |
|           | 7/27/1994  | 7.38                     | 3.10                | NP                   | 4.28                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |
|           | 8/15/1994  | 7.38                     | 2.85                | 0.11                 | 4.61                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |
|           | 11/14/1994 | 7.38                     | 2.97                | 0.12                 | 4.50                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |
| 2/21/1995 | 7.38       | 1.53                     | 0.02                | 5.87                 | LPH                   | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |     |
| 5/18/1995 | NSVD       | WD                       | WD                  | WD                   | WD                    | WD                          | WD          | WD             | WD             | WD                  | WD                   | WD                    | WD                    | WD          | WD          | WD          | WD         | WD             | WD                             | WD                        |     |
| MW-2      | 2/18/1992  | NSVD                     | NG                  | NG                   | NG                    | 4,300                       | 29,000      | 1,000          | 5,300          | 260                 | 7,900                | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 5/20/1992  | NSVD                     | NG                  | NG                   | NG                    | 4,300                       | 24,000      | 2,200          | 7,600          | 630                 | 11,000               | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 8/31/1992  | NSVD                     | NG                  | NG                   | NG                    | 1,600                       | 9,000       | 1,800          | 640            | 140                 | 2,000                | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 11/30/1992 | NSVD                     | NG                  | NG                   | NG                    | 5,700                       | 29,000      | 2,000          | 3,400          | 1,200               | 6,900                | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 2/4/1993   | NSVD                     | NG                  | NG                   | NG                    | 6,100                       | 18,000      | 1,600          | 3,000          | ND                  | 6,900                | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 5/4/1993   | 8.96                     | 2.48                | NP                   | 6.48                  | 7,100                       | 63,000      | 3,200          | 17,000         | 470                 | 17,000               | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 8/4/1993   | 8.96                     | 3.20                | NP                   | 5.76                  | 1,800                       | 45,000      | 2,100          | 6,600          | 1,400               | 12,000               | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 11/3/1993  | 8.58                     | 3.37                | NP                   | 5.21                  | 2,600                       | 72,000      | 3,700          | 16,000         | 3,700               | 20,000               | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 2/7/1994   | 8.58                     | 2.40                | NP                   | 6.18                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |     |
|           | 5/19/1994  | 8.58                     | 2.13                | NP                   | 6.45                  | 3,000                       | 42,000      | 2,500          | 1,300          | 2,300               | 13,000               | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 6/25/1994  | 8.58                     | 2.65                | NP                   | 5.93                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 7/27/1994  | 8.58                     | 3.44                | NP                   | 5.14                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 8/15/1994  | 8.58                     | 3.25                | NP                   | 5.33                  | 2,800                       | 35,000      | 2,400          | 850            | 1,700               | 15,000               | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
|           | 11/14/1994 | 8.58                     | 2.13                | NP                   | 6.45                  | 10,000                      | 43,000      | 2,200          | 6,500          | 1,800               | 14,000               | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |     |
| 2/21/1995 | 8.58       | 1.65                     | NP                  | 6.93                 | 2,000                 | 44,000                      | 2,200       | 3,200          | 1,300          | 1,500               | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
| 5/18/1995 | NSVD       | WD                       | WD                  | WD                   | WD                    | WD                          | WD          | WD             | WD             | WD                  | WD                   | WD                    | WD                    | WD          | WD          | WD          | WD         | WD             | WD                             |                           |     |
| MW-3      | 2/18/1992  | NSVD                     | NG                  | NG                   | NG                    | ND                          | 230         | 5              | 22             | 2                   | 33                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 5/20/1992  | NSVD                     | WI                  | WI                   | WI                    | WI                          | WI          | WI             | WI             | WI                  | WI                   | WI                    | WI                    | WI          | WI          | WI          | WI         | WI             | WI                             | WI                        |     |
|           | 8/31/1992  | NSVD                     | NG                  | NG                   | NG                    | 92                          | 210         | 1              | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 11/30/1992 | NSVD                     | NG                  | NG                   | NG                    | 94                          | 790         | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 2/4/1993   | NSVD                     | NG                  | NG                   | NG                    | 550                         | 3,300       | 320            | ND             | 96                  | 6                    | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 5/4/1993   | 7.84                     | 4.32                | NP                   | 3.52                  | 250                         | 1,800       | 95             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 8/4/1993   | 7.84                     | 4.94                | NP                   | 2.90                  | 100                         | 210         | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 11/3/1993  | 7.42                     | 4.53                | NP                   | 2.89                  | 160                         | 640         | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 2/7/1994   | 7.42                     | 2.40                | NP                   | 5.02                  | 620                         | 2,700       | 110            | ND             | 17                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 5/19/1994  | 7.42                     | 3.60                | NP                   | 3.82                  | 480                         | 1,800       | 83             | ND             | 6                   | 9                    | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 6/25/1994  | 7.42                     | 4.58                | NP                   | 2.84                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 7/27/1994  | 7.42                     | 4.58                | NP                   | 2.84                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 8/15/1994  | 7.42                     | 4.65                | NP                   | 2.77                  | 110                         | 130         | 1              | 1              | ND                  | 1                    | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 11/14/1994 | 7.42                     | 3.18                | NP                   | 4.24                  | 150                         | 1,600       | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 2/21/1995  | 7.42                     | 1.81                | NP                   | 5.61                  | 850                         | 3,800       | 350            | ND             | 130                 | 22                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 5/18/1995  | 7.42                     | 4.56                | NP                   | 2.86                  | 150                         | 1,300       | 42             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 8/17/1995  | 7.42                     | WI                  | WI                   | WI                    | WI                          | WI          | WI             | WI             | WI                  | WI                   | WI                    | WI                    | WI          | WI          | WI          | WI         | WI             | WI                             | WI                        |     |
|           | 7/26/1996  | 7.42                     | WI                  | WI                   | WI                    | WI                          | WI          | WI             | WI             | WI                  | WI                   | WI                    | WI                    | WI          | WI          | WI          | WI         | WI             | WI                             | WI                        |     |
|           | 10/28/1996 | 7.42                     | WO                  | WO                   | WO                    | WO                          | WO          | WO             | WO             | WO                  | WO                   | WO                    | WO                    | WO          | WO          | WO          | WO         | WO             | WO                             | WO                        |     |
|           | 1/29/1997  | 7.42                     | WI                  | WI                   | WI                    | WI                          | WI          | WI             | WI             | WI                  | WI                   | WI                    | WI                    | WI          | WI          | WI          | WI         | WI             | WI                             | WI                        |     |
|           | 4/15/1997  | 7.42                     | WI                  | WI                   | WI                    | WI                          | WI          | WI             | WI             | WI                  | WI                   | WI                    | WI                    | WI          | WI          | WI          | WI         | WI             | WI                             | WI                        |     |
|           | 5/27/1997  | 7.42                     | 3.45                | NP                   | 3.97                  | --                          | 670         | 7              | ND             | ND                  | ND                   | 250                   | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
|           | 6/1/1997   | 7.42                     | 3.50                | NP                   | 3.92                  | 610                         | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |     |
| 7/15/1997 | 8.04       | 3.71                     | NP                  | 4.33                 | 240                   | 240                         | ND          | ND             | ND             | 490                 | --                   | --                    | --                    | --          | --          | --          | --         | --             |                                |                           |     |
| 10/9/1997 | 8.04       | 3.70                     | NP                  | 4.34                 | 500                   | 270                         | 1           | ND             | 2              | 1                   | 910                  | --                    | --                    | --          | --          | --          | --         | --             |                                |                           |     |
| 1/14/1998 | 8.04       | 2.16                     | NP                  | 5.88                 | 340                   | 310                         | ND          | ND             | 1              | 1                   | 140                  | --                    | --                    | --          | --          | --          | --         | --             |                                |                           |     |
| 4/1/1998  | 8.04       | 2.20                     | NP                  | 5.84                 | 320                   | 370                         | 6           | ND             | ND             | ND                  | 93                   | --                    | --                    | --          | --          | --          | --         | --             |                                |                           |     |
| 7/15/1998 | 8.04       | 3.38                     | NP                  | 4.66                 | 510                   | 460                         | ND          | ND             | ND             | 230                 | --                   | --                    | --                    | --          | --          | --          | --         | --             |                                |                           |     |

TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENERBERG ROAD  
OAKLAND, CALIFORNIA



| Well I.D.  | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |             |                |                |                     |                      |                       |                       |             |             |             |            |                |                                |                           |
|------------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|------------|----------------|--------------------------------|---------------------------|
|            |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L) | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |
| MW-3       | 10/16/1998 | 8.04                     | 2.30                | NP                   | 5.74                  | 67                          | 330         | 5              | ND             | ND                  | ND                   | 60                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/25/1999  | 8.04                     | 2.42                | NP                   | 5.62                  | 120                         | 420         | 2              | ND             | ND                  | ND                   | 180                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/15/1999  | 8.04                     | 2.16                | NP                   | 5.88                  | 170                         | 290         | 1              | ND             | ND                  | ND                   | 160                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/14/1999  | 8.04                     | 2.35                | NP                   | 5.69                  | 420                         | 290         | 3              | ND             | ND                  | ND                   | 160                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/21/1999 | 8.04                     | 2.49                | NP                   | 5.55                  | 350                         | 360         | 1              | ND             | ND                  | ND                   | 82                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/20/2000  | 8.04                     | 2.38                | NP                   | 5.66                  | 2,060                       | ND          | 1              | ND             | ND                  | ND                   | 54                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/13/2000  | 8.04                     | 2.76                | NP                   | 5.28                  | 200                         | 250         | 1              | ND             | ND                  | ND                   | 91                    | 150                   | ND          | ND          | ND          | ND         | ND             | ND                             | ND                        |
|            | 7/14/2000  | 8.04                     | 3.26                | NP                   | 4.78                  | 423                         | 345         | ND             | ND             | ND                  | ND                   | 95                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/26/2000 | 8.04                     | 3.12                | NP                   | 4.92                  | 330                         | 480         | 6.0            | ND             | ND                  | ND                   | 120                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/3/2001   | 8.04                     | 3.65                | NP                   | 4.39                  | 287                         | 364         | 2              | ND             | ND                  | ND                   | 118                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/4/2001   | 8.04                     | 3.98                | NP                   | 4.06                  | 360                         | 417         | 1              | ND             | ND                  | 1                    | 237                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/17/2001  | 8.04                     | 3.12                | NP                   | 4.92                  | 270                         | 480         | ND             | ND             | ND                  | ND                   | 150                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/1/2001  | 8.04                     | 3.25                | NP                   | 4.79                  | 270                         | 310         | 1.0            | <0.50          | <0.50               | <0.50                | 53                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/31/2002  | 8.04                     | 2.27                | NP                   | 5.77                  | 250                         | 250         | 4              | <1.0           | <1.0                | <1.0                 | 110                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/18/2002  | 8.04                     | 3.55                | NP                   | 4.49                  | 320                         | 300         | <2.0           | <2.0           | <2.0                | <2.0                 | --                    | 59                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/28/2002  | 8.04                     | 2.55                | NP                   | 5.49                  | 310                         | 500         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 130                   | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/9/2002  | 8.04                     | 2.47                | NP                   | 5.57                  | 700                         | 690         | <5             | <5             | <5                  | <10                  | --                    | 120                   | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/2/2003   | 8.04                     | 1.70                | NP                   | 6.34                  | 210                         | 310         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 110                   | <2.0        | <2.0        | <2.0        | <100       | <500           | <2.0                           | <2.0                      |
|            | 4/1/2003   | 8.04                     | 3.48                | NP                   | 4.56                  | 200                         | 250         | <1.0           | <1.0           | <1.0                | <2.0                 | --                    | 210                   | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/1/2003   | 8.04                     | 2.65                | NP                   | 5.39                  | 380                         | 450         | <2.5           | <2.5           | <2.5                | <5.0                 | --                    | 70                    | --          | --          | --          | --         | <2500          | --                             | --                        |
|            | 10/2/2003  | 8.04                     | 3.12                | NP                   | 4.92                  | 300                         | <250        | <2.5           | <2.5           | <2.5                | <5.0                 | --                    | 210                   | --          | --          | --          | --         | <2500          | --                             | --                        |
|            | 1/9/2004   | 8.04                     | 2.39                | NP                   | 5.65                  | 200                         | 300         | <0.50          | 1              | 1                   | 2                    | --                    | 66                    | --          | --          | --          | --         | <500           | --                             | --                        |
|            | 4/26/2004  | 8.04                     | 3.11                | NP                   | 4.93                  | 160                         | 440         | 3              | 6              | 3                   | 9                    | --                    | 81                    | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 7/22/2004  | 8.04                     | 2.51                | NP                   | 5.53                  | 330                         | 420         | <0.5           | <0.5           | <0.5                | <1                   | --                    | 72                    | --          | --          | --          | --         | <1000          | --                             | --                        |
|            | 10/29/2004 | 8.04                     | 2.00                | NP                   | 6.04                  | 200                         | 460         | 6              | 15             | 10                  | 46                   | --                    | 48                    | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 1/10/2005  | 8.04                     | 1.52                | NP                   | 6.52                  | 250                         | 280         | <0.50          | 1              | <0.50               | 2                    | --                    | 64                    | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 6/15/2005  | 8.04                     | 2.00                | NP                   | 6.04                  | 360                         | 460         | <0.50          | 0.70           | 0.56                | 2                    | --                    | 110                   | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 9/27/2005  | 8.04                     | 1.90                | NP                   | 6.14                  | <200                        | 210         | <0.50          | 0.60           | <0.50               | <1.0                 | --                    | 100                   | <0.50       | <0.50       | <0.50       | 79         | <250           | --                             | --                        |
|            | 12/13/2005 | 8.04                     | 2.35                | NP                   | 5.69                  | 230                         | 230         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 92                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/23/2006  | 8.04                     | 1.84                | NP                   | 6.20                  | 260                         | 290         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 88                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/23/2006  | 8.04                     | 2.26                | NP                   | 5.78                  | 330                         | 500         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 75                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/26/2006  | 8.04                     | 2.08                | NP                   | 5.96                  | 260                         | 270         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | 73                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/22/2006 | 8.04                     | 1.88                | NP                   | 6.16                  | 250                         | 260         | <0.50          | <0.50          | <0.50               | 1                    | --                    | 71                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/30/2007  | 8.04                     | 2.47                | NP                   | 5.57                  | 210                         | 390         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | 120                   | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/28/2007  | 8.04                     | 2.54                | NP                   | 5.50                  | 290                         | 370         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | 55                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/25/2007  | 8.04                     | 2.56                | NP                   | 5.48                  | 210                         | 350         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | 61                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/28/2007 | 8.04                     | 2.29                | NP                   | 5.75                  | 150                         | 260         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 66                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/22/2008  | 8.04                     | 3.26                | NP                   | 4.78                  | 230                         | 390         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 39                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/23/2008  | 8.04                     | 2.60                | NP                   | 5.44                  | 130                         | 200         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 46                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/19/2008  | 8.04                     | 3.45                | NP                   | 4.59                  | 93                          | 180         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 120                   | --          | --          | --          | --         | <250           | --                             | --                        |
| 12/31/2008 | 8.04       | 2.55                     | NP                  | 5.49                 | 110                   | 190                         | <0.50       | <0.50          | <0.50          | <1.0                | --                   | 38                    | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 3/27/2009  | 8.04       | 2.37                     | NP                  | 5.67                 | 130                   | 150                         | <0.50       | <0.50          | <0.50          | <1.0                | --                   | 50                    | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 5/28/2009  | 8.04       | 3.32                     | NP                  | 4.72                 | 120                   | 190                         | <0.50       | <0.50          | <0.50          | <1.0                | --                   | 60                    | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 9/17/2009  | 8.04       | 2.63                     | NP                  | 5.41                 | NS                    | NS                          | NS          | NS             | NS             | NS                  | NS                   | NS                    | NS                    | NS          | NS          | NS          | NS         | NS             | NS                             |                           |
| 12/17/2009 | 8.04       | 2.13                     | NP                  | 5.91                 | 338                   | 300                         | <0.50       | <0.50          | 1              | <1.5                | --                   | 43                    | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 3/29/2010  | 8.04       | 2.22                     | NP                  | 5.82                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 6/30/2010  | 10.81      | 2.91                     | NP                  | 7.90                 | 90                    | 261                         | <0.50       | <0.50          | <0.50          | <1.5                | --                   | 89.0                  | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 7/6/2010   | 10.81      | 2.66                     | NP                  | 8.15                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 9/20/2010  | 10.81      | 3.12                     | NP                  | 7.69                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 12/8/2010  | 10.81      | 2.37                     | NP                  | 8.44                 | 137                   | 306                         | <0.50       | <0.50          | <0.50          | <1.5                | --                   | 58.8                  | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 3/14/2011  | 10.81      | 2.26                     | NP                  | 8.55                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 6/2/2011   | 10.81      | 2.43                     | NP                  | 8.38                 | 155                   | 283                         | 0.58        | 1.3            | <0.50          | 2.2                 | --                   | 42.1                  | --                    | --          | --          | 55.7        | <250       | --             | --                             |                           |
| 9/7/2011   | 10.81      | 2.36                     | NP                  | 8.45                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 12/5/2011  | 10.81      | 2.55                     | NP                  | 8.26                 | 81.7                  | 381                         | <0.50       | <0.50          | <0.50          | <1.5                | --                   | 41.8                  | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 3/6/2012   | 10.81      | 2.63                     | NP                  | 8.18                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 6/11/2012  | 10.81      | 2.99                     | NP                  | 7.82                 | 87.9                  | 371                         | <0.50       | <0.50          | <0.50          | <1.5                | --                   | 55.7                  | --                    | --          | --          | 77.2        | <250       | --             | --                             |                           |
| 9/6/2012   | 10.81      | 2.50                     | NP                  | 8.31                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 12/13/2012 | 10.81      | 2.50                     | NP                  | 8.31                 | <50                   | 130                         | <0.50       | <0.50          | <0.50          | <0.50               | --                   | 28                    | --                    | --          | --          | 77          | <5.0       | --             | --                             |                           |
| 3/14/2013  | 10.81      | 2.63                     | NP                  | 8.18                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 6/11/2013  | 10.81      | 3.31                     | NP                  | 7.5                  | <50                   | 190                         | <0.50       | <0.50          | <0.50          | <0.50               | --                   | 44                    | --                    | --          | --          | 97          | <5.0       | --             | --                             |                           |
| 9/10/2013  | 10.81      | 3.25                     | NP                  | 7.56                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| MW-4       | 8/31/1992  | NSVD                     | NG                  | NG                   | NG                    | 90                          | 240         | ND             | ND             | ND                  | 0.54                 | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 11/30/1992 | NSVD                     | NG                  | NG                   | NG                    | 61                          | 420         | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |

TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENERBERG ROAD  
OAKLAND, CALIFORNIA



| Well I.D. | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |             |                |                |                     |                      |                       |                       |             |             |             |            |                |                                |                           |  |
|-----------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|------------|----------------|--------------------------------|---------------------------|--|
|           |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L) | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |  |
| MW-4      | 2/4/1993   | NSVD                     | NG                  | NG                   | NG                    | ND                          | ND          | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 5/4/1993   | 9.00                     | 4.09                | NP                   | 4.91                  | ND                          | 110         | 0.95           | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 8/4/1993   | 9.00                     | 5.01                | NP                   | 3.99                  | 81                          | 250         | ND             | 3.5            | ND                  | 4.1                  | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 11/3/1993  | 8.41                     | 4.23                | NP                   | 4.18                  | 68                          | 130         | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 2/7/1994   | 8.41                     | 3.35                | NP                   | 5.06                  | ND                          | 56          | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 5/19/1994  | 8.41                     | 3.92                | NP                   | 4.49                  | 90                          | 140         | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 6/25/1994  | 8.41                     | 4.35                | NP                   | 4.06                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 7/27/1994  | 8.41                     | 4.28                | NP                   | 4.13                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 8/15/1994  | 8.41                     | 4.27                | NP                   | 4.14                  | 72                          | 59          | ND             | 0.6            | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 11/14/1994 | 8.41                     | 4.05                | NP                   | 4.36                  | ND                          | 130         | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
| 2/21/1995 | NSVD       | WD                       | WD                  | WD                   | WD                    | WD                          | WD          | WD             | WD             | WD                  | WD                   | WD                    | WD                    | WD          | WD          | WD          | WD         | WD             | WD                             |                           |  |
| MW-5      | 8/31/1992  | NSVD                     | NG                  | NG                   | NG                    | 690                         | 78          | 1              | ND             | ND                  | 13                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 11/30/1992 | NSVD                     | NG                  | NG                   | NG                    | 470                         | 930         | 70             | 290            | 1                   | 14                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 2/4/1993   | NSVD                     | NG                  | NG                   | NG                    | 5,500                       | 5,700       | 38             | ND             | 620                 | 170                  | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 5/4/1993   | 8.95                     | 4.37                | NP                   | 4.58                  | 4,600                       | 7,400       | 41             | ND             | 1,000               | 35                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 8/4/1993   | 8.95                     | 5.81                | NP                   | 3.14                  | 970                         | 1,500       | 130            | 1              | 460                 | 11                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 11/3/1993  | 8.95                     | 5.68                | NP                   | 3.27                  | 2,100                       | 13,000      | 350            | ND             | 3,500               | 530                  | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 2/7/1994   | 8.95                     | 5.11                | NP                   | 3.84                  | 830                         | 2,000       | 87             | ND             | 370                 | 110                  | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 5/19/1994  | 8.95                     | 5.09                | NP                   | 3.86                  | 600                         | 260         | 44             | ND             | 32                  | 4                    | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 6/25/1994  | 8.95                     | 4.55                | NP                   | 4.40                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 7/27/1994  | 8.95                     | 5.72                | NP                   | 3.23                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 8/15/1994  | 8.95                     | 5.68                | NP                   | 3.27                  | 860                         | 1,600       | 110            | ND             | 340                 | 72                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 11/14/1994 | 8.95                     | 5.63                | NP                   | 3.32                  | 290                         | 250         | 40             | ND             | ND                  | 5                    | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 2/21/1995  | NSVD                     | WD                  | WD                   | WD                    | WD                          | WD          | WD             | WD             | WD                  | WD                   | WD                    | WD                    | WD          | WD          | WD          | WD         | WD             | WD                             | WD                        |  |
| MW-6      | 8/31/1992  | NSVD                     | NG                  | NG                   | NG                    | 750                         | ND          | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 11/30/1992 | NSVD                     | NG                  | NG                   | NG                    | 1,400                       | 9,200       | 550            | ND             | 740                 | 1,600                | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 2/4/1993   | NSVD                     | NG                  | NG                   | NG                    | 890                         | 3,600       | 340            | ND             | 290                 | 550                  | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 5/4/1993   | 9.12                     | 3.72                | NP                   | 5.40                  | 1,800                       | 4,900       | 360            | 18             | 450                 | 430                  | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 8/4/1993   | 9.12                     | 5.15                | NP                   | 3.97                  | 1,100                       | 3,400       | 390            | ND             | 440                 | 190                  | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 11/3/1993  | 8.87                     | 5.25                | NP                   | 3.62                  | 390                         | 1,400       | 320            | ND             | 200                 | 8                    | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 2/7/1994   | 8.87                     | 4.55                | NP                   | 4.32                  | 970                         | 4,900       | 650            | ND             | 250                 | 35                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 5/19/1994  | 8.87                     | 4.62                | NP                   | 4.25                  | 1,400                       | 3,600       | 300            | 2              | 210                 | 41                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 8/15/1994  | 8.87                     | 5.08                | NP                   | 3.79                  | 790                         | 1,300       | 130            | 7              | 54                  | 57                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 11/14/1994 | 8.87                     | 5.30                | NP                   | 3.57                  | 800                         | 730         | 50             | ND             | ND                  | 39                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 2/21/1995  | 8.87                     | 5.37                | NP                   | 3.50                  | 730                         | 2,000       | 250            | 5              | 25                  | 30                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |  |
|           | 5/18/1995  | 8.87                     | WI                  | WI                   | WI                    | WI                          | WI          | WI             | WI             | WI                  | WI                   | WI                    | WI                    | WI          | WI          | WI          | WI         | WI             | WI                             | WI                        |  |
|           | 8/17/1995  | 8.87                     | WI                  | WI                   | WI                    | WI                          | WI          | WI             | WI             | WI                  | WI                   | WI                    | WI                    | WI          | WI          | WI          | WI         | WI             | WI                             | WI                        |  |
|           | 7/26/1996  | 8.87                     | 6.40                | 3.33                 | 4.97                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 10/28/1996 | 8.87                     | 4.10                | 0.21                 | 4.93                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 11/13/1996 | 8.87                     | 4.02                | 0.25                 | 5.04                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 11/25/1996 | 8.87                     | 4.01                | 0.75                 | 5.42                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 12/4/1996  | 8.87                     | 3.65                | 0.50                 | 5.60                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 12/19/1996 | 8.87                     | 4.80                | 2.20                 | 5.72                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 1/8/1997   | 8.87                     | 4.84                | 1.75                 | 5.34                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 1/14/1997  | 8.87                     | 4.51                | 1.15                 | 5.22                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 1/27/1997  | 8.87                     | 4.00                | 1.75                 | 6.18                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 1/29/1997  | 8.87                     | 3.24                | 0.31                 | 5.86                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 2/11/1997  | 8.87                     | 4.65                | 1.20                 | 5.12                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 2/24/1997  | 8.87                     | 4.81                | 1.10                 | 4.89                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 3/10/1997  | 8.87                     | 4.60                | 0.95                 | 4.98                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 3/17/1997  | 8.87                     | 4.50                | 0.89                 | 5.04                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 3/31/1997  | 8.87                     | 4.65                | 1.00                 | 4.97                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 4/15/1997  | 8.87                     | 4.90                | 1.03                 | 4.74                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 4/28/1997  | 8.87                     | 4.78                | 0.03                 | 4.11                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 5/15/1997  | 8.87                     | 4.60                | 0.25                 | 4.46                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
|           | 5/27/1997  | 8.87                     | 4.50                | 0.25                 | 4.56                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       |  |
| 6/9/1997  | 8.87       | 4.60                     | 0.20                | 4.42                 | LPH                   | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            |                           |  |
| 6/24/1997 | 8.87       | 4.50                     | 0.25                | 4.56                 | LPH                   | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            |                           |  |
| 7/9/1997  | 8.87       | 4.80                     | 0.60                | 4.52                 | LPH                   | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            |                           |  |
| 7/15/1997 | 8.87       | 4.63                     | 0.42                | 4.56                 | LPH                   | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            |                           |  |

TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA



| Well I.D.  | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |             |                |                |                     |                      |                       |                       |             |             |             |            |                |                                |                           |     |     |
|------------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|------------|----------------|--------------------------------|---------------------------|-----|-----|
|            |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L) | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |     |     |
| MW-6       | 7/21/1997  | 8.87                     | 4.75                | 0.25                 | 4.31                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |     |
|            | 8/6/1997   | 8.87                     | 4.50                | 0.10                 | 4.45                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |     |
|            | 8/20/1997  | 8.87                     | 4.55                | 0.10                 | 4.40                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |     |
|            | 9/2/1997   | 8.87                     | 4.75                | 0.05                 | 4.16                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |     |
|            | 10/9/1997  | 8.87                     | 4.84                | 0.04                 | 4.06                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH |     |
|            | 1/14/1998  | 8.87                     | 3.90                | 0.94                 | 5.68                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 2/12/1998  | 8.87                     | 3.35                | 0.64                 | 6.00                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 3/3/1998   | 8.87                     | 4.51                | 0.02                 | 4.38                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 4/1/1998   | 8.87                     | 3.67                | 1.60                 | 6.40                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 5/26/1998  | 8.87                     | 4.11                | 0.50                 | 5.14                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 6/15/1998  | 8.87                     | 5.03                | 0.30                 | 4.07                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 7/15/1998  | 8.87                     | 4.56                | 0.05                 | 4.35                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 8/21/1998  | 8.87                     | 4.77                | 0.02                 | 4.12                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 9/30/1998  | 8.87                     | 5.08                | 0.03                 | 3.81                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 10/16/1998 | 8.87                     | 4.31                | 2.40                 | 6.36                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 11/6/1998  | 8.87                     | 3.98                | 0.17                 | 5.02                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 11/25/1998 | 8.87                     | 3.92                | 0.10                 | 5.03                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 12/28/1998 | 8.87                     | 3.90                | 0.20                 | 5.12                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 1/25/1999  | 8.87                     | 4.18                | 0.60                 | 5.14                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 2/22/1999  | 8.87                     | 4.07                | 0.22                 | 4.97                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 3/22/1999  | 8.87                     | 4.32                | 0.15                 | 4.66                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 4/15/1999  | 8.87                     | 4.23                | 0.95                 | 5.35                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 5/28/1999  | 8.87                     | 4.38                | 0.39                 | 4.78                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 6/29/1999  | 8.87                     | 4.12                | 0.02                 | 4.77                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 7/14/1999  | 8.87                     | 4.20                | 0.03                 | 4.69                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 8/23/1999  | 8.87                     | 4.51                | 0.24                 | 4.54                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 9/30/1999  | 8.87                     | 4.17                | 0.17                 | 4.83                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 10/21/1999 | 8.87                     | 4.27                | 0.12                 | 4.69                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 11/29/1999 | 8.87                     | 4.18                | NP                   | 4.69                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 12/20/1999 | 8.87                     | 4.26                | 0.01                 | 4.62                  | LPH                         | LPH         | LPH            | LPH            | LPH                 | LPH                  | LPH                   | LPH                   | LPH         | LPH         | LPH         | LPH        | LPH            | LPH                            | LPH                       | LPH | LPH |
|            | 1/20/2000  | 8.87                     | 4.31                | NP                   | 4.56                  | 67,600                      | 130,000     | 2,900          | 8,600          | 2,000               | 16,000               | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 2/26/2000  | 8.87                     | 3.98                | NP                   | 4.89                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 3/31/2000  | 8.87                     | 4.14                | NP                   | 4.73                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 4/13/2000  | 8.87                     | 4.04                | NP                   | 4.83                  | 8,700                       | 140,000     | 5,000          | 14,000         | 3,600               | 27,000               | 7,700                 | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 5/26/2000  | 8.87                     | 4.41                | NP                   | 4.46                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 6/17/2000  | 8.87                     | 4.35                | NP                   | 4.52                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 7/14/2000  | 8.87                     | 4.47                | NP                   | 4.40                  | 133,000                     | 259,000     | 7,670          | 13,700         | 6,860               | 40,700               | ND                    | ND                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 8/24/2000  | 8.87                     | 3.71                | NP                   | 5.16                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 9/27/2000  | 8.87                     | 4.33                | NP                   | 4.54                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
|            | 10/26/2000 | 8.87                     | 4.32                | NP                   | 4.55                  | 61,000                      | 110,000     | 7,000          | 6,200          | 3,700               | 12,000               | 670                   | 43                    | --          | --          | --          | --         | --             | --                             | --                        | --  | --  |
| 1/3/2001   | 8.87       | 4.52                     | NP                  | 4.35                 | 929                   | 84,700                      | 3,950       | 4,130          | 3,650          | 11,800              | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |     |
| 4/4/2001   | 8.87       | 4.29                     | NP                  | 4.58                 | 18,000                | 69,800                      | 2,060       | 2,840          | 3,650          | 10,900              | ND                   | 48                    | ND                    | ND          | ND          | ND          | ND         | ND             | ND                             | ND                        | ND  |     |
| 7/17/2001  | 8.87       | 4.37                     | NP                  | 4.50                 | 20,000                | 100,000                     | 3,200       | 3,300          | 3,400          | 12,000              | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |     |
| 10/1/2001  | 8.87       | 4.45                     | NP                  | 4.42                 | 24,000                | 110,000                     | 3,200       | 2,400          | 4,500          | 13,000              | <1000                | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |     |
| 1/31/2002  | 8.87       | 4.03                     | NP                  | 4.84                 | 11,000                | 230,000                     | 2,400       | 1,800          | 5,400          | 16,000              | <2500                | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |     |
| 4/18/2002  | 8.87       | 3.45                     | NP                  | 5.42                 | 3,500                 | 94,000                      | 6,800       | 13,000         | 3,000          | 19,000              | <500                 | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |     |
| 7/28/2002  | 8.87       | 2.24                     | NP                  | 6.63                 | 27,000                | 110,000                     | 530         | 170            | 3,200          | 7,300               | --                   | <100                  | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |     |
| 10/9/2002  | 8.87       | 3.53                     | NP                  | 5.34                 | 170,000               | 970,000                     | 10,000      | 39,000         | 13,000         | 94,000              | --                   | <2000                 | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |     |
| 1/2/2003   | 8.87       | 2.34                     | NP                  | 6.53                 | 66,000                | 270,000                     | 6,100       | 15,000         | 5,400          | 37,000              | --                   | <200                  | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |     |
| 4/1/2003   | 8.87       | 3.17                     | NP                  | 5.70                 | 35,000                | 3,000,000                   | 8,000       | 39,000         | 37,000         | 260,000             | --                   | <2000                 | --                    | --          | --          | --          | --         | --             | --                             | --                        | --  |     |
| 7/1/2003   | 8.87       | 3.55                     | NP                  | 5.32                 | 11,000                | 38,000                      | 2,100       | 990            | 2,700          | 6,500               | --                   | <100                  | --                    | --          | --          | --          | --         | --             | <25000                         | --                        | --  |     |
| 10/2/2003  | 8.87       | 3.82                     | NP                  | 5.05                 | <50                   | 100,000                     | 5,600       | 6,900          | 4,700          | 18,000              | --                   | <800                  | --                    | --          | --          | --          | --         | --             | <200000                        | --                        | --  |     |
| 1/9/2004   | 8.87       | 2.80                     | NP                  | 6.07                 | 20,000                | 170,000                     | 2,800       | 3,300          | 4,700          | 16,000              | --                   | <200                  | --                    | --          | --          | --          | --         | --             | <50000                         | --                        | --  |     |
| 4/26/2004  | 8.87       | 3.40                     | NP                  | 5.47                 | 13,000                | 97,000                      | 5,900       | 9,000          | 5,100          | 23,000              | --                   | <50                   | --                    | --          | --          | --          | --         | --             | <50000                         | --                        | --  |     |
| 7/22/2004  | 8.87       | 3.54                     | NP                  | 5.33                 | 33,000                | 110,000                     | 4,100       | 5,100          | 4,000          | 16,000              | --                   | <200                  | --                    | --          | --          | --          | --         | --             | <300000                        | --                        | --  |     |
| 10/29/2004 | 8.87       | 3.03                     | NP                  | 5.84                 | 78,000                | 100,000                     | 5,200       | 6,100          | 4,200          | 15,000              | --                   | <50                   | --                    | --          | --          | --          | --         | --             | <5000                          | --                        | --  |     |
| 1/10/2005  | 8.87       | 2.35                     | NP                  | 6.52                 | 12,000                | 71,000                      | 1,600       | 3,700          | 2,100          | 9,900               | --                   | <50                   | --                    | --          | --          | --          | --         | --             | <5000                          | --                        | --  |     |
| 6/15/2005  | 8.87       | 2.47                     | NP                  | 6.40                 | 16,000                | 130,000                     | 800         | 1,800          | 2,200          | 9,300               | --                   | <50                   | --                    | --          | --          | --          | --         | --             | <5000                          | --                        | --  |     |
| 9/27/2005  | 8.87       | 2.55                     | NP                  | 6.32                 | 2,500                 | 13,000                      | 82          | 120            | 430            | 990                 | --                   | 1                     | 2                     | <0.50       | <0.50       | <10         | <250       | --             | --                             | --                        | --  |     |
| 12/13/2005 | 8.87       | 3.28                     | NP                  | 5.59                 | 18,000                | 68,000                      | 1,500       | 1,100          | 2,200          | 7,700               | --                   | <50                   | --                    | --          | --          | --          | --         | --             | <25000                         | --                        | --  |     |

TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA



| Well I.D.  | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |             |                |                |                     |                      |                       |                       |             |             |             |            |                |                                |                           |
|------------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|------------|----------------|--------------------------------|---------------------------|
|            |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L) | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |
| MW-6       | 3/23/2006  | 8.87                     | 2.87                | NP                   | 6.00                  | 73,000                      | 41,000      | 290            | 140            | 1,500               | 2,700                | --                    | <50                   | --          | --          | --          | --         | <25000         | --                             | --                        |
|            | 6/23/2006  | 8.87                     | 3.15                | NP                   | 5.72                  | 35,000                      | 50,000      | 2,200          | 1,400          | 1,900               | 5,700                | --                    | <12                   | --          | --          | --          | --         | <6200          | --                             | --                        |
|            | 9/26/2006  | 8.87                     | 3.08                | NP                   | 5.79                  | 22,000                      | 130,000     | 2,200          | 1,000          | 2,900               | 8,800                | --                    | <50                   | --          | --          | --          | --         | <25000         | --                             | --                        |
|            | 12/22/2006 | 8.87                     | 2.90                | NP                   | 5.97                  | 62,000                      | 90,000      | 940            | 610            | 1,900               | 4,700                | --                    | <50                   | --          | --          | --          | --         | <25000         | --                             | --                        |
|            | 3/30/2007  | 8.87                     | 3.26                | NP                   | 5.61                  | 62,000                      | 210,000     | 1,100          | 560            | 3,400               | 12,000               | --                    | <10                   | --          | --          | --          | --         | <5000          | --                             | --                        |
|            | 6/28/2007  | 8.87                     | 3.46                | NP                   | 5.41                  | 71,000                      | 67,000      | 2,200          | 1,300          | 2,700               | 10,000               | --                    | <25                   | --          | --          | --          | --         | <12000         | --                             | --                        |
|            | 9/25/2007  | 8.87                     | 3.52                | NP                   | 5.35                  | 58,000                      | 56,000      | 2,900          | 720            | 2,400               | 9,000                | --                    | <25                   | --          | --          | --          | --         | <12000         | --                             | --                        |
|            | 12/28/2007 | 8.87                     | 3.27                | NP                   | 5.60                  | 18,000                      | 78,000      | 28,000         | 2,700          | 4,000               | 8,100                | --                    | 16,000                | --          | --          | --          | --         | <12000         | --                             | --                        |
|            | 3/22/2008  | 8.87                     | 2.48                | NP                   | 6.39                  | 68,000                      | 66,000      | 380            | 150            | 1,500               | 2,400                | --                    | <25                   | --          | --          | --          | --         | <12000         | --                             | --                        |
|            | 6/23/2008  | 8.87                     | 3.54                | NP                   | 5.33                  | 68,000                      | 59,000      | 1,600          | 130            | 1,800               | 4,100                | --                    | 25                    | --          | --          | --          | --         | <12000         | --                             | --                        |
|            | 9/19/2008  | 8.87                     | 4.06                | NP                   | 4.81                  | 180,000                     | 65,000      | 2,000          | 230            | 2,000               | 4,500                | --                    | <12                   | --          | --          | --          | --         | <6200          | --                             | --                        |
|            | 12/31/2008 | 8.87                     | 3.45                | NP                   | 5.42                  | 68,000                      | 91,000      | 2,000          | 320            | 5,300               | 13,000               | --                    | <50                   | --          | --          | --          | --         | <25000         | --                             | --                        |
|            | 3/27/2009  | 8.87                     | 3.09                | NP                   | 5.78                  | 170,000                     | 150,000     | 1,300          | 240            | 2,800               | 7,200                | --                    | <50                   | --          | --          | --          | --         | <25000         | --                             | --                        |
|            | 5/28/2009  | 8.87                     | 3.49                | NP                   | 5.38                  | 78,000                      | 53,000      | 1,700          | 200            | 2,300               | 5,400                | --                    | <50                   | --          | --          | --          | --         | <25000         | --                             | --                        |
|            | 9/17/2009  | 8.87                     | 3.64                | NP                   | 5.23                  | 250,000 T4                  | 77,000      | 2,100          | 1,400          | 2,600               | 8,500                | --                    | <12                   | --          | --          | --          | --         | <6200          | --                             | --                        |
|            | 12/17/2009 | 8.87                     | 3.14                | NP                   | 5.73                  | 30,300                      | 59,100      | 1,730          | 199            | 2,260               | 5,460                | --                    | 20                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/29/2010  | 8.87                     | 3.16                | NP                   | 5.71                  | 106,000                     | 48,400      | 1,980          | 208            | 3,070               | 8,070                | --                    | 12                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/30/2010  | 11.55                    | 3.50                | NP                   | 8.05                  | 170,000                     | 78,700      | 2,130          | 281            | 2,860               | 8,400                | --                    | 6                     | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 7/6/2010   | 11.55                    | 3.49                | NP                   | 8.06                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 9/20/2010  | 11.55                    | 3.75                | NP                   | 7.80                  | 18,800                      | 64,500      | 2,300          | 170            | 2,770               | 6,260                | --                    | 19                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/8/2010  | 11.55                    | 8.42                | NP                   | 3.13                  | 28,700                      | 78,400      | 1,300          | 1,680          | 3,490               | 20,600               | --                    | 11                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/14/2011  | 11.55                    | 3.40                | NP                   | 8.15                  | 93,000                      | 44,600      | 912            | 338            | 728                 | 3,670                | --                    | 16                    | --          | --          | --          | 134        | <250           | --                             | --                        |
|            | 6/2/2011   | 11.55                    | 2.76                | NP                   | 8.79                  | 33,700 T4                   | 56,200      | 780            | 262            | 651                 | 3,890                | --                    | 7                     | --          | --          | --          | 81.0       | <250           | --                             | --                        |
|            | 9/7/2011   | 11.55                    | 2.83                | NP                   | 8.72                  | 6,780 T4                    | 16,600      | 16             | 11             | 90                  | 339                  | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/5/2011  | 11.55                    | 3.56                | NP                   | 7.99                  | 20,200 T4                   | 64,600      | 646            | 95             | 924                 | 4,050                | --                    | 15                    | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/6/2012   | 11.55                    | 3.43                | NP                   | 8.12                  | 14,800 T4                   | 55,000      | 1,020          | 131            | 1,320               | 4,730                | --                    | 19                    | --          | --          | --          | 316        | <1250          | --                             | --                        |
|            | 6/11/2012  | 11.55                    | 3.33                | NP                   | 8.22                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 6/12/2012  | --                       | --                  | --                   | --                    | 47,100 T4                   | 33,400      | 773            | 61             | 840                 | 3,110                | --                    | 11                    | --          | --          | --          | 123        | <250           | --                             | --                        |
|            | 9/6/2012   | 11.55                    | 2.85                | NP                   | 8.70                  | <1000                       | 24,000      | 450            | 51             | 610                 | 1,800                | --                    | 6                     | <4.0        | <4.0        | <4.0        | 82         | <40            | <4.0                           | <4.0                      |
|            | 9/11/2012  | --                       | --                  | --                   | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
| 12/13/2012 | 11.55      | 2.90                     | NP                  | 8.65                 | 470                   | 20,000                      | 200         | 16             | 350            | 1,100               | --                   | <4.0                  | --                    | --          | --          | 22          | <40        | --             | --                             |                           |
| 3/14/2013  | 11.55      | 3.69                     | NP                  | 7.86                 | 680                   | 24,000                      | 500         | 25             | 540            | 1,700               | --                   | 8                     | --                    | --          | --          | 110         | <40        | --             | --                             |                           |
| 6/11/2013  | 11.55      | 3.86                     | NP                  | 7.69                 | 2,400                 | 87,000                      | 1,800       | 250            | 2,000          | 9,400               | --                   | 13                    | --                    | --          | --          | 230         | <40        | --             | --                             |                           |
| 9/10/2013  | 11.55      | 4.11                     | NP                  | 7.44                 | 470                   | 28,000                      | 440         | 19             | 530            | 1,500               | --                   | 10                    | --                    | --          | --          | 170         | <40        | --             | --                             |                           |
| MW-7       | 5/27/1997  | 8.83                     | 4.50                | NP                   | 4.33                  | --                          | 68          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 6/1/1997   | 8.83                     | 4.54                | NP                   | 4.29                  | 69                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 7/15/1997  | 8.83                     | 4.70                | NP                   | 4.13                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 10/9/1997  | 8.83                     | 4.30                | NP                   | 4.53                  | 190                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 1/14/1998  | 8.83                     | 2.88                | NP                   | 5.95                  | 65                          | ND          | ND             | ND             | ND                  | ND                   | 36                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 4/1/1998   | 8.83                     | 3.13                | NP                   | 5.70                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 7/15/1998  | 8.83                     | 4.45                | NP                   | 4.38                  | 74                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 10/16/1998 | 8.83                     | 3.45                | NP                   | 5.38                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 1/25/1999  | 8.83                     | 3.22                | NP                   | 5.61                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 4/15/1999  | 8.83                     | 3.11                | NP                   | 5.72                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 7/14/1999  | 8.83                     | 3.34                | NP                   | 5.49                  | 69                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 10/21/1999 | 8.83                     | 3.43                | NP                   | 5.40                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 1/20/2000  | 8.83                     | 3.29                | NP                   | 5.54                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | 4.2                   | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 4/13/2000  | 8.83                     | 3.39                | NP                   | 5.44                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 7/14/2000  | 8.83                     | 4.42                | NP                   | 4.41                  | 68.0                        | ND          | ND             | ND             | ND                  | ND                   | 7.83                  | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 7/17/2001  | 8.83                     | 5.06                | NP                   | 3.77                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 10/1/2001  | 8.83                     | 4.98                | NP                   | 3.85                  | <51                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | <5.0                  | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 1/31/2002  | 8.83                     | 3.88                | NP                   | 4.95                  | 90                          | <50         | <0.50          | <0.50          | <0.50               | <0.50                | <2.5                  | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 4/18/2002  | 8.83                     | 4.03                | NP                   | 4.80                  | 78                          | <50         | <0.50          | <0.50          | <0.50               | <0.50                | 5.7                   | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 7/28/2002  | 8.83                     | 3.59                | NP                   | 5.24                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 3.9                   | --          | --          | --          | --         | --             | --                             |                           |
|            | 10/9/2002  | 8.83                     | 4.53                | NP                   | 4.30                  | <96                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 3.9                   | --          | --          | --          | --         | --             | --                             |                           |
|            | 1/3/2003   | 8.83                     | 3.36                | NP                   | 5.47                  | 78                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | --             | --                             |                           |
|            | 4/1/2003   | 8.83                     | 3.94                | NP                   | 4.89                  | 67                          | 71          | <0.50          | <0.50          | 0.71                | <1.0                 | --                    | 3.4                   | --          | --          | --          | --         | --             | --                             |                           |
|            | 7/1/2003   | 8.83                     | 4.60                | NP                   | 4.23                  | 68                          | 64          | <0.50          | <0.50          | 0.77                | 2.0                  | --                    | 3.5                   | --          | --          | --          | --         | <500           | --                             | --                        |
|            | 10/2/2003  | 8.83                     | 5.46                | NP                   | 3.37                  | 82                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 4.9                   | --          | --          | --          | --         | <500           | --                             | --                        |
|            | 1/9/2004   | 8.83                     | 3.55                | NP                   | 5.28                  | 75                          | 54          | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 2.4                   | --          | --          | --          | --         | <500           | --                             | --                        |
|            | 4/26/2004  | 8.83                     | 4.49                | NP                   | 4.34                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | 1.5                  | --                    | 2.3                   | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 7/22/2004  | 8.83                     | 4.93                | NP                   | 3.90                  | 82                          | <200        | 0.90           | 2.0            | 3.5                 | 9.9                  | --                    | 1.4                   | --          | --          | --          | --         | <1000          | --                             | --                        |
|            | 10/29/2004 | 8.83                     | 3.71                | NP                   | 5.12                  | 54                          | 210         | 0.67           | 1.6            | 1.7                 | 5.8                  | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |

TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA



| Well I.D.  | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |             |                |                |                     |                      |                       |                       |             |             |             |            |                |                                |                           |    |
|------------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|------------|----------------|--------------------------------|---------------------------|----|
|            |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L) | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |    |
| MW-7       | 1/10/2005  | 8.83                     | 2.77                | NP                   | 6.06                  | <50                         | 74          | 0.51           | 2.2            | 1.7                 | 7.0                  | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |    |
|            | 6/15/2005  | 8.83                     | 3.40                | NP                   | 5.43                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 0.88                  | --          | --          | --          | --         | <50            | --                             | --                        |    |
|            | 9/27/2005  | 8.83                     | 3.44                | NP                   | 5.39                  | <200                        | <50         | 0.59           | 1.2            | <0.50               | <1.0                 | --                    | 0.96                  | <0.50       | <0.50       | <0.50       | <10        | <250           | --                             | --                        |    |
|            | 12/13/2005 | 8.83                     | 3.98                | NP                   | 4.85                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 0.65                  | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 3/23/2006  | 8.83                     | 3.37                | NP                   | 5.46                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 6/23/2006  | 8.83                     | 5.25                | NP                   | 3.58                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 9/26/2006  | 8.83                     | 4.13                | NP                   | 4.70                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | 0.77                  | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 12/22/2006 | 8.83                     | 3.63                | NP                   | 5.20                  | 630                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 3/30/2007  | 8.83                     | 4.31                | NP                   | 4.52                  | 94                          | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 6/28/2007  | 8.83                     | 4.62                | NP                   | 4.21                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | 0.54                  | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 9/25/2007  | 8.83                     | 4.65                | NP                   | 4.18                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 12/28/2007 | 8.83                     | 3.99                | NP                   | 4.84                  | 75                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 3/22/2008  | 8.83                     | 4.08                | NP                   | 4.75                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 6/23/2008  | 8.83                     | 4.10                | NP                   | 4.73                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 9/19/2008  | 8.83                     | 4.86                | NP                   | 3.97                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 12/31/2008 | 8.83                     | 4.17                | NP                   | 4.66                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 3/27/2009  | 8.83                     | 4.00                | NP                   | 4.83                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 5/28/2009  | 8.83                     | 4.71                | NP                   | 4.12                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 9/17/2009  | 8.83                     | 4.87                | NP                   | 3.96                  | NS                          | NS          | NS             | NS             | NS                  | NS                   | NS                    | NS                    | NS          | NS          | NS          | NS         | NS             | NS                             | NS                        | NS |
|            | 3/29/2010  | 8.83                     | --                  | WI                   | WI                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | -- |
|            | 6/30/2010  | 11.64                    | 4.45                | NP                   | 7.19                  | 66.0                        | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 7/6/2010   | 11.64                    | 4.63                | NP                   | 7.01                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | -- |
|            | 9/20/2010  | 11.64                    | 4.85                | NP                   | 6.79                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | -- |
|            | 12/8/2010  | 11.64                    | 3.99                | NP                   | 7.65                  | 57.7                        | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 3/14/2011  | 11.64                    | 3.81                | NP                   | 7.83                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | -- |
|            | 6/2/2011   | 11.64                    | 3.90                | NP                   | 7.74                  | 63.0 T4                     | --          | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | <5.0       | <250           | --                             | --                        |    |
|            | 9/7/2011   | 11.64                    | 3.72                | NP                   | 7.92                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | -- |
|            | 12/5/2011  | 11.64                    | 4.60                | NP                   | 7.04                  | <50.0                       | --          | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |    |
|            | 3/6/2012   | 11.64                    | 4.54                | NP                   | 7.10                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        | -- |
|            | 6/11/2012  | 11.64                    | 4.93                | NP                   | 6.71                  | <37.9                       | --          | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | <5.0       | <250           | --                             | --                        |    |
| 9/6/2012   | 11.64      | 4.03                     | NP                  | 7.61                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
| 12/13/2012 | 11.64      | 3.43                     | NP                  | 8.21                 | <50                   | --                          | <0.50       | <0.50          | <0.50          | <0.50               | --                   | <0.50                 | --                    | --          | --          | <5.0        | <5.0       | --             | --                             |                           |    |
| 3/14/2013  | 11.64      | 4.9                      | NP                  | 6.74                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
| 6/11/2013  | 11.64      | 6.92                     | NP                  | 4.72                 | 96                    | <50                         | <0.50       | <0.50          | <0.50          | <0.50               | --                   | <0.50                 | --                    | --          | --          | 7           | <5.0       | --             | --                             |                           |    |
| 9/10/2013  | 11.64      | 6.54                     | NP                  | 5.1                  | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
| MW-8       | 5/27/1997  | 8.52                     | 3.42                | NP                   | 5.10                  | --                          | 310         | 0.88           | 0.67           | 15                  | 70                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 6/1/1997   | 8.52                     | 3.46                | NP                   | 5.06                  | 320                         | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 7/15/1997  | 8.52                     | 3.49                | NP                   | 5.03                  | ND                          | ND          | ND             | ND             | 2.7                 | 3.8                  | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 10/9/1997  | 8.52                     | 3.73                | NP                   | 4.79                  | 390                         | 590         | 1.4            | ND             | 32                  | 4.1                  | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 1/14/1998  | 8.52                     | 1.92                | NP                   | 6.60                  | 230                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 4/1/1998   | 8.52                     | 2.38                | NP                   | 6.14                  | 510                         | ND          | ND             | ND             | ND                  | ND                   | 4.7                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 7/15/1998  | 8.52                     | 3.53                | NP                   | 4.99                  | 140                         | ND          | ND             | ND             | 0.56                | 1.1                  | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 10/16/1998 | 8.52                     | 3.04                | NP                   | 5.48                  | 170                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 1/25/1999  | 8.52                     | 2.92                | NP                   | 5.60                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 4/15/1999  | 8.52                     | 2.40                | NP                   | 6.12                  | 91                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 7/14/1999  | 8.52                     | 3.03                | NP                   | 5.49                  | 120                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 10/21/1999 | 8.52                     | 3.11                | NP                   | 5.41                  | 110                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 1/20/2000  | 8.52                     | 3.06                | NP                   | 5.46                  | 583                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 4/13/2000  | 8.52                     | 2.84                | NP                   | 5.68                  | 80                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 7/14/2000  | 8.52                     | 3.39                | NP                   | 5.13                  | 113                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 7/17/2001  | 8.52                     | 3.46                | NP                   | 5.06                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 10/1/2001  | 8.52                     | 3.51                | NP                   | 5.01                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | <5.0                  | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 1/31/2002  | 8.52                     | 2.75                | NP                   | 5.77                  | 260                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | <2.5                  | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 4/18/2002  | 8.52                     | 2.98                | NP                   | 5.54                  | 160                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | <2.5                  | --                    | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 7/28/2002  | 8.52                     | 2.41                | NP                   | 6.11                  | 140                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 10/9/2002  | 8.52                     | 2.09                | NP                   | 6.43                  | 120                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 1/2/2003   | 8.52                     | 1.98                | NP                   | 6.54                  | 210                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 4/1/2003   | 8.52                     | 2.66                | NP                   | 5.86                  | 220                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | --             | --                             | --                        |    |
|            | 7/1/2003   | 8.52                     | 3.08                | NP                   | 5.44                  | 170                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | <500           | --                             | --                        |    |
|            | 10/2/2003  | 8.52                     | 3.89                | NP                   | 4.63                  | 350                         | 540         | 3.9            | 15             | 29                  | 80                   | --                    | <2.0                  | --          | --          | --          | --         | <500           | --                             | --                        |    |
|            | 1/9/2004   | 8.52                     | 2.38                | NP                   | 6.14                  | 180                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | <500           | --                             | --                        |    |
|            | 4/26/2004  | 8.52                     | 2.89                | NP                   | 5.63                  | 100                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |    |
|            | 7/22/2004  | 8.52                     | 3.25                | NP                   | 5.27                  | 250                         | <50         | <0.5           | <0.5           | <0.5                | <1                   | --                    | <0.5                  | --          | --          | --          | --         | <1000          | --                             | --                        |    |



TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA



| Well I.D.  | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |             |                |                |                     |                      |                       |                       |             |             |             |            |                |                                |                           |
|------------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|------------|----------------|--------------------------------|---------------------------|
|            |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L) | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |
| MW-8       | 10/29/2004 | 8.52                     | 3.06                | NP                   | 5.46                  | 120                         | <50         | <0.50          | <0.50          | 0.82                | 2.5                  | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 1/10/2005  | 8.52                     | 1.92                | NP                   | 6.60                  | 140                         | 58          | <0.50          | 0.61           | 1.2                 | 4.0                  | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 6/15/2005  | 8.52                     | 2.22                | NP                   | 6.30                  | 140                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 9/27/2005  | 8.52                     | 2.43                | NP                   | 6.09                  | <200                        | <50         | <0.50          | <0.50          | 1.2                 | <1.0                 | --                    | <0.50                 | <0.50       | <0.50       | <10         | <250       | --             | --                             | --                        |
|            | 12/13/2005 | 8.52                     | 2.89                | NP                   | 5.63                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/23/2006  | 8.52                     | 2.12                | NP                   | 6.40                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/23/2006  | 8.52                     | 2.65                | NP                   | 5.87                  | <230                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/26/2006  | 8.52                     | 2.75                | NP                   | 5.77                  | 110                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/22/2006 | 8.52                     | 2.58                | NP                   | 5.94                  | 100                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/30/2007  | 8.52                     | 2.74                | NP                   | 5.78                  | 120                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/28/2007  | 8.52                     | 2.90                | NP                   | 5.62                  | 140                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/25/2007  | 8.52                     | 3.26                | NP                   | 5.26                  | 110                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/28/2007 | 8.52                     | 2.64                | NP                   | 5.88                  | 110                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/22/2008  | 8.52                     | 2.31                | NP                   | 6.21                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/23/2008  | 8.52                     | 3.13                | NP                   | 5.39                  | <58                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/19/2008  | 8.52                     | 3.72                | NP                   | 4.80                  | 79                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/31/2008 | 8.52                     | 2.98                | NP                   | 5.54                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/27/2009  | 8.52                     | 2.49                | NP                   | 6.03                  | 89                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 5/28/2009  | 8.52                     | 3.12                | NP                   | 5.40                  | 91                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/17/2009  | 8.52                     | 3.63                | NP                   | 4.89                  | NS                          | NS          | NS             | NS             | NS                  | NS                   | NS                    | NS                    | NS          | NS          | NS          | NS         | NS             | NS                             | NS                        |
|            | 3/29/2010  | 8.52                     | WI                  | WI                   | WI                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 6/30/2010  | 11.32                    | 2.60                | NP                   | 8.72                  | 182                         | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 7/6/2010   | 11.32                    | 3.03                | NP                   | 8.29                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 9/20/2010  | 11.32                    | 3.33                | NP                   | 7.99                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 12/8/2010  | 11.32                    | 2.82                | NP                   | 8.50                  | 116                         | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/14/2011  | 11.32                    | 3.84                | NP                   | 7.48                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 6/2/2011   | 11.32                    | 2.77                | NP                   | 8.55                  | --                          | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | <5.0       | <250           | --                             | --                        |
|            | 9/7/2011   | 11.32                    | 2.84                | NP                   | 8.48                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 12/5/2011  | 11.32                    | 2.68                | NP                   | 8.64                  | <50.0                       | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/6/2012   | 11.32                    | 3.07                | NP                   | 8.25                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
| 6/11/2012  | 11.32      | 3.08                     | NP                  | 8.24                 | <37.9                 | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | 8.3         | <250       | --             | --                             |                           |
| 9/6/2012   | 11.32      | 2.91                     | NP                  | 8.41                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 12/13/2012 | 11.32      | 2.31                     | NP                  | 9.01                 | <50                   | <50                         | <0.50       | <0.50          | <0.50          | <0.50               | --                   | <0.50                 | --                    | --          | --          | <5.0        | <5.0       | --             | --                             |                           |
| 3/14/2013  | 11.32      | 3.19                     | NP                  | 8.13                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 6/11/2013  | 11.32      | 3.4                      | NP                  | 7.92                 | <50                   | <50                         | <0.50       | <0.50          | <0.50          | <0.50               | --                   | <0.50                 | --                    | --          | --          | <5.0        | <5.0       | --             | --                             |                           |
| 9/10/2013  | 11.32      | 3.54                     | NP                  | 7.78                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| MW-9       | 2/21/1995  | 8.29                     | 1.98                | NP                   | 6.31                  | 71                          | 70          | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 5/18/1995  | 8.29                     | 3.47                | NP                   | 4.82                  | ND                          | 52          | ND             | 1.1            | ND                  | 1.9                  | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 8/17/1995  | 8.29                     | 1.49                | NP                   | 6.80                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/26/1996  | 8.29                     | 0.28                | NP                   | 8.01                  | 98                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/28/1996 | 8.29                     | 1.15                | NP                   | 7.14                  | 99                          | ND          | ND             | ND             | ND                  | ND                   | 7.6                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/29/1997  | 8.29                     | 1.05                | NP                   | 7.24                  | 54                          | ND          | ND             | ND             | ND                  | ND                   | 5.4                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/15/1997  | 8.29                     | 1.88                | NP                   | 6.41                  | 94                          | ND          | ND             | ND             | ND                  | ND                   | 5.4                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 5/27/1997  | 8.29                     | 1.05                | NP                   | 7.24                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/15/1997  | 8.29                     | 1.90                | NP                   | 6.39                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/9/1997  | 8.29                     | 1.76                | NP                   | 6.53                  | 160                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/14/1998  | 8.29                     | 1.26                | NP                   | 7.03                  | 110                         | ND          | ND             | ND             | ND                  | ND                   | 3.0                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/1/1998   | 8.29                     | 0.85                | NP                   | 7.44                  | 110                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/15/1998  | 8.29                     | 1.52                | NP                   | 6.77                  | 200                         | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/16/1998 | 8.29                     | 0.81                | NP                   | 7.48                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/25/1999  | 8.29                     | 0.92                | NP                   | 7.37                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/15/1999  | 8.29                     | 0.90                | NP                   | 7.39                  | ND                          | 75          | 21             | ND             | ND                  | 1.1                  | 680                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/14/1999  | 8.29                     | 1.04                | NP                   | 7.25                  | 140                         | ND          | 1.9            | ND             | ND                  | ND                   | 260                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/21/1999 | 8.29                     | 1.23                | NP                   | 7.06                  | 210                         | ND          | ND             | ND             | ND                  | ND                   | 170                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/20/2000  | 8.29                     | 1.18                | NP                   | 7.11                  | 519                         | ND          | 1.1            | ND             | ND                  | ND                   | 35                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/13/2000  | 8.29                     | 1.08                | NP                   | 7.21                  | 81                          | 160         | 0.64           | ND             | ND                  | ND                   | 53                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/14/2000  | 8.29                     | 1.43                | NP                   | 6.86                  | 107                         | ND          | ND             | ND             | ND                  | ND                   | 20.2                  | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/26/2000 | 8.29                     | 1.38                | NP                   | 6.91                  | 240                         | 240         | 2.9            | ND             | ND                  | ND                   | 56                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/3/2001   | 8.29                     | 1.66                | NP                   | 6.63                  | 164                         | 166         | 0.763          | 0.776          | ND                  | 1.28                 | 50.2                  | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/4/2001   | 8.29                     | 1.27                | NP                   | 7.02                  | 240                         | 296         | 0.738          | ND             | ND                  | 0.907                | 135                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/17/2001  | 8.29                     | 1.38                | NP                   | 6.91                  | ND                          | ND          | ND             | ND             | ND                  | ND                   | 13                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
| 10/1/2001  | 8.29       | 1.93                     | NP                  | 6.36                 | <52                   | 51                          | <0.50       | <0.50          | <0.50          | <0.50               | 5.0                  | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 1/31/2002  | 8.29       | 2.08                     | NP                  | 6.21                 | 200                   | <50                         | <0.50       | <0.50          | <0.50          | <0.50               | 5.8                  | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |

TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA



| Well I.D.  | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |             |                |                |                     |                      |                       |                       |             |             |             |            |                |                                |                           |
|------------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|------------|----------------|--------------------------------|---------------------------|
|            |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L) | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |
| MW-9       | 4/18/2002  | 8.29                     | 1.76                | NP                   | 6.53                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | 5.1                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/28/2002  | 8.29                     | 1.57                | NP                   | 6.72                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 3.5                   | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/9/2002  | 8.29                     | 1.45                | NP                   | 6.84                  | 100                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 17                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/2/2003   | 8.29                     | 1.18                | NP                   | 7.11                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 8.6                   | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/1/2003   | 8.29                     | 2.04                | NP                   | 6.25                  | 56                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 9.4                   | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/1/2003   | 8.29                     | 2.80                | NP                   | 5.49                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 3.2                   | --          | --          | --          | --         | <500           | --                             | --                        |
|            | 10/2/2003  | 8.29                     | 2.70                | NP                   | 5.59                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | <500           | --                             | --                        |
|            | 1/9/2004   | 8.29                     | 1.90                | NP                   | 6.39                  | 91                          | 74          | <0.50          | 0.98           | 2.3                 | 6.2                  | 74                    | --                    | <2.0        | --          | --          | --         | <500           | --                             | --                        |
|            | 4/26/2004  | 8.29                     | 1.62                | NP                   | 6.67                  | <50                         | 51          | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 0.51                  | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 7/22/2004  | 8.29                     | 1.88                | NP                   | 6.41                  | <200                        | <50         | <0.5           | <0.5           | <0.5                | <1                   | --                    | 0.78                  | --          | --          | --          | --         | <1000          | --                             | --                        |
|            | 10/29/2004 | 8.29                     | 1.28                | NP                   | 7.01                  | 76                          | <50         | <0.50          | <0.50          | <0.50               | 1.0                  | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 1/10/2005  | 8.29                     | 0.07                | NP                   | 8.22                  | 77                          | 93          | 0.60           | 2.3            | 2.4                 | 9.0                  | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 6/15/2005  | 8.29                     | 1.70                | NP                   | 6.59                  | 67                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 6.6                   | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 9/27/2005  | 8.29                     | 1.98                | NP                   | 6.31                  | <200                        | <50         | <0.50          | 0.73           | <0.50               | <1.0                 | --                    | 2.3                   | <0.50       | <0.50       | <0.50       | <10        | <250           | --                             | --                        |
|            | 12/13/2005 | 8.29                     | 2.26                | NP                   | 6.03                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 2.9                   | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/23/2006  | 8.29                     | 1.32                | NP                   | 6.97                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 2.7                   | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/23/2006  | 8.29                     | 1.98                | NP                   | 6.31                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 1.9                   | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/26/2006  | 8.29                     | 2.52                | NP                   | 5.77                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/22/2006 | 8.29                     | 1.98                | NP                   | 6.31                  | 150                         | <50         | <0.50          | 0.57           | 1.8                 | 4.6                  | --                    | 1.6                   | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/30/2007  | 8.29                     | 2.01                | NP                   | 6.28                  | 72                          | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | 3.4                   | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/28/2007  | 8.29                     | 1.90                | NP                   | 6.39                  | 1000                        | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | 4.9                   | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/25/2007  | 8.29                     | 1.57                | NP                   | 6.72                  | 100                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/28/2007 | 8.29                     | 1.98                | NP                   | 6.31                  | 56                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/22/2008  | 8.29                     | 0.80                | NP                   | 7.49                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 0.61                  | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/23/2008  | 8.29                     | 1.80                | NP                   | 6.49                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/19/2008  | 8.29                     | 2.43                | NP                   | 5.86                  | 56                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | 3.9                   | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/31/2008 | 8.29                     | 2.66                | NP                   | 5.63                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/27/2009  | 8.29                     | 2.01                | NP                   | 6.28                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 5/28/2009  | 8.29                     | 2.20                | NP                   | 6.09                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/17/2009  | 8.29                     | 1.83                | NP                   | 6.46                  | NS                          | NS          | NS             | NS             | NS                  | NS                   | NS                    | NS                    | NS          | NS          | NS          | NS         | NS             | NS                             | NS                        |
|            | 12/17/2009 | 8.29                     | 1.52                | NP                   | 6.77                  | 105                         | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/29/2010  | 8.29                     | 2.21                | NP                   | 6.08                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 6/30/2010  | 10.94                    | 2.32                | NP                   | 8.62                  | 95.0                        | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | 0.85                  | --          | --          | --          | --         | <250           | --                             | --                        |
| 7/6/2010   | 10.94      | 2.02                     | NP                  | 8.92                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 9/20/2010  | 10.94      | 2.03                     | NP                  | 8.91                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 12/8/2010  | 10.94      | 1.77                     | NP                  | 9.17                 | <50.0                 | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 3/14/2011  | 10.94      | 2.24                     | NP                  | 8.70                 | <50.0                 | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | <5.0        | <250       | --             | --                             |                           |
| 6/2/2011   | 10.94      | 2.24                     | NP                  | 8.70                 | <50.0                 | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | <5.0        | <250       | --             | --                             |                           |
| 9/7/2011   | 10.94      | 2.46                     | NP                  | 8.48                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 12/5/2011  | 10.94      | 2.43                     | NP                  | 8.51                 | <50.0                 | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | 4.0                   | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 3/6/2012   | 10.94      | 3.03                     | NP                  | 7.91                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 6/11/2012  | 10.94      | 1.75                     | NP                  | 9.19                 | <37.9                 | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | <5.0        | <250       | --             | --                             |                           |
| 9/6/2012   | 10.94      | 1.24                     | NP                  | 9.70                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 12/13/2012 | 10.94      | 1.80                     | NP                  | 9.14                 | <50                   | <50                         | <0.50       | <0.50          | <0.50          | <0.50               | --                   | <0.50                 | --                    | --          | --          | <5.0        | <5.0       | --             | --                             |                           |
| 3/14/2013  | 10.94      | 2.38                     | NP                  | 8.56                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 6/11/2013  | 10.94      | 2.81                     | NP                  | 8.13                 | <50                   | <50                         | <0.50       | <0.50          | <0.50          | <0.50               | --                   | 4.2                   | --                    | --          | --          | <5.0        | <5.0       | --             | --                             |                           |
| 9/10/2013  | 10.94      | 2.63                     | NP                  | 8.31                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| MW-10      | 2/21/1995  | 8.62                     | 4.69                | NP                   | 3.93                  | 270                         | 1500        | 250            | 26             | 9.1                 | 160                  | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 5/18/1995  | 8.62                     | 4.92                | NP                   | 3.70                  | 75                          | 810         | 520            | ND             | 18                  | 23                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 8/17/1995  | 8.62                     | 4.05                | NP                   | 4.57                  | ND                          | 67          | 25             | ND             | 2.4                 | ND                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 7/26/1996  | 8.62                     | 4.08                | NP                   | 4.54                  | ND                          | ND          | 3.7            | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 10/28/1996 | 8.62                     | 4.09                | NP                   | 4.53                  | ND                          | ND          | 1.1            | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 1/29/1997  | 8.62                     | 2.94                | NP                   | 5.68                  | ND                          | 210         | 41             | 0.67           | 7.2                 | 4.8                  | 11                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 4/15/1997  | 8.62                     | 4.07                | NP                   | 4.55                  | ND                          | 110         | 12             | ND             | 0.77                | ND                   | 9.7                   | --                    | --          | --          | --          | --         | --             | --                             |                           |
|            | 5/27/1997  | 8.62                     | 4.40                | NP                   | 4.22                  | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/15/1997  | 8.62                     | 4.19                | NP                   | 4.43                  | ND                          | ND          | 2.1            | ND             | 0.67                | 0.73                 | ND                    | 2.1                   | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/9/1997  | 8.62                     | 4.75                | NP                   | 3.87                  | ND                          | 190         | 38             | 0.92           | 6.6                 | 7.6                  | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/14/1998  | 8.62                     | 2.66                | NP                   | 5.96                  | --                          | 59          | 9.5            | 0.85           | 1.2                 | 1.7                  | 4.5                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/1/1998   | 8.62                     | 3.45                | NP                   | 5.17                  | 62                          | 230         | 66             | 1.7            | 12                  | 17                   | 6.4                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/15/1998  | 8.62                     | 4.21                | NP                   | 4.41                  | 78                          | 290         | 98             | 45             | 21                  | 38                   | 21                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/16/1998 | 8.62                     | 4.11                | NP                   | 4.51                  | ND                          | 160         | 44             | 0.96           | 2.5                 | 10                   | 17                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/25/1999  | 8.62                     | 3.26                | NP                   | 5.36                  | ND                          | 140         | 27             | ND             | 2.8                 | 6.8                  | 23                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
| 4/15/1999  | 8.62       | 3.63                     | NP                  | 4.99                 | ND                    | 120                         | 18          | ND             | 1.8            | 5.1                 | 14                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |

TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENERBERGER ROAD  
OAKLAND, CALIFORNIA



| Well I.D.  | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |             |                |                |                     |                      |                       |                       |             |             |             |            |                |                                |                           |
|------------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|------------|----------------|--------------------------------|---------------------------|
|            |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L) | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |
| MW-10      | 7/14/1999  | 8.62                     | 3.89                | NP                   | 4.73                  | 180                         | 280         | 55             | 3.2            | 11                  | 31                   | 6.1                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/21/1999 | 8.62                     | 4.09                | NP                   | 4.53                  | 96                          | 140         | 22             | 0.59           | 1.7                 | 7.7                  | 5.3                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/20/2000  | 8.62                     | 3.92                | NP                   | 4.70                  | 252                         | ND          | 0.73           | 0.86           | ND                  | ND                   | 5.2                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/13/2000  | 8.62                     | 3.85                | NP                   | 4.77                  | 69                          | 67          | 54             | ND             | 2.6                 | ND                   | 3.8                   | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/14/2000  | 8.62                     | 4.18                | NP                   | 4.44                  | 149                         | ND          | 0.547          | ND             | ND                  | ND                   | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/26/2000 | 8.62                     | 3.96                | NP                   | 4.66                  | 83                          | ND          | 3.3            | ND             | 0.83                | 1.5                  | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/3/2001   | 8.62                     | 4.14                | NP                   | 4.48                  | 126                         | 52.7        | 5.15           | ND             | 0.823               | 1.57                 | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/4/2001   | 8.62                     | 3.88                | NP                   | 4.74                  | 75                          | 129         | 28.1           | 1.67           | 4.97                | 10.1                 | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/17/2001  | 8.62                     | 4.08                | NP                   | 4.54                  | ND                          | ND          | 4.1            | ND             | 1.0                 | 1.8                  | ND                    | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/1/2001  | 8.62                     | 4.22                | NP                   | 4.40                  | 100                         | 140         | 30             | 0.51           | 4.0                 | 12                   | <5.0                  | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/31/2002  | 8.62                     | 3.68                | NP                   | 4.94                  | 170                         | 110         | 16             | <0.50          | 2.3                 | 5.6                  | <2.5                  | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/18/2002  | 8.62                     | 4.01                | NP                   | 4.61                  | 130                         | <50         | 11             | <0.50          | 1.4                 | 4.5                  | <2.5                  | --                    | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/28/2002  | 8.62                     | 4.11                | NP                   | 4.51                  | 58                          | 67          | 15             | <0.50          | 0.94                | 7.3                  | --                    | <2.0                  | --          | --          | --          | --         | --             | --                             | --                        |
|            | 10/9/2002  | 8.62                     | 3.97                | NP                   | 4.65                  | <94                         | <50         | 0.67           | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | --             | --                             | --                        |
|            | 1/2/2003   | 8.62                     | 3.03                | NP                   | 5.59                  | 64                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | --             | --                             | --                        |
|            | 4/1/2003   | 8.62                     | 3.83                | NP                   | 4.79                  | 76                          | <50         | 11             | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | --             | --                             | --                        |
|            | 7/1/2003   | 8.62                     | 4.13                | NP                   | 4.49                  | 87                          | <0.50       | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <2.0                  | --          | --          | --          | --         | <500           | --                             | --                        |
|            | 10/2/2003  | 8.62                     | 4.05                | NP                   | 4.57                  | 160                         | 77          | 9.9            | 0.78           | 2.3                 | 4.9                  | --                    | <2.0                  | --          | --          | --          | --         | <500           | --                             | --                        |
|            | 1/9/2004   | 8.62                     | 3.40                | NP                   | 5.22                  | 74                          | 53          | 1.2            | <0.50          | 0.70                | 1.6                  | --                    | <2.0                  | --          | --          | --          | --         | <500           | --                             | --                        |
|            | 4/26/2004  | 8.62                     | 3.89                | NP                   | 4.73                  | <50                         | <50         | 2.8            | 1.3            | 1.0                 | 2.9                  | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 7/22/2004  | 8.62                     | 3.73                | NP                   | 4.89                  | <200                        | <50         | <0.5           | <0.5           | <0.5                | <1                   | --                    | <0.5                  | --          | --          | --          | --         | <1000          | --                             | --                        |
|            | 10/29/2004 | 8.62                     | 3.41                | NP                   | 5.21                  | <50                         | 100         | 2.0            | 1.2            | 1.1                 | 3.6                  | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 1/10/2005  | 8.62                     | 2.68                | NP                   | 5.94                  | 94                          | 84          | 7.8            | 2.7            | 2.2                 | 8.9                  | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 6/15/2005  | 8.62                     | 4.63                | NP                   | 3.99                  | 62                          | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <50            | --                             | --                        |
|            | 9/27/2005  | 8.62                     | 3.96                | NP                   | 4.66                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | <0.50       | <0.50       | <0.50       | <10        | <250           | --                             | --                        |
|            | 12/13/2005 | 8.62                     | 3.75                | NP                   | 4.87                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/23/2006  | 8.62                     | 3.13                | NP                   | 5.49                  | <200                        | 50          | 13             | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/23/2006  | 8.62                     | 3.90                | NP                   | 4.72                  | <200                        | <50         | <0.50          | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/26/2006  | 8.62                     | 3.66                | NP                   | 4.96                  | <50                         | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/22/2006 | 8.62                     | 3.56                | NP                   | 5.06                  | 81                          | <50         | <0.50          | <0.50          | <0.50               | 1.8                  | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/30/2007  | 8.62                     | 3.93                | NP                   | 4.69                  | 82                          | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/28/2007  | 8.62                     | 4.03                | NP                   | 4.59                  | 57                          | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/25/2007  | 8.62                     | 3.91                | NP                   | 4.71                  | 82                          | <50         | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/28/2007 | 8.62                     | 3.64                | NP                   | 4.98                  | 62                          | <50         | 2.1            | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/22/2008  | 8.62                     | 4.00                | NP                   | 4.62                  | <50                         | 64          | 13             | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 6/23/2008  | 8.62                     | 3.90                | NP                   | 4.72                  | <50                         | 94          | 30             | 0.53           | 3.4                 | 3.5                  | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 9/19/2008  | 8.62                     | 3.85                | NP                   | 4.77                  | <50                         | 130         | 15             | 1.7            | 5.7                 | 11                   | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/31/2008 | 8.62                     | 3.69                | NP                   | 4.93                  | <50                         | 82          | 11             | <0.50          | 0.81                | 1.7                  | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/27/2009  | 8.62                     | 3.75                | NP                   | 4.87                  | 730                         | 210         | 28             | 1.4            | 1.2                 | 3.9                  | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 5/28/2009  | 8.62                     | 3.66                | NP                   | 4.96                  | <50                         | <50         | 0.91           | <0.50          | <0.50               | <1.0                 | --                    | <0.50                 | --          | --          | --          | --         | <250           | --                             | --                        |
| 9/17/2009  | 8.62       | 3.85                     | NP                  | 4.77                 | 65                    | <50                         | <0.50       | <0.50          | <0.50          | <1.0                | --                   | <0.50                 | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 12/17/2009 | 8.62       | 3.00                     | NP                  | 5.62                 | 57.7                  | <50.0                       | 1.2         | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 3/29/2010  | 8.62       | 3.81                     | NP                  | 4.81                 | 82.2                  | <50.0                       | 0.77        | <0.50          | <0.50          | 3.4                 | --                   | <0.50                 | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 6/30/2010  | 10.97      | 3.90                     | NP                  | 7.07                 | 53.4                  | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 7/6/2010   | 10.97      | 3.73                     | NP                  | 7.24                 | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 9/20/2010  | 10.97      | 3.85                     | NP                  | 7.12                 | <50.0                 | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 12/8/2010  | 10.97      | 3.63                     | NP                  | 7.34                 | <50.0                 | <50.0                       | 1.8         | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 3/14/2011  | 10.97      | 3.46                     | NP                  | 7.51                 | 63.3                  | <50.0                       | 1.1         | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | <5.0        | <250       | --             | --                             |                           |
| 6/2/2011   | 10.97      | 3.92                     | NP                  | 7.05                 | <50.0                 | 58.7                        | 4.8         | 4.2            | 0.96           | 5.1                 | --                   | <0.50                 | --                    | --          | --          | <5.0        | <250       | --             | --                             |                           |
| 9/7/2011   | 10.97      | 4.06                     | NP                  | 6.91                 | <50.0                 | <50.0                       | 4.1         | <0.50          | 0.66           | 2.4                 | --                   | <0.50                 | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 12/5/2011  | 10.97      | 3.82                     | NP                  | 7.15                 | <50.0                 | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | --          | <250       | --             | --                             |                           |
| 3/6/2012   | 10.97      | 3.74                     | NP                  | 7.23                 | <50.0                 | <50.0                       | <0.50       | <0.50          | <0.50          | <1.5                | --                   | <0.50                 | --                    | --          | --          | 58.7        | <250       | --             | --                             |                           |
| 6/11/2012  | 10.97      | 3.99                     | NP                  | 6.98                 | <37.9                 | <50.0                       | 0.79        | <0.50          | <0.50          | <1.5                | --                   | 0.72                  | --                    | --          | --          | 17.2        | <250       | --             | --                             |                           |
| 9/6/2012   | 10.97      | 4.00                     | NP                  | 6.97                 | 110                   | 64                          | 6.9         | 0.89           | 1.8            | 3.9                 | --                   | <0.50                 | <0.50                 | <0.50       | <0.50       | <5.0        | <5.0       | <0.50          | <0.50                          |                           |
| 9/11/2012  | --         | --                       | --                  | --                   | --                    | --                          | --          | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --         | --             | --                             |                           |
| 12/13/2012 | 10.97      | 3.40                     | NP                  | 7.57                 | <50                   | 120                         | 15          | 1.1            | 1.7            | 5.2                 | --                   | <0.50                 | --                    | --          | --          | <5.0        | <5.0       | --             | --                             |                           |
| 3/14/2013  | 10.97      | 4.00                     | NP                  | 6.97                 | <50                   | 86                          | 25          | <0.50          | 0.6            | 0.8                 | --                   | <0.50                 | --                    | --          | --          | <5.0        | <5.0       | --             | --                             |                           |
| 6/11/2013  | 10.97      | 4.20                     | NP                  | 6.77                 | <50                   | <50                         | <0.50       | <0.50          | <0.50          | <0.50               | --                   | <0.50                 | --                    | --          | --          | <5.0        | <8.0       | --             | --                             |                           |
| 9/10/2013  | 10.97      | 3.92                     | NP                  | 7.05                 | <50                   | <50                         | <0.50       | <0.50          | <0.50          | 1.2                 | --                   | <0.50                 | --                    | --          | --          | <5.0        | <5.0       | --             | --                             |                           |
| MW-11      | 7/6/2010   | 10.53                    | 2.44                | NP                   | 8.09                  | 226                         | 99.2        | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | 165                   | <0.50       | <0.50       | <0.50       | 174        | <250           | <1.0                           | <1.0                      |
|            | 9/20/2010  | 10.53                    | 2.80                | NP                   | 7.73                  | <50.0                       | 76.4 in     | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | 82.7                  | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 12/8/2010  | 10.53                    | 1.90                | NP                   | 8.63                  | 52.7                        | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | 59.1                  | --          | --          | --          | --         | <250           | --                             | --                        |
|            | 3/14/2011  | 10.53                    | 1.89                | NP                   | 8.64                  | 67.8                        | <50.0       | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | 44.0                  | --          | --          | --          | <5.0       | <250           | --                             | --                        |



TABLE 2  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA



| Well I.D. | Date       | GROUNDWATER GAUGING DATA |                     |                      |                       | GROUNDWATER ANALYTICAL DATA |                 |                |                |                     |                      |                       |                       |             |             |             |             |                |                                |                           |    |
|-----------|------------|--------------------------|---------------------|----------------------|-----------------------|-----------------------------|-----------------|----------------|----------------|---------------------|----------------------|-----------------------|-----------------------|-------------|-------------|-------------|-------------|----------------|--------------------------------|---------------------------|----|
|           |            | TOC Elevation (ft)       | Depth to Water (ft) | LNAPL Thickness (ft) | Water Elevation* (ft) | TPHd (ug/L)                 | TPHg (ug/L)     | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | MTBE (SW8021B) (ug/L) | MTBE (SW8260B) (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L)  | Ethanol (ug/L) | 1,2-Dibromoethane (EDB) (ug/L) | 1,2-Dichloroethane (ug/L) |    |
| MW-15     | 9/7/2011   | 11.11                    | 2.54                | NP                   | 8.57                  | <50.0                       | <b>412</b>      | <b>6.2</b>     | <0.50          | <b>43</b>           | <1.5                 | --                    | <b>128</b>            | --          | --          | --          | --          | <250           | --                             | --                        |    |
|           | 12/5/2011  | 11.11                    | 2.70                | NP                   | 8.41                  | <b>50.5 T4</b>              | <b>201</b>      | <b>6.6</b>     | <0.50          | <b>0.93</b>         | <1.5                 | --                    | <b>142</b>            | --          | --          | --          | --          | <250           | --                             | --                        |    |
|           | 3/6/2012   | 11.11                    | 2.69                | NP                   | 8.42                  | <b>56.2 T4</b>              | <50.0           | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <b>106</b>            | --          | --          | --          | <b>101</b>  | <250           | --                             | --                        |    |
|           | 6/11/2012  | 11.11                    | 2.84                | NP                   | 8.27                  | --                          | --              | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --          | --             | --                             | --                        | -- |
|           | 6/12/2012  | --                       | --                  | --                   | --                    | <37.9                       | <b>74.3 1n</b>  | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <b>114</b>            | --          | --          | --          | <b>91</b>   | <250           | --                             | --                        |    |
|           | 9/6/2012   | 11.11                    | 2.24                | NP                   | 8.87                  | <b>64</b>                   | <b>59</b>       | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <b>76</b>             | <0.50       | <0.50       | <0.50       | <b>45</b>   | <5.0           | <0.50                          | <0.50                     |    |
|           | 12/13/2012 | 11.11                    | 2.51                | NP                   | 8.60                  | <50                         | <50             | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <b>33</b>             | --          | --          | --          | <b>7.4</b>  | <5.0           | --                             | --                        |    |
|           | 3/14/2013  | 11.11                    | 2.91                | NP                   | 8.20                  | <50                         | <50             | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <b>46</b>             | --          | --          | --          | <b>21.0</b> | <5.0           | --                             | --                        |    |
|           | 6/11/2013  | 11.11                    | 3.36                | NP                   | 7.75                  | <50                         | <50             | <0.50          | <0.50          | <0.50               | <0.50                | --                    | <b>73</b>             | --          | --          | --          | <b>31.0</b> | <5.0           | --                             | --                        |    |
| 9/10/2013 | 11.11      | 3.28                     | NP                  | 7.83                 | <50                   | <b>68</b>                   | <0.50           | <0.50          | <0.50          | <0.50               | --                   | <b>120</b>            | --                    | --          | --          | <b>39.0</b> | <5.0        | --             | --                             |                           |    |
| MW-16     | 6/2/2011   | 10.98                    | 3.00                | NP                   | 7.98                  | <b>509 T4</b>               | <b>1,420 1n</b> | <b>79</b>      | <0.50          | <b>4</b>            | <1.5                 | --                    | <b>1,200</b>          | --          | --          | --          | <b>257</b>  | <250           | --                             | --                        |    |
|           | 9/7/2011   | 10.98                    | 2.65                | NP                   | 8.33                  | <b>90.0 T4</b>              | <b>934</b>      | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <b>1,240</b>          | --          | --          | --          | --          | <250           | --                             | --                        |    |
|           | 12/5/2011  | 10.98                    | 3.18                | NP                   | 7.80                  | <b>196 T4</b>               | <b>948 1n</b>   | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <b>1,320</b>          | --          | --          | --          | --          | <250           | --                             | --                        |    |
|           | 3/6/2012   | 10.98                    | 2.91                | NP                   | 8.07                  | <b>204 T4</b>               | <b>392 1n</b>   | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <b>1,090</b>          | --          | --          | --          | <b>134</b>  | <250           | --                             | --                        |    |
|           | 6/11/2012  | 10.98                    | 3.04                | NP                   | 7.94                  | --                          | --              | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --          | --             | --                             | --                        |    |
|           | 6/12/2012  | --                       | --                  | --                   | --                    | <b>48.1 T4</b>              | <b>430 1n</b>   | <0.50          | <0.50          | <0.50               | <1.5                 | --                    | <b>1,100</b>          | --          | --          | --          | <b>374</b>  | <250           | --                             | --                        |    |
|           | 9/6/2012   | 10.98                    | 2.61                | NP                   | 8.37                  | <b>390</b>                  | <150            | <1.5           | <1.5           | <1.5                | <1.5                 | --                    | <b>960</b>            | <1.5        | <1.5        | <1.5        | <b>70</b>   | <15            | <1.5                           | <1.5                      |    |
|           | 12/13/2012 | 10.98                    | 2.50                | NP                   | 8.48                  | <b>52</b>                   | <150            | <1.5           | <1.5           | <1.5                | <1.5                 | --                    | <b>980</b>            | --          | --          | --          | <b>55</b>   | <20            | --                             | --                        |    |
|           | 3/14/2013  | 10.98                    | 3.15                | NP                   | 7.83                  | <50                         | <200            | <2.0           | <2.0           | <2.0                | <2.0                 | --                    | <b>950</b>            | --          | --          | --          | <b>67</b>   | <20            | --                             | --                        |    |
| 6/11/2013 | 10.98      | 3.19                     | NP                  | 7.79                 | <50                   | <150                        | <1.5            | <1.5           | <1.5           | <1.5                | --                   | <b>820</b>            | --                    | --          | --          | <b>70</b>   | <15         | --             | --                             |                           |    |
| 9/10/2013 | 10.98      | 3.44                     | NP                  | 7.54                 | <50                   | <50                         | <0.50           | <0.50          | <0.50          | <b>0.67</b>         | --                   | <b>240</b>            | --                    | --          | --          | <b>440</b>  | <5.0        | --             | --                             |                           |    |
| MW-17     | 6/2/2011   | 11.52                    | 5.78                | NP                   | 5.74                  | <b>687 T4</b>               | <b>9,130</b>    | <b>2,530</b>   | <b>960</b>     | <b>35</b>           | <b>907</b>           | --                    | <b>1</b>              | --          | --          | --          | <b>366</b>  | <250           | --                             | --                        |    |
|           | 9/7/2011   | 11.52                    | 4.56                | NP                   | 6.96                  | <b>1,900 T4</b>             | <b>47,200</b>   | <b>9,620</b>   | <b>5,510</b>   | <b>1,210</b>        | <b>4,510</b>         | --                    | <25.0                 | --          | --          | --          | --          | <12500         | --                             | --                        |    |
|           | 12/5/2011  | 11.52                    | 4.70                | NP                   | 6.82                  | <b>1,790 T4</b>             | <b>17,300</b>   | <b>4,720</b>   | <b>511</b>     | <b>238</b>          | <b>747</b>           | --                    | <2.5                  | --          | --          | --          | --          | <1250          | --                             | --                        |    |
|           | 3/6/2012   | 11.52                    | 4.64                | NP                   | 6.88                  | <b>1,530 T4</b>             | <b>1,580</b>    | <b>2,090</b>   | <b>24</b>      | <b>39</b>           | <b>166</b>           | --                    | <b>1</b>              | --          | --          | --          | <b>481</b>  | <250           | --                             | --                        |    |
|           | 6/11/2012  | 11.52                    | 4.67                | NP                   | 6.85                  | --                          | --              | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --          | --             | --                             | --                        |    |
|           | 6/12/2012  | --                       | --                  | --                   | --                    | <b>1,090 T4</b>             | <b>4,950</b>    | <b>2,340</b>   | <b>123</b>     | <b>153</b>          | <b>610</b>           | --                    | <2.5                  | --          | --          | --          | <b>411</b>  | <1250          | --                             | --                        |    |
|           | 9/6/2012   | 11.52                    | 4.39                | NP                   | 7.13                  | <1000                       | <b>18,000</b>   | <b>4,300</b>   | <b>170</b>     | <b>370</b>          | <b>1,100</b>         | --                    | <10                   | <10         | <10         | <10         | <b>300</b>  | <100           | <10                            | <b>110</b>                |    |
|           | 9/11/2012  | --                       | --                  | --                   | --                    | --                          | --              | --             | --             | --                  | --                   | --                    | --                    | --          | --          | --          | --          | --             | --                             | --                        |    |
|           | 12/13/2012 | 11.52                    | 4.20                | NP                   | 7.32                  | <100                        | <b>55,000</b>   | <b>7,300</b>   | <b>2,700</b>   | <b>1,700</b>        | <b>4,600</b>         | --                    | <10                   | --          | --          | --          | <b>300</b>  | <100           | --                             | --                        |    |
| 3/14/2013 | 11.52      | 4.70                     | NP                  | 6.82                 | <200                  | <b>63,000</b>               | <b>13,000</b>   | <b>5,400</b>   | <b>3,100</b>   | <b>8,800</b>        | --                   | <15                   | --                    | --          | --          | <b>260</b>  | <150        | --             | --                             |                           |    |
| 6/11/2013 | 11.52      | 4.83                     | NP                  | 6.69                 | <b>710</b>            | <b>110,000</b>              | <b>10,000</b>   | <b>11,000</b>  | <b>3,100</b>   | <b>12,000</b>       | --                   | <25                   | --                    | --          | --          | <150        | <250        | --             | --                             |                           |    |
| 9/10/2013 | 11.52      | 4.60                     | NP                  | 6.92                 | <b>160</b>            | <b>36,000</b>               | <b>8,200</b>    | <b>510</b>     | <b>1,200</b>   | <b>2,400</b>        | --                   | <15                   | --                    | --          | --          | <b>320</b>  | <150        | --             | --                             |                           |    |

Gauging Notes:

TOS - Top of Screen  
ft - Feet  
NP - LNAPL not present  
LNAPL - Light non-aqueous phase liquid  
\* - Corrected for LNAPL if present (assumes LNAPL specific gravity = 0.75)  
-- - No information available

Analytical Notes:

< - Below laboratory's indicated reporting limit  
ug/L - micrograms/liter  
DRO- diesel range organics  
TPHd- Total petroleum hydrocarbons as diesel  
TPHg- Total petroleum hydrocarbons as gasoline  
MTBE- Methyl tertiary-butyl ether  
TBA- Tertiary-butyl alcohol  
**Bold** - Above the laboratory's indicated reporting limit  
1n - The TPHg result for this sample did not match the laboratory standard for gasoline. This is likely due to the presence of MTBE in the sample.  
T4- Result reported for the hydrocarbons within the method-specific range that do not match pattern of laboratory standard.





**TABLE 3**

**HISTORICAL SOIL ANALYTICAL Data  
76 Station No. 5191/5043  
449 Hegenberger Raod, Oakland, California**

| Sample ID               | Date      | Sample Depth (feet) | TPHg (mg/kg) | TPHg* (mg/kg) | TPHd (mg/kg) | TPHd* (mg/Kg) | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | MTBE (mg/kg) | TBA (mg/kg) | TAME (mg/kg) | DIPE (mg/kg) | ETBE (mg/kg) | Ethanol (mg/kg) | EDB (mg/kg) | 1,2-DCA (mg/kg) | Naphthalene (mg/kg) | Lead (mg/kg) |
|-------------------------|-----------|---------------------|--------------|---------------|--------------|---------------|-----------------|-----------------|-----------------------|-----------------------|--------------|-------------|--------------|--------------|--------------|-----------------|-------------|-----------------|---------------------|--------------|
| <b>Antea Group 2011</b> |           |                     |              |               |              |               |                 |                 |                       |                       |              |             |              |              |              |                 |             |                 |                     |              |
| MW-14d7                 | 5/17/2011 | 7                   | NA           | <0.23         | <2.0         | <2.0          | <0.0027         | <0.0027         | <0.0027               | <0.0081               | <0.0027      | <0.014      | <0.0027      | <0.0027      | <0.0027      | <0.36           | <0.0027     | <0.0027         | NA                  | 6.6          |
| MW-14d10                | 5/17/2011 | 10                  | NA           | 1,740         | 45.5 1n      | 45.9 1n       | 1.8             | 0.2             | 44                    | 140                   | <0.0026      | <0.013      | <0.0026      | <0.0026      | <0.0026      | <0.34           | <0.0026     | <0.0026         | NA                  | 7            |
| MW-14d13                | 5/17/2011 | 13                  | NA           | 1             | <2.0         | <2.0          | <0.0027         | <0.0027         | 0.037                 | 0.066                 | <0.0027      | <0.014      | <0.0027      | <0.0027      | <0.0027      | <0.36           | <0.0027     | <0.0027         | NA                  | 6.6          |
| MW-15d8                 | 5/17/2011 | 8                   | NA           | 2.3           | 6.2          | 5.2           | 0.023           | <0.0038         | 1.9                   | 0.25                  | 0.19         | 0.16        | <0.0038      | <0.0038      | <0.0038      | <0.51           | <0.0038     | <0.0038         | NA                  | 7            |
| MW-15d13                | 5/17/2011 | 13                  | NA           | <0.23         | <1.9         | <1.9          | <0.0028         | <0.0028         | <0.0028               | <0.0083               | 0.015        | 0.022       | <0.0028      | <0.0028      | <0.0028      | <0.37           | <0.0028     | <0.0028         | NA                  | 7            |
| MW-16d8                 | 5/17/2011 | 8                   | NA           | <0.23         | <2.0         | <2.0          | <0.0027         | <0.0027         | <0.0027               | <0.0081               | 0.15         | 0.014       | <0.0027      | <0.0027      | <0.0027      | <0.36           | <0.0027     | <0.0027         | NA                  | 5.7          |
| MW-16d13                | 5/17/2011 | 13                  | NA           | <0.23         | <2.0         | <2.0          | <0.0028         | <0.0028         | <0.0028               | <0.0084               | <0.0028      | <0.014      | <0.0028      | <0.0028      | <0.0028      | <0.37           | <0.0028     | <0.0028         | NA                  | 5.5          |
| MW-17d9                 | 5/18/2011 | 9                   | NA           | 633           | 39.6 1n      | 36.7 1n       | 6               | 14.1            | 17.9                  | 58                    | <0.0026      | 0.03        | <0.0026      | <0.0026      | <0.0026      | <0.35           | <0.0026     | <0.0026         | NA                  | 16.3         |
| MW-17d13                | 5/18/2011 | 13                  | NA           | 5.4           | 2.9 1n       | 2.5 1n        | 2.7             | 0.46            | 1.4                   | 2.8                   | <0.0027      | 0.029       | <0.0027      | <0.0027      | <0.0027      | <0.36           | <0.0027     | <0.0027         | NA                  | 6.4          |
| B-6d9                   | 5/18/2011 | 9                   | NA           | 2,490         | 72.0 1n      | 68.6 1n       | 26.4            | 73.9            | 58.1                  | 230                   | <0.0031      | <0.015      | <0.0031      | <0.0031      | <0.0031      | <0.41           | <0.0031     | <0.0031         | NA                  | 10.1         |
| B-6d14                  | 5/18/2011 | 14                  | NA           | 194           | 258 1n       | 250 1n        | 3.6             | 5.1             | 5.1                   | 22                    | <0.0025      | <0.013      | <0.0025      | <0.0025      | <0.0025      | <0.33           | <0.0025     | <0.0025         | NA                  | 9.2          |
| B-6d21                  | 5/18/2011 | 21                  | NA           | 7.2           | <2.0         | <2.0          | 0.67            | 0.86            | 0.25                  | 0.94                  | 0.036        | 0.014       | <0.0027      | <0.0027      | <0.0027      | <0.37           | <0.0027     | <0.0027         | NA                  | 6.8          |
| B-6d26                  | 5/18/2011 | 26                  | NA           | 17            | 3.4 1n       | 2.9 1n        | 0.83            | 1.2             | 0.46                  | 1.7                   | 0.086        | 0.021       | <0.0026      | <0.0026      | <0.0026      | <0.34           | <0.0026     | <0.0026         | NA                  | 6.6          |
| <b>Antea Group 2013</b> |           |                     |              |               |              |               |                 |                 |                       |                       |              |             |              |              |              |                 |             |                 |                     |              |
| SB-1d5.5                | 7/25/2013 | 5.5                 | 31,000       | --            | --           | 450           | 85              | 1,000           | 650                   | 3,400                 | <2.5         | --          | --           | --           | --           | --              | --          | --              | 150                 | --           |
| SB-1d11                 | 7/25/2013 | 11                  | 73           | --            | --           | 3.1           | 1.2             | 2.5             | 1.7                   | 9.3                   | <0.005       | --          | --           | --           | --           | --              | --          | --              | 0.7                 | --           |
| SB-1d15                 | 7/25/2013 | 15                  | 5            | --            | --           | 3.1           | 0.0085          | 0.0072          | 0.048                 | 0.13                  | <0.005       | --          | --           | --           | --           | --              | --          | --              | 0.015               | --           |
| SB-2d1                  | 7/25/2013 | 1                   | <1.0         | --            | --           | 10            | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-2d3                  | 7/25/2013 | 3                   | <1.0         | --            | --           | 2.1           | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-2d5                  | 7/25/2013 | 5                   | <1.0         | --            | --           | 5.9           | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-2d11                 | 7/25/2013 | 11                  | <1.0         | --            | --           | <1.0          | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-2d15                 | 7/25/2013 | 15                  | <1.0         | --            | --           | <1.0          | <0.005          | <0.005          | <0.005                | <0.005                | 0.0059       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-3d7.5                | 7/25/2013 | 7.5                 | 310          | --            | --           | 330           | 0.13            | <0.05           | 7.5                   | 30                    | <0.05        | --          | --           | --           | --           | --              | --          | --              | <0.05               | --           |
| SB-3d15                 | 7/25/2013 | 15                  | <1.0         | --            | --           | <1.0          | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-4d1                  | 7/25/2013 | 1                   | <1.0         | --            | --           | 13            | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-4d3                  | 7/25/2013 | 3                   | <1.0         | --            | --           | 2.6           | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-4d5                  | 7/25/2013 | 5                   | <1.0         | --            | --           | 4.7           | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-4d8                  | 7/25/2013 | 8                   | 4,600        | --            | --           | 31            | 0.5             | 0.23            | 160                   | 130                   | <0.025       | --          | --           | --           | --           | --              | --          | --              | 40                  | --           |
| SB-4d15                 | 7/25/2013 | 15                  | <1.0         | --            | --           | <1.0          | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-5d6                  | 7/25/2013 | 6                   | 100          | --            | --           | 52            | 0.02            | <0.005          | 3.4                   | 1.7                   | <0.005       | --          | --           | --           | --           | --              | --          | --              | 3.3                 | --           |
| SB-5d15                 | 7/25/2013 | 5                   | <1.0         | --            | --           | <1.0          | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-6d6.5                | 7/26/2013 | 6.5                 | 1,900        | --            | --           | 360           | 0.57            | 1.1             | 44                    | 220                   | <0.25        | --          | --           | --           | --           | --              | --          | --              | 12                  | --           |
| SB-6d15                 | 7/26/2013 | 15                  | <1.0         | --            | --           | <1.0          | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-7d6                  | 7/26/2013 | 6                   | 21           | --            | --           | 11            | 0.019           | <0.005          | 0.13                  | 0.012                 | <0.005       | --          | --           | --           | --           | --              | --          | --              | 0.8                 | --           |
| SB-7d11                 | 7/26/2013 | 11                  | 57           | --            | --           | 17            | 0.17            | 0.39            | 1                     | 4.1                   | <0.005       | --          | --           | --           | --           | --              | --          | --              | 0.54                | --           |
| SB-7d13                 | 7/26/2013 | 13                  | 1.8          | --            | --           | 1.5           | 0.018           | 0.0086          | 0.11                  | 0.37                  | <0.005       | --          | --           | --           | --           | --              | --          | --              | 0.055               | --           |



**TABLE 3**

**HISTORICAL SOIL ANALYTICAL Data  
76 Station No. 5191/5043  
449 Hegenberger Raod, Oakland, California**

| Sample ID | Date      | Sample Depth (feet) | TPHg (mg/kg) | TPHg* (mg/kg) | TPHd (mg/kg) | TPHd* (mg/Kg) | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | MTBE (mg/kg) | TBA (mg/kg) | TAME (mg/kg) | DIPE (mg/kg) | ETBE (mg/kg) | Ethanol (mg/kg) | EDB (mg/kg) | 1,2-DCA (mg/kg) | Naphthalene (mg/kg) | Lead (mg/kg) |
|-----------|-----------|---------------------|--------------|---------------|--------------|---------------|-----------------|-----------------|-----------------------|-----------------------|--------------|-------------|--------------|--------------|--------------|-----------------|-------------|-----------------|---------------------|--------------|
| SB-8d8    | 7/26/2013 | 8                   | 3,300        | --            | --           | 900           | <0.5            | <0.5            | 15                    | 54                    | <0.5         | --          | --           | --           | --           | --              | --          | --              | 4.6                 | --           |
| SB-8d11   | 7/26/2013 | 11                  | <1.0         | --            | --           | <1.0          | <0.005          | <0.005          | 0.018                 | 0.0075                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-9d6    | 7/26/2013 | 6                   | <1.0         | --            | --           | 5.9           | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-9d15   | 7/26/2013 | 15                  | <1.0         | --            | --           | <1.0          | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-10d8   | 7/26/2013 | 8                   | <1.0         | --            | --           | 1.9           | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |
| SB-10d11  | 7/26/2013 | 11                  | <1.0         | --            | --           | <1.0          | <0.005          | <0.005          | <0.005                | <0.005                | <0.005       | --          | --           | --           | --           | --              | --          | --              | <0.005              | --           |

**Notes:**

TPHg = total petroleum hydrocarbons as gasoline by EPA Method 8015  
 TPHg\* = total petroleum hydrocarbons as gasoline by CA LUFT  
 TPHd = total petroleum hydrocarbons as diesel by EPA Method 8015B  
 DRO\* = total petroleum hydrocarbons as diesel by EPA Method 8015 Silica Gel Treated  
 BTEX = benzene, toluene, ethylbenzene, total xylenes by EPA Method 8260B  
 MTBE = methyl tertiary-butyl ether by EPA Method 8260  
 TBA = tertiary-butyl alcohol by EPA Method 8260  
 TAME = tert-amyl methyl ether by EPA Method 8260  
 DIPE = Diisopropyl ether by EPA Method 8260  
 ETBE = Ethyl-tert-butyl-ether by EPA Method 8260  
 EDB = 1,2-Dibromoethane by EPA Method 8260  
 1,2-DCA = 1,2-Dichloroethane by EPA Method 8260  
 mg/kg = milligrams per kilogram  
 NA = not applicable

*Corrective Action Plan  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California  
Antea Group Project No. I42705191*



## ***Appendix A***

Regulatory Correspondence



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

June 21, 2013

Walter Sprague  
Pacific Convenience & Fuel  
7180 Knoll Center Parkway, Suite 100  
Pleasanton, CA 94566  
(Sent via E-mail to: [WSprague@pcandf.com](mailto:WSprague@pcandf.com))

Catalina Espino Devine  
Chevron Environmental Management Company  
6101 Bollinger Canyon Road  
San Ramon, California 94583  
(Sent via E-mail to: [espino@Chevron.com](mailto:espino@Chevron.com))

Ed Ralston  
Phillips 66 Company  
76 Broadway, Sacramento, CA 95818  
(Sent via E-mail to: [Ed.C.Ralston@p66.com](mailto:Ed.C.Ralston@p66.com))

Subject: Fuel Leak Case No. RO0000219 and GeoTracker Global ID T0600101476, UNOCAL #5043, 449 Hegenberger Road, Oakland, CA 94621

Dear Messrs. Sprague and Ralston and Ms. Espino Devine:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the following documents prepared by Antea Group (Antea) for the subject site on your behalf.

1. *Work Plan- Additional Site Investigation (Work Plan)*, dated November 14, 2011. The Work Plan proposes the advancement of five test borings to help assess if in-situ chemical oxidation (ISCO) is a viable remediation option to address impacted soil and groundwater beneath the site.
2. *ISCO Pilot Test Work Plan (ISCO WP)* dated May 15, 2012. The ISCO WP details the approach for conducting an in-situ chemical oxidation (ISCO) pilot test using alkaline activated sodium persulfate. The ISCO WP stated the pilot test will consist of four phases:
  - i. Baseline groundwater characterization of Contaminants of Concern (COCs) and geochemical parameters in selected monitoring wells;
  - ii. Initial round of ISCO injection within the two proposed pilot test areas and process monitoring to optimize injection pressure and flow rates, spacing of injection points, and the volume and strength of amendment slurry;
  - iii. Performance monitoring and assessment; and
  - iv. Potential expansion of the pilot test to additional areas throughout the site.

The ISCO WP presented the results of pressure and flow characteristics at five boring locations at various depths to a total depth of 13 feet below the ground surface (BGS). In each case, the data showed that fluid could be moved through the formation using acceptable pressures. The ISCO WP stated that prior to conducting a pilot test, soil

buffering tests would be used to confirm the soil's ability to resist changes in pH when calcium peroxide is applied and provide a ratio of calcium peroxide per kilogram of soil required to maintain the pH of the soil. Subsequent to the completion of the soil buffering test, Antea stated that the information gained will be used to determine the ideal amendment concentrations, volumes, and injection pressures for the final configuration of the remediation system. The injection intervals at the two pilot test areas were reported as 5 to 16 BGS.

In addition to the suite of petroleum fuel related compounds and mixtures, the ISCO WP identified geochemical and field parameters for monitoring the affects of ISCO injection. The geochemical parameters identified for analyses were methane, sulfate, sulfide, total iron, ferrous iron, ferric iron, nitrate, nitrite, alkalinity, trivalent and hexavalent chromium, total and dissolved manganese, and total dissolved solids (TDS). Additionally, field parameters were identified for monitoring and included depth to water, groundwater temperature, pH, oxidation-reduction potential (ORP), specific conductance, and dissolved oxygen (D.O.).

3. *Quarterly Summary Report, Fourth Quarter 2012 (GWMR)* dated January 16, 2013. The GWMR states Antea, as detailed in the May 15, 2012 ISCO WP reviewed in Item 2 above, has recovered soil samples from one hand auger boring as part of the pilot test for in-situ remediation and will continue the pilot test for in-situ remediation.
4. *Remedial Action Plan (RAP)* dated April 23, 2013. The RAP proposes:
  - i. Excavation of two areas including excavation sampling density and scope of analysis for the collection of confirmation soil samples;
  - ii. Destruction of three monitoring wells (MW-6, MW-12, and MW-12a) in preparation for the excavation;
  - iii. Advancement of seven soil borings in the vicinity of monitoring well MW-6 to refine the boundaries of the proposed excavation;
  - iv. Addition of an oxygen release compound (ORC) to the excavation backfill for groundwater remediation; and
  - v. Replacement of monitoring well MW-6 subsequent to the remediation excavation and ORC application.

The RAP provides an attachment presenting the results of a Total Oxygen Demand (TOD) bench scale test on soil samples from the hand auger boring referenced in the January 16, 2013 GWMR report reviewed in Item 3 above. The RAP states the test evaluated TOD and the oxidant persistence during chemical oxidation treatment using stabilized hydrogen peroxide activated sodium persulfate. Based on the test results Antea does not recommend the use of hydrogen peroxide activated sodium persulfate for site remediation.

ACEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files. Based on our review, ACEH does not agree with the work as proposed in the RAP. Therefore, at this juncture ACEH requests that you address the following technical comments prior to ACEH making a determination on the appropriateness of corrective

actions and send us the report in accordance with the schedule provided in the Technical Report Request section below.

### **TECHNICAL COMMENTS**

**1. Feasibility Study/Corrective Action Plan.** ACEH requests that you prepare a Feasibility Study/Corrective Action Plan (FS/CAP) that meets the provisions of section 2725 of the Underground Storage Tank (UST) regulations provided in the California Code of Regulations (CCR) Title 23, Chapter 16, section 2600, et seq. According to the UST regulations, a FS/CAP must present an evaluation of a minimum of two active remedial alternatives including discussion of feasibility, cost effectiveness, and estimated time to reach cleanup goals, and the advantages and limitations for each remediation alternative. To date although two remedial technologies have been explored by Antea in the documents listed above - excavation and ISCO injection - neither of these methods has been completely evaluated. The RAP presents Antea's recommended corrective action for the site alternative combining two technologies - excavation and ORC application in the excavation pit. ACEH considers this recommendation premature as a FS has not been performed that presents two fully developed alternatives as required by the UST regulations.

**i. Excavation-**

- a. Approximately 6,200 cubic yards of soil have been previously excavated and transported off site for disposal. The depth of the excavation was up to 16 feet BGS. The removed soil was replaced by clean import fill. The RAP proposes excavating two areas to a depth of 11 feet BGS, both of which contain areas previously excavated and backfilled with clean import. It is unclear to ACEH if the removal of several feet of clean overburden to excavate an additional three to six feet of additional soil is cost effective.
- b. The 11-foot depth of the proposed excavation does not appear to be technically justified. The Antea ISCO WP states the depth of contamination east of the dispenser islands is extends to a depth of 20 feet BGS. ACEH's review of the case file indicates, a soil sample collected in area of the proposed excavation A1 at a depth of 26.5 feet BGS has a reported concentration of total petroleum hydrocarbons as gasoline of 6,840 milligrams per kilogram (mg/kg) and 80.9 mg/kg benzene.
- c. The borings proposed for delineating contamination within the A2 excavation area are proposed to be advanced to a depth of 11 feet BGS - the depth of the proposed excavation. The 11-foot depth does not appear to be technically justified. ACEH believes the boring depth for delineation should exceed the anticipated depth of excavation.
- d. The proposed boring locations for determining the extent of the A2 excavation are not shown on the figures provided in the RAP. ACEH cannot comment on the appropriateness of these initial delineation borings.
- e. Confirmation sidewall soil samples should be recovered from two different depths and be recovered from native material. Samples should be collected from the 0- to 5-foot and from the 5- to 10-foot BGS intervals. Sample depths can be staggered to maintain the one sample per 20- linear feet sampling interval outlined in the RAP.

- f. The RAP proposes abandonment of two monitoring wells (MW-12 and MW-12A) located in the area A1 excavation, but does not propose replacement wells. ACEH is of the opinion that the areas to be excavated should be delineated prior to well abandonment. As, well MW-12A is the only site well that monitors deeper groundwater, ACEH is of the opinion that the well should be replaced.

**ii. In-Situ Chemical Oxidation –**

- a. The ISCO WP reported fluid could be moved through the formation using acceptable pressures. This test was performed to a depth of 13 feet BGS; however, the proposed pilot test injection depth is 16 feet BGS. Depth to contamination exceeds the test depth of 13 feet. The flow test is considered incomplete as it does not evaluate the entire contaminated interval. Additionally the radius of influence was not determined.
  - b. Based on the ISCO bench test data, Antea does not recommend the use of hydrogen peroxide activated sodium persulfate for site remediation. There is no evaluation of alternative chemical oxidation compounds for remediation application; however, Antea proposes the use of ORC in conjunction with backfilling the excavated areas without technical justification. It is unclear to ACEH if ORC is a suitable remediation compound or if ORC injection would be a more appropriate application technique to target contamination.
  - c. The 2012 ISCO Work Plan indicates the injection chemical would be a proprietary blend of sodium persulfate and calcium peroxide; however, it was reported that the bench test was performed using hydrogen peroxide, which was shown not to be suitable. There was no evaluation of the suitability or use of calcium peroxide as an activator or a discussion of activators as it relates to the effectiveness of the persulfate application.
  - d. The 2012 ISCO WP stated process monitoring to optimize injection pressure and flow rates, spacing of injection points, and the volume and strength of amendment slurry would be determined during the pilot test. ACEH has not been provided the data for these determinations.
  - e. The 2012 ISCO WP stated performance monitoring and assessment would be performed. ACEH has not been provided with the performance reports.
  - f. The 2012 ISCO WP stated potential expansion of the pilot test to additional areas throughout the site may occur. ACEH has not been provided data documenting the performance of the ISCO pilot test or submittal of a work plan proposing to expand the pilot test.
  - g. The ISCO evaluation did not evaluate alternative chemicals for remediation application.
2. **Meeting** - ACEH would like to schedule a meeting at our office with you and Antea to discuss the case and the technical comments above in order to determine the most effective strategy for moving this case forward. Please contact us by the date listed below with proposed dates for the meeting.

Messrs. Sprague and Ralston and Ms. Espino Devine  
RO0000219  
June 21, 2013, Page 5

### TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Keith Nowell), according to Attachment 1 and the following schedule:

- **July 9, 2013** – Provide ACEH with schedule containing times/dates for a meeting to be held at the ACEH office.
- **August 23, 2013** – Feasibility Study/Corrective Action Plan.  
(File to be named: RO219\_FEASSTUD\_R\_ yyyy-mm-dd)

If you have any questions or concerns regarding this correspondence or your case, please call me at (510) 567-6764 or send me an electronic mail message at [keith.nowell@acgov.org](mailto:keith.nowell@acgov.org).

Sincerely,

  
Digitally signed by Keith Nowell  
DN: cn=Keith Nowell, o, ou,  
email=keith.nowell@acgov.org,  
c=US  
Date: 2013.06.21 18:30:12 -07'00'

Keith Nowell, P.G., C.HG.  
Hazardous Materials Specialist

Attachment 1: Responsible Party(ies) Legal Requirements/Obligations and ACEH Electronic Report Upload (ftp) Instructions

cc: Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (Sent via E-mail to: [lgriffin@oaklandnet.com](mailto:lgriffin@oaklandnet.com))  
Dennis Dettloff, Antea Group, 11050 White Rock Road, Suite 110, Rancho Cordova, CA 95670 (Sent via E-mail to: [dennis.dettloff@anteagroup.com](mailto:dennis.dettloff@anteagroup.com))

Donna Drogos, ACEH (Sent via E-mail to: [donna.drogos@acgov.org](mailto:donna.drogos@acgov.org))  
Dilan Roe (Sent via E-mail to: [dilan.roe@acgov.org](mailto:dilan.roe@acgov.org))  
Keith Nowell, ACEH (Sent via E-mail to: [keith.nowell@acgov.org](mailto:keith.nowell@acgov.org))  
GeoTracker  
File



**ATTACHMENT 1**

**Responsible Party(ies) Legal Requirements/Obligations  
& ACEH Electronic Report Upload (ftp) Instructions**

## Attachment 1

### Responsible Party(ies) Legal Requirements/Obligations

#### REPORT/DATA REQUESTS

These reports/data are being requested pursuant to Division 7 of the California Water Code (Water Quality), Chapter 6.7 of Division 20 of the California Health and Safety Code (Underground Storage of Hazardous Substances), and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations (Underground Storage Tank Regulations).

#### ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (Local Oversight Program [LOP] for unauthorized releases from petroleum Underground Storage Tanks [USTs], and Site Cleanup Program [SCP] for unauthorized releases of non-petroleum hazardous substances) require submission of reports in electronic format pursuant to Chapter 3 of Division 7, Sections 13195 and 13197.5 of the California Water Code, and Chapter 30, Articles 1 and 2, Sections 3890 to 3895 of Division 3 of Title 23 of the California Code of Regulations (23 CCR). Instructions for submission of electronic documents to the ACEH FTP site are provided on the attached "Electronic Report Upload Instructions."

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#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 7835, 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, late 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

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|  |  |
|--|--|
| <b>Alameda County Environmental Cleanup Oversight Programs (LOP and SCP)</b> | <b>REVISION DATE:</b> July 25, 2012  |
|  | <b>ISSUE DATE:</b> July 5, 2005  |
|  | <b>PREVIOUS REVISIONS:</b> October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010 |
| <b>SECTION:</b> Miscellaneous Administrative Topics & Procedures             | <b>SUBJECT:</b> Electronic Report Upload (ftp) Instructions                                  |

The Alameda County Environmental Cleanup Oversight Programs (petroleum UST and SCP) 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**.
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- **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 [loptoxic@acgov.org](mailto: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 [//alcoftp1.acgov.org](http://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 [loptoxic@acgov.org](mailto: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.



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

October 8, 2013

Walter Sprague  
Pacific Convenience & Fuel  
7180 Knoll Center Parkway, Suite 100  
Pleasanton, CA 94566  
(Sent via E-mail to [WSprague@pcandf.com](mailto:WSprague@pcandf.com))

Rick Horn  
Chevron Environmental Management Company  
6101 Bollinger Canyon Road  
San Ramon, California 94583  
(Sent via E-mail to: [Rhorn@Chevron.com](mailto:Rhorn@Chevron.com))

Ed Ralston  
Phillips 66 Company  
76 Broadway, Sacramento, CA 95818  
(Sent via E-mail to: [Ed.C.Ralston@p66.com](mailto:Ed.C.Ralston@p66.com))

Subject: Fuel Leak Case No. RO0000219 and GeoTracker Global ID T0600101476, UNOCAL #5043, 449 Hegenberger Road, Oakland, CA 94621

Dear Mr. Sprague:

Thank you for coming to meet with us on September 13, 2013 at our office to discuss site UNOCAL 5043, 449 Hegenberger Rd, Oakland, Alameda County Environmental Health (ACEH) case file # RO0000219. It was a pleasure to put a face to the name ACEH has been working with. Items for discussion included the recent submittals by ANTEA Group (ANTEA) regarding the work plans for the In-Situ Chemical Oxidation (ISCO) Pilot Test, dated May 15, 2012 and for the abandonment of well MW-12A, dated February 11, 2013, and the April 23, 2013 Remedial Action Plan outlining soil excavation, and the ACEH Directive Letter dated June 21, 2013.

At this juncture ACEH requests that you address the technical comments and perform the requested work identified below.

**Technical Comments**

1. **Groundwater Assessment-** As discussed at our meeting please assess groundwater conditions at the site including the following items:
  - The monitoring well network in relation to the groundwater flow direction, using groundwater flow direction for the justification of down gradient well(s) placement to delineate the leading edge of the contaminant plume.
  - The immediate risk to sensitive receptors from shallow groundwater migrating off-site.
  - The monitoring well network with regard to proposed ISCO injection points to capture the effects of the ISCO injection.
  - Why the isoconcentration contours appear to be perpendicular the direction of groundwater flow.

Please include your assessment in the Feasibility Study / Corrective Action Plan (FS/CAP) described in Item 2 below.

2. **Feasibility Study / Corrective Action Plan-** Please prepare a FS/CAP evaluating at least two viable alternatives for remedying or mitigating the actual or potential adverse affects of the unauthorized release(s) besides the 'no action' and 'monitored natural attenuation' remedial alternatives. Please evaluate each alternative for cost-effectiveness and its timeframe to reach cleanup levels and cleanup goals, and present your recommendations for the preferred alternative. ACEH understands the two remedial methods being evaluated are soil excavation and ISCO injection. Please include the following items in the FS/CAP:

- Cross sections showing utilities and preferential pathways;
- A site map using a photographic base showing site and nearby features. Include on the figure a rose diagram, well and boring locations, and the estimated benzene isoconcentration contour map showing the estimated plume boundary. As discussed in the meeting, please use the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP) Technical Justification Groundwater Paper to support the estimated plume length. Identify nearby potential receptors on the site map.

3. **Public Participation Notification-** Please prepare a draft Public Participation Notification Fact Sheet for the FS/CAP to include the following items:

- Language for the two remedial methods (soil excavation and ISCO injection);
- A section addressing the effect the remedial actions will have on the public during implementation.

ACEH will review the draft Fact Sheet and provide a final Fact Sheet and list of recipients for you to distribute to. ACEH has included an example Fact Sheet for your use as Attachment A. Following distribution of the Fact Sheet, please provide your personal certification by email or letter, that the Fact Sheet was distributed by U.S. Mail to the list of recipients.

4. **Remedial Design-** Subsequent to the completion of the public comment period on the FS/CAP please prepare a Remedial Design Implementation Plan document identifying the steps for implementation details. The discussion of the selected remedial method should include, but not be limited to, the following items:

- Post-remediation monitoring and verification plans with proposed strategy for collecting groundwater, soil and soil vapor monitoring and confirmation samples, as appropriate. This may require the installation of replacement onsite groundwater monitoring wells;
- A detailed cost estimate for the proposed work;
- Implementation schedule with milestone dates;
- A strategy for collecting soil data within the upper 10 feet of soil at the site during ISCO injection or excavation, if appropriate, to help fulfill the requirements for the LTCP Media Specific Criteria for Direct Contact and Outdoor Air.

If excavation is selected, the discussion of the excavation remediation alternative should include, but not be limited to, the following items:

- Possible segregation of clean surficial materials from deeper impacted soil, stockpile placement and stockpile profiling;

- Use of shoring support for excavation sidewalls;
- Excavation dewatering.

If ISCO is selected, the discussion of the ISCO remediation alternative should include, but not be limited to, the following items:

- Well spacing and depths;
- injection intervals and pressures;
- injection radius of influence;
- The adequacy of the monitoring well network to evaluate the effectiveness of the ISCO treatment.

Please note, implementation of the CAP is contingent on public notification and the submittal and ACEH acceptance of the CAP Implementation Plan.

5. **Groundwater Monitoring-** ANTEA has proposed the decommissioning of monitoring well MW-12A. ACEH concurs that groundwater in the deeper water zone monitored by well MW-12A has not been impacted by the petroleum hydrocarbons identified in the shallow groundwater zone. However, ACEH requests to keep the well until the FS/CAP has been accepted. Well MW-12A can be removed from the quarterly well sampling program until the final disposition of the well is determined.
6. **Gant Chart- Path to Closure Project Schedule** – The SWRCB passed Resolution No. 2012-0062 on November 6, 2012 which requires development of a "Path to Closure Plan" by December 31, 2013 that addresses the impediments to closure for the site. The Path to Closure must have milestone dates tied to calendar quarters which will achieve site cleanup and case closure in a timely and efficient manner and minimizes the cost of corrective action. Therefore, by the date listed below please prepare a Path to Closure Schedule (further detailed in Attachment B) for your site that incorporates the items identified by ACEH in the Technical Comments above as impediments to closure. ACEH will review the schedule to ensure that all key elements are included.

### Schedule

Please upload technical reports to the ACEH ftp site (Attention: Keith Nowell), and to the State Water Resources Control Board's Geotracker website, in accordance Attachment 1 and the following specified file naming convention and schedule:

- **November 8, 2013- Draft Feasibility Study / Corrective Action Plan Report** (file name: RO0000219\_FEAS\_CAP\_R\_yyyy-mm-dd)
- **November 8, 2013- Quarterly Groundwater Monitoring Report** (file name: RO0000219\_GWM\_R\_yyyy-mm-dd)
- **November 8, 2013- Path to Closure Project Schedule** (file name: RO0000219\_PROJ\_SCH\_R\_yyyy-mm-dd)
- **December 6, 2013- Draft Fact Sheet** (file name: RO0000219\_CAP\_L\_yyyy-mm-dd)
- **January 31, 2014- Quarterly Groundwater Monitoring Report** (file name: RO0000219\_GWM\_R\_yyyy-mm-dd)

Responsible Parties  
RO0000219  
October 8, 2013, Page 4

- **TBD- Fact Sheet (Certified)** (file name: RO0000219\_CAP\_PPRL\_L\_yyyy-mm-dd)
- **TBD - Remedial Design Implementation Plan** (file name: RO0000219\_RDIP\_R\_yyyy-mm-dd)

If your email address does not appear on the cover page of this notification ACEH is requesting you provide your email address so that we can correspond with you quickly and efficiently regarding your case.

If you have any questions or concerns regarding this correspondence or your case, please call me at (510) 567-6764 or send me an electronic mail message at [keith.nowell@acgov.org](mailto:keith.nowell@acgov.org).

Sincerely,

  
Digitally signed by Keith Nowell  
DN: cn=Keith Nowell, o, ou,  
email=keith.nowell@acgov.org,  
c=US  
Date: 2013.10.08 11:06:05 -07'00'

Keith Nowell, P.G., C.HG.  
Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations  
Electronic Report Upload (ftp) Instructions

Attachment A – Example Fact Sheet

Attachment B – Path to Closure Project Schedule Requisite Elements

cc: Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA  
94612-2032 (Sent via E-mail to: [lgriffin@oaklandnet.com](mailto:lgriffin@oaklandnet.com))  
Dennis Dettloff, Antea Group, 11050 White Rock Road, Suite 110, Rancho Cordova, CA 95670  
(Sent via E-mail to: [dennis.dettloff@anteagroup.com](mailto:dennis.dettloff@anteagroup.com))

Dilan Roe (Sent via E-mail to: [dilan.roe@acgov.org](mailto:dilan.roe@acgov.org))  
Keith Nowell, ACEH (Sent via E-mail to: [keith.nowell@acgov.org](mailto:keith.nowell@acgov.org))  
GeoTracker  
File



**ATTACHMENT 1**

**Responsible Party(ies) Legal Requirements/Obligations  
& ACEH Electronic Report Upload (ftp) Instructions**

# Attachment 1

## Responsible Party(ies) Legal Requirements/Obligations

### REPORT/DATA REQUESTS

These reports/data are being requested pursuant to Division 7 of the California Water Code (Water Quality), Chapter 6.7 of Division 20 of the California Health and Safety Code (Underground Storage of Hazardous Substances), and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations (Underground Storage Tank Regulations).

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  - a) Send email to [deh.loptoxic@acgov.org](mailto: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.
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**ATTACHMENT A**

**Public Fact Sheet**



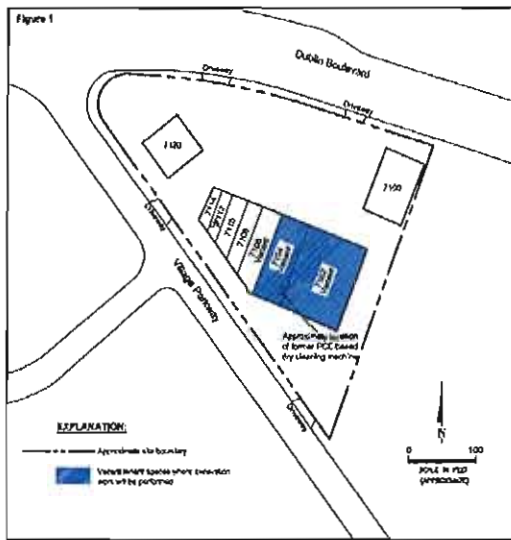
September 27, 2013

## FACT SHEET ON ENVIRONMENTAL STATUS

Former Park Avenue Cleaners  
7100 – 7120 Dublin Boulevard, Dublin, CA  
Site Cleanup Program No. RO0003113  
Geotracker Global ID T10000001616

**Summary** - This fact sheet has been prepared to inform community members and other interested stakeholders of the status of environmental work at the former Park Avenue Cleaners facility (the Site), located at 7104 Dublin Boulevard in Dublin, California (Figure 1). The Site is currently enrolled in a voluntary cleanup program under local oversight by Alameda County Environmental Health (ACEH).

This fact sheet contains information concerning site background, results of recent investigation activities, planned interim cleanup activities, and information contacts.



**Site Background** - The Site is part of a commercial retail shopping center that is developed with three one-story multi-tenant commercial buildings, associated parking and landscaped areas known as "Dublin Crossroads" (7100-7120 Dublin Boulevard).

Park Avenue Cleaners operated a laundry and dry cleaning facility at 7102B Dublin Boulevard

from 1990 to 2004. In 2004, Park Avenue Cleaners relocated to the adjacent retail space at 7104 Dublin Boulevard. In late July 2013, Park Avenue Cleaners vacated the Site; all associated dry cleaning equipment was removed.

**Environmental Impacts** - Environmental investigation commenced at the Site in 2012 to evaluate the potential for subsurface impacts associated with the former dry cleaning operation. Additional investigation was performed in July and August 2013 to evaluate the extent of subsurface impacts across the property. The investigations identified that volatile organic compounds (VOCs) were detected in the subsurface at concentrations greater than applicable regulatory agency screening levels. The VOCs found beneath the Site are tetrachloroethene (PCE) and its associated breakdown components trichloroethene (TCE) and cis-1,2- dichloroethene (DCE).

Maximum concentrations of PCE in soil, groundwater, soil vapor and sub-slab soil vapor were detected in the vicinity of the former dry cleaning machine at the 7104 tenant space exceeding commercial use screening levels. Soil, groundwater and soil vapor impacts were not detected in other locations beneath the Site at levels that would pose a threat to human health or the environment. Elevated soils containing PCE were only found within portions of the 7102 and 7104 tenant spaces in the vicinity of the former dry cleaning machine and to a depth below 10 feet indicating that the subsurface impacts appear to be localized and limited in both lateral and vertical extent.

VOCs are able to move in the environment, from soil to groundwater, from groundwater to soil, and from groundwater or soil to air. The shallow groundwater in this area is not used for drinking water or other household/industrial purposes. Of particular interest is the potential for movement of VOCs into the interior of buildings





where people could be exposed to elevated levels of contaminated indoor air. This process is called vapor intrusion into indoor air. The concentrations of PCE detected in the soil gas and sub-slab vapor samples beneath the former dry cleaning machine indicate a potential vapor intrusion health risk concern in this vicinity. Concentrations of PCE in the sub-slab soil vapor samples collected at distance away from the former dry cleaning machine were below commercial use screening levels. The presence of these chemicals at concentrations exceeding regulatory screening levels does not indicate that adverse impacts to human health or the environment are necessarily occurring, but rather indicates that a potential for adverse risk may exist.

**Interim Removal Activities** – The current vacant tenant spaces provide an excellent opportunity to remove presumed source soils beneath the Site that are of limited extent. Removal of these soils by excavation inside the building will likely reduce the potential for vapor intrusion in the vicinity of the former dry cleaning machine and remove the residual source of PCE beneath the Site in vadose soil.

Approximately 300 cubic yards of soil containing VOCs is planned to be removed from a small excavation measuring 20 feet by 40 feet by up to 10 feet deep in the vicinity of the former dry cleaning machine overlapping a small portion of the vacant 7102 and 7104 tenant spaces.

Confirmation soil samples will be collected from the floor and sidewalls of the excavation to demonstrate that established remedial action objectives have been achieved. In addition, soil vapor conditions within the sub-slab material to the east and north of the planned excavation will be monitored before, during and after excavation to evaluate vapor conditions for both existing and future occupants beneath the Site.

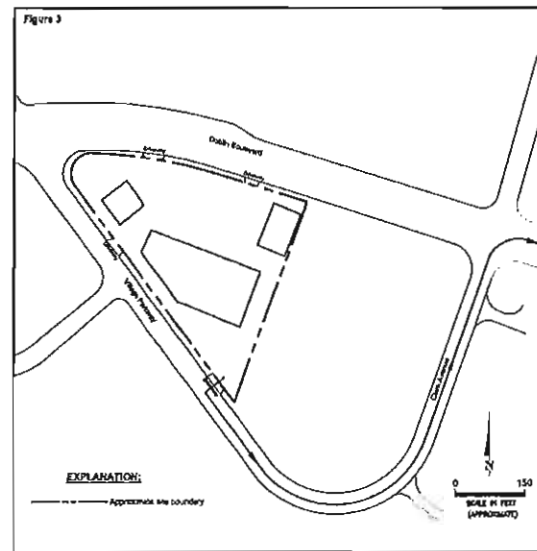
**Offsite Disposal and Trucking Routes** - Excavated soils will be placed into roll-off bins for transport via covered trucks by appropriately licensed waste haulers to designated disposal facility. Approximately 30 roll-off bin/trucks are likely needed to transport the VOC containing soils.

During soil transport activities, trucks will pick up the roll-off bins that will be staged onsite (in the eastern and southern portions of the parking lot).

Trucks will enter and leave the Site from the south along Village Parkway. A flag person will be located at the Site to assist the truck drivers to safely drive onto the Site. Transportation will be coordinated in such a manner that on-site trucks will be in communication with the Site trucking coordinator.

In addition, vehicles will be required to maintain slow speeds (i.e., less than 5 mph) for safety and for dust control purposes.

Trucks will depart the Site from the south and turn left onto Village Parkway and make the first right onto Dublin Boulevard. Trucks will then turn right onto Dougherty Road and merge onto Interstate 580 East towards Stockton, California. Trucks will then proceed until arrival of the disposal facility.



Prior to exiting the Site, the vehicle will be swept (as needed) to remove extra soil from areas not covered or protected. This cleanup or decontamination area will be set up as close to the loading area as possible so as to minimize the potential for spreading impacted soil. As the trucks leave the Site, the flag person will assist the truck drivers so that they can safely merge with traffic on Village Parkway.

**Timeline** - Excavation activities are anticipated to begin in late September or early October 2013 and take approximately three weeks to complete.



ALAMEDA COUNTY  
**HEALTH CARE SERVICES AGENCY**  
ALEX BRISCOE, Agency Director



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

**How to Get More Information** - The proposed interim removal actions are presented in the *Revised Interim Removal Action Plan* (IRAP), dated September 20, 2013, prepared by Iris Environmental on behalf of Shelter Bay Retail Group. The IRAP as well as the entire case file can be viewed over the internet on the ACEH

website at <http://www.acgov.org/aceh/lop/ust.htm>  
or at the State of California Water Resources Control Board Geotracker website at <http://geotracker.swrcb.ca.gov>.

*For additional information, please contact:*

Dilan Roe  
Site Cleanup Program Manager  
Alameda County Environmental Health  
1131 Harbor Bay Parkway Suite 250  
Alameda, CA 94502  
Phone: 510-567-6767  
Email: [dilan.roe@acgov.org](mailto:dilan.roe@acgov.org)

Craig Pelletier  
Environmental Consultant  
Iris Environmental  
  
Phone: 510-834-4747  
Email: [craig@irisenv.com](mailto:craig@irisenv.com)

**ATTACHMENT B**

**Path to Closure Project Schedule Requisite Elements**

## ATTACHMENT B

### Path to Closure Project Schedule Requisite Elements

The State Water Resources Control Board passed Resolution No. 2012-0062 on November 6, 2012 which requires development of a "Path to Closure Plan" by December 31, 2013 that addresses the impediments to closure for the site. The Path to Closure must have milestone dates tied to calendar quarters which will achieve site cleanup and case closure in a timely and efficient manner and minimizes the cost of corrective action. ACEH will review the schedule to ensure that all key elements are included.

Please submit an electronic copy that includes, but is not be limited to, the following key environmental elements and milestones as appropriate:

- Preferential Pathway Study
- Soil, Groundwater, and Soil Vapor Investigations
- Initial, Updated, and Final/Validated SCMs
- Interim Remedial Actions
- Feasibility Study/Corrective Action Plan
- Pilot Tests
- Remedial Actions
- Soil Vapor and Groundwater Monitoring Well Installation and Monitoring
- Public Participation Program (Fact Sheet Preparation/Distribution/Public Comment Period, Community Meetings, etc.)
- Case Closure Tasks (Request for closure documents, ACEH Case Closure Summary Preparation and Review, Site Management Plan, Institutional Controls, Public Participation, Landowner Notification, Well Decommissioning, Waste Removal, and Reporting.)

Please include time for regulatory and RP in house review, permitting, off-site access agreements, and utility connections, etc.

Please use a critical path methodology/tool to construct a schedule with sufficient detail to support a realistic and achievable Path to Closure Schedule. The schedule is to include at a minimum:

- Defined work breakdown structure including summary tasks required to accomplish the project objectives and required deliverables
- Summary task decomposition into smaller more manageable components that can be scheduled, monitored, and controlled
- Sequencing of activities to identify and document relationships among the project activities using logical relationships
- Identification of critical paths, linkages, predecessor and successor activities, leads and lags, and key milestones
- Identification of entity responsible for executing work
- Estimated activity durations (60-day ACEH review times are based on calendar days)

*Corrective Action Plan  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California  
Antea Group Project No. I42705191*



## ***Appendix B***

Site Details and Summary of Previous Environmental Investigations

## PREVIOUS INVESTIGATION AND SITE HISTORY SUMMARY

October 1991 - Four soil samples were collected from the product pipe trenches at depths of approximately 3 feet below ground surface (bgs) during a dispenser island modification. The product pipe trenches were subsequently excavated to the groundwater depth at 4 to 4.5 feet bgs.

February 1992 - Three monitoring wells, MW-1 through MW-3, were installed at the site to depths ranging from 13.5 to 15 feet bgs.

August 1992 - Three additional monitoring wells, MW-4 through MW-6, were installed at the site to a depth of 13.5 feet bgs.

September 1994 - One 280-gallon waste-oil UST was removed from the site. The UST was made of steel, and no apparent holes or cracks were observed in the UST. One soil sample was collected from beneath the former UST at a depth of approximately 9 feet bgs. No petroleum hydrocarbons were reported.

January 1995 - Two additional monitoring wells, MW-9 and MW-10, were installed to depths of 13 and 15 feet bgs. In addition, monitoring wells MW-4 and MW-5 were destroyed by over-drilling the wells and backfilling with neat cement.

March 1995 - Two 10,000-gallon gasoline USTs and one 10,000-gallon diesel UST were removed from the site. Groundwater was encountered in the tank cavity at a depth of approximately 8.5 feet bgs. Soil samples contained total petroleum hydrocarbons as diesel (TPHd) and benzene, and TPH as gasoline (TPHg). Approximately 125,000 gallons of groundwater were pumped from the site for remediation and properly disposed off-site. Four fuel dispenser islands and associated product piping were also removed. Based on the results of the confirmation samples, the product dispenser islands were over excavated to approximately 6 feet bgs.

March-April 1995 - During demolition activities of the former station building, soil samples were collected from two excavations, which were subsequently over excavated. Confirmation samples contained petroleum hydrocarbons. An additional area on the south side of the former station building was excavated based on photo-ionization detector (PID) readings. Two monitoring wells, MW-1 and MW-2, were destroyed in order to allow for over excavation activities to extend to an area adjacent to the dispenser islands in the southeastern quadrant of the site. The excavated areas were subsequently backfilled with clean-engineered fill.

April 1997 - Two additional monitoring wells, MW-7 and MW-8, were installed off-site to the south and east on the neighboring property to a depth of 13 feet bgs. In addition, monitoring well MW-3, which was damaged during site renovation activities, was fully drilled out and reconstructed in the same borehole.

October 2003 - Site environmental consulting responsibilities were transferred to TRC.

April 8-9, 2005 - TRC conducted a 24-hour dual phase extraction (DPE) test at the site using monitoring well MW-6. The 24-hour DPE test was only moderately successful at removing vapor-phase petroleum hydrocarbons from the subsurface; therefore, TRC recommended DPE no longer be considered a viable remedial alternative for the site.

October 2007 - Site environmental consulting responsibilities were transferred to Delta Consultants.

December 2009 - Delta advanced two borings, B-4 and B-5, to depths of 20 feet bgs and 32 feet bgs, respectively. Analytical results from the soil and groundwater samples collected from these two borings indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

June 2010 – Delta installed two 4-inch diameter monitoring/extraction wells, MW-11 and MW-12, and two 2-inch diameter monitoring wells, MW-12A and MW-13, at the site. Analytical results from the soil and groundwater samples collected from the MW-12 and MW-12A boring locations indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

May 2011 – Antea Group (formally Delta Consultants) installed four 2-inch diameter monitoring wells, MW-14 through MW-17, and advanced one soil boring, B-6, at the site. All four monitoring wells were installed with ten feet of screen from 3 feet bgs to 13 feet bgs. Analytical results of soil samples collected during the monitoring well installation reported TPHg concentrations ranging from 1.0 milligrams per kilogram (mg/kg) (MW-14d13) to 2,490 mg/kg (B-6d9), benzene concentrations ranging from 0.67 mg/kg (B-6d21) to 26.4 mg/kg (B-6d9), toluene concentrations ranging from 0.2 mg/kg (MW-14d10) to 73.9 mg/kg (B-6d9), ethylbenzene concentrations ranging from 0.037 mg/kg (MW-14d13) to 58.1 mg/kg (B-6d9), total xylenes concentrations ranging from 0.066 mg/kg (MW-14d13) to 230 mg/kg (B-6d9), methyl tertiary-butyl ether (MTBE) concentrations ranging from 0.015 mg/kg (MW-15d13) to 0.19 mg/kg (MW-15d8), tertiary-butyl alcohol (TBA) concentrations ranging from 0.014 mg/kg (MW-16d8 and B-6d21) to 0.16 mg/kg (MW-15d8), and lead concentrations ranging from 5.5 mg/kg (MW-16d13) to 16.3 mg/kg (MW-17d9). Diesel range organics (DRO) and DRO with silica gel concentrations were reported; however, all of the results did not match the laboratory standard for diesel. Concentrations of DRO ranged from 2.9 mg/kg (MW-17d13) to 258 mg/kg (B-6d14) and DRO with silica gel concentrations ranged from 2.5 mg/kg (MW-17d13) to 250 mg/kg (B-6d14).

March 2012 – Antea Group advanced five soil borings (HPB-1 through HPB-5) at the site. The borings were advanced using direct push technology. The borings were used to obtain a hydraulic profile of the substrate beneath the site. The data obtained during the investigation will be used to determine the best path forward in terms of remediation.



## **SENSITIVE RECEPTORS**

April 24, 2006, TRC completed a sensitive receptor survey for the site. According to the Department of Water Resources (DWR) records, three water supply wells are located within one-half mile of the site. The closest well is an irrigation well, reported to be, approximately 1,080 feet southeast of the site. In addition, two surface water bodies were observed within a one-half mile radius of the site. San Leandro Creek is located approximately 1,400 feet southwest of the site and flows into the San Leandro Bay. Elmhurst Creek is located approximately 2,220 feet north of the site and also flows into the San Leandro Bay.

Current Consultant: **Antea Group**

*Corrective Action Plan  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California  
Antea Group Project No. I42705191*



## ***Appendix C***

Aerial Photograph Figures



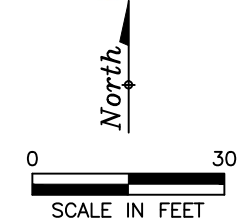
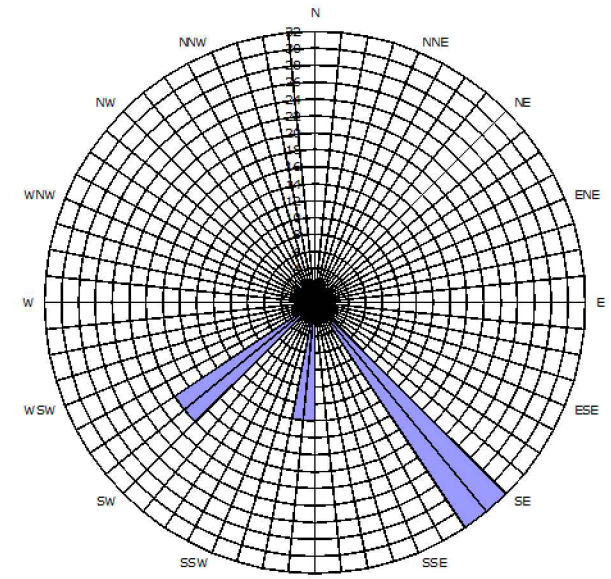


**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- MW- MONITORING WELL
- MW- ABANDONED MONITORING WELL
- SB- SOIL BORING LOCATION (ANTEA GROUP 2013)
- HPB- SOIL BORING LOCATION (ANTEA GROUP 2012)
- B- BORING LOCATION
- (440) DISSOLVED PHASE BENZENE ISOCONCENTRATION (µg/L)
- 500 DISSOLVED PHASE BENZENE ISOCONTOUR (µg/L) -DASHED WHERE INFERRED

**NOTES:**

- µg/L = MICROGRAMS PER LITER
- <0.50 = LESS THAN LABORATORY INDICATED REPORTING LIMIT
- NS = NOT SAMPLED
- \* = NOT USED IN CONTOURING



ADAPTED FROM A MORROW SURVEY ON 5/23/11

**SITE PLAN**

76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

|                          |                   |                                |
|--------------------------|-------------------|--------------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>EW | DRAWN BY<br>JH                 |
| DATE<br>11/19/13         | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS_aerial |

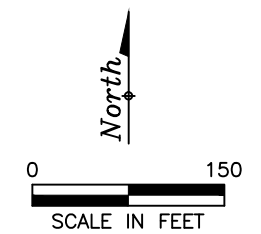






**SENSITIVE RECEPTORS**

- ① LIGHTHOUSE COMMUNITY CHARTER SCHOOL
- ② LIGHTHOUSE CHAPEL INTERNATIONAL
- ③ OCCUPATIONAL HEALTH SERVICES
- ④ TEAMSTERS ASSOCIATION PROGRAM



**SENSITIVE RECEPTOR MAP**

76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

|                          |                   |                                |
|--------------------------|-------------------|--------------------------------|
| PROJECT NO.<br>I42705191 | PREPARED BY<br>EW | DRAWN BY<br>JH                 |
| DATE<br>11/19/13         | REVIEWED BY<br>DD | FILE NAME<br>5191-SiteS_aerial |





*Corrective Action Plan  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California  
Antea Group Project No. I42705191*



## ***Appendix D***

Boring Logs

## BORING LOG

|  |   |  |
|--|---|--|
| <b>Project No.</b><br>KEI-P91-1004                 | <b>Boring &amp; Casing Diameter</b><br>8"                      2" | <b>Logged By</b><br>D.L.               |
| <b>Project Name</b> Unocal<br>Oakland, Hegenberger | <b>Well Cover Elevation</b><br>7.67 feet                          | <b>Date Drilled</b><br>2/5/91          |
| <b>Boring No.</b><br>MW3                           | <b>Drilling Method</b> Hollow-stem<br>Auger                       | <b>Drilling Company</b><br>West Hazmat |

| Penetration blows/6" | G. W. level | Depth (feet)<br>Samples | Strati-<br>graphy<br>USCS | Description  |
|----------------------|-------------|-------------------------|---------------------------|--|
|                      |             | 0                       |                           | Asphalt pavement over sand and gravel base.  |
|                      |             |                         | SP                        | Poorly graded sand, trace silt, medium-grained, loose, very moist, dark greenish gray: fill?   |
| 1/1/1                |             |                         | ML                        | Sandy silt, sand is very fine-grained, very soft, very moist to wet, dark greenish gray with organic matter.   |
| 2/2/2                |             | 5                       | MH                        | Clayey silt, very soft to soft, very moist to wet, dark greenish gray.   |
|                      |             |                         | OL                        | Peat, soft, wet, dark greenish gray, spongy feel..   |
|                      |             |                         | OH                        | Silty clay, highly organic, firm, moist, black, with plant remains.  |
| 3/4/5                |             | 10                      | CH                        | Silty clay, with an estimated 10 to 15% fine- to medium-grained sand content, firm to stiff, moist, dark greenish gray, with plant remains and organic matter. |
| 7/9/10               |             |                         |                           | Silty clay, with an estimated 10 to 15% fine- to medium-grained sand content, stiff, to very stiff, moist, olive gray and olive brown, with root holes.        |
|                      |             | 15                      |                           | TOTAL DEPTH: 14'   |
|                      |             | 20                      |                           |  |

## BORING LOG

|  |   |   |
|--|---|---|
| <b>Project No.</b><br>KEI-P91-1004                                   | <b>Boring Diameter</b> 9"                   | <b>Logged By</b> <i>JGG</i><br>D.L. <i>CEG 1653</i> |
|  | <b>Casing Diameter</b> 2"                   |   |
| <b>Project Name</b> Unocal S/S #5043<br>449 Hegenberger Rd., Oakland | <b>Well Cover Elevation</b>                 | <b>Date Drilled</b><br>8/21/92                      |
| <b>Boring No.</b><br>MW6   | <b>Drilling Method</b> Hollow-stem<br>Auger | <b>Drilling Company</b><br>West Hazmat              |

| Penetration<br>blows/6" | G. W.<br>level | Depth<br>(feet)<br>Samples | Strati-<br>graphy<br>USCS | Description  |
|-------------------------|----------------|----------------------------|---------------------------|--|
|                         |                | 0                          |                           | Asphalt pavement over sand and gravel base.  |
|                         |                |                            |                           | Gravelly clay with sand, stiff, moist, black and olive gray, disturbed (fill).   |
| 3/4/4                   |                |                            | CH                        | Clay with silt, stiff, moist, black (5Y 2.5/1) lensed with poorly graded and well graded sand.   |
| 4/5/7                   | ▼              | 5                          | ML                        | Silt with very fine-grained sand, stiff, moist to wet, dark greenish gray (5GY 4/1), lensed with clayey silt between 4.5 and 5.5 feet. |
| 3/3/4                   |                |                            | OL                        | Clayey silt, stiff, moist, black (5Y 2.5/1) and very dark gray (5Y 3/1) mottled, with abundant organic matter (bay mud).               |
| 5/7/8                   |                | 10                         | OH                        | Silty clay, stiff, moist, black (2.5YR 2.5/0), with abundant organic matter.   |
| 5/7/9                   |                |                            | CH                        | Silty clay, stiff, moist, very dark gray (5Y 3/1), with organic matter.  |
|                         |                |                            |                           | Silty clay, trace fine-grained sand, stiff, moist, dark greenish gray (5GY 4/1).   |
|                         |                | 15                         |                           | TOTAL DEPTH 13.5'  |
|                         |                | 20                         |                           |  |



## BORING LOG

|   |  |  |
|---|--|--|
| <b>Project No.</b><br>KEI-P 91-1004.P8  | <b>Boring Diameter</b> 8.5"                    | <b>Logged By</b> <i>JBG</i>                  |
|   | <b>Casing Diameter</b> 2"                      | <b>D.L.</b> <i>CEG 1633</i>                  |
| <b>Project Name</b> Unocal S/S #5043<br>499 Hegenberger Road<br>Oakland, California | <b>Well Cover Elevation</b><br><br>N/A         | <b>Date Drilled</b><br><br>4/21/97           |
| <b>Boring No.</b><br>MW7  | <b>Drilling Method</b><br>Hollow-stem<br>Auger | <b>Drilling Company</b><br>Woodward Drilling |

| Pene-<br>tration<br>blows/6" | G.W<br>level | O.V.M.<br>(P.P.M.) | Depth<br>(feet)<br>Samples | Stratigraphy<br>USCS | Description  |
|------------------------------|--------------|--------------------|----------------------------|----------------------|--|
|                              |              |                    | 0                          |                      | A.C. pavement over sand and gravel base.   |
|                              | ▽            |                    |                            | SP                   | Poorly graded sand, predominantly medium-grained, loose, moist grading to saturated, brown (fill).           |
|                              |              |                    | 5                          | SW                   | Well graded sand with gravel, loose, saturated, very dark grayish brown (fill).                              |
|                              |              |                    |                            | ML                   | Clayey silt, soft, wet, black and dark greenish gray, mottled.<br>Sandy silt, soft, wet, dark greenish gray. |
| 1/1/1                        |              |                    |                            | Pt                   | Peat, variable silt and clay content, soft, fibrous, wet, brown and black.                                   |
|                              |              |                    |                            | ML                   | Clayey silt, soft, wet, black, with abundant plant remains.  |
|                              |              |                    | 10                         |                      |  |
| 6/7/9                        |              |                    |                            | CH                   | Silty clay, stiff, moist, dark gray, with plant remains and root holes.                                      |
|                              |              |                    |                            |                      | TOTAL DEPTH: 13'   |
|                              |              |                    | 15                         |                      |  |
|                              |              |                    | 20                         |                      |  |

## BORING LOG

|   |   |   |
|---|---|---|
| <b>Project No.</b><br>KEI-P 91-1004.P8  | <b>Boring Diameter</b> 8.5"<br><b>Casing Diameter</b> 2"              | <b>Logged By</b> <i>JGG</i><br>D.L. <i>CEG 1633</i> |
| <b>Project Name</b> Unocal S/S #5043<br>499 Hegenberger Road<br>Oakland, California | <b>Well Cover Elevation</b><br><p style="text-align: center;">N/A</p> | <b>Date Drilled</b><br>4/21/97                      |
| <b>Boring No.</b><br>MW8  | <b>Drilling Method</b><br>Hollow-stem<br>Auger                        | <b>Drilling Company</b><br>Woodward Drilling        |

| Penetration<br>blows/6" | G.W.<br>level | O.V.M.<br>(P.P.M.) | Depth<br>(feet)<br>Samples | Stratigraphy<br>USCS | Description  |
|-------------------------|---------------|--------------------|----------------------------|----------------------|--|
|                         |               |                    | 0                          |                      | A.C. pavement over sand and gravel base.   |
|                         |               |                    |                            |                      | Pocketed clay, silt and sand, firm to stiff, moist, dark olive gray and dark greenish gray (fill and or disturbed native soil).  |
|                         |               |                    |                            |                      | Silty gravel, medium dense, moist to very moist, (fill).   |
| 2/2/4                   |               |                    | 5                          |                      | Silty very fine to fine-grained sand, estimated at 20-30% silt, firm to stiff, very moist, dark gray.  |
| 2/2/2                   | ▽             |                    | 5                          | ML                   | Clayey silt, firm, very moist to wet, black and dark greenish gray, with abundant plant remains lensed with black sandy silt, wet.   |
| 2/5/6                   |               |                    | 10                         | CL                   | Silty clay, stiff, moist, black, with minor plant remains, root holes common.  |
| 6/12/24                 |               |                    | 15                         | MH                   | Clayey silt, estimated at 30-40% silt, trace fine-grained sand, stiff to very stiff, moist, dark greenish gray and olive, mottled, with occasional root holes and plant fibers, clay content increases with depth. |
|                         |               |                    |                            |                      | TOTAL DEPTH: 15'   |
|                         |               |                    | 20                         |                      |  |

## BORING LOG

| <b>Project No.</b><br>KEI-P 91-1004   |               | <b>Boring Diameter</b> 8.5"<br><b>Casing Diameter</b> 2" |                            | <b>Logged By</b> JGG<br>D.L. 656 1633     |   |
|---|---------------|--|----------------------------|---|---|
| <b>Project Name</b> Unocal S/S #5043<br>499 Hegenberger road<br>Oakland, California |               | <b>Well Cover Elevation</b><br>N/A                       |                            | <b>Date Drilled</b><br>1/25/95            |   |
| <b>Boring No.</b><br>MW9  |               | <b>Drilling Method</b><br>Hollow-stem<br>Auger           |                            | <b>Drilling Company</b><br>V & W Drilling |   |
| Pene-<br>tration<br>blows/6"  | G.W.<br>level | O.V.M.<br>(P.P.M.)                                       | Depth<br>(feet)<br>Samples | Stratigraphy<br>USCS                      | Description   |
|   |               |  | 0                          |   | A.C. pavement over sand and gravel base.  |
|   | ▽             |  |                            | CI/<br>ML                                 | Pocketed clayey silt and silty clay, stiff, moist, black and dark greenish gray, with organic matter (fill and/or disturbed native soil).             |
| 1/2/2   |               |  |                            | SP  | Poorly graded sand, predominantly fine to medium-grained, loose, moist grading to saturated, dark greenish gray.                                      |
|   |               |  | 5                          | ML  | Silt, estimated at 5-15% variable clay content, soft, wet, dark greenish gray.  |
| 1/2/2   |               |  |                            | PT  | Peat with variable clay and silt content to 30%, soft, fibrous, wet, brown and black.   |
|   |               |  |                            | ML  | Clayey silt, soft, wet, black, with abundant plant fibers and organic matter.   |
| 2/4/5   |               |  | 10                         | CL  | Silty clay, firm to stiff, moist, black, with plant fibers and organic matter.  |
| 13/15/18  |               |  |                            |   | Silty clay, estimated at 10-15% sand, trace gravel, very stiff to hard, moist, olive and dark olive gray, mottled with olive brown below 12-1/2 feet. |
|   |               |  |                            |   | TOTAL DEPTH: 13'  |
|   |               |  | 15                         |   |   |
|   |               |  | 20                         |   |   |

## BORING LOG

|   |  |   |
|---|--|---|
| <b>Project No.</b><br>KEI-P 91-1004   | <b>Boring Diameter</b> 8.5"                        | <b>Logged By</b> J66                          |
|   | <b>Casing Diameter</b> 2"                          | <b>D.L.</b> CEG 1633                          |
| <b>Project Name</b> Unocal S/S #5043<br>499 Hegenberger Road<br>Oakland, California | <b>Well Cover Elevation</b><br><br>N/A             | <b>Date Drilled</b><br><br>1/25/95            |
| <b>Boring No.</b><br>MW10   | <b>Drilling Method</b><br><br>Hollow-stem<br>Auger | <b>Drilling Company</b><br><br>V & W Drilling |

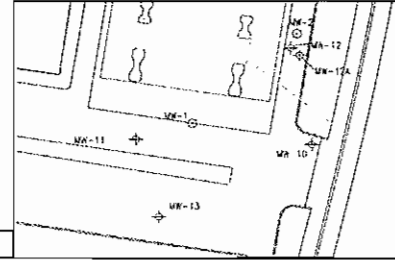
| Pene-<br>tration<br>blows/6" | G.W<br>level | O.V.M.<br>(P.P.M.) | Depth<br>(feet)<br>Samples | Stratigraphy<br>USCS | Description  |
|------------------------------|--------------|--------------------|----------------------------|----------------------|--|
|                              | ▽            |                    | 0                          |                      | A.C. pavement over sand and gravel base.<br><br>Perched water at base of gravel base.  |
| 4/4/5                        |              |                    | 1                          | CL/<br>ML            | Pocketed clayey silt and silty clay, trace-15% sand and gravel, stiff, very moist, black and dark greenish gray, with abundant plant fibers and organic matter (fill and disturbed native soil). |
| 1/2/2                        |              |                    | 5                          | OL/<br>OH            | Silty clay, soft to firm, wet, black, with abundant plant fibers and organic matter.   |
| 3/5/5                        |              |                    | 10                         | CL                   | Silty clay, stiff, moist, black, grades to dark greenish gray below 10 feet, with plant fibers and organic matter, trace sand below 10 feet.   |
| 9/11/13                      |              |                    | 13                         | SC                   | Clayey sand, estimated at 20-25% clay and 10-15% silt, trace gravel, medium dense, moist, dark greenish gray, with plant fibers and organic matter.  |
|                              |              |                    | 15                         |                      | TOTAL DEPTH: 13'   |
|                              |              |                    | 20                         |                      |  |

# Delta Consultants

Project No: I42705191 Client: Delta/ELT  
 Logged By: Jonathan Fillingame Location: 449 Hegenberger Road, Oakland  
 Driller: Gregg Date Drilled: 6/22/2010  
 Drilling Method: Hollow Stem Auger Hole Diameter: 11"  
 Sampling Method: Direct Push Hole Depth: 20'  
 Casing Type: Sch 40 PVC Well Diameter: 4"  
 Slot Size: 0.020 Well Depth: 20'  
 Gravel Pack: #3 Monterey Sand ▽ First Water Depth: 3'  
 ▽ Static Water Depth: 2.5'

Well No: MW-11

Page 1 of 1



Elevation: Northing: Easting:

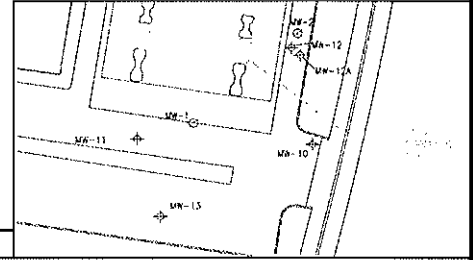
| Well Completion    | Water Level | Blow Counts | PID Reading (ppm) | Sample Identification | Depth (feet) | Sample Recovery | Soil Type  | LITHOLOGY / DESCRIPTION |
|--------------------|-------------|-------------|-------------------|-----------------------|--------------|-----------------|--|-------------------------|
| Backfill<br>Casing |             |             |                   |                       |              |                 |  |                         |
| Neat Cement        | ▼           |             |                   | Air-Knife             | 1            |                 | 4" Asphalt   |                         |
|                    | ▼           |             |                   |                       | 2            |                 | Clayey SAND (SC); brown, 60% fine to coarse sand, dense, 30% clay, medium plasticity, 10% fine gravel, damp.   |                         |
|                    |             |             |                   |                       | 3            |                 | Clayey GRAVEL with Sand (GC); brown, 60% fine to coarse gravel, loose, 20% clay, 20% fine to coarse sand, wet. |                         |
|                    |             |             |                   |                       | 4            |                 |  |                         |
|                    |             |             |                   |                       | 5            |                 | Clayey GRAVEL with Sand (GC); brown, 50% fine to coarse gravel, loose, 30% clay, 20% fine to coarse sand, wet. |                         |
|                    |             |             | 0.2               |                       | 6            |                 |  |                         |
|                    |             |             |                   |                       | 7            |                 |  |                         |
|                    |             |             |                   |                       | 8            |                 |  |                         |
|                    |             |             |                   |                       | 9            |                 |  |                         |
|                    |             |             |                   | MW-11 @10             | 10           |                 | Clayey GRAVEL (GC); brown, 60% fine gravel, loose, 30% clay, 10% fine to coarse sand, moist.                   |                         |
|                    |             |             | 0.7               |                       | 11           |                 |  |                         |
|                    |             |             |                   |                       | 12           |                 | Clayey GRAVEL (GC); brown, 60% fine gravel, loose, 30% clay, 10% fine to coarse sand, wet.                     |                         |
|                    |             |             |                   |                       | 13           |                 |  |                         |
|                    |             |             |                   |                       | 14           |                 |  |                         |
|                    |             |             | 0.4               |                       | 15           |                 | Lean CLAY (CL); green-grey, medium plasticity, stiff, moist.   |                         |
|                    |             |             |                   |                       | 16           |                 |  |                         |
|                    |             |             |                   |                       | 17           |                 | No Recovery  |                         |
|                    |             |             |                   |                       | 18           |                 |  |                         |
|                    |             |             |                   | MW-11 @20             | 19           |                 | Poorly Graded GRAVEL with Sand (GP); brown, 80% fine gravel, loose, 20% medium to coarse sand, wet.            |                         |
|                    |             |             | 4.6               |                       | 20           |                 |  |                         |
|                    |             |             |                   |                       | 21           |                 |  |                         |
|                    |             |             |                   |                       | 22           |                 |  |                         |

# Delta Consultants

Project No: I42705191 Client: Delta/ELT  
 Logged By: Jonathan Fillingame Location: 449 Hegenberger Road, Oakland  
 Driller: Gregg Date Drilled: 6/22/2010  
 Drilling Method: Hollow Stem Auger Hole Diameter: 11"  
 Sampling Method: Direct Push Hole Depth: 20'  
 Casing Type: Sch 40 PVC Well Diameter: 4"  
 Slot Size: 0.020 Well Depth: 20'  
 Gravel Pack: #3 Monterey Sand ▽ First Water Depth: 5.5'  
 ▽ Static Water Depth: 4.5'

Well No: MW-12

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Elevation: Northing: Easting:

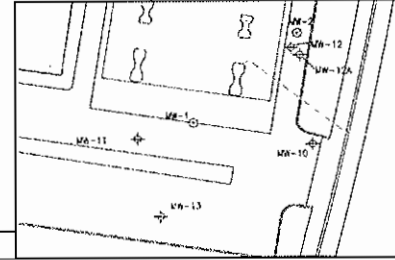
| Well Completion    | Water Level | Blow Counts | PID Reading (ppm) | Sample Identification | Depth (feet) | Sample Recovery | Soil Type | LITHOLOGY / DESCRIPTION   |
|--------------------|-------------|-------------|-------------------|-----------------------|--------------|-----------------|-----------|---|
| Backfill<br>Casing |             |             |                   |                       |              |                 |           |   |
| Neat Cement        |             |             |                   | Air-Knife             | 1            |                 |           | 4" Asphalt  |
|                    |             |             |                   |                       | 2            |                 |           | <b>Fill (Silty SAND with Gravel)</b> ; brown, 60% fine to coarse sand, 20% silt, 20% fine to coarse gravel, chunks of asphalt, damp.                |
|                    |             |             |                   |                       | 3            |                 |           | <b>Lean CLAY (CL)</b> ; dark greenish grey, 95% clay, medium stiff, medium plasticity, 5% fine sand, moist.   |
|                    |             |             |                   |                       | 4            |                 |           | <b>Lean CLAY (CL)</b> ; dark brownish grey and black, 90% clay, stiff, medium plasticity, 5% fine sand, 5% organics/roots, moist, hydrocarbon odor. |
|                    |             |             | 32.9              |                       | 5            |                 |           | <b>Lean CLAY with Gravel (CL)</b> ; dark brownish grey, 80% clay, stiff, low plasticity, 20% fine gravel,   |
|                    |             |             |                   |                       | 6            |                 |           | <b>Clayey GRAVEL (GC)</b> ; dark brown, 50% fine gravel, loose, 40% clay, low plasticity, 10% fine to coarse sand, moist.                           |
|                    |             |             | 2365              | MW-12 @8              | 8            |                 |           |   |
|                    |             |             |                   |                       | 9            |                 |           |   |
|                    |             |             |                   | MW-12 @10             | 10           |                 |           | <b>Lean CLAY (CL)</b> ; dark grey to black, soft, medium plasticity, wet, hydrocarbon odor.   |
|                    |             |             | 203               |                       | 11           |                 |           |   |
|                    |             |             |                   |                       | 12           |                 |           |   |
|                    |             |             |                   |                       | 13           |                 |           |   |
|                    |             |             |                   |                       | 14           |                 |           | <b>Lean CLAY with Sand (CL)</b> ; green grey, 85% clay, stiff, medium plasticity, 15% fine to medium sand, moist.                                   |
|                    |             |             | 160               |                       | 15           |                 |           | Color Change to Brown.  |
|                    |             |             |                   |                       | 16           |                 |           | <b>Fat CLAY (CH)</b> ; black, very soft, high plasticity, wet.  |
|                    |             |             |                   |                       | 17           |                 |           | <b>Fat CLAY (CH)</b> ; greenish grey, 90% clay, soft, high plasticity, 10% fine sand, moist.  |
|                    |             |             |                   |                       | 18           |                 |           |   |
|                    |             |             |                   |                       | 19           |                 |           | <b>Lean CLAY (CL)</b> ; brown with black spots, very stiff, medium plasticity, damp.  |
|                    |             |             | 335               | MW-12 @20             | 20           |                 |           |   |
|                    |             |             |                   |                       | 21           |                 |           |   |
|                    |             |             |                   |                       | 22           |                 |           |   |

# Delta Consultants

Project No: 142705191 Client: Delta/ELT  
 Logged By: Jonathan Fillingame Location: 449 Hegenberger Road, Oakland  
 Driller: Gregg Date Drilled: 6/23/2010  
 Drilling Method: Hollow Stem Auger Hole Diameter: 8"  
 Sampling Method: Direct Push Hole Depth: 44'  
 Casing Type: Sch 40 PVC Well Diameter: 2"  
 Slot Size: 0.020 Well Depth: 34'  
 Gravel Pack: #3 Monterey Sand ▽ First Water Depth: 5.5'  
 ▼ Static Water Depth: 6'

Well No: MW-12A

Page 1 of 2



Elevation: Northing: Easting:

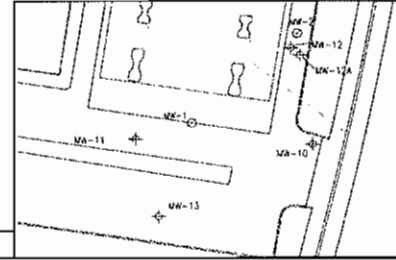
| Well Completion |        | Water Level | Blow Counts | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type | LITHOLOGY / DESCRIPTION   |
|-----------------|--------|-------------|-------------|-------------------|-----------------------|--------------|----------|----------|-----------|---|
| Backfill        | Casing |             |             |                   |                       |              |          |          |           |   |
| Neat Cement     |        |             |             |                   | Air-Knife             | 1            |          |          |           | 4" Asphalt  |
|                 |        |             |             |                   |                       | 2            |          |          |           | <b>Fill (Silty SAND with Gravel)</b> ; brown, 60% fine to coarse sand, 20% silt, 20% fine to coarse gravel, chunks of asphalt, damp.                |
|                 |        |             |             |                   |                       | 3            |          |          |           | <b>Lean CLAY (CL)</b> ; dark greenish grey, 95% clay, medium stiff, medium plasticity, 5% fine sand, moist.   |
|                 |        |             |             |                   |                       | 4            |          |          |           | <b>Lean CLAY (CL)</b> ; dark brownish grey and black, 90% clay, stiff, medium plasticity, 5% fine sand, 5% organics/roots, moist, hydrocarbon odor. |
|                 |        |             |             | 32.9              |                       | 5            |          |          |           | <b>Lean CLAY with Gravel (CL)</b> ; dark brownish grey, 80% clay, stiff, low plasticity, 20% fine gravel,   |
|                 |        |             |             |                   |                       | 6            |          |          |           | <b>Clayey GRAVEL (GC)</b> ; dark brown, 50% fine gravel, loose, 40% clay, low plasticity, 10% fine to coarse sand, moist.                           |
|                 |        |             |             |                   |                       | 7            |          |          |           |   |
|                 |        |             |             | 2365              |                       | 8            |          |          |           |   |
|                 |        |             |             |                   |                       | 9            |          |          |           |   |
|                 |        |             |             |                   |                       | 10           |          |          |           | <b>Lean CLAY (CL)</b> ; dark grey to black, soft, medium plasticity, wet, hydrocarbon odor.   |
|                 |        |             |             |                   |                       | 11           |          |          |           |   |
|                 |        |             |             | 203               |                       | 12           |          |          |           |   |
|                 |        |             |             |                   |                       | 13           |          |          |           |   |
|                 |        |             |             |                   |                       | 14           |          |          |           | <b>Lean CLAY with Sand (CL)</b> ; green grey, 85% clay, stiff, medium plasticity, 15% fine to medium sand, moist.                                   |
|                 |        |             |             |                   |                       | 15           |          |          |           | Color Change to Brown.  |
|                 |        |             |             | 160               |                       | 16           |          |          |           | <b>Fat CLAY (CH)</b> ; black, very soft, high plasticity, wet.  |
|                 |        |             |             |                   |                       | 17           |          |          |           | <b>Fat CLAY (CH)</b> ; greenish grey, 90% clay, soft, high plasticity, 10% fine sand, moist.  |
|                 |        |             |             |                   |                       | 18           |          |          |           |   |
|                 |        |             |             |                   |                       | 19           |          |          |           | <b>Lean CLAY (CL)</b> ; brown with black spots, very stiff, medium plasticity, damp.  |
|                 |        |             |             | 335               |                       | 20           |          |          |           | No Recovery   |
|                 |        |             |             |                   |                       | 21           |          |          |           |   |
|                 |        |             |             |                   |                       | 22           |          |          |           |   |



# Delta Consultants

Project No: I42705191 Client: Delta/ELT  
 Logged By: Jonathan Fillingame Location: 449 Hegenberger Road, Oakland  
 Driller: Gregg Date Drilled: 6/23/2010  
 Drilling Method: Hollow Stem Auger Hole Diameter: 8"  
 Sampling Method: Direct Push Hole Depth: 44'  
 Casing Type: Sch 40 PVC Well Diameter: 2"  
 Slot Size: 0.020 Well Depth: 34'  
 Gravel Pack: #3 Monterey Sand ▽ First Water Depth: 5.5'  
 ▽ Static Water Depth: 6'

**Well No: MW-12A**  
 Page 2 of 2



Elevation: Northing: Easting:

| Well Completion | Water Level | Blow Counts | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type | LITHOLOGY / DESCRIPTION   |
|-----------------|-------------|-------------|-------------------|-----------------------|--------------|----------|----------|-----------|---|
| Neat Cement     |             |             |                   |                       | 23           |          |          |           | No recovery   |
|                 |             |             | 1277              | MW-12A @26            | 24           |          |          |           |   |
|                 |             |             |                   |                       | 25           |          |          |           |   |
|                 |             |             |                   |                       | 26           |          |          |           | <b>Fat CLAY (CH)</b> ; black, soft, high plasticity, wet, hydrocarbon odor.                                       |
|                 |             |             |                   |                       | 27           |          |          |           |   |
|                 |             |             |                   |                       | 28           |          |          |           | <b>Lean CLAY (CL)</b> ; brown, greenish grey, 90% clay, stiff, medium plasticity, 10% fine to coarse sand, moist. |
|                 |             |             |                   |                       | 29           |          |          |           |   |
|                 |             |             | 3400              | MW-12A @32            | 30           |          |          |           |   |
|                 |             |             |                   |                       | 31           |          |          |           | <b>Sandy Lean CLAY (CL)</b> ; brown, 70% clay, stiff, medium plasticity, 30% fine to coarse sand, moist.          |
|                 |             |             |                   |                       | 32           |          |          |           |   |
|                 |             |             | 47.9              | MW-12A @34            | 33           |          |          |           | <b>Clayey SAND (SC)</b> ; brown, 60% fine to medium sand, loose, 40% clay, stiff, medium plasticity, wet.         |
|                 |             |             |                   |                       | 34           |          |          |           | <b>Well Graded SAND with Clay (SW-SC)</b> ; brown, 90% fine to coarse sand, dense, 10% clay, wet.                 |
|                 |             |             |                   |                       | 35           |          |          |           |   |
|                 |             |             |                   |                       | 36           |          |          |           | <b>Clayey SAND (SC)</b> ; brown, 60% fine to medium sand, 40% clay, wet.  |
|                 |             |             |                   |                       | 37           |          |          |           | <b>Well Graded SAND (SW)</b> ; brown, fine to coarse, wet.  |
|                 |             |             |                   |                       | 38           |          |          |           |   |
|                 |             |             |                   |                       | 39           |          |          |           | <b>Well Graded SAND (SW)</b> ; brown, 90% medium to coarse sand, loose, 10% fine gravel, wet.                     |
|                 |             |             |                   |                       | 40           |          |          |           | <b>Well Graded SAND (SW)</b> ; brown, 95% fine to coarse sand, loose, 5% clay, wet.                               |
|                 |             |             |                   |                       | 41           |          |          |           | <b>Well Graded SAND (SW)</b> ; brown, 95% fine to coarse sand, loose, 5% fine gravel, wet.                        |
|                 |             |             |                   |                       | 42           |          |          |           |   |
|                 |             |             |                   |                       | 43           |          |          |           |   |
|                 |             |             |                   |                       | 44           |          |          |           | <b>Clayey SAND (SC)</b> ; brown, 60% fine to medium sand, loose, 40% clay, wet.                                   |

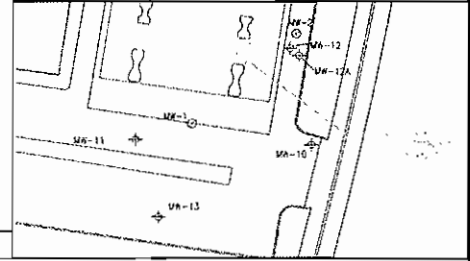
Sand Caved in while Augers were removed (slough)

# Delta Consultants

Project No: I42705191 Client: Delta/ELT  
 Logged By: Jonathan Fillingame Location: 449 Hegenberger Road, Oakland  
 Driller: Gregg Date Drilled: 6/22/2010  
 Drilling Method: Hollow Stem Auger Hole Diameter: 8"  
 Sampling Method: Direct Push Hole Depth: 15'  
 Casing Type: Sch 40 PVC Well Diameter: 2"  
 Slot Size: 0.020 Well Depth: 15'  
 Gravel Pack: #3 Monterey Sand ▽ First Water Depth: 3.5'  
 ▼ Static Water Depth: 4.5'

Well No: MW-13

Page 1 of 1



Elevation: Northing: Easting:

| Well Completion | Water Level | Blow Counts | PID Reading (ppm) | Sample Identification | Depth (feet) | Sample Recovery | Sample Analyzed | Soil Type   | LITHOLOGY / DESCRIPTION |
|-----------------|-------------|-------------|-------------------|-----------------------|--------------|-----------------|-----------------|---|-------------------------|
| Neat Cement     |             |             |                   | Air-Knife             | 1            |                 |                 | 4" Asphalt  |                         |
|                 |             |             |                   |                       | 2            |                 |                 | Well Graded SAND with Clay and Gravel (SW-SC); brown, 50% fine to coarse sand, 40% fine gravel 10% clay, moist. |                         |
|                 |             |             |                   |                       | 3            |                 |                 | Fat CLAY with Sand (CL); dark greenish grey, 80% Clay, soft, high plasticity, 20% fine to coarse sand, moist.   |                         |
|                 |             |             |                   |                       | 4            |                 |                 | Lean CLAY (CL); brown, 85% clay, stiff, medium plasticity, 10% medium sand, 5% peat, damp.                      |                         |
|                 |             |             |                   |                       | 5            |                 |                 | Clayey GRAVEL with Sand (GC); brown, 50% fine to coarse gravel, loose, 30% clay, 20% fine to coarse sand, wet.  |                         |
|                 |             |             |                   | MW-13 @8              | 6            |                 |                 | Clayey SAND (SC); grey, 70% fine to medium sand, loose, 30% clay, wet.  |                         |
|                 |             |             | 2.8               |                       | 7            |                 |                 |   |                         |
|                 |             |             |                   |                       | 8            |                 |                 | Clayey SAND (SC); grey, 60% fine to medium sand, loose, 30% clay, 10% fine gravel, wet.                         |                         |
|                 |             |             |                   |                       | 9            |                 |                 | Clayey SAND (SC); grey, 60% fine to medium sand, loose, 40% clay, wet.  |                         |
|                 |             |             |                   |                       | 10           |                 |                 | Sandy Lean CLAY (CL); grey, 60% clay, stiff, medium plasticity, 40% fine sand, wet.                             |                         |
|                 |             |             | 0.2               |                       | 11           |                 |                 |   |                         |
|                 |             |             |                   |                       | 12           |                 |                 | Lean CLAY (CL); dark grey, 90% clay, stiff, medium plasticity, 10% fine sand, moist.                            |                         |
|                 |             |             |                   |                       | 13           |                 |                 | Clayey SAND (SC); grey, 60% fine to medium sand, dense, 40% clay, wet.  |                         |
|                 |             |             |                   | MW-13 @15             | 14           |                 |                 | Lean CLAY (CL); dark grey to black, 90% clay, stiff, medium plasticity, 10% fine sand, moist.                   |                         |
|                 |             |             | 0.1               |                       | 15           |                 |                 |   |                         |
|                 |             |             |                   |                       | 16           |                 |                 |   |                         |
|                 |             |             |                   |                       | 17           |                 |                 |   |                         |
|                 |             |             |                   |                       | 18           |                 |                 |   |                         |
|                 |             |             |                   |                       | 19           |                 |                 |   |                         |
|                 |             |             |                   |                       | 20           |                 |                 |   |                         |
|                 |             |             |                   |                       | 21           |                 |                 |   |                         |
|                 |             |             |                   |                       | 22           |                 |                 |   |                         |





Project No: I42705191 Client: COP-ELT  
 Logged By: ETW Location: 449 Hegenberger Road  
 Driller: Gregg Drilling Date Drilled: 5/17/2011  
 Drilling Method: HSA Hole Diameter: 8"  
 Sampling Method: Direct Push Hole Depth: 13'  
 Casing Type: Sch. 40 PVC Well Diameter: 2"  
 Slot Size: 0.02 Well Depth: 13'  
 Gravel Pack: #3 First Water Depth: 4.5'  
 Static Water Depth:

**Boring/Well No: MW-15**  
 Page 1 of 1

Location Map

Elevation: Northing: Easting:

| Well Completion    | Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Sample Recovery | Interval | Soil Type | LITHOLOGY / DESCRIPTION   |
|--------------------|-------------|------------------|-------------------|-----------------------|--------------|-----------------|----------|-----------|---|
| Backfill<br>Casing |             |                  |                   |                       |              |                 |          |           | Asphalt (6" Thick)  |
|                    |             |                  |                   |                       | 1            |                 |          |           | Class II AB   |
|                    |             |                  |                   |                       | 2            |                 |          |           | Rocky Fill  |
|                    |             |                  |                   |                       | 3            |                 |          |           |   |
|                    |             |                  |                   |                       | 4            |                 |          |           |   |
|                    |             |                  |                   |                       | 5            |                 |          |           | Wet   |
|                    |             |                  |                   |                       | 6            |                 |          |           |   |
|                    |             |                  |                   |                       | 7            | X               |          |           |   |
|                    |             |                  | 18.7              | MW-15d8               | 8            | X               | O        | CL        | Lean Clay; 95% clay, 5% fine sand, black, wet, medium plasticity, no odor |
|                    |             |                  |                   |                       | 9            | X               |          |           |   |
|                    |             |                  |                   |                       | 10           | X               |          |           |   |
|                    |             |                  |                   |                       | 11           | X               |          |           |   |
|                    |             |                  |                   |                       | 12           | X               |          |           | Organic material, plant roots   |
|                    |             |                  | 37.1              | MW-15d13              | 13           | X               | O        |           |   |
|                    |             |                  |                   |                       | 14           |                 |          |           |   |
|                    |             |                  |                   |                       | 15           |                 |          |           |   |
|                    |             |                  |                   |                       | 16           |                 |          |           |   |
|                    |             |                  |                   |                       | 17           |                 |          |           |   |
|                    |             |                  |                   |                       | 18           |                 |          |           |   |
|                    |             |                  |                   |                       | 19           |                 |          |           |   |
|                    |             |                  |                   |                       | 20           |                 |          |           |   |
|                    |             |                  |                   |                       | 21           |                 |          |           |   |
|                    |             |                  |                   |                       | 22           |                 |          |           |   |



Project No: I42705191  
 Logged By: ETW  
 Driller: Gregg Drilling  
 Drilling Method: HSA  
 Sampling Method: Direct Push  
 Casing Type: Sch. 40 PVC  
 Slot Size: 0.02  
 Gravel Pack: #3

Client: COP-ELT  
 Location: 449 Hegenberger Road  
 Date Drilled: 5/17/2011  
 Hole Diameter: 8"  
 Hole Depth: 13'  
 Well Diameter: 2"  
 Well Depth: 13'  
 First Water Depth: 5'  
 Static Water Depth:

Boring/Well No: MW-16  
 Page 1 of 1

Location Map

Elevation: Northing: Easting:

| Well Completion    | Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Sample Recovery | Interval | Soil Type | LITHOLOGY / DESCRIPTION   |
|--------------------|-------------|------------------|-------------------|-----------------------|--------------|-----------------|----------|-----------|---|
| Backfill<br>Casing |             |                  |                   |                       |              |                 |          |           | Concrete (12" Thick)  |
|                    |             |                  |                   |                       | 1            |                 |          |           |   |
|                    |             |                  |                   |                       | 2            |                 |          |           | Class II AB<br>Rocky Fill<br>Moist  |
|                    |             |                  |                   |                       | 3            |                 |          |           |   |
|                    |             |                  |                   |                       | 4            |                 |          |           |   |
|                    |             |                  |                   |                       | 5            |                 |          |           | Wet   |
|                    |             |                  |                   |                       | 6            |                 |          |           |   |
|                    |             |                  |                   |                       | 7            | X               |          |           |   |
|                    |             |                  | 9.6               | MW-16d8               | 8            | X               | O        | CL        | Lean Clay; 95% clay, 5% fine sand, black, wet, medium plasticity, no odor |
|                    |             |                  |                   |                       | 9            | X               |          |           |   |
|                    |             |                  |                   |                       | 10           | X               |          |           |   |
|                    |             |                  |                   |                       | 11           | X               |          |           |   |
|                    |             |                  |                   |                       | 12           | X               |          |           | Olive green color<br>No odor  |
|                    |             |                  | 10.1              | MW-16d13              | 13           | X               | O        |           |   |
|                    |             |                  |                   |                       | 14           |                 |          |           |   |
|                    |             |                  |                   |                       | 15           |                 |          |           |   |
|                    |             |                  |                   |                       | 16           |                 |          |           |   |
|                    |             |                  |                   |                       | 17           |                 |          |           |   |
|                    |             |                  |                   |                       | 18           |                 |          |           |   |
|                    |             |                  |                   |                       | 19           |                 |          |           |   |
|                    |             |                  |                   |                       | 20           |                 |          |           |   |
|                    |             |                  |                   |                       | 21           |                 |          |           |   |
|                    |             |                  |                   |                       | 22           |                 |          |           |   |



Project No: I42705191  
 Logged By: ETW  
 Driller: Gregg Drilling  
 Drilling Method: HSA  
 Sampling Method: Direct Push  
 Casing Type: Sch. 40 PVC  
 Slot Size: 0.02  
 Gravel Pack: #3

Client: COP-ELT  
 Location: 449 Hegenberger Road  
 Date Drilled: 5/18/2011  
 Hole Diameter: 8"  
 Hole Depth: 13'  
 Well Diameter: 2"  
 Well Depth: 13'  
 First Water Depth:  
 Static Water Depth:

Boring/Well No: MW-17  
 Page 1 of 1

Location Map

Elevation: Northing: Easting:

| Well Completion    | Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Sample Recovery | Interval | Soil Type | LITHOLOGY / DESCRIPTION   |
|--------------------|-------------|------------------|-------------------|-----------------------|--------------|-----------------|----------|-----------|---|
| Backfill<br>Casing |             |                  |                   |                       | 1            |                 |          |           | Top Soil and fill   |
|                    |             |                  |                   |                       | 2            |                 |          | CL        | Lean Clay; 95% clay, 5% fine sand, black, moist, medium plasticity, no odor |
|                    |             |                  |                   |                       | 3            |                 |          |           |   |
|                    |             |                  |                   |                       | 4            |                 |          |           |   |
|                    |             |                  |                   |                       | 5            |                 |          |           | Wet   |
|                    |             |                  |                   |                       | 6            |                 |          |           |   |
|                    |             |                  |                   |                       | 7            | X               |          |           |   |
|                    |             |                  |                   |                       | 8            | X               |          |           |   |
|                    |             |                  | 23.7              | MW-17d9               | 9            | X               | O        |           | Olive green color, slight odor  |
|                    |             |                  |                   |                       | 10           |                 |          |           |   |
|                    |             |                  |                   |                       | 11           | X               |          |           |   |
|                    |             |                  |                   |                       | 12           | X               |          |           | wet   |
|                    |             |                  | 28.4              | MW-17d13              | 13           | X               | O        |           | Black color, slight odor  |
|                    |             |                  |                   |                       | 14           |                 |          |           |   |
|                    |             |                  |                   |                       | 15           |                 |          |           |   |
|                    |             |                  |                   |                       | 16           |                 |          |           |   |
|                    |             |                  |                   |                       | 17           |                 |          |           |   |
|                    |             |                  |                   |                       | 18           |                 |          |           |   |
|                    |             |                  |                   |                       | 19           |                 |          |           |   |
|                    |             |                  |                   |                       | 20           |                 |          |           |   |
|                    |             |                  |                   |                       | 21           |                 |          |           |   |
|                    |             |                  |                   |                       | 22           |                 |          |           |   |





# Delta Consultants

Project No: 142705191      Client: ELT      Boring/Well No: 5  
 Logged By: E. Weyrens      Location: 449 Hegenberger Rd.      Page 2 of 2  
 Driller: Gregg      Date Drilled: 12/17/2009  
 Drilling Method: Direct Push      Hole Diameter: 2"  
 Sampling Method:      Hole Depth: 32'  
 Casing Type: NA      Well Diameter: NA  
 Slot Size: NA      Well Depth: NA  
 Gravel Pack: NA      First Water Depth: 5'  
    Static Water Depth: 18'

Location Map

Elevation:      Northing:      Easting:

| Well Completion    | Water Level   | Moisture Content | PID Reading (ppm) | Penetration (blows/6") | Depth (feet) | Sample Recovery | Interval | Soil Type | LITHOLOGY / DESCRIPTION  |    |  |
|--------------------|---|------------------|-------------------|------------------------|--------------|-----------------|----------|-----------|--|----|--|
| Backfill<br>Casing | <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> |                  | 384               | B-5@26.5<br>15:05      | 23           | X               |          | CL        | Lean Clay, 90% clay, 10% fine sand, dark grey, moist               |    |  |
|                    |   |                  |                   |                        |              | X               |          |           |  |    |  |
|                    |   |                  |                   |                        | 24           | X               | 0        |           | Lean Clay, 90% clay, 10% fine sand, light brown, stiff, moist      |    |  |
|                    |   |                  |                   |                        |              | X               |          |           |  |    |  |
|                    |   |                  |                   |                        | 25           | X               |          |           | Black, strong odor   |    |  |
|                    |   |                  |                   |                        |              | X               |          |           |  |    |  |
|                    |   |                  |                   |                        | 26           | X               | 0        |           | Lean Clay w/ sand, 75% clay, 25% fine sand, light brown, wet, soft |    |  |
|                    |   |                  |                   |                        |              | X               |          |           |  |    |  |
|                    |   |                  |                   |                        | 27           | X               |          |           | Stiff, 95% clay, 5% sand   |    |  |
|                    |   |                  |                   |                        |              | X               |          |           |  |    |  |
|                    |   |                  |                   |                        | 28           | X               | 0        |           |  |    |  |
|                    |   |                  |                   |                        |              | X               |          |           |  |    |  |
|                    |   |                  |                   |                        | 29           | X               |          |           |  |    |  |
|                    |   |                  |                   |                        |              | X               |          |           |  |    |  |
|                    |   |                  |                   |                        | 30           | X               |          |           | B-5@32<br>15:25  | SC | Clayey Sand, 65% fine sand, 35% clay, brown, moist, medium density |
|                    |   |                  |                   |                        |              | X               |          |           |  |    |  |
|                    |   |                  |                   |                        | 31           | X               |          |           |  |    |  |
|                    |   |                  |                   |                        |              | X               | 0        |           |  |    |  |
|                    |   |                  |                   |                        | 32           |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        | 33           |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        | 34           |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 35                 |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 36                 |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 37                 |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 38                 |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 39                 |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 40                 |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 41                 |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 42                 |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 43                 |   |                  |                   |                        |              |                 |          |           |  |    |  |
|                    |   |                  |                   |                        |              |                 |          |           |  |    |  |
| 44                 |   |                  |                   |                        |              |                 |          |           |  |    |  |



Project No: I42705191 Client: COP-ELT Boring/Well No: B-6  
 Logged By: ETW Location: 449 Hegenberger Road Page 1 of 2  
 Driller: Gregg Drilling Date Drilled: 5/18/2011  
 Drilling Method: Direct Push Hole Diameter: 3"  
 Sampling Method: Direct Push Hole Depth: 26'  
 Casing Type: Well Diameter:  
 Slot Size: Well Depth:  
 Gravel Pack:  First Water Depth: 7.5'  
 Static Water Depth:

Location Map

Elevation: Northing: Easting:

| Well Completion | Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Sample Recovery | Interval | Soil Type | LITHOLOGY / DESCRIPTION  |
|-----------------|-------------|------------------|-------------------|-----------------------|--------------|-----------------|----------|-----------|--|
| Backfill        |             |                  |                   |                       |              |                 |          |           | Asphalt (6" Thick)   |
| Casing          |             |                  |                   |                       | 1            |                 |          |           | AB   |
|                 |             |                  |                   |                       | 2            |                 |          |           | Rocky Fill, 50% sand, 25% gravel, 25% clay, brown, moist, gravel is angular, sand is 50% fine 50% coarse |
|                 |             |                  |                   |                       | 3            |                 |          | CL        | Lean Clay; 95% clay, 5% fine sand, black, moist, medium plasticity, no odor                              |
|                 |             |                  |                   |                       | 4            |                 |          |           |  |
|                 |             |                  |                   |                       | 5            |                 |          |           |  |
|                 |             |                  |                   |                       | 6            |                 |          |           |  |
|                 |             |                  |                   |                       | 7            | X               |          |           |  |
|                 |             |                  |                   |                       | 8            | X               |          | CL        | Lean Clay; 85% clay, 15% fine sand, black, wet, medium plasticity, strong odor                           |
|                 |             |                  | 28.1              | B-6d9                 | 9            | X               | O        |           |  |
|                 |             |                  |                   |                       | 10           | X               |          |           |  |
|                 |             |                  |                   |                       | 11           | X               |          |           |  |
|                 |             |                  |                   |                       | 12           | X               |          | CL        | Lean Clay; 95% clay, 5% fine sand, moist, black, medium plasticity, strong odor                          |
|                 |             |                  |                   |                       | 13           | X               |          |           | Change to light green color  |
|                 |             |                  |                   |                       | 14           | X               | O        |           | Black color at 13.5 feet, wet  |
|                 |             |                  | 42.6              | B-6d14                | 15           | X               |          |           | Light green color at 14 feet, moist  |
|                 |             |                  |                   |                       | 16           | X               |          |           |  |
|                 |             |                  |                   |                       | 17           | X               |          |           |  |
|                 |             |                  |                   |                       | 18           | X               |          |           | Change to light brown color, moist   |
|                 |             |                  |                   |                       | 19           | X               |          |           |  |
|                 |             |                  |                   |                       | 20           | X               |          |           |  |
|                 |             |                  |                   |                       | 21           | X               | O        | CL        | Lean Clay; 95% clay, 5% fine sand, light brown, moist, medium plasticity, strong odor                    |
|                 |             |                  | 21.9              | B-6d21                | 22           | X               |          |           |  |



|                              |  |                                    |
|------------------------------|--|------------------------------------|
| Project No: I42705191        | Client: COP-ELT                                    | Boring/Well No: B-6<br>Page 2 of 2 |
| Logged By: ETW               | Location: 449 Hegenberger Road                     |                                    |
| Driller: Gregg Drilling      | Date Drilled: 5/18/2011                            | Location Map                       |
| Drilling Method: Direct Push | Hole Diameter: 3"                                  |                                    |
| Sampling Method: Direct Push | Hole Depth: 26'                                    |                                    |
| Casing Type:                 | Well Diameter:                                     |                                    |
| Slot Size:                   | Well Depth:  |                                    |
| Gravel Pack:                 | ▼ First Water Depth: 7.5'<br>▽ Static Water Depth: |                                    |

Elevation:                      Northing:                      Easting:

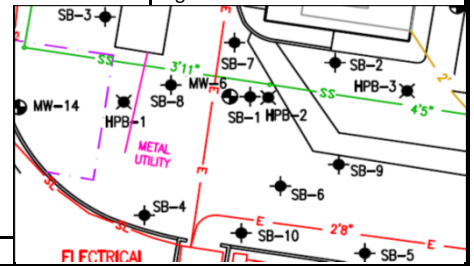
| Well Completion<br>Backfill<br>Casing | Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Sample   |          | Soil Type | LITHOLOGY / DESCRIPTION  |
|---------------------------------------|-------------|------------------|-------------------|-----------------------|--------------|----------|----------|-----------|--|
|                                       |             |                  |                   |                       |              | Recovery | Interval |           |  |
|                                       |             |                  | 84.6              | B-6d26                | 23           | X        |          | CL        |  |
|                                       |             |                  |                   |                       |              | X        |          |           |  |
|                                       |             |                  |                   |                       | 24           | X        |          |           |  |
|                                       |             |                  |                   |                       |              | X        |          |           |  |
|                                       |             |                  |                   |                       | 25           | X        |          | SC        | Clayey sand; 55% fine sand, 45% clay, light brown wet, strong odor<br>Total Depth explored = 26 feet |
|                                       |             |                  |                   |                       |              | X        | O        |           |  |
|                                       |             |                  |                   |                       | 26           |          |          |           |  |
|                                       |             |                  |                   |                       | 27           |          |          |           |  |
|                                       |             |                  |                   |                       | 28           |          |          |           |  |
|                                       |             |                  |                   |                       | 29           |          |          |           |  |
|                                       |             |                  |                   |                       | 30           |          |          |           |  |
|                                       |             |                  |                   |                       | 31           |          |          |           |  |
|                                       |             |                  |                   |                       | 32           |          |          |           |  |
|                                       |             |                  |                   |                       | 33           |          |          |           |  |
|                                       |             |                  |                   |                       | 34           |          |          |           |  |
|                                       |             |                  |                   |                       | 35           |          |          |           |  |
|                                       |             |                  |                   |                       | 36           |          |          |           |  |
|                                       |             |                  |                   |                       | 37           |          |          |           |  |
|                                       |             |                  |                   |                       | 38           |          |          |           |  |
|                                       |             |                  |                   |                       | 39           |          |          |           |  |
|                                       |             |                  |                   |                       | 40           |          |          |           |  |
|                                       |             |                  |                   |                       | 41           |          |          |           |  |
|                                       |             |                  |                   |                       | 42           |          |          |           |  |
| 43                                    |             |                  |                   |                       |              |          |          |           |  |
| 44                                    |             |                  |                   |                       |              |          |          |           |  |



Project No: **I42705191**  
 Logged By: **Jonathan Fillingame**  
 Driller: **Cascade Drilling**  
 Drilling Method: Direct Push  
 Sampling Method: Continuous

Client: **COP/ELT**  
 Location: **449 Hegenberger Road, Oakland**  
 Date Drilled: **7/25/2013**  
 Hole Diameter: **2 in**  
 Hole Depth: **15 ft**

Boring No: **SB-1**  
 Page 1 of 1



▽ First Water Depth: 5 ft  
 ▼ Static Water Depth: NA

Elevation: \_\_\_\_\_ Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

| Boring Completion | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type | LITHOLOGY / DESCRIPTION   |
|-------------------|--------------------|------------------|-------------------|-----------------------|--------------|----------|----------|-----------|---|
|                   |                    |                  |                   |                       | 0            |          |          |           | 4" Asphalt  |
|                   |                    |                  |                   |                       | 1            |          |          |           | Gravel Fill   |
|                   |                    |                  |                   |                       | 2            |          |          |           | Lean CLAY (CL) - black, 95% clay 5% fine to medium sand medium plasticity, stiff moist.                                   |
|                   |                    |                  | 5                 |                       | 3            |          |          |           | Lean CLAY (CL) - greenish grey, 95% clay, 5% fine to medium sand medium plasticity, stiff moist.                          |
|                   |                    |                  |                   |                       | 4            |          |          |           |   |
|                   |                    |                  | 1370              | SB-1d5.5              | 5            |          |          |           | Clayey SAND (SC) - dark grey, 80% fine to medium sand, 20% clay, dense, wet, hydrocarbon odor.                            |
|                   |                    |                  | 80                |                       | 6            |          |          |           |   |
|                   |                    |                  | 78                |                       | 7            |          |          |           |   |
|                   |                    |                  |                   |                       | 8            |          |          |           | Lean CLAY (CL) - black, 100% clay, medium plasticity, soft, wet, hydrocarbon odor.  |
|                   |                    |                  | 199.0             | SB-1d11               | 9            |          |          |           |   |
|                   |                    |                  | 6.8               |                       | 10           |          |          |           | Organic SOIL (OL) - black with brown organics, 70% clay, 30% plant matter (roots or grass), medium plasticity, soft, wet. |
|                   |                    |                  | 21.5              | SB-1d12               | 11           |          |          |           | Lean CLAY (CL) - dark grey, 100% clay, medium plasticity, very stiff, moist.  |
|                   |                    |                  | 18.5              |                       | 12           |          |          |           |   |
|                   |                    |                  |                   |                       | 13           |          |          |           | Lean CLAY (CL) - blueish grey, 100% clay, medium plasticity, very stiff, moist.   |
|                   |                    |                  | 9.5               | SB-1d15               | 14           |          |          |           |   |
|                   |                    |                  |                   |                       | 15           |          |          |           | Total Depth 15 feet below ground surface  |
|                   |                    |                  |                   |                       | 16           |          |          |           |   |
|                   |                    |                  |                   |                       | 17           |          |          |           |   |
|                   |                    |                  |                   |                       | 18           |          |          |           |   |
|                   |                    |                  |                   |                       | 19           |          |          |           |   |
|                   |                    |                  |                   |                       | 20           |          |          |           |   |
|                   |                    |                  |                   |                       | 21           |          |          |           |   |
|                   |                    |                  |                   |                       | 22           |          |          |           |   |

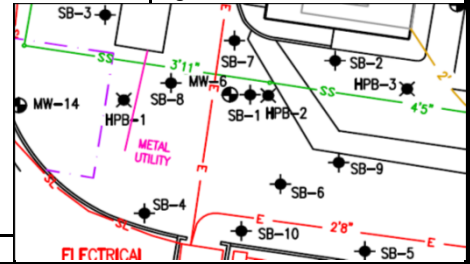
neat cement



Project No: **I42705191**  
 Logged By: **Jonathan Fillingame**  
 Driller: **Cascade Drilling**  
 Drilling Method: Direct Push  
 Sampling Method: Continuous

Client: **COP/ELT**  
 Location: **449 Hegenberger Road, Oakland**  
 Date Drilled: **7/25/2013**  
 Hole Diameter: **2 in**  
 Hole Depth: **15 ft**

Boring No: **SB-2**  
 Page 1 of 1



▽ First Water Depth: 4.5 ft  
 ▼ Static Water Depth: NA

Elevation: \_\_\_\_\_ Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

| Boring Completion | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Sample Analyzed | Soil Type   | LITHOLOGY / DESCRIPTION |
|-------------------|--------------------|------------------|-------------------|-----------------------|--------------|----------|-----------------|---|-------------------------|
|                   |                    |                  | 0                 | SB-2d1                | 1            |          |                 | 4" Asphalt  |                         |
|                   |                    |                  | 0                 | SB-2d3                | 3            |          |                 | Poorly Graded Gravel with sand (GP) - reddish brown, 60% fine gravel, 30% fine to coarse sand, 10% clay, moist.         |                         |
|                   |                    |                  | 0                 | SB-2d5                | 5            |          |                 | Well Graded Gravel with sand (GW) - reddish brown, 60% fine to coarse gravel, 30% fine to coarse sand, 10% clay, moist. |                         |
|                   |                    |                  | 0                 | SB-2d7.5              | 7            |          |                 | Poorly Graded Gravel with sand (GP) - reddish brown, 65% fine gravel, 35% fine to coarse sand, wet.                     |                         |
|                   |                    |                  | 0                 | SB-2d11               | 11           |          |                 | Lean Clay (CL) - greenish grey, 90% clay, 10% fine to coarse sand, low plasticity, stiff, wet.                          |                         |
|                   |                    |                  | 0.1               | SB-2d15               | 15           |          |                 | Organic SOIL (OL) - black, 60% plant matter (roots or grass), 40% clay, low plasticity, soft, wet.                      |                         |
|                   |                    |                  | 0.3               |                       | 13           |          |                 | Lean CLAY (CL) - black, 90% clay, 10% plant matter medium plasticity, stiff, moist.                                     |                         |
|                   |                    |                  | 0.1               |                       | 14           |          |                 | Lean CLAY (CL) - dark grey, 95-100% clay, <5% plant matter medium plasticity, stiff, moist.                             |                         |
|                   |                    |                  | 0                 |                       | 15           |          |                 | Lean CLAY (CL) - greenish grey, 95-100% clay, <5% plant matter medium plasticity, stiff, moist.                         |                         |
|                   |                    |                  |                   |                       | 16           |          |                 | Total Depth 15 feet below ground surface  |                         |
|                   |                    |                  |                   |                       | 17           |          |                 |   |                         |
|                   |                    |                  |                   |                       | 18           |          |                 |   |                         |
|                   |                    |                  |                   |                       | 19           |          |                 |   |                         |
|                   |                    |                  |                   |                       | 20           |          |                 |   |                         |
|                   |                    |                  |                   |                       | 21           |          |                 |   |                         |
|                   |                    |                  |                   |                       | 22           |          |                 |   |                         |

neat cement



Project No: **I42705191**

Logged By: **Jonathan Fillingame**

Driller: **Cascade Drilling**

Drilling Method: Direct Push

Sampling Method: Continuous

Client: **COP/ELT**

Location: **449 Hegenberger Road, Oakland**

Date Drilled: **7/25/2013**

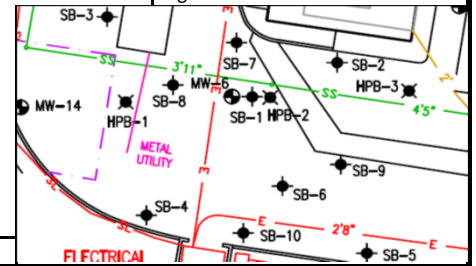
Hole Diameter: **2 in**

Hole Depth: **15 ft**

Boring No: **SB-3**

Page 1 of 1

▽ First Water Depth: 4.75 ft  
 ▼ Static Water Depth: NA



| Boring Completion |  | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type | LITHOLOGY / DESCRIPTION  |
|-------------------|--|--------------------|------------------|-------------------|-----------------------|--------------|----------|----------|-----------|--|
|                   |  |                    |                  | 0                 |                       | 0            |          |          |           | 4" Asphalt   |
|                   |  |                    |                  |                   |                       | 1            |          |          |           | Poorly Graded Gravel with sand (GP) - brown, 60% fine gravel, 35% fine to coarse sand, 5% clay, dense, moist.  |
|                   |  |                    |                  |                   |                       | 2            |          |          |           |  |
|                   |  |                    |                  | 0                 |                       | 3            |          |          |           | Lean CLAY (CL) - dark grey, 90% clay, 5% fine to medium sand, 5% organics, medium plasticity, stiff, moist.    |
|                   |  |                    |                  | 0                 |                       | 4            |          |          |           | Lean CLAY (CL) - dark grey, 90% clay, 15% fine to medium sand, medium plasticity, stiff, wet.                  |
|                   |  |                    |                  | 0                 |                       | 5            |          |          |           | Clayey SAND (SC) - reddish brown, 60% fine to coarse sand, 40% clay, loose, wet.                               |
|                   |  |                    |                  | 98                |                       | 6            |          |          |           | Lean Clay (CL) - grey, 95% clay, 5% fine to medium sand, medium plasticity, soft, wet.                         |
|                   |  |                    |                  | 167               | SB-3d7.5              | 7            |          |          |           | Lean Clay (CL) - dark grey, 95% clay, 5% fine to medium sand, low plasticity, medium stiff, wet.               |
|                   |  |                    |                  | 17.8              |                       | 8            |          |          |           | Organic SOIL (OL) - brown, grey, 90% plant matter (roots or grass), 10% clay, soft, wet.                       |
|                   |  |                    |                  | 3.4               |                       | 9            |          |          |           | Organic SOIL (OL) - dark grey, 70% clay, 30% plant matter (roots or grass), low plasticity, medium stiff, wet. |
|                   |  |                    |                  | 0.2               | SB-3d11               | 10           |          |          |           | Lean CLAY (CL) - black, 90% clay, 10% plant matter, medium plasticity, stiff, moist.                           |
|                   |  |                    |                  | 0.2               |                       | 11           |          |          |           | Lean CLAY (CL) - black, 95-100% clay, 5% organics, medium plasticity, stiff, moist.                            |
|                   |  |                    |                  | 0                 |                       | 12           |          |          |           |  |
|                   |  |                    |                  | 0                 |                       | 13           |          |          |           | Lean CLAY (CL) - greenish grey 95-100% clay, 5% organics, low plasticity, very stiff, moist.                   |
|                   |  |                    |                  | 0                 | SB-3d15               | 14           |          |          |           |  |
|                   |  |                    |                  | 0                 |                       | 15           |          |          |           | Total Depth 15 feet below ground surface   |
|                   |  |                    |                  |                   |                       | 16           |          |          |           |  |
|                   |  |                    |                  |                   |                       | 17           |          |          |           |  |
|                   |  |                    |                  |                   |                       | 18           |          |          |           |  |
|                   |  |                    |                  |                   |                       | 19           |          |          |           |  |
|                   |  |                    |                  |                   |                       | 20           |          |          |           |  |
|                   |  |                    |                  |                   |                       | 21           |          |          |           |  |
|                   |  |                    |                  |                   |                       | 22           |          |          |           |  |

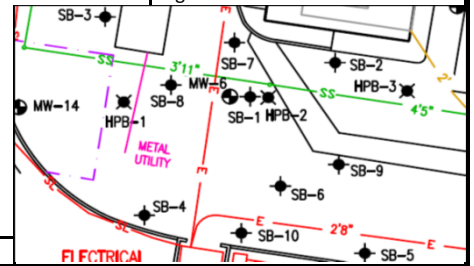
neat cement



Project No: **I42705191**  
 Logged By: **Jonathan Fillingame**  
 Driller: **Cascade Drilling**  
 Drilling Method: Direct Push  
 Sampling Method: Continuous

Client: **COP/ELT**  
 Location: **449 Hegenberger Road, Oakland**  
 Date Drilled: **7/25/2013**  
 Hole Diameter: **2 in**  
 Hole Depth: **15 ft**

Boring No: **SB-4**  
 Page 1 of 1



▽ First Water Depth: 2.9 ft  
 ▼ Static Water Depth: NA

Elevation: \_\_\_\_\_ Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

| Boring Completion | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type  | LITHOLOGY / DESCRIPTION |
|-------------------|--------------------|------------------|-------------------|-----------------------|--------------|----------|----------|--|-------------------------|
|                   |                    |                  | 0                 | SB-4d1                | 1            |          |          | 4" Asphalt   |                         |
|                   |                    |                  | 0                 | SB-4d3                | 3            |          |          | Poorly Graded Gravel with sand (GP) - light grey, 60% fine gravel, 40% fine to coarse sand, medium dense, dry. |                         |
|                   |                    |                  | 0                 | SB-4d5                | 5            |          |          | Lean CLAY (CL) - dark grey, 90% clay, 5% fine to medium sand, 5% organics, medium plasticity, stiff, moist.    |                         |
|                   |                    |                  | 2.9               | SB-4d5                | 6            |          |          | Clayey SAND (SC) - grey, 70% fine to medium sand, 30% clay, loose, wet.  |                         |
|                   |                    |                  | 1338              | SB-4d8                | 8            |          |          | Clayey SAND (SC) - grey, 55% fine to medium sand, 45% clay, loose, wet.  |                         |
|                   |                    |                  | 1.2               | SB-4d11               | 11           |          |          | Clayey SAND (SC) - grey, 70% fine to medium sand, 30% clay, loose, wet.  |                         |
|                   |                    |                  | 0.4               | SB-4d15               | 15           |          |          | Lean Clay (CL) - black, 95% clay, 5% fine sand, low plasticity, very stiff, moist.                             |                         |
|                   |                    |                  | 0.1               |                       | 13           |          |          | Poorly graded SAND (SP) - black, 100% medium sand, dense, wet, oil odor.                                       |                         |
|                   |                    |                  | 0                 |                       | 14           |          |          | Lean CLAY (CL) - grey, 100% clay, medium plasticity, soft, moist.  |                         |
|                   |                    |                  |                   |                       | 10           |          |          | Lean CLAY (CL) - black, 95% clay, 5% organics, medium plasticity, stiff, moist.                                |                         |
|                   |                    |                  |                   |                       | 12           |          |          | Lean CLAY (CL) - grey, 100% clay, low plasticity, stiff, moist.  |                         |
|                   |                    |                  |                   |                       | 14           |          |          | Lean CLAY (CL) - greenish grey, 95% clay, 5% fine to medium sand, low plasticity, very stiff, moist.           |                         |
|                   |                    |                  |                   |                       | 15           |          |          | Total Depth 15 feet below ground surface   |                         |
|                   |                    |                  |                   |                       | 16           |          |          |  |                         |
|                   |                    |                  |                   |                       | 17           |          |          |  |                         |
|                   |                    |                  |                   |                       | 18           |          |          |  |                         |
|                   |                    |                  |                   |                       | 19           |          |          |  |                         |
|                   |                    |                  |                   |                       | 20           |          |          |  |                         |
|                   |                    |                  |                   |                       | 21           |          |          |  |                         |
|                   |                    |                  |                   |                       | 22           |          |          |  |                         |

neat cement

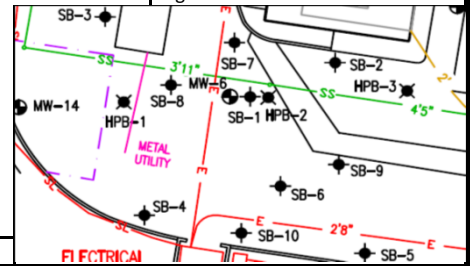




Project No: **I42705191**  
 Logged By: **Jonathan Fillingame**  
 Driller: **Cascade Drilling**  
 Drilling Method: Direct Push  
 Sampling Method: Continuous

Client: **COP/ELT**  
 Location: **449 Hegenberger Road, Oakland**  
 Date Drilled: **7/25/2013**  
 Hole Diameter: **2 in**  
 Hole Depth: **15 ft**

Boring No: **SB-5**  
 Page 1 of 1



▽ First Water Depth: **4 ft**  
 ▼ Static Water Depth: **NA**

Elevation: \_\_\_\_\_ Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

| Boring Completion | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type  | LITHOLOGY / DESCRIPTION  |
|-------------------|--------------------|------------------|-------------------|-----------------------|--------------|----------|----------|------------|--|
|                   |                    |                  | 0                 |                       | 0            |          |          | 4" Asphalt |  |
|                   |                    |                  |                   |                       | 1            |          |          | ●●●●       | <b>Poorly Graded Gravel with sand (GP)</b> - reddish brown, 60% fine gravel, 30% fine to coarse sand, 10% clay, moist. |
|                   |                    |                  | 0                 |                       | 3            |          |          | ▨▨▨▨       | <b>Lean CLAY (CL)</b> - brown, 90% clay, 10% fine to coarse sand, stiff, low plasticity, moist.                        |
|                   |                    |                  | 0                 |                       | 5            |          |          | ●●●●       | <b>Well graded SAND (SW)</b> - grey, 100% fine to coarse sand, loose, wet.   |
|                   |                    |                  | 78.0              | SB-5d6.5              | 6            | █        |          | ▨▨▨▨       | <b>Lean CLAY (CL)</b> - grey, 90% clay, 10% fine to coarse sand, stiff, medium plasticity, wet.                        |
|                   |                    |                  | 12.4              |                       | 7            |          |          | ●●●●       | <b>Organic SOIL (OL)</b> - grey, 90% clay, 10% organics, soft, wet.  |
|                   |                    |                  | 4.0               |                       | 8            |          |          | ▨▨▨▨       | <b>Poorly Graded Sand (SP)</b> - grey, 95% medium sand, 5% clay, loose wet.  |
|                   |                    |                  | 1.8               |                       | 9            |          |          | ▨▨▨▨       | <b>Organic SOIL (OL)</b> - grey, 60% organics, 40% clay, medium plasticity, medium stiff, wet.                         |
|                   |                    |                  | 2.3               |                       | 10           |          |          | ▨▨▨▨       | <b>Lean CLAY (CL)</b> - dark grey, 90% clay, 10% organics, soft, medium plasticity, wet.                               |
|                   |                    |                  | 0.3               | SB-5d11               | 11           | █        |          | ▨▨▨▨       | <b>Lean CLAY (CL)</b> - dark grey, 90% clay, 10% organics, stiff, medium plasticity, wet.                              |
|                   |                    |                  | 0.1               |                       | 12           |          |          | ▨▨▨▨       | <b>Lean CLAY (CL)</b> - dark grey, 100% clay, stiff, medium plasticity, moist.   |
|                   |                    |                  | 0                 |                       | 13           |          |          | ▨▨▨▨       | <b>Lean CLAY (CL)</b> - dark grey, 95% clay, 5% organics, very stiff, medium plasticity, moist.                        |
|                   |                    |                  | 0                 |                       | 14           |          |          | ▨▨▨▨       | <b>Lean CLAY (CL)</b> - greenish grey, 100% clay, very stiff, medium plasticity, moist.                                |
|                   |                    |                  | 0                 | SB-5d15               | 15           | █        |          | ▨▨▨▨       | <b>Lean CLAY (CL)</b> - greenish grey, 100% clay, very stiff, medium plasticity, moist.                                |
|                   |                    |                  |                   |                       | 16           |          |          |            |  |
|                   |                    |                  |                   |                       | 17           |          |          |            |  |
|                   |                    |                  |                   |                       | 18           |          |          |            |  |
|                   |                    |                  |                   |                       | 19           |          |          |            |  |
|                   |                    |                  |                   |                       | 20           |          |          |            |  |
|                   |                    |                  |                   |                       | 21           |          |          |            |  |
|                   |                    |                  |                   |                       | 22           |          |          |            |  |

neat cement

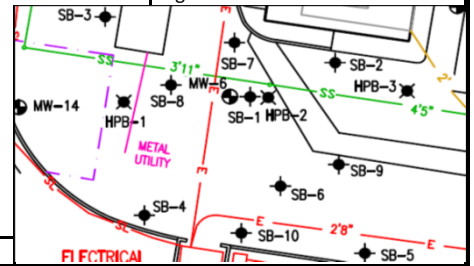
Total Depth 15 feet below ground surface



Project No: **I42705191**  
 Logged By: **Jonathan Fillingame**  
 Driller: **Cascade Drilling**  
 Drilling Method: Direct Push  
 Sampling Method: Continuous

Client: **COP/ELT**  
 Location: **449 Hegenberger Road, Oakland**  
 Date Drilled: **7/26/2013**  
 Hole Diameter: **2 in**  
 Hole Depth: **15 ft**

Boring No: **SB-6**  
 Page 1 of 1



▽ First Water Depth: **4.5 ft**  
 ▼ Static Water Depth: **NA**

Elevation: \_\_\_\_\_ Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

| Boring Completion | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type | LITHOLOGY / DESCRIPTION  |
|-------------------|--------------------|------------------|-------------------|-----------------------|--------------|----------|----------|-----------|--|
|                   |                    |                  |                   |                       |              |          |          |           | 4" Asphalt   |
|                   |                    |                  | 0.1               |                       | 1            |          |          |           | <b>Poorly Graded Gravel with sand (GP)</b> - reddish brown, 60% fine gravel, 30% fine to coarse sand, 10% clay, moist. |
|                   |                    |                  | 0                 |                       | 2            |          |          |           | <b>Clayey SAND (SC)</b> - greenish grey, 60% fine to medium sand, 40% clay, medium dense, moist.                       |
|                   |                    |                  |                   |                       | 3            |          |          |           | <b>Lean CLAY (CL)</b> - greenish grey, 80% clay, 20% fine to medium sand, stiff, low plasticity, moist.                |
|                   |                    |                  | 0.1               |                       | 4            |          |          |           | <b>Lean CLAY (CL)</b> - greenish grey, 95% clay, 5% fine to medium sand, stiff, medium plasticity, wet.                |
|                   |                    |                  | 16                |                       | 5            |          |          |           |  |
|                   |                    |                  | 40                |                       | 6            |          |          |           | <b>Poorly Graded Sand (SP)</b> - grey, 100% medium sand, medium dense, wet, hydrocarbon odor. 1 or 2 inches thick      |
|                   |                    |                  | 2567              | SB-6d6.5              | 6            |          |          |           | <b>Clayey Sand (SC)</b> - dark grey, 60% fine to medium sand, 40% clay, medium dense, wet.                             |
|                   |                    |                  | 33.5              |                       | 7            |          |          |           | <b>Lean CLAY (CL)</b> - grey, 90% clay, 10% fine to medium sand, soft, medium plasticity, wet.                         |
|                   |                    |                  | 29.2              |                       | 8            |          |          |           | <b>Poorly Graded Sand (SP)</b> - grey, 93% medium sand, 5% clay, 2% organics, medium dense, wet.                       |
|                   |                    |                  | 2.9               |                       | 9            |          |          |           | <b>Lean CLAY (CL)</b> - dark grey, 90% clay, 10% organics, stiff, medium plasticity, wet.                              |
|                   |                    |                  | 1.9               |                       | 10           |          |          |           | <b>Lean CLAY (CL)</b> - dark grey, 100% clay, stiff, medium plasticity, moist.   |
|                   |                    |                  | 1.8               | SB-6d11               | 11           |          |          |           | <b>Lean CLAY (CL)</b> - dark grey, 95% clay, 5% organics, very stiff, medium plasticity, moist.                        |
|                   |                    |                  | 0.1               |                       | 12           |          |          |           | <b>Lean CLAY (CL)</b> - greenish grey, 100% clay, very stiff, medium plasticity, moist.                                |
|                   |                    |                  | 0.2               |                       | 13           |          |          |           |  |
|                   |                    |                  | 0.1               | SB-6d15               | 14           |          |          |           |  |
|                   |                    |                  |                   |                       | 15           |          |          |           | Total Depth 15 feet below ground surface   |
|                   |                    |                  |                   |                       | 16           |          |          |           |  |
|                   |                    |                  |                   |                       | 17           |          |          |           |  |
|                   |                    |                  |                   |                       | 18           |          |          |           |  |
|                   |                    |                  |                   |                       | 19           |          |          |           |  |
|                   |                    |                  |                   |                       | 20           |          |          |           |  |
|                   |                    |                  |                   |                       | 21           |          |          |           |  |
|                   |                    |                  |                   |                       | 22           |          |          |           |  |

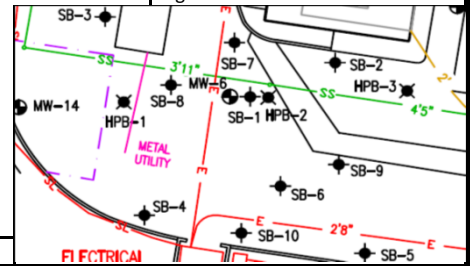
neat cement



Project No: **I42705191**  
 Logged By: **Jonathan Fillingame**  
 Driller: **Cascade Drilling**  
 Drilling Method: Direct Push  
 Sampling Method: Continuous

Client: **COP/ELT**  
 Location: **449 Hegenberger Road, Oakland**  
 Date Drilled: **7/26/2013**  
 Hole Diameter: **2 in**  
 Hole Depth: **15 ft**

Boring No: **SB-7**  
 Page 1 of 1



▽ First Water Depth: **4 ft**  
 ▼ Static Water Depth: **NA**

Elevation: \_\_\_\_\_ Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

| Boring Completion | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type | LITHOLOGY / DESCRIPTION   |
|-------------------|--------------------|------------------|-------------------|-----------------------|--------------|----------|----------|-----------|---|
|                   |                    |                  | 0                 |                       | 0            |          |          |           | 4" Asphalt  |
|                   |                    |                  | 0                 |                       | 1            |          |          |           | <b>Poorly Graded Gravel with sand (GP)</b> - reddish brown, 60% fine gravel, 30% fine to coarse sand, 10% clay, moist.                |
|                   |                    |                  | 0                 |                       | 2            |          |          |           | <b>Clayey Gravel with sand (GC)</b> - brown, 50% fine to coarse gravel, 25% fine to coarse sand, 25% clay (in clumps), moist.         |
|                   |                    |                  | 0                 |                       | 3            |          |          |           | <b>Clayey Gravel with sand (GC)</b> - grey, 50% fine to coarse gravel, 25% fine to coarse sand, 25% clay (in clumps), moist. - brown, |
|                   |                    |                  | 0                 |                       | 4            |          |          |           | 50% fine to coarse gravel, 25% fine to coarse sand, 25% clay (in clumps), moist.  |
|                   |                    |                  | 0                 |                       | 5            |          |          |           | <b>Lean CLAY (CL)</b> - grey, 90% clay, 10% fine to coarse sand, soft, medium plasticity, wet.  |
|                   |                    |                  | 0.4               | SB-7d6                | 6            |          |          |           | <b>Clayey Sand (SC)</b> - grey, 60% fine to medium sand, 40% clay, dense, wet.  |
|                   |                    |                  | 0.4               |                       | 7            |          |          |           | <b>Lean CLAY (CL)</b> - grey, 100% clay, soft, medium plasticity, wet.  |
|                   |                    |                  | 2.9               |                       | 8            |          |          |           | <b>Lean CLAY (CL)</b> - dark grey, 95% clay, 5% fine to coarse sand, soft, medium plasticity, wet.                                    |
|                   |                    |                  | 7.6               |                       | 9            |          |          |           | <b>Lean CLAY (CL)</b> - dark grey, 95% clay, 5% fine to coarse sand, stiff, low plasticity, moist.                                    |
|                   |                    |                  | 14.8              | SB-7d11               | 10           |          |          |           | <b>Lean CLAY (CL)</b> - dark grey, 90% clay, 5% fine to coarse sand, 5% organics, stiff, low plasticity, moist.                       |
|                   |                    |                  | 4.9               |                       | 11           |          |          |           | <b>Lean CLAY (CL)</b> - dark grey, 93% clay, 5% fine to coarse sand, 2% organics, stiff, low plasticity, moist.                       |
|                   |                    |                  | 42.2              | SB-7d13               | 12           |          |          |           | <b>Lean CLAY (CL)</b> - greenish grey, 93% clay, 5% fine to coarse sand, 2% organics, very stiff, low plasticity, moist.              |
|                   |                    |                  | 0.9               |                       | 13           |          |          |           |   |
|                   |                    |                  | 0.6               |                       | 14           |          |          |           |   |
|                   |                    |                  |                   |                       | 15           |          |          |           | Total Depth 15 feet below ground surface  |
|                   |                    |                  |                   |                       | 16           |          |          |           |   |
|                   |                    |                  |                   |                       | 17           |          |          |           |   |
|                   |                    |                  |                   |                       | 18           |          |          |           |   |
|                   |                    |                  |                   |                       | 19           |          |          |           |   |
|                   |                    |                  |                   |                       | 20           |          |          |           |   |
|                   |                    |                  |                   |                       | 21           |          |          |           |   |
|                   |                    |                  |                   |                       | 22           |          |          |           |   |

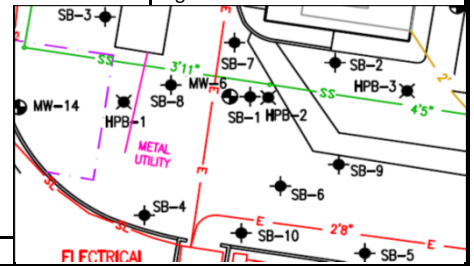
neat cement



Project No: **I42705191**  
 Logged By: **Jonathan Fillingame**  
 Driller: **Cascade Drilling**  
 Drilling Method: Direct Push  
 Sampling Method: Continuous

Client: **COP/ELT**  
 Location: **449 Hegenberger Road, Oakland**  
 Date Drilled: **7/26/2013**  
 Hole Diameter: **2 in**  
 Hole Depth: **15 ft**

Boring No: **SB-8**  
 Page 1 of 1



▽ First Water Depth: **5 ft**  
 ▼ Static Water Depth: **NA**

Elevation: \_\_\_\_\_ Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

| Boring Completion | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type | LITHOLOGY / DESCRIPTION  |
|-------------------|--------------------|------------------|-------------------|-----------------------|--------------|----------|----------|-----------|--|
|                   |                    |                  |                   |                       |              |          |          |           | 4" Asphalt   |
|                   |                    |                  | 0.1               |                       | 1            |          |          |           | Poorly Graded Gravel with sand (GP) - reddish brown, 60% fine gravel, 30% fine to coarse sand, 10% clay, moist.        |
|                   |                    |                  |                   |                       | 2            |          |          |           | Clayey Gravel with sand (GC) - brown, 50% fine to coarse gravel, 25% fine to coarse sand, 25% clay (in clumps), moist. |
|                   |                    |                  | 0.4               |                       | 3            |          |          |           | Well Graded SAND (SW) - grey, 95% fine to coarse sand, 5% clay, loose, moist.  |
|                   |                    |                  | 0.1               |                       | 4            |          |          |           | Clayey Sand (SC) - grey, 80% fine to medium sand, 20% clay, medium dense, moist.                                       |
|                   |                    |                  |                   |                       | 5            |          |          |           | Wet at 5 feet.   |
|                   |                    |                  | 7.2               |                       | 6            |          |          |           | Lean CLAY (CL) - grey, 100% clay, stiff, medium plasticity, moist.   |
|                   |                    |                  | 144               |                       | 7            |          |          |           | Lean CLAY (CL) - dark grey, 100% clay, stiff, medium plasticity, moist.  |
|                   |                    |                  | 1207              | SB-8d8                | 8            |          |          |           | Poorly Graded SAND (SP) - dark grey to black, 100% fine sand, dense, wet, hydrocarbon odor.                            |
|                   |                    |                  | 4.7               |                       | 9            |          |          |           | Lean CLAY (CL) - dark grey, 100% clay, soft, medium plasticity, wet.   |
|                   |                    |                  | 1.1               |                       | 10           |          |          |           | Piece of wood in clay < 1 inch thick at 9.5 feet below grade   |
|                   |                    |                  | 1.1               | SB-8d11               | 11           |          |          |           | Lean CLAY (CL) - dark grey, 100% clay, stiff, medium plasticity, moist.  |
|                   |                    |                  | 0.4               |                       | 12           |          |          |           | Lean CLAY (CL) - grey, 100% clay, very stiff, medium plasticity, moist.  |
|                   |                    |                  | 0.2               |                       | 13           |          |          |           | Lean CLAY (CL) - greenish grey, 100% clay, very stiff, medium plasticity, moist.                                       |
|                   |                    |                  | 0.3               |                       | 14           |          |          |           |  |
|                   |                    |                  | 0.5               |                       | 15           |          |          |           | Total Depth 15 feet below ground surface   |
|                   |                    |                  |                   |                       | 16           |          |          |           |  |
|                   |                    |                  |                   |                       | 17           |          |          |           |  |
|                   |                    |                  |                   |                       | 18           |          |          |           |  |
|                   |                    |                  |                   |                       | 19           |          |          |           |  |
|                   |                    |                  |                   |                       | 20           |          |          |           |  |
|                   |                    |                  |                   |                       | 21           |          |          |           |  |
|                   |                    |                  |                   |                       | 22           |          |          |           |  |

neat cement



Project No: I42705191

Logged By: Jonathan Fillingame

Driller: Cascade Drilling

Drilling Method: Direct Push

Sampling Method: Continuous

Client: COP/ELT

Location: 449 Hegenberger Road, Oakland

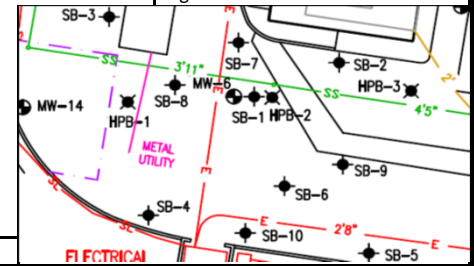
Date Drilled: 7/26/2013

Hole Diameter: 2 in

Hole Depth: 15 ft

Boring No: SB-9

Page 1 of 1



▽ First Water Depth: 4.5 ft

▼ Static Water Depth: NA

Elevation:

Northing:

Easting:

| Boring Completion | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type | LITHOLOGY / DESCRIPTION   |
|-------------------|--------------------|------------------|-------------------|-----------------------|--------------|----------|----------|-----------|---|
|                   |                    |                  |                   |                       | 0            |          |          |           | 4" Asphalt  |
|                   |                    |                  | 0                 |                       | 1            |          |          |           | Poorly Graded Gravel with sand (GP) - reddish brown, 60% fine gravel, 30% fine to coarse sand, 10% clay, moist.         |
|                   |                    |                  | 0                 |                       | 2            |          |          |           |   |
|                   |                    |                  |                   |                       | 3            |          |          |           | Well Graded Gravel with sand (GW) - reddish brown, 60% fine to coarse gravel, 30% fine to coarse sand, 10% clay, moist. |
|                   |                    |                  |                   |                       | 4            |          |          |           |   |
|                   |                    |                  | 0                 |                       | 5            |          |          |           | Lean CLAY (CL) - grey, 95% clay, 5% fine to medium sand, stiff, medium plasticity, wet.                                 |
|                   |                    |                  | 27.0              | SB-9d6                | 6            |          |          |           | Clayey SAND (SC) - grey, 80% fine to coarse sand, 20% clay, dense, wet.   |
|                   |                    |                  | 0.1               |                       | 7            |          |          |           | Lean CLAY (CL) - grey, 100% clay, soft, medium plasticity, wet.   |
|                   |                    |                  | 0                 |                       | 8            |          |          |           | Lean CLAY (CL) - grey, 95% clay, 5% fine to coarse sand, soft, medium plasticity, wet.                                  |
|                   |                    |                  | 0.2               | SB-9d9                | 9            |          |          |           | Lean CLAY (CL) - dark grey, 100% clay, medium stiff, medium plasticity, moist.  |
|                   |                    |                  |                   |                       | 10           |          |          |           | Lean CLAY (CL) - grey, 100% clay, stiff, medium plasticity, moist.  |
|                   |                    |                  | 0.1               |                       | 11           |          |          |           |   |
|                   |                    |                  |                   |                       | 12           |          |          |           | Lean CLAY (CL) - grey, 100% clay, very stiff, medium plasticity, moist.   |
|                   |                    |                  | 0                 |                       | 13           |          |          |           | Lean CLAY (CL) - grey, 100% clay, hard, medium plasticity, moist.   |
|                   |                    |                  |                   |                       | 14           |          |          |           |   |
|                   |                    |                  | 0                 | SB-9d15               | 15           |          |          |           | Total Depth 15 feet below ground surface  |
|                   |                    |                  |                   |                       | 16           |          |          |           |   |
|                   |                    |                  |                   |                       | 17           |          |          |           |   |
|                   |                    |                  |                   |                       | 18           |          |          |           |   |
|                   |                    |                  |                   |                       | 19           |          |          |           |   |
|                   |                    |                  |                   |                       | 20           |          |          |           |   |
|                   |                    |                  |                   |                       | 21           |          |          |           |   |
|                   |                    |                  |                   |                       | 22           |          |          |           |   |

neat cement



Project No: **I42705191**

Logged By: **Jonathan Fillingame**

Driller: **Cascade Drilling**

Drilling Method: Direct Push

Sampling Method: Continuous

Client: **COP/ELT**

Location: **449 Hegenberger Road, Oakland**

Date Drilled: **7/26/2013**

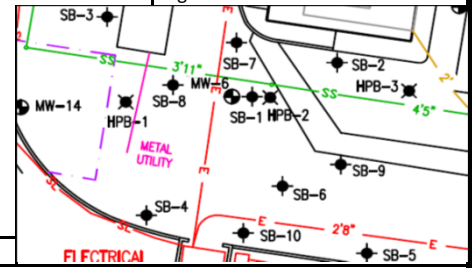
Hole Diameter: **2 in**

Hole Depth: **15 ft**

Boring No: **SB-10**

Page 1 of 1

▽ First Water Depth: **4.75 ft**  
 ▼ Static Water Depth: **NA**



Elevation: \_\_\_\_\_ Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

| Boring Completion | Static Water Level | Moisture Content | PID Reading (ppm) | Sample Identification | Depth (feet) | Recovery | Analyzed | Soil Type | LITHOLOGY / DESCRIPTION  |
|-------------------|--------------------|------------------|-------------------|-----------------------|--------------|----------|----------|-----------|--|
|                   |                    |                  | 0                 |                       | 1            |          |          |           | 4" Asphalt   |
|                   |                    |                  | 0                 |                       | 2            |          |          |           | Poorly Graded Gravel with sand (GP) - grey, 60% fine to coarse gravel, 40% fine to coarse sand, dry.       |
|                   |                    |                  | 0                 |                       | 3            |          |          |           | Poorly Graded SAND (SP) - brown, 100% fine sand, loose, moist.   |
|                   |                    |                  | 0                 |                       | 4            |          |          |           | Lean CLAY (CL) - grey, brown, 90% clay, 10% fine to medium sand, very stiff, low plasticity, wet.          |
|                   |                    |                  | 0                 |                       | 5            |          |          |           | Clayey SAND (SC) - grey, 60% fine to medium sand, 40% clay, medium dense, wet.                             |
|                   |                    |                  | 0                 |                       | 6            |          |          |           | Lean CLAY (CL) - grey, 100% clay, stiff, low plasticity, wet.  |
|                   |                    |                  | 0                 | SB-10d8               | 7            |          |          |           | Poorly Graded SAND (SP) - grey, 95% fine sand, 5% clay, dense, wet.  |
|                   |                    |                  | 0                 |                       | 8            |          |          |           | Sandy Lean CLAY (CL) - grey, 70% clay, 30% fine sand, soft, low plasticity, wet.                           |
|                   |                    |                  | 0                 |                       | 9            |          |          |           | Lean CLAY (CL) - grey, 90% clay, 5% fine sand, 5% organics, stiff, medium plasticity, moist.               |
|                   |                    |                  | 0                 | SB-10d11              | 10           |          |          |           | Lean CLAY (CL) - dark grey, 90% clay, 5% fine sand, 5% organics, stiff, medium plasticity, moist.          |
|                   |                    |                  | 0                 |                       | 11           |          |          |           | Lean CLAY (CL) - greenish grey, 90% clay, 5% fine sand, 5% organics, very stiff, medium plasticity, moist. |
|                   |                    |                  | 0                 |                       | 12           |          |          |           |  |
|                   |                    |                  | 0                 |                       | 13           |          |          |           |  |
|                   |                    |                  | 0                 |                       | 14           |          |          |           |  |
|                   |                    |                  | 0                 |                       | 15           |          |          |           | Total Depth 15 feet below ground surface   |
|                   |                    |                  |                   |                       | 16           |          |          |           |  |
|                   |                    |                  |                   |                       | 17           |          |          |           |  |
|                   |                    |                  |                   |                       | 18           |          |          |           |  |
|                   |                    |                  |                   |                       | 19           |          |          |           |  |
|                   |                    |                  |                   |                       | 20           |          |          |           |  |
|                   |                    |                  |                   |                       | 21           |          |          |           |  |
|                   |                    |                  |                   |                       | 22           |          |          |           |  |

neat cement

*Corrective Action Plan  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California  
Antea Group Project No. I42705191*



## ***Appendix E***

Regenesis Case Studies



## ORC Advanced® Injection Reduces Petroleum Hydrocarbons towards Cleanup Goals

### CASE SUMMARY

#### Former Service Station, Alberta, Canada

Past operations at a former service station resulted in petroleum hydrocarbons including TPHg, TPHd, and benzene, toluene, ethylbenzene, and xylenes (BTEX) contamination in soil and groundwater. During site investigations, leaking underground storage tanks (USTs) were discovered and excavation activities were performed. In 2001, a total of 1,900 m<sup>3</sup> of contaminated soil was excavated and disposed of off-site and the five former USTs removed. Due to a newly constructed building, a small wedge of contaminated soil remained. It was determined that excavating the area would compromise the structure and instead a less disruptive approach was needed to continue site cleanup. Groundwater monitoring was performed in order to complete an assessment of the remaining subsurface contamination. In June 2005, sampling results indicated concentrations as high as 27,000 parts per billion (ppb) BTEX and 33,000 ppb TPHg remained within the contaminated area. To address the hot spot beneath the building in-situ enhanced aerobic bioremediation using ORC Advanced® was applied in November 2005.



Table 1. June 2005 Sampling Results (ppb)

| Contaminant       | TH02-1        | TH02-7        | Cleanup Goal |
|-------------------|---------------|---------------|--------------|
| TPHg              | 33,000        | 20,000        | 2,200        |
| TPHd              | 5,800         | 5,100         | 1,100        |
| Benzene           | 200           | 6,600         | 5            |
| Toluene           | 900           | 300           | 24           |
| Ethylbenzene      | 3,200         | 1,700         | 2.4          |
| Xylenes           | 23,000        | 3,800         | 300          |
| <b>Total BTEX</b> | <b>27,300</b> | <b>12,400</b> | <b>N/A</b>   |

Figure 1. Site Map Indicating Remaining Hot Spot

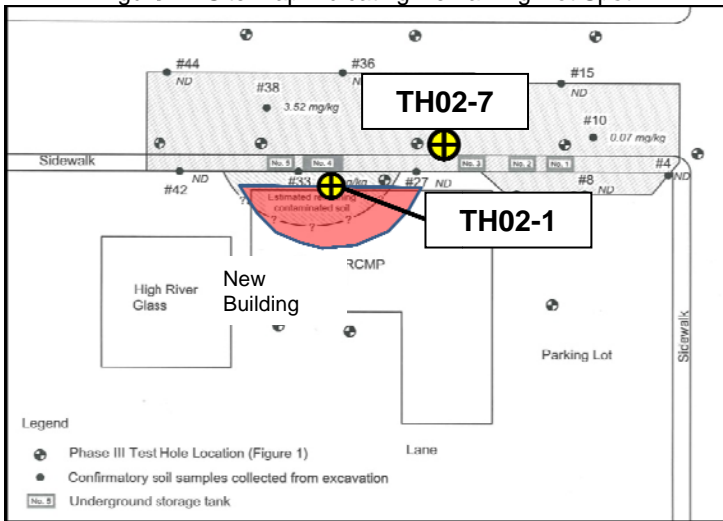


Table 2. Application Details

|                     | TH02-1                | TH02-7     |
|---------------------|-----------------------|------------|
| Treatment Area      | 1,100 ft <sup>2</sup> |            |
| Treatment Thickness | ~6 ft                 |            |
| Injection Spacing   | 10 ft on-center       |            |
| Injection Points    | 32 points             |            |
| Injection Rate      | ~19 lbs/ft            | ~11 lbs/ft |
| ORC Adv. Applied    | 1,100                 | 1,800      |

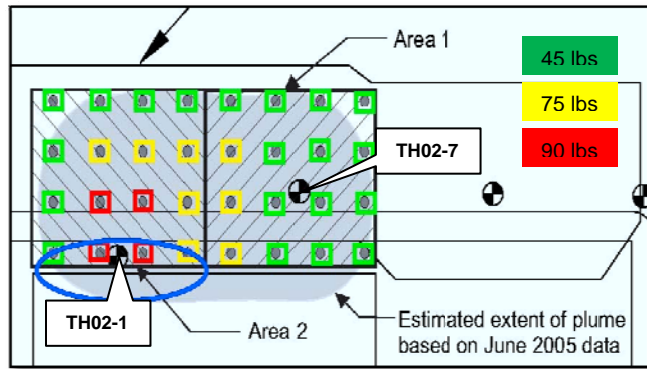
### REMEDIATION APPROACH

The remaining area of concern included wells TH02-1 and TH02-7 (Figure 1). To reduce concentrations to Canadian Drinking Water Quality (CDWQ) Standards as regulated by Alberta Environment, ORC Advanced was applied using similar grid layouts around both wells (Figure 2). A higher injection rate was used to treat TH02-1 to counteract the potential impact of residual soil contamination (Table 2). A total of 2,900 pounds of ORC Advanced was applied to treat the remaining petroleum hydrocarbons.



- **Soil Type:** Silty Sand
- **Groundwater Velocity:** 0.35 ft/day
- **Groundwater Flow Direction:** Southeast
- **Depth to Groundwater:** 9 ft
- **Application Type:** Grid Applications
- **Product:** ORC Advanced®
- **Quantity Applied:** 2,900 lbs

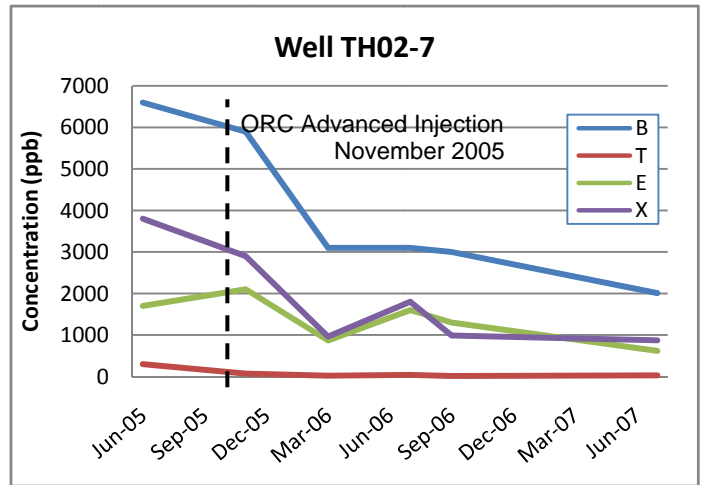
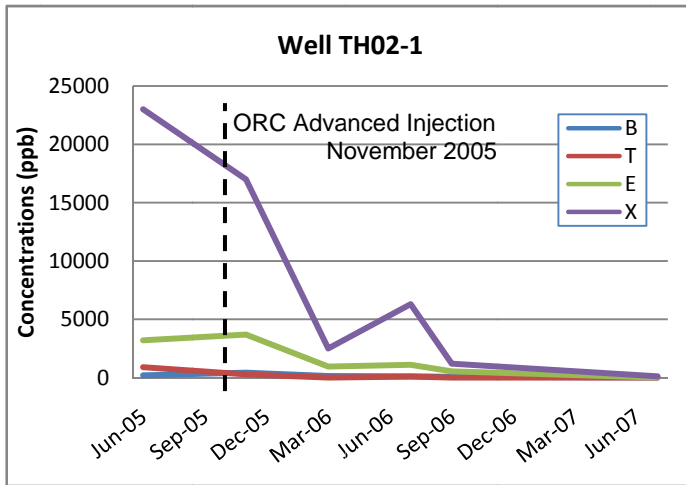
Figure 2. Variable Injection Amounts within Source Area



## RESULTS

In TH02-1, Total BTEX has declined from an initial 21,410 ppb to approximately 140 ppb, a 99% reduction. All contaminants with the exception of benzene have reached the cleanup goals. Benzene remains slightly above the CDWQ Standard at 20 ppb. TPHg and TPHd concentrations reached the cleanup goals within 8 months of the injection.

A more gradual decline was observed in TH02-7 as explained by a less significant dosing rate. Reductions have continued for almost 2 years following the ORC Advanced injection. Total BTEX has declined to approximately 3,500 ppb and TPHg has been reduced by 86%.



## CONCLUSION

The initial soil excavation was successful in removing the majority of contamination on-site. However, excavation activities were limited due to the location of the hot spot residing beneath an on-site structure. The in-situ injection of ORC Advanced to treat the remaining contamination beneath the building allowed for minimal site disturbance and significant cost savings. The application reduced BTEX concentrations towards regulatory compliance and has sustained reductions 20 months post-injection. Monitoring is on-going as concentrations continue to decline.

## CONTACT

Todd Herrington  
 Rocky Mountain District Manager  
 303-399-1622 | [therrington@regenes.com](mailto:therrington@regenes.com)

Consultant contact information available upon request. Please contact the Regenes representative listed above.



# Site Closure via In Situ Aerobic Bioremediation of Petroleum Hydrocarbons in British Columbia, Canada

## Summary

A former fueling facility in Port Coquitlam, BC contained four USTs and accompanying dispensers. The USTs were removed in 1990 after volatile petroleum hydrocarbon (VPH) concentrations were found above regulatory limits. Well BH206 had significant VPH and naphthalene concentrations reaching 13,000 µg/L and 240 µg/L, respectively. In addition, wells BH 303 and BH 205A had concentrations of VPH as high as 5,600 µg/L.

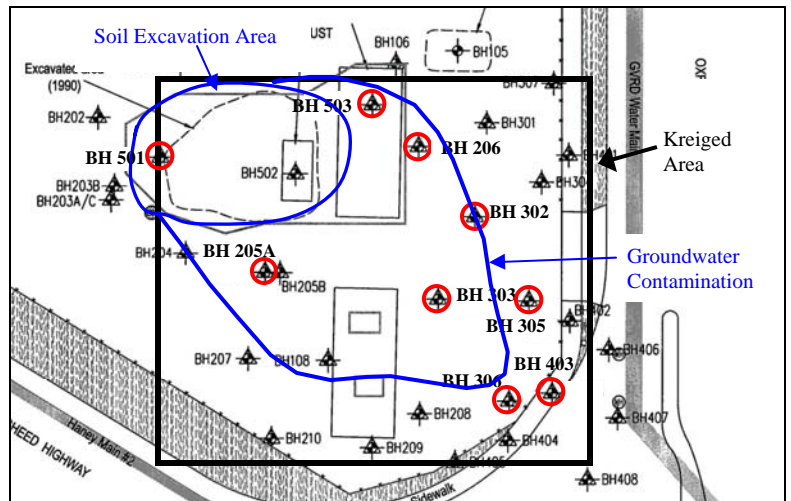


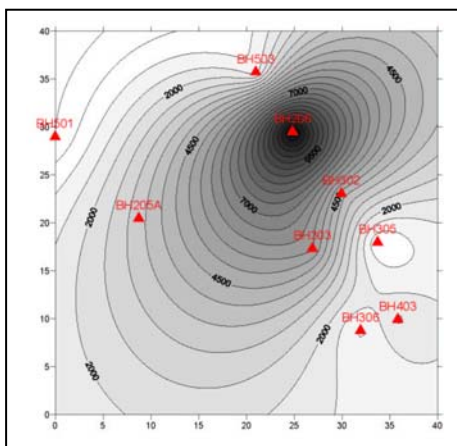
Figure 1. Site map with plume outline and monitoring well locations

| Contaminant | BH206 Concentrations | Cleanup Goal |
|-------------|----------------------|--------------|
| VPH         | 13,000               | 1,500        |
| LEPH        | 2,600                | 500          |
| Naphthalene | 240                  | 10           |

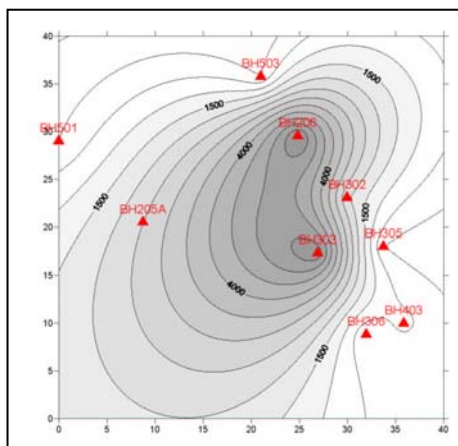
## In-Situ Application Details

- **Remediation Objective:** Reduce concentrations of VPH, LEPH, and Naphthalene to cleanup goals. See Table 1.
- **Application Type:** Grid
- **Soil Type:** Sand
- **Quantity Applied:** ORC<sup>®</sup> – 1,350 lbs  
ORC Advanced<sup>®</sup> – 500 lbs
- **Total Product Cost:** \$23,955 CAN; \$17,957 US

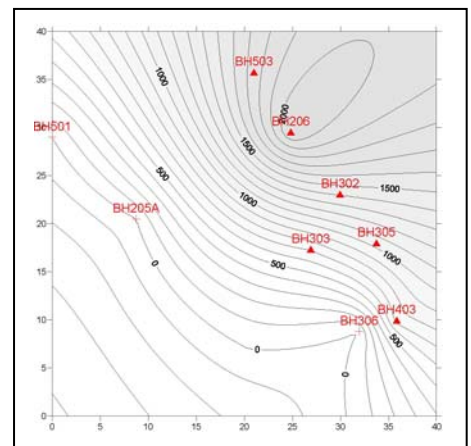
## VPH Time Lapse Shots



VPH Plume Day 0



VPH Plume Day 300



VPH Plume Day 930

## Remediation Approach

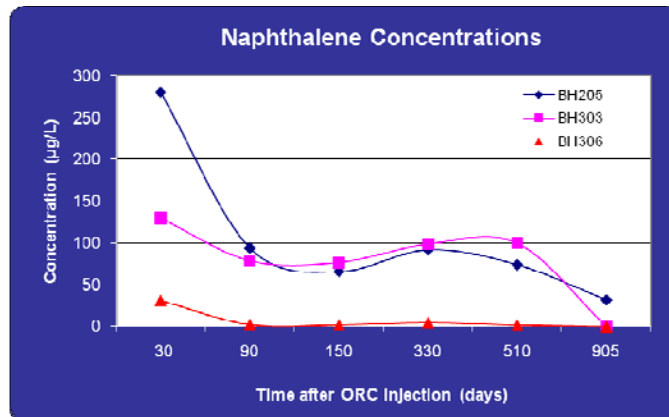
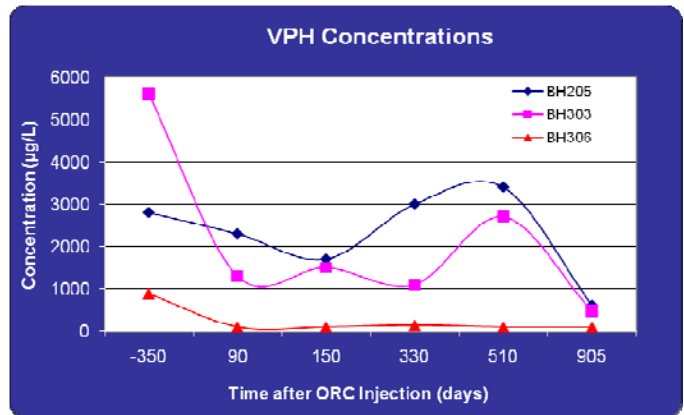
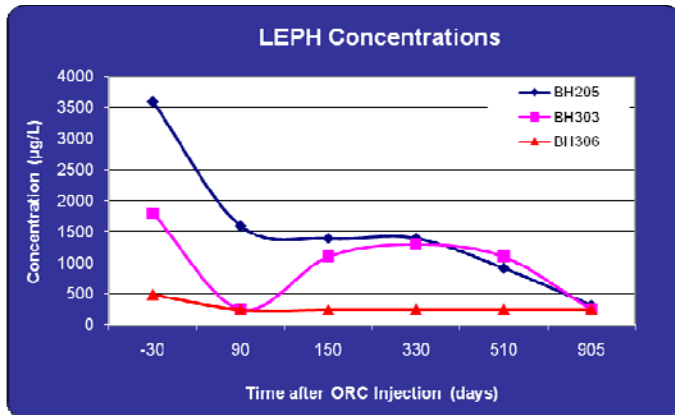
Excavation activities removed approximately 1,300 m<sup>3</sup> of contaminated soil which were later disposed of at a permitted facility. Following the excavation, a groundwater remediation program was implemented using 1,350 lbs of Oxygen Release Compound (ORC<sup>®</sup>). An ORC slurry was added to the backfill and injected into the groundwater plume to further reduce VPH concentrations as well as light extractable petroleum hydrocarbons (LEPH). A second application using 500 lbs of ORC Advanced<sup>®</sup> was applied one year after the ORC application to continue reducing trends of petroleum hydrocarbons.

## Results

| Naphthalene | Baseline | Day 510 |
|-------------|----------|---------|
| BH 108      | 86       | 24      |
| BH 206      | 240      | 120     |
| BH 302      | 140      | 42      |
| BH 303      | 160      | 110     |
| BH 305      | 12       | ND      |
| BH 306      | 35       | 2       |
| BH 403      | 49       | 83      |
| BH 503      | 69       | ND      |

As shown in the VPH time lapse shots on the front, VPH reduction occurred across the plume. Approximately, one year after injection VPH declined from 13,000 µg/L to 4,300 µg/L in well BH206 and well BH303 showed a decrease of 80%. Downgradient of the source area VPH was reduced below cleanup goals. Prior to injection, a total of 7 wells had LEPH concentrations above the standard (500 µg/L). By day 510, four wells reached concentrations below cleanup goals. Reduction of naphthalene was also seen across the contaminated area (Table 2). Most notable are the 3 wells that reached the cleanup standard 510 days after injection.

Within 3 years of the initial application, all contaminants of concern were reduced to below the cleanup goals. Concentrations of VPH and LEPH were reduced by 1 to 2 orders of magnitude and naphthalene declined from a high of 280 µg/L to 7.9 µg/L. The site achieved closure approximately 5 years after commencing remedial treatment.







# REGENESIS Oxygen Release Compound ADVANCED™

## High Benzene Concentrations Reduced Using ORC Advanced – Sheboygan, WI

### SITE SUMMARY

Elevated levels of petroleum hydrocarbons were discovered near the former dispenser island at a former service station in Sheboygan, WI. In hopes of reducing concentrations, soil excavation activities took place in June 2003. A total of 500 tons of hydrocarbon-impacted soils were removed and transported to a landfill for disposal. However, residual contamination continued to affect the groundwater after the excavation. By March 2004, benzene and ethylbenzene had risen to 2,500 ug/L and 1,300 ug/L, respectively. In situ bioremediation using ORC Advanced was chosen to reduce BTEX, naphthalene, and trimethylbenzenes. In the northwest corner of the site, the location of the former UST basin, a total of 480 pounds of ORC Advanced was injected. In the southeast corner, the area of highest contamination, a total of 2,370 pounds of ORC Advanced was injected.

### REMEDIATION APPROACH

- **Remediation Objective:** Reduce concentrations of Benzene to cleanup goals at the entire site. See Table 1.
- **Application Type:** Grid
- **Product:** ORC Advanced
- **Quantity Applied:** 2,850 lbs
- **Application Rate:** NW Corner-4 lbs/ft; SE Corner-11.9 lbs/ft
- **Injection Spacing:** 10 ft
- **Product Cost:** \$24,225

**Table 1. Cleanup Goals**

| Contaminant  | Concentration |
|--------------|---------------|
| Benzene      | 5 ug/L        |
| Toluene      | 1,000 ug/L    |
| Ethylbenzene | 700 ug/L      |
| Xylenes      | 10,000 ug/L   |

### SITE CHARACTERISTICS

#### General

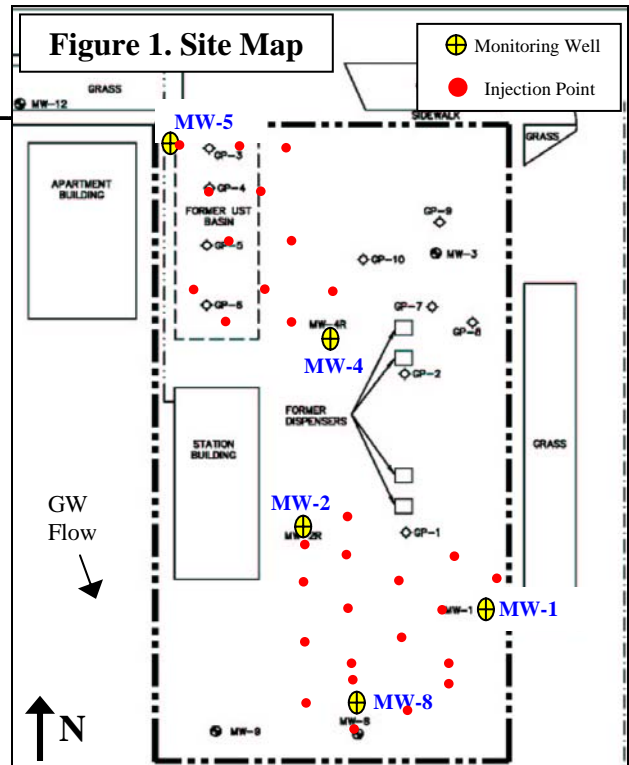
- **Name:** Former Marathon Unit #3697
- **Location:** Sheboygan, WI
- **Industry:** Service Station
- **Contaminants of Concern:**

**Table 2. Well MW-8 Concentrations**

| Contaminant  | Concentration |
|--------------|---------------|
| Benzene      | 1,700 ug/L    |
| Toluene      | 530 ug/L      |
| Ethylbenzene | 1,300 ug/L    |
| Xylenes      | 3,190 ug/L    |

#### Hydrogeology

- **Treatment Area:** NW Corner 1,200 ft<sup>2</sup>  
SE Corner 1,800 ft<sup>2</sup>
- **Soil Type:** Silty sand lenses in clay matrix
- **Groundwater Flow Direction:** Southeast
- **Depth to Groundwater:** 12-15 ft



## RESULTS

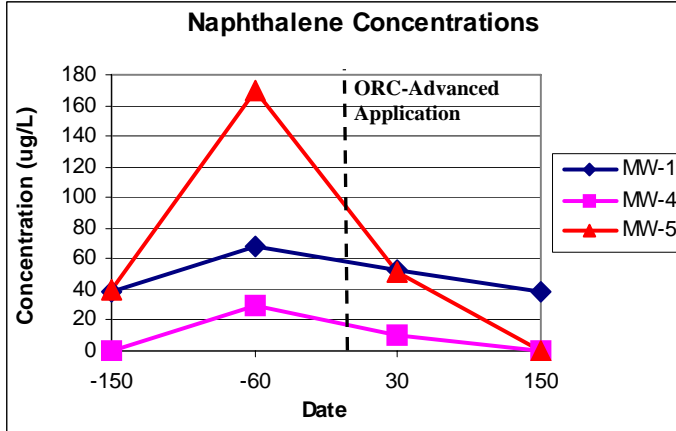
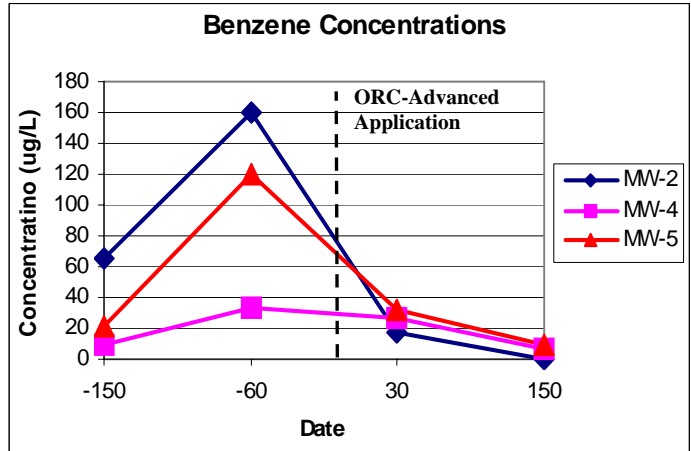
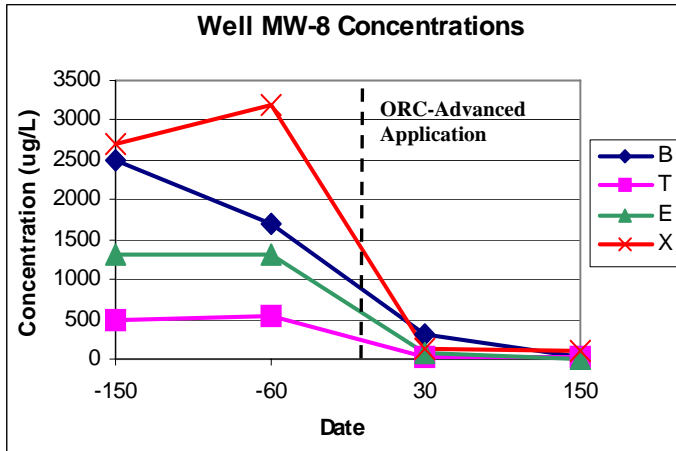
### Percent Contaminant Reduction

| Contaminant  | Percent Reduction |
|--------------|-------------------|
| Benzene      | 98%               |
| Toluene      | 96%               |
| Ethylbenzene | 99%               |
| Xylenes      | 96%               |

### Post Treatment Concentrations

| Contaminant  | Concentration |
|--------------|---------------|
| Benzene      | 30 ug/L       |
| Toluene      | 18 ug/L       |
| Ethylbenzene | 5.8 ug/L      |
| Xylenes      | 115 ug/L      |

### Concentrations vs. Time



Note: The significant decrease seen from day -60 is indicative of the gap between data points as concentrations most likely stayed their course, increasing, until ORC Advanced was injected and a new data point collected at day 30.

## CONCLUSION

Groundwater sampling results after excavation activities show an increasing trend of contamination. On average, concentrations continued to increase up until the ORC Advanced application due to residual contamination. Concentrations peaked before ORC Advanced injection followed by a significant reduction across the plume. In well MW-5, benzene spiked to 160 ug/L while naphthalene rose to 170 ug/L and in well MW-4 BTEX, naphthalene and trimethylbenzenes all increased. Significant decreases of all contaminants were seen shortly after ORC Advanced injection. In well MW-8 total BTEX was reduced from 6,720 ug/L to 168.8 ug/L, a 97% reduction. Naphthalene concentrations were above the MCL of 20 ug/L in wells MW-1, MW-4, MW-5. ORC Advanced reduced concentrations to non-detect in wells MW-4 and MW-5, leaving 38 ug/L in well MW-1. Monitoring is on-going as concentrations continue to decrease towards MCLs.

## CONTACTS

**Consultant:** Steve Sittler  
Handex of Indiana

**Regenesis:** Scott Mullin  
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630-753-0836  
smullin@regenesis.com

*Corrective Action Plan  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California  
Antea Group Project No. I42705191*



## ***Appendix F***

Unocal Correspondence



9499

**Dewitt, David B.**

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**From:** Stout, Scott  
**To:** Dewitt, David B.  
**Subject:** 5043  
**Date:** Tuesday, August 27, 1996 2:34PM

Dave,

Attached is a memo describing the MW-6 free product from SS5043. (Only Table 1 and the fingerprint are missing). The final memo should come your way in a few days.

<<File Attachment: MEMO1.DOC>>

I hope that this helps. This was a very complicated sample because of the mixed nature of it. We can definitively say, however, that the product does not contain any significant amount (and probably no) recently-refined SFR gasoline. This should answer the immediate objective of whether or not there's a problem with the USTs or piping system.

I am still a bit puzzled by the sample given the fact that product has not reappeared in the well. You may be on to something with the tampering theory, however, they'd of had to have poured a significant amount of leaded gasoline down there. Puzzling???

I would recommend keeping a close eye on things out there. If more product shows up there could be a problem. Let me know if this work results in any cost savings, e.g., no need to test the TLS350 system.

I am in Portland the rest of the week and in Rhode Island next week. I'll be checking my voice mail though if you have any questions.

Cheers,  
Scott

**Dewitt, David B.**

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**To:** Todd, Barbara F.  
**Cc:** Bock, Ronald E. -CERT; LaBeaux, Sandy X.; Cerovac, Scott  
**Subject:** Free product identification from SS #5043, Oakland

I have reviewed the memo from Dr. Scott Stoudt of FTS/ERS on his investigation of the free product recovered from monitor well MW-6 at this site. I have discussed the results with Dr. Scott and the following conclusions can be made:

1. The characteristics of the recovered fuel indicate that the fuel is not a recently refined Unocal gasoline (i.e., RFG). I also interpret this to indicate the TLS 350 did not "miss" a leak and the system is functional.
2. Based upon the compilation of a number of different points of evidence, there is apparently more than one source of gasoline and the characteristics of those gasolines are not from Unocal.
3. There is some evidence that some "old" gasoline is present and may be Unocal fuel; however, this ~~is~~ fuel was know to be there prior to the Reformat of the site.
4. Based upon the volume of recovered fuel from the well (slightly more than two gallons), the lack of recharge to the well and the relatively "fresh" nature of the fuel, I am convinced that most of this fuel is the result of vandalism of the well (i.e., dumping fuel in the well). This is not unheard of in our business.

Copies of Dr. Stoudt's memo are available if you need it.

August 23, 1996

4 gallons of SFR

To: Dave DeWitt

From: Scott A. Stout, Ph.D., R.G.

## CHARACTERIZATION OF FREE PRODUCT FROM UNOCAL SS#5043, OAKLAND, CA

### INTRODUCTION

At your request, the free product collected July 31, 1996 from a monitoring well (MW-6) at the Unocal service station (SS#5043) located in Oakland, California has been characterized. The sample was analyzed at Global Geochemistry Corp. (Canoga Park, CA) using; (1) high resolution gas chromatography (HRGC)<sup>1</sup>, (2) lead alkyls content and distribution and ethylene dibromide/ethylene dichloride analysis<sup>2</sup>, (3) oxygenate analysis using a GC via ASTM Method D4815, and (4) BTEX via EPA Method 8020. A split of the sample was also sent to Inchape Testing Services for determination of the sulfur content via ASTM D5453.

Approximately 3 feet of free product had accumulated in MW-6 at this site where there had been no previous product. Suspicions of a leaking UST system, in spite of new USTs and the station's use of a state-of-the-art TLS350 leak detection system, prompted immediate concern. The well was bailed free of product and a sample collected on July 31, 1996. No free product has returned to the well over the past three weeks. The lack of recurrence has now raised some suspicion that well tampering may have occurred.

The objective of the investigation was to describe the nature of the free product and to provide a basis for concluding whether or not it represented a recently released Unocal product(s).

### RESULTS and DISCUSSION

#### Nature of the Free Product

The HRGC fingerprint for the free product is shown in Fig. 1. The free product is shown to contain hydrocarbons (HC) ranging from C4 to C14, i.e., its comprised almost exclusively of gasoline range organics (GRO; C3-C10). Most compounds within this range are identified and their relative weight% are listed in Table 1. For comparison, Table 1 also contains data relating to three 1993

<sup>1</sup>HRGC analyses were performed on an HP 6890 GC containing a 0.25 mm x 100 m capillary column coated with 0.25 micron thick SPB-1 stationary phase and equipped with a FID detector (det. temp. 320 °C). The oven program used was from 35°C (5 min) at 3°C /min to 140°C (0 min) and then 8°C /min up to 315 °C (40 min). The pressure program use was from 28.4 psig (0 min) then 0.5 psi/min to 78 psig. A 1 ml autosampler injection (inj. temp. 320 °C) with a split of 400:1 and air flow of 300 ml/min was used. Compound identifications are based on retention time comparisons to known standards and were regulated by the presence of three internal calibration standards.

<sup>2</sup>EDB, EDC and the five Pb alkyls (TML, TMEL, DMEL, MTEL, and TEL) are determined by direct injection GC-ECD (electron capture detector) using a 0.25 mm x 60 m DB-5 stationary phase (0.25 micron thick coating) capillary column. The oven program used was from 90°C to 186°C at 8°C/min. A 5 ppm (ug/ml) detection limit is achieved.

Unocal gasolines refined at our San Francisco Refinery (SFR). Unfortunately, data relating to more recently-refined normal or the even newer reformulated gasolines (RFG) from SFR have not been analyzed by this method.

The identified compounds within the GRO are dominated by iso-paraffins (39.3 %wt) and aromatic HC (38.4 %wt; Table 1). The relatively high percentage of both of these octane-boosting compound classes indicates that the GRO are undoubtedly derived from a blended gasoline.

The iso-alkanes include over 10% of iso-pentane (2-methylbutane) and significant amounts of 2- and 3-methylpentane (Table 1). In total, the C5-C6 iso-paraffins account for 23.3 wt% of sample. This abundance of C5-C6 iso-paraffins indicates that the parent gasoline(s) was probably refined using a C5-C6 isomerization unit. SFR has had an isomerization unit since mid to late 1987. Therefore, this criteria cannot be used to dismiss the possibility of an SFR gasoline's presence.

There is also 0.61 wt% iso-octane (aka 2,2,4-trimethylpentane; Table 1) which suggests that the parent(s) also included an alkylate blend produced from an alkylation unit. This amount of iso-octane far exceeds the trace amounts expected in the 1993 SFR gasolines (0.1-0.3 wt%; Table 1). This would argue for the presence of a non-SFR gasoline component. However, SFR has been blending alkylate from LAR into the premium unleaded gasoline since Oct. 1995. Therefore, on this basis alone it cannot be determined that there is no SFR gasoline present.

The aromatic HC include the BTEX compounds (only minor B) and numerous C3-alkylbenzenes (e.g., 1,3,5- and 1,2,4-trimethylbenzenes). These are common components of most gasolines and generally appear in distributions similar to those observed in the MW-6 sample. The slightly reduced concentration of benzene is probably the result of weathering via water-washing (see below). Additional considerations regarding the BTEX compounds are discussed below. The presence of BTEX and C3-alkylbenzenes in this distribution is indicative of a reformat blended into the gasolines. Reformers are commonly in most refineries, therefore, this is not useful in a forensic sense. (In fact, SFR employs two reformers).

The presence of a small amount of olefins (1.40 wt%; Table 1) indicates that the parent gasoline(s) was probably refined using a catalytic or thermal cracking process (and not hydrocracking). SFR gasolines have historically not contained more than 0.5 wt% olefins (Table 1) because of the use of a Unicracker since the early 1970's. However, since Oct. 1995 SFR has received a light CAT blending stock from LAR which has resulted in up to 5.0 wt% olefins in our unleaded gasolines. Therefore, on this basis alone it cannot be determined that there is no SFR gasoline present.

In summary, the molecular characteristics of the sample indicate that the parent gasoline's (or at least one component in a mixture of gasolines) blend included; (1) isomerate from a C5-C6 isomerization unit, (2) an alkylate from an alkylation unit, and (3) a catalytical blend from an FCC or thermal cracker. Given the refining history described in the preceding paragraphs it is not possible to determine that there is no SFR-refined (or blended) gasoline present in the sample. All that can be said is that if the parent gasoline is entirely a Unocal SFR product then it must be no older than October 1995.

### Aromatic Hydrocarbon Results

The results of the EPA Method 8020 analysis are given in Table 2. The separate BTEX analysis (EPA 8020) indicated that the free product contained 6280 ug/ml of benzene which corresponds

**Table 2: BTEX results for the MW-6 free product studied.**

| $\mu\text{g/ml}$ | Benzene | Toluene | Ethyl benzene | Xylenes | Total  |
|------------------|---------|---------|---------------|---------|--------|
| MW-6             | 6290    | 49600   | 14500         | 73800   | 144190 |
| MW-6 dupl.       | 6270    | 50000   | 15500         | 74200   | 145970 |
| Average          | 6280    | 49800   | 15000         | 74000   | 145080 |
| detection limit  | 5       | 5       | 5             | 5       |        |

to 0.71 %vol benzene. Benzene content of reformulated gasoline (RFG) have been limited to <1.0 %vol since March 1995. Prior to this time there were no limits on the benzene content of gasolines sold in California (which typically ran 2-3 %vol). On this basis it cannot be determined for sure whether or not the free product is a pre- or post-RFG gasoline. The reason for this uncertainty is the potential for benzene to have been removed from the free product due to preferential weathering. (Of course, if the benzene content of the free product had been > 1 %vol then it could be safely concluded that a pre-RFG gasoline was present).

The ratio of B/T (0.13) is relatively low for most brands of fresh gasolines. However, SFR's high octane gasoline have typically been enriched in toluene due to the use of a significant reformatte blending component to maintain octane. Therefore, the low B/T ratio in the free product could be indicating that (1) some benzene has been preferentially removed via water-washing or (2) the gasoline was refined with excess toluene (as was the case in pre-RFG SFR gasolines). Other BTEX-based ratios indicate other similarities with pre-RFG SFR gasolines. For example the T/BTEX (0.34) and T/X (0.67) ratios are consistent with previously studied 1993 (pre-RFG) SFR gasolines (Table 1). Therefore, **on the basis of the BTEX results there is no argument to be made against the free product being a pre-March 1995 SFR gasoline.**

### Oxygenate Analysis

Results of the ASTM D4815 analysis are given in Table 3. The sample was shown to contain no oxygenated compounds (alcohols and ethers) other than TAME (2-methyl-2-methoxybutane).

**Table 3: Results of the Oxygenate Analysis on MW-6 Free Product.**

| $\mu\text{g/ml}$ (ppm) | Methanol | Ethanol | tert-Butanol | MTBE | ETBE | TAME |
|------------------------|----------|---------|--------------|------|------|------|
| MW-6                   | nd       | nd      | nd           | nd   | nd   | 915  |
| MW-6 duplicate         | nd       | nd      | nd           | nd   | nd   | 905  |
| detection limit        | 200      | 200     | 200          | 200  | 200  | 200  |

MTBE - methyl tert-butyl ether

ETBE - ethyl tert-butyl ether

TAME - tert-amyl methyl ether; this result was double-checked by co-injection of a TAME standa

On average the sample contained 910.5 µg/ml of TAME.<sup>3</sup> This corresponds to about 0.12 wt% TAME, or only 0.019 wt% oxygen. RFG refined in California since March 1995 have been required to contain between 1.8 and 2.2 wt% oxygen. Therefore, this free product contains only about 1% of the required amount of oxygen for new reformulated gasolines. TAME is far less soluble in groundwater than MTBE (6000 vs. 43,000 mg/L @20°C) and therefore its concentration in the sample is not expected to have been significantly reduced due to water-washing. This suggests that the TAME-containing gasoline component present in the sample is probably only a fraction (1% ?) of the total free product.

TAME has never been intentionally added to gasolines refined at SFR; only perhaps as a contaminant in an MTBE blend. However, since MTBE is absent from this sample it is safe to assume that the TAME-containing component of the free product was not an SFR gasoline. Unfortunately, the small amount of TAME argues that this non-Unocal component is only a minor component of the free product. Because TAME has a lower blending ((R+M)/2) octane number (105 vs. 110) and a lower mass% oxygen (15.7% vs. 18.2%), it is far less commonly used than MTBE. This characteristic may help to identify a Bay Area source(s) of the TAME-containing component in the free product. Unfortunately, the available oxygenate unit construction records (Oil and Gas Journal's annual update) indicate that there are no West Coast refiners that are producing TAME.

#### *Sulfur Analysis*

Prior to RFG limits implemented in March 1995, the sulfur content of gasolines sold in California was limited to <300 ppm. Since March 1995 the maximum allowable S content was reduced to 40 ppm. It was determined that the MW-6 free product sample contained 108 ppm sulfur. The high S content argues that the free product must (at least) contain a pre-March 1995 gasoline.

Gasolines refined at SFR had historically contained very low S (<1 ppm) due to use of the fixed-bed hydrotreater (which tends to remove sulfur as H<sub>2</sub>S and thereby protect the catalysts used in the Unicracker, two reformers and isomerization units). Since early 1995, the S content of SFR gasolines was increased to between 10-30 ppm S (average ~12.5 ppm) when a light CAT blending component was initially imported from LAR. (This light CAT contains higher S due to LAR's use of an FCC unit in which sulfur is not removed as effectively due to its fluid-bed nature). **The historically low values of S in SFR gasolines argues that the pre-March 1995 gasoline component in the free product (with its 108 ppm) is not an SFR gasoline.** Of course, the presence of a low sulfur SFR gasoline component cannot be dismissed since the possibility of mixing exist.

#### Lead Alkyl Results

The results of the lead alkyl analysis is given in Table 4. This table shows that the MW-6 free product contained all five Pb alkyls in an abundance totaling 0.679 grams Pb per gallon (glpg).

**Table 4: Results of the lead alkyl analysis of MW-6 free product.**

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<sup>3</sup>TAME is one of several oxygenates available to be added to gasolines (at volumes up to 20%) to boost octane while minimizing ozone-harmful emissions. It is produced from a C5 olefin stream reacted with ethanol (MTBE is produced from a C4 olefin stream reacted with ethanol). TAME's advantage is its lower vapor pressure (compared to MTBE) which allows more butane to be added and still maintain vapor pressure requirements.



|              | wt. %    | MW-6 (average) |            |              | % Standard Reacted Mixes |      |      | Other Mixes |          | Theoretical Mix: |
|--------------|----------|----------------|------------|--------------|--------------------------|------|------|-------------|----------|------------------|
|              |          | lead           | µg/mL      | %            | glpg                     | RM25 | RM50 | RM75        | TEL only | PM80             |
| TEL          | 0.640582 | 101.5          | 40.0       | 0.25         | 28.8                     | 4.8  | 0.1  | 100         | 20       | 39.4             |
| MTEL         | 0.669629 | 24.0           | 9.4        | 0.06         | 49.5                     | 25.6 | 3.6  | 0           | 0        | 7.5              |
| DEDML        | 0.701435 | 8.0            | 3.1        | 0.02         | 18.6                     | 42.4 | 20.5 | 0           | 0        | 6.1              |
| TMEL         | 0.736388 | 10.5           | 4.1        | 0.03         | 3.0                      | 23.4 | 49.6 | 0           | 0        | 2.6              |
| TML          | 0.775035 | 110.0          | 43.3       | 0.32         | 0.1                      | 3.8  | 26.2 | 0           | 80       | 44.4             |
| <b>TOTAL</b> |          | <b>254</b>     | <b>100</b> | <b>0.679</b> |                          |      |      |             |          |                  |

This concentration of Pb is typical of leaded gasolines refined in the early to mid-1980's when the EPA mandated Pb maximum was reduced from 1.1 to 0.5 glpg. Since there is only a small amount of oxygenates (TAME) present, there is no reason to call upon a significant unleaded gasoline component to be present in this sample. Therefore, there is no reason to believe that there is a mixture of a leaded gasoline with an unleaded gasoline, resulting in the reported glpg value. **This supports an early-to-mid 1980's age for the free product's parent gasoline.**

Corporate records indicate that SFR had used specific Pb alkyl packages through time. Between 1975 and 1985 SFR used a reacted mix, RM50, in both the regular and premium leaded gasolines. As can be seen in Table 4, the mixture of lead alkyls in an RM50 lead package is very different from that found in the MW-6 free product. **This makes it highly unlikely that the free product was derived from a leaded gasoline refined at SFR in the early 1980's.**

In fact the Pb alkyl distribution in the free product does not resemble any single Pb package available for gasoline blending. Therefore, **a mixture of leaded gasolines each containing different lead packages must be present.** One can ask whether or not it is possible to derive the observed mixture in the free product from any of the lead packages used over time at SFR.<sup>4</sup> In theory, it would require a minimum of a 4-component blend to achieve a Pb alkyl distribution comparable to that observed in the free product. This is reflected in the theoretical mixture listed in Table 4. Such a mixture, if composed only of SFR gasolines, would require mixing of leaded gasolines over the minimum time period of 1975 to 1985. While this may be possible it appears to me as being extremely remote.

#### Degree of Weathering

The free product contains an abundance of light (<C5) components. This indicates that the original release had probably occurred below ground thereby minimizing evaporative losses. The gasoline component does exhibit some indications of weathering due to water-washing. This is reflected in the low proportion of toluene relative to xylenes. Toluene is typically present in near equal abundance to xylenes in fresh regular gasolines (T/X~0.6-1.0). (In premium gasolines the T/X ratio can be as high as 4.8). However, because toluene is more water soluble than the xylenes, it is preferentially removed upon exposure to groundwater. This free product appears to have lost toluene due to water-washing (T/X ~ 0.4; Table 1). Benzene is even more soluble and the presence of a small amount of benzene (0.07 %vol of GRO; Table 1) indicates that water-washing is not complete. **In my experience, I would consider this gasoline to be moderately water-washed.**

<sup>4</sup>The other lead packages that have been used at various times at SFR include a physical mix of 80% TML and 20% TEL (1963-1975 premium gasolines), TEL-only (1963-1975 regular gasolines), and RM25 (1985-1986 premium gasoline; no regular leaded gasoline was produced at this time). After 1986 there was no leaded gasoline produced at SFR.

The process of biodegradation typically accompanies water-washing. The most susceptible compounds to biodegradation are the n-alkanes and olefins. This sample contains only slightly reduced quantities of both of these compound classes as compared to fresh gasolines. This indicates that **the gasoline component of this free product is only slightly biodegraded.**

Given the limited data and the necessarily relative nature of the weathering 'data', it would be imprudent to try and assign an absolute age to the free product. Given my experience, however, I would hesitate to call the gasoline component fresh due to the slight to moderate weathering observed. I cannot be as definitive for the diesel fuel component since its nature is rather typical.

#### Origin of the Gasoline and Diesel Components

The prominence of 2,2,4-trimethylpentane or iso-octane (??? %vol of GRO) strongly suggests that an alkylate blending stock was among the blending components used in the parent gasoline. Unocal's San Francisco refinery (SFR) does not have an alkylation unit and therefore, our gasolines are typically reduced in isoparaffins (particularly, isopentane). However, beginning in October 1995 alkylate was piped to SFR from Unocal's Los Angeles refinery for blending with SFR gasolines. Therefore, the presence of iso-octane (and other isoparaffins) in this sample could indicate the presence of either (1) a non-Unocal gasoline or (2) a post-Oct. 1995 Unocal gasoline.

The presence of 1.65 %vol olefins in the gasoline range is more informative since SFR gasolines are typically reduced in olefins (< 0.5 %vol). This characteristic arises from the fact that we employ a hydrocracking unit (rather than an catalytic cracking unit). Hydrocracking produces an isomaxate gasoline blending component with little or no olefins. The presence of 1.65 %vol olefins argues strongly that **the gasoline component of this free product is not a Unocal refined gasoline.**

The nature of the diesel fuel is less descriptive as to its origin. The pristane/phytane (Pr/Ph) ratio of the diesel fuel (1.84; Table 1) should reflect that of its parent crude oil. SFR runs primarily Cook Inlet crudes for diesel fuel #2 production. Undegraded Cook Inlet crudes have Pr/Ph ratios between in the range 2.0 to 3.5 (B. Bromley, personal communication, 1994). The slightly lower Pr/Ph ratio of the free product's diesel fuel component suggests that the parent crude oil was probably not from the Cook Inlet. This conclusion is further substantiated by the high Pr/nC17, given the Ph/nC18 ratio.<sup>5</sup>

## **CONCLUSIONS**

The free product which accumulated in MW-6 at Unocal service station #5043 was analyzed by a variety of techniques. The primary objective of the study was to determine whether or not the sample consisted a recently-refined Unocal gasoline. The answer to this question is no; the free product is not a recently released gasoline refined at Unocal's San Francisco refinery. The basis for this conclusion is:

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<sup>5</sup>The basis for this statement is that Cook Inlet crude oils tend to fall along a single trend when the Ph/nC18 and Pr/nC17 ratios are cross-plotted. This trend line represents different degrees of biodegradation that had occurred in the original oil field reservoir. These ratios for the free product sample fall well off of the Cook Inlet trend indicating that the parent crude oil for this diesel fuel was probably not a Cook Inlet crude oil.

- (1) the free product contains a significant amount of lead and SFR has not produced leaded gasolines since 1986,
- (2) the free product contains sulfur well above the reformulated gasoline (RFG) maximum which SFR began producing in March 1995, and
- (3) the free product doesn't contain MTBE as would be expected in recently-refined SFR gasolines.

These results clearly indicate that the free product is not a recently refined SFR gasoline. However, the MW-6 free product exhibits a diverse set of characteristics which, in my opinion, argues that it represents a mixture of gasolines. Thus the question shifts as to whether or not the MW-6 free product contains a recently-refined SFR gasoline as one of its components.

The presence of lead indicates that at least one of the components in the mixture must be a leaded gasoline. The peculiar lead alkyl distribution (Table 2) actually argues for a mixture of leaded gasolines being present. Therefore, while the lead content (0.679 g/lpg) argues for an early-to-mid 1980's age, the fact that the free product is a mixture means that all that can be said for sure is that there must be a leaded gasoline component that is from 1985 or earlier present. Based on the lead alkyl packages used at SFR in the 1970's and 80's, it would have been possible, though highly unlikely, to obtain mixture consistent with the MW-6 free product. This argues for the presence of someone else's leaded gasolines being present.

The presence of a small amount of TAME argues that there may be a more recent unleaded component also present in the mixture. Based on the low concentration of TAME (and absence of other oxygenates) this would seem to be a very small component (1% ?) in the mixture. Furthermore since SFR has never used TAME, it certainly could not be an SFR unleaded gasoline.

Based on the molecular characteristics at least one of the components included blends from; (1) a C5-C6 isomerization unit, (2) an alkylation unit, and (3) an FCC or thermal cracker. All three of these blending stocks have been available at SFR since Oct. 1995 (when the latter two stocks were first piped up from LAR). Since a mixture is known to exist, the refining characteristics alone do not argue against the potential for an SFR gasoline being among the components.

The high sulfur content (108 ppm) argued for a pre-March 1995 gasoline (see above). However, the historically low values of S in SFR gasolines argues that the pre-March 1995 gasoline component in the free product (with its 108 ppm) is not an SFR gasoline.

The gasoline mixture appears to be only moderately water-washed and slightly biodegraded. This alone would argue for it being a relatively 'fresh' gasoline, however, there is too much evidence that a significant portion of the product is historic (pre-1985). This discrepancy may be explained by the occurrence of a large pool in which the gasoline has not biodegraded over time. This seems highly unlikely given the non-recurrence of free product in the weeks following well purging.

Obviously, a definitive answer to the origin of the MW-6 product is elusive. It can be confidently stated that the product is not exclusively a recently-refined SFR gasoline. The origin remains unclear but is certainly worthy of considering the possibility of off-site (3rd party) sources and closely watching any additional appearances of free product in the area.

If you have any questions concerning these conclusions please call me (at 714-577-1296 or at network 268-1296).

FIGURE 1: HRGC FINGERPRINT OF MW-6  
FREE PRODUCT FROM SS# 5043 (Collected  
July 31, 1996).