ARCADIS
Infrastructure, environment, buildings

ARCADIS U.S., Inc.
100 Montgomery Street, Suite 300
San Francisco, CA 94104
Tel 415.374.2744
Fax 415.374.2745
www.arcadis-us.com

Revised Feasibility Study and Corrective Action Plan
Former BP Service Station No. 11109
4280 Foothill Blvd,
Oakland, California
ACEH Case No. RO0000426

ENVIRONMENT

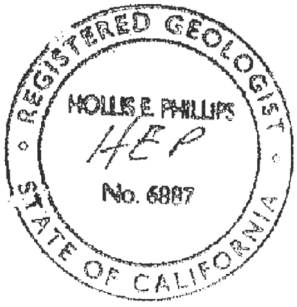
"I declare that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct."

Date:
October 11, 2010

Submitted by:

ARCADIS U.S., Inc

Hollis E. Phillips, PG
Project Manager



Contact:
Hollis E. Phillips

Phone:
415.374.2744 ext 13

Email:
Hollis.phillips@arcadis-us.com

Our ref:
GP09BPNA.C106

Imagine the result

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Revised Feasibility Study and Corrective Action Plan

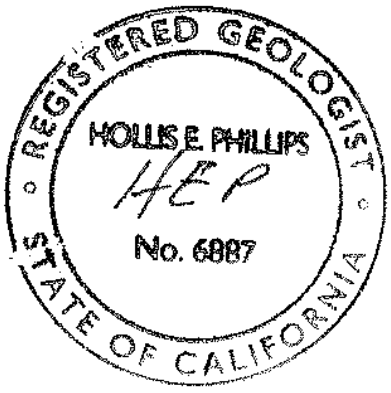
Former BP Service Station No. 11109
4280 Foothill Blvd,
Oakland, California
ACEH Case No. RO0000426

October 8, 2010

ARCADIS

Ben McKenna
Geologist

Hollis Phillips, PG
Project Manager



Feasibility Study and Corrective Action Plan

Former BP Service Station No. 11109
4280 Foothill Blvd,
Oakland, California

Prepared by:
ARCADIS
2033 North Main Street
Suite 340
Walnut Creek
California 94596
Tel 925.274.1100
Fax 925.274.1103

Our Ref.:
GP09BPNA.C106

Date:
October 8, 2010

Tables

Figures

Appendices

Introduction

ARCADIS-U.S. Inc. (ARCADIS) has prepared this Feasibility Study and Corrective Action Plan (FS/CAP) for Former BP Service Station No. 11109, located at 4820 Foothill Boulevard in Oakland, California (Site). This report was prepared in response the August 13, 2009 directive letter from Alameda County Environmental Health (ACEH) which requested the evaluation of possible cleanup alternatives for the Site. A copy of the ACEH letter is provided in Appendix A. This report includes discussions on the site background and previous environmental activities, regional and Site geology and lithology, discussion of various remedial technologies and the recommended alternative, Work Plan for initiation of remedial activities.

1. Background Information

The Site is currently in use as an independently operated service station located on the north corner of Foothill Boulevard and High Street (Figure 1) in a mixed commercial and residential area of Oakland, California. The Site features include a station building containing three former service bays since converted into a convenience store, and four double-sided dispensers on two pump islands under a common canopy. The Site is mostly covered in asphalt pavement with the exception of concrete slabs over the underground storage tanks (USTs), and three small planters along High Street, along Foothill Boulevard, and at the corner of High Street and Foothill Boulevard. It is believed that the existing USTs include three double-wall fiberglass gasoline tanks (10,000 gallons each) and one double-wall fiberglass waste oil tank (1,000 gallon). The three 10,000-gallon USTs store regular, plus, and super unleaded gasoline and were reportedly installed in 1991. The waste oil tank was reportedly installed in 1989 or 1990 (EMCON, 12/27/1994).

The Site was operated by Mobil Oil Corporation (Mobil) as Mobil Service Station No.10-H69 since at least the early 1970's. BP acquired the station from Mobil on 1 May 1989 and operated the station under the BP brand. BP sold the station in 1994 to Tosco, which was acquired by ConocoPhillips who operated a 76-branded station for some time. Currently, the station operates under the independent brand High Street Gasoline. The ACEH-assigned Fuel Leak Case number for the Site is RO0000426 / GeoTracker Global ID No. T0600100217.

A church borders the Site to the northeast. Single-family residences border the Site to the northwest. The paved recreation courts and playing field of Fremont High School are located across High Street to the southeast. A Chevron-branded gasoline service station is located across Foothill Boulevard (4265 Foothill Boulevard) to the

southwest of the Site. Chevron Gasoline Station No. 9-0076 is an active leaking UST case (ACEH Fuel Leak Case No. RO0000427 /GeoTracker Global ID No. T0600100339). A former Shell-branded gasoline service station was previously located at 4411 Foothill Boulevard across Foothill Boulevard and High Street to the south of the Site. This former Shell station is an active leaking UST case also (ACEH Fuel Leak Case No. RO0000415 / GeoTracker Global ID No. T0600101065). This southern corner of the intersection of Foothill Boulevard and High Street is presently developed into a small strip mall with shops and restaurants. A Site Plan is provided as Figure 2. The reader is referred to the recently submitted for A summary of Site and regional geology and hydrogeology and past environmental investigations and remediation activities conducted at the Site was included in Broadbent & Associates' *Initial Site Conceptual Model* (BAI, 11/7/2008).

1.1 Previous Environmental Activities

A history of previous environmental activities is described in Appendix B.

Current conditions at the site include impacts to soil, soil vapor and groundwater. Chemicals of Concern (COCs) are reported as Gasoline Range Organics (GRO), benzene and Methyl-tert-butyl ether (MTBE). Impacts to groundwater during the most recent groundwater monitoring and sampling event reported maximum concentrations of GRO at 71,000 micrograms per liter (µg/L) in MW-5, benzene at 6,500 µg/L in MW-10, and MTBE at 84 µg/L in MW-8.

Soil impacts reported during the most recent site assessment work conducted reported maximum GRO concentrations of 6,500 milligrams per kilogram (mg/kg) in the soil sample from MW-11 at 24 feet below ground surface (bgs). Maximum benzene concentrations of 22 mg/kg were reported in the soil sample from MW-11 at 24 ft bgs. Maximum MTBE concentrations of 0.0028 mg/kg were reported in the soil sample from MW-11 at 16 ft bgs. (BAI, 2009a)

1.2 Regional Geology

According to the East Bay Plain Groundwater Basin Beneficial Use Evaluation Report (California Regional Water Quality Control Board – San Francisco Bay Region/SFRWQCB, June 1999), the Site is located within the Oakland Sub-Area of the East Bay Plain of the San Francisco Basin. The Oakland Sub-Area contains a sequence of alluvial fans. The alluvial fill thickness ranges from 300 to 700 feet deep.

There are no well-defined aquitards such as estuarine muds. The largest and deepest wells in this sub-area historically pumped one to two million gallons per day at depths greater than 200 feet. Overall, sustainable yields are low due in part to low recharge potential. The Merritt sand in West Oakland was an important part of the early water supply for the City of Oakland. It is shallow (up to 60 feet), but before the turn of the last century, septic systems contaminated the water supply wells.

Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of ground-water flow is from east to west or from the Hayward Fault to the San Francisco Bay. Ground-water flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction. In the southern end of the study area however, near the San Lorenzo Sub-Area, the direction of flow may not be this simple. According to information presented in *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the small set of water level measurements available seemed to show that the ground water in the upper aquifers may be flowing south, with the deeper aquifers, the Alameda Formation, moving north. The nearest natural drainage is Peralta Creek, located approximately 1,500 feet west of the Site. Peralta Creek flows generally north to south at its closest distance from the Site.

1.3 Topography

The Site is situated at an approximate elevation of 42 feet above mean sea level. The Site is relatively flat, but slopes slightly to the southwest, consistent with the local topography.

1.4 Stratigraphy

Soils underlying the Site have been consistently characterized as interbedded layers of sandy clay or silty clay, clayey silt, clayey sand, and clayey gravel with occasional sand or gravelly sand. The presence of these soils, usually of low to very low permeability, complicate plans and limit available technologies for remediation at this Site. Copies of available lithologic soil boring logs, Geologic Cross Sections and well construction details are provided within Appendix C.

2. Feasibility Study

2.1 Screening of Remediation Technologies

Several potential remediation technologies were evaluated to identify feasible remediation alternatives for the conditions and contamination at the Site. In addition to the technologies listed, a No-Action option was evaluated. The No-Action option is typically included in feasibility studies to represent the baseline do-nothing action for comparison purposes. The 11 technologies assessed in this initial screening are listed below. Also presented is the media each technology would address.

2.1.1 No Action

Based on the hydrocarbon concentration trends in groundwater, the no action option is not expected to be acceptable to ACEH. The no-action option is retained as a baseline for comparison.

2.1.2 Excavation

With excavation, contaminated material is physically removed and transported to permitted off-site treatment and/or disposal facilities.

Factors that limit the applicability and effectiveness of the general process include:

- Generation of fugitive emissions may be a problem during operations.
- The distance from the contaminated site to the nearest disposal facility with the required permit(s) will affect cost.
- Depth and composition of the media requiring excavation must be considered.
- Transportation of the soil through populated areas may affect community acceptability.

At this time, deeper soil impacts have been observed at the Site, potentially beyond the reach of conventional excavating equipment. Excavation is cost prohibitive and would not address the concentrations of hydrocarbons in groundwater at the Site. Excavation is therefore removed from consideration at this time.

2.1.3 Bioventing

Bioventing is an in-situ biological treatment that stimulates the natural in-situ biodegradation of aerobically degradable compounds in soil by providing oxygen to existing soil microorganisms. It does not directly address contamination in groundwater. In contrast to soil vacuum vapor extraction (SVE), bioventing uses low air flow rates to provide just enough oxygen to sustain aerobic microbial activity. Oxygen is most commonly supplied through direct air injection into residual contamination in soil. In addition to degradation of adsorbed fuel residuals, volatile compounds are biodegraded as vapors move slowly through biologically active soil. Regulatory acceptance of this technology has been obtained in 30 states and in all 10 EPA regions. Bioventing is a medium to long-term technology. Cleanup ranges from a few months to several years. However, a critical factor that limits the applicability and effectiveness of this process is the presence of low to moderate permeability soils. Therefore, bioventing alone will not be retained for further consideration and evaluation due to the extensive presence of clays and silts at the Site which would severely reduce bioventing performance, and its inability to directly address ground-water contamination.

2.1.4 Soil Vapor Extraction

Soil Vapor Extraction (SVE) is an in situ unsaturated (vadose) zone soil remediation technology in which a vacuum is applied to the soil to induce the controlled flow of air and remove volatile contaminants from the soil. The gas leaving the soil may be treated to recover or destroy the contaminants, depending on local and state air discharge regulations. Vertical extraction vents are typically used at depths of five feet or greater and have been successfully applied as deep as 300 feet. Horizontal extraction vents (installed in trenches or horizontal borings) can be used as warranted by contaminant zone geometry, drill rig access, or other site-specific factors. For the soil surface, geomembrane covers are often placed over the soil surface to prevent short circuiting and to increase the radius of influence of the wells. Ground-water depression pumps may be used to reduce groundwater upwelling induced by the vacuum or to increase the depth of the vadose zone. Air injection is effective for facilitating extraction of deep contamination, contamination in low permeability soils, and contamination in the saturated zone. The duration of operation and maintenance for in situ SVE is typically medium- to long-term.

Factors that may limit the applicability and effectiveness of the process include:

- Soil that has a high percentage of fines and a high degree of saturation will require higher vacuums (increasing costs) and/or hindering the operation of the in situ SVE system.

- Large screened intervals are required in extraction wells for soil with highly variable permeabilities or stratification, which otherwise may result in uneven delivery of gas flow from the contaminated regions.

- Soil that has high organic content or is extremely dry has a high sorption capacity for VOCs, which results in reduced removal rates.

- Exhaust air from in situ SVE system may require treatment to eliminate possible harm to the public and the environment.

- As a result of off-gas treatment, residual liquids may require treatment/disposal. Spent activated carbon will require regeneration or disposal.

- SVE is not effective in the saturated zone. However, lowering the water table can expose more media to SVE (this may address concerns regarding SPH at the site).

The predominant clay layers from the surface to below groundwater at the Site are thought to reduce the likely effectiveness of SVE as the sole remediation at the Site. Although not optimum due to the presence of clays at the Site, SVE will be retained for further consideration and evaluation.

2.1.5 Dual-Phase Extraction and Treatment

Dual-Phase Extraction (DPE), also known as multi-phase extraction and vacuum enhanced extraction, is a technology that uses a high vacuum system to remove various combinations of contaminated groundwater, separate-phase petroleum hydrocarbons, and hydrocarbon vapor from the subsurface. Extracted liquids and vapors are treated and collected for disposal, or re-injected to the subsurface (where permissible under applicable state laws). In DPE systems for liquid/vapor treatment, a high vacuum system is used to remove liquid and gas from low permeability or heterogeneous formations. The vacuum extraction well includes a screened section in the zone of contaminated soils and groundwater. It removes contaminants from above and below the water table. The system lowers the water table around the well,

exposing more of the formation. Contaminants in the newly exposed vadose zone are then accessible to vapor extraction. Once above ground, the extracted vapors or liquid-phase organics and groundwater are separated and treated.

Factors that may limit the applicability and effectiveness of the process include:

- Site geology and contaminant characteristics/distribution.
- Combination with complementary technologies (e.g., pump-and-treat) may be required to recover groundwater from high yielding aquifers.
- DPE requires both water treatment and vapor treatment.
- Soil type determines permeability, which is the primary cost driver. DPE works best for permeable sand-silt mixtures. Impermeable (clayey) or excessively permeable (gravel/sand) soils are more recalcitrant.

The applicability of DPE has already been demonstrated during a successful pilot test conducted in April of 2009, during which 91 pounds of GRO were removed as soil vapor over a 5-day test. The results of the DPE Pilot Test are included in Appendix C. (BAI, 2009b)

2.1.6 In-Situ Chemical Oxidation

In-situ chemical oxidation encompasses a wide range of technologies, including liquid chemical oxidant injection (e.g., hydrogen peroxide) and injection of air or ozone into the subsurface. The objective is to increase the oxygen content of groundwater and enhance the rate of aerobic degradation of organic contaminants by naturally occurring microbes. For best results, factors that must be considered include redox conditions, saturation rates, presence of nutrient trace elements, pH, temperature, and permeability of the subsurface materials. In-situ chemical oxidation is a full scale technology.

The following general factors may limit the applicability and effectiveness of the process:

- A ground-water circulation system may need to be created so that contaminants do not escape from zones of active biodegradation.

- Where the subsurface is heterogeneous, it is difficult to circulate the oxygenated solution throughout every portion of the contaminated zone. Higher permeability zones are cleaned up much faster because groundwater flow rates are greater.

- High iron content in subsurface materials can rapidly reduce concentrations of oxygenated solutions.

- Amended hydrogen peroxide can be consumed very rapidly near the injection well, which can create two significant problems: biological growth can be limited to the region near the injection well, limiting adequate contamination/micro-organism contact throughout the contaminated zone; and biofouling of wells can retard the input of nutrients.

- A surface treatment system, such as air stripping or carbon adsorption, may be required to treat extracted groundwater prior to re-injection or disposal.

In-situ chemical oxidation is a potentially effective treatment technology for the Site and will be retained for further evaluation and comparison of viable treatment alternatives.

2.1.7 Enhanced Bioremediation

Enhanced bioremediation is a process in which indigenous or inoculated micro-organisms (e.g., fungi, bacteria, and other microbes) degrade (metabolize) organic contaminants found in soil and/or groundwater, converting them to innocuous end products. Nutrients, oxygen, or other amendments may be used to enhance bioremediation and contaminant desorption from subsurface materials. In the presence of sufficient oxygen (aerobic conditions), and other nutrient elements, microorganisms will ultimately convert many organic contaminants to carbon dioxide, water, and microbial cell mass.

Enhanced bioremediation typically involves the percolation or injection of groundwater or uncontaminated water mixed with nutrients and saturated with dissolved oxygen. Sometimes acclimated microorganisms (bioaugmentation) and/or another oxygen source such as hydrogen peroxide is also added. An infiltration gallery is typically used for shallow contaminated soils, and injection wells are used for deeper contaminated soils and groundwater.

In the absence of oxygen (anaerobic conditions), the organic contaminants will be ultimately metabolized to methane, limited amounts of carbon dioxide, and trace amounts of hydrogen gas. Under sulfate-reduction conditions, sulfate is converted to sulfide or elemental sulfur. Under nitrate-reduction conditions, dinitrogen gas is ultimately produced.

Enhanced bioremediation may be classified as a long-term technology which may take several years for cleanup of a plume. However, factors that may limit the applicability and effectiveness of the process include:

- Cleanup goals may not be attained if the soil matrix prohibits contaminant-microorganism contact.
- The circulation of water-based solutions through the soil may increase contaminant mobility and increase contaminant mobility and concentrations of the underlying groundwater.
- Preferential colonization by microbes may occur causing clogging of nutrient and water injection wells.
- Preferential flow paths may severely decrease contaminant contact between injected fluids and contaminants through the contaminated zones. System is not optimal for clay, highly layered, or heterogeneous subsurface environments because of oxygen (or other electron acceptor) transfer limitations.
- Concentrations of hydrogen peroxide greater than 100-200 ppm in ground-water inhibit the activity of microorganisms.

Enhanced Bioremediation is a potentially effective treatment technology for the Site and will be retained for further evaluation and comparison of viable treatment alternatives.

2.1.8 Air Sparging

Air sparging is an in situ technology in which air is injected through a contaminated aquifer. Injected air traverses horizontally and vertically in channels through the soil column, creating an underground stripper that removes contaminants by volatilization. This injected air helps flush (bubble) the contaminants up into the unsaturated zone where a vapor extraction system is usually implemented in

conjunction with air sparging to remove the generated vapor phase contamination. This technology is designed to be operated at high flow rates to maintain increased contact between groundwater and soil and strip more groundwater by sparging. Oxygen added to contaminated groundwater and vadose zone soils can also enhance biodegradation of contaminants below and above the water table. Air sparging has a medium to long duration which may last, generally, up to a few years.

Factors that may limit the applicability and effectiveness of the process include:

- Air flow through the saturated zone may not be uniform, which implies that there can be uncontrolled movement of potentially dangerous vapors.
- Depth of contaminants and specific site geology must be considered.
- Air injection wells must be designed for site-specific conditions.
- Soil heterogeneity may cause some zones to be relatively unaffected.

The predominant clay layer from the surface to below groundwater at the Site is thought to reduce the likely effectiveness of air sparging at the Site. Although not optimum due to the presence of clays at the Site, air sparging will be retained for further consideration and evaluation.

2.1.9 Groundwater Extraction and Treatment

In Groundwater Extraction and Treatment (GWET), groundwater is pumped through a series of canisters containing activated carbon to which dissolved organic contaminants adsorb. This technology requires periodic replacement or regeneration of saturated carbon. Costs are typically high if used as the primary treatment on waste streams with high contaminant concentration levels. A GWET system operated at the Site from February 1994 through December 1995 reportedly treating a total of 344,650 gallons. GWET will not be retained for further evaluation based on the fact that this technology has already been employed at the Site and the general poor cost-effectiveness when compared to other technologies.

2.1.10 Monitored Natural Attenuation

Monitored Natural Attenuation (MNA) is sometimes referred to as Intrinsic Remediation, Bioattenuation, or Intrinsic Bioremediation. Natural subsurface

processes such as dilution, volatilization, biodegradation, adsorption, and chemical reactions with subsurface materials are allowed to reduce contaminant concentrations to acceptable levels. MNA is not a “technology” per se, and there is significant debate among technical experts about its use at contaminated sites. Consideration of this option usually requires modeling and evaluation of contaminant degradation rates and pathways and predicting contaminant concentration at down-gradient receptor points. The primary objective of site modeling is to demonstrate that natural processes of contaminant degradation will reduce concentrations below regulatory standards or risk-based levels before potential exposure pathways are completed. In addition, long-term monitoring must be conducted throughout the process to confirm that degradation is proceeding at rates consistent with meeting cleanup objectives.

Monitored natural attenuation is not the same as “no action,” although it is often perceived as such. CERCLA requires the evaluation of a “no action” alternative but does not require evaluation of natural attenuation. MNA is considered on a case-by-case basis, and guidance on its use is still evolving.

Compared with other remediation technologies, natural attenuation has the following advantages:

- Less generation or transfer of remediation wastes;
- Less intrusive as few surface structures are required;
- May be applied to all or part of a given site, depending on site conditions and cleanup objectives;
- MNA may be used in conjunction with, or as a follow-up to, other (active) remedial measures;
- Overall cost will likely be lower than active remediation.

Factors that may limit applicability and effectiveness include:

- Data used as input parameters for modeling need to be collected;
- MNA is not appropriate where imminent site risks are present;

- Contaminants may migrate before they are degraded;
- Institutional controls may be required, and the site may not be available for reuse until contaminant levels are reduced;
- If free product exists, it may have to be removed;
- Long-term monitoring and associated costs;
- Longer time frames may be required to achieve remediation objectives, compared to active remediation;
- The hydrologic and geochemical conditions amenable to MNA are likely to change over time and could result in renewed mobility of previously stabilized contaminants and may adversely impact remedial effectiveness; and
- More extensive outreach efforts may be required in order to gain public acceptance of MNA.

Based on the hydrocarbon concentration trends in groundwater at the Site, a remediation strategy that employs monitored natural attenuation (MNA) would not be expected to be acceptable to ACEH unless implemented in conjunction with an active form of remediation or unless MNA-specific monitoring indicates that natural attenuation processes are occurring at the Site. MNA is retained for possible combination with other active technologies.

3. Corrective Action Plan

While many of the remediation options reviewed exhibit a measure of effectiveness in addressing site impacts, they are limited in their application, effectiveness or they are impractical based on the site layout and the necessary infrastructure required. Based on the evaluation of the impacts to soil and groundwater, soil stratigraphy along with the results of the DPE Pilot test conducted by BAI, ARCADIS proposes to utilize DPE remediation technology to address site impacts.

3.1 COCs and Target Cleanup Levels

Site COCs include the following in each of the impacted media:

- Benzene
- MTBE
- GRO

The objective of the remediation is ultimately to clean up the site to the SFRWQCB Environmental Screening Levels (ESLs) for the COCs. The ESLs for the site COCs are listed below (RWQCB May 2008).

Medium	Units	Benzene	GRO	MTBE
Soil Gas	µg/m^3	280[a]	29,000[a]	31,000[a]
Soil	mg/kg	500[b]	500[b]	500[b]
Groundwater	µg/L	1[c]	500[d]	640[d]

Notes:

µg/m^3 = micrograms per cubic meter
mg/kg = milligrams per kilogram
µg/L = micrograms per liter
NA – not applicable

a. Proposed based on the Johnson & Ettinger model for soil gas intrusion into buildings (USEPA 1991 revised 2004). Soil gas screening level intended to be protective of indoor air quality under a commercial/industrial land use. Assumes a commercial/industrial soil gas to indoor air attenuation factor of 0.0005 (1/2000). The ESLs are currently being reviewed by the SFRWQCB and it is anticipated the new ESLs will be lower, however at this time there is no known date for release of the new data. If necessary, the TCLs for the RAP will be modified using the same assumptions and bases resulting in these new ESLs and will be protective of both human health and the environment.
b. Proposed based on SFRWQCB ESLs for gross contamination.
c. Proposed based on SFRWQCB ESLs for shallow soil (groundwater is a current or potential source of drinking water).
d. Proposed based on SFRWQCB Basin Plan ESLs

The system will operate until the source is removed and asymptotic conditions have been met. At that time MNA will likely occur followed by a low-risk-closure. Low-risk-closures can be obtained for sites when COCs remain onsite above ESLs. Therefore while the goal is to achieve ESLs, the site may be closed prior to obtaining those concentrations.

4. Dual-Phase Extraction Work Plan

A mobile DPE unit with a liquid-ring pump and a thermal oxidizer will be mobilized to the Site to initiate start-up activities. Mobile DPE was chosen over permanent because of the presence of separate phase hydrocarbons (SPH) in southern portion of the site. The mobile DPE will remove the SPH and lower the groundwater and vapor concentrations significantly.

Air and water will be extracted from selected recovery wells using an approximate one-inch diameter stinger lowered into each well. Extracted groundwater and soil vapors will be directed to a water knockout tank. Processor air will be treated by the thermal oxidizer prior to discharge while groundwater will be transferred to an on-site holding tank, temporarily accumulated, until transportation for disposal/treatment at an appropriate facility. Based on historical ground-water contaminant concentrations and location relative to the former UST complex, remediation activities will be performed on wells MW-5, MW-10, MW-11, and MW-12. Historical increases in the elevation of the groundwater table have resulted in the screens for wells MW-3, MW-5 and MW-7 being submerged. While these wells may not be able to be used to observe induced vacuum for DPE activities they can still be used to observe decreases in groundwater elevation.

The stinger depth in each well will be set at approximately two feet below static ground-water levels for start-up activities. It is anticipated that the depth of the stinger will need to be adjusted periodically in order to maximize recovery of soil vapors. Once groundwater has been dewatered to the end of the stinger, the applied vacuum will be incrementally increased as a means to evaluate the optimal extraction rate (maximum air flow rate). A PID will be used to record concentrations of recovered vapors.

4.1 Pre-Installation Activities

Prior to initiating field activities, ARCADIS will prepare a site health and safety plan (HASP) for the proposed work; and provide 72-hour advance written notification(s) to ACEH (email preferred to paresh.khatri@acgov.org) prior to the start of field activities.

The Site-specific HASP will be prepared for use by personnel implementing the work plan. The HASP will address the proposed DPE installation and start up activities scope of work. A copy of the HASP will be available on-site during work. The subcontractor(s) performing field activities will be provided with a copy of the HASP prior to initiating work. A safety tailgate meeting will also be conducted daily to review the Site hazards and work scope.

4.1.1 Vapor and Ground-Water Sample Collection

Vapor and ground-water samples will be collected after the first hour and every three to four hours after the initial hour of operation during each constant rate extraction. For example, if an extraction is performed for 12 hours, samples will be collected at one hour, three hours, six hours, nine hours, and twelve hours. Not all collected samples will be submitted for analysis. It is anticipated that a minimum of three vapor and three ground-water samples will be submitted for laboratory analysis for each test. Submitted samples will likely include the one hour sample, an approximate mid-point sample, and the approximate end-point sample of each extraction.

Collected samples will be submitted under chain-of-custody protocol to Test America Laboratories, Inc. in Pleasanton, California. Submitted samples will be analyzed for GRO by EPA Method 8015M and BTEX and MTBE by EPA Method 8260B. Ground-water samples will also be analyzed for TBA, DIPE, ETBE, TAME and Ethanol by EPA Method 8260B.

4.1.2 Calculations of Mass Removal

The contaminant mass recovered from both the gas-phase and liquid-phase process streams shall be calculated on a total and well-by-well basis. For the gas-phase, the calculation for contaminant mass removal (in pounds, lbs) will be the calculated removal rate (in lbs/hr) multiplied by time, using the following model equation:

lbs/hr = ("x" ppmv/1,000,000)("Q" ft3/min)("M.W." lb/lb-mol)(60 min/hr)(lb-mol/379.5 ft3)

where: "x" is influent concentration in ppmv of GRO or Benzene;
"Q" is the average flow rate in ft3/min; and
"M.W." is the molecular weight in lb/lb-mol (100.2 for GRO, 78.1 for Benzene).

For the liquid-phase, the calculation for contaminant mass removal (in pounds) will be calculated using the following model equation:

lbs = ("x" • g/L)(gram/1,000,000 • g)(lbs/454 grams)(3.78 L/gal)(gallons pumped)

where: "x" is influent concentration in micrograms per liter of GRO or Benzene.

Gallons of GRO and Benzene removed shall be calculated also by dividing pounds removed of each by the density of GRO (6.2 lbs/gal) and Benzene (7.3 lbs/gal).

4.1.3 Background Conditions and Observation Well Monitoring

Prior to initiating DPE extraction, background depth to water level measurements will be recorded for each well associated with the Site, and the hour meter on the DPE equipment will be recorded. Field personnel will record the DPE equipment hour meter reading, applied vacuum, air flow, totalizer reading, and collect a PID reading of recovered vapors on an hourly basis during start up activities.

Remaining wells associated with the Site will be used as observation wells during start up tests. Periodic monitoring activities in surrounding observation wells will include determining if vacuum influence is observed using Magnehelic gauges (with appropriate sensitivity) installed on each observation well head in addition to recording the depth to groundwater. Periodic monitoring activities on observation wells should be conducted on an hourly basis during start up activities.

5. Documentation and Reporting

Upon completion of the work activities described above and after receipt of laboratory analytical data, ARCADIS will submit a start up report including the following information at a minimum:

- Brief descriptions of the work performed;

- Copies of the required permits;
- Copies of all field notes;
- Tabulated results and measurements; and
- Laboratory analytical reports with copies of chain-of-custody records.

ARCADIS will use the data and information provided above to prepare a System Start Up Report.

6. Proposed Schedule

ARCADIS is prepared to initiate installation activities upon receiving approval from the ACEH and obtaining the necessary permits mentioned above.

7. References

ACEH, 13 August 2009. *Fuel Leak Case No.RO0000426 and Geotracker Global ID T0600100217, BP #11109, 4280 Foothill Boulevard, Oakland, CA 94601*. Letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company).

EMCON, 27 December 1994. *Baseline Assessment Report, BP Oil Company Service Station No. 11109, 4280 Foothill Boulevard, Oakland, California.*

BAI, 7 November 2008. *Initial Site Conceptual Model, Former BP Station No. 11109, 4280 Foothill Boulevard, Oakland, California*. Prepared for Atlantic Richfield Company.

BAI, 17 June 2009. *Soil & Ground-Water Investigation Report, Former BP Station No. 11109, 4280 Foothill Boulevard, Oakland, California*. Prepared for Atlantic Richfield Company.

BAI, 3 February 2009. *Monitoring Well Installation and Dual-Phase Extraction Pilot Testing Work Plan, Former BP Station No. 11109, 4280 Foothill Boulevard, Oakland, California*. Prepared for Atlantic Richfield Company.

ARCADIS

Tables

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	MtBE						
MW-1																		
1/31/1990	--		38.19	15.41	--	22.78	--	--	--	--	--	--	--	--	--	--	--	--
2/5/1990	--	c	38.19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2																		
2/5/1990	--		41.22	21.90	--	19.32	1,300	14	<0.1	9	13	--	--	SUP	--	--	--	--
2/14/1991	--	d	41.22	21.16	--	20.06	<50	<0.3	<0.3	<0.3	<0.3	--	--	SUP	--	<10000	<5000	51
5/13/1991	--	e	41.22	21.32	--	19.9	<50	<0.3	<0.3	<0.3	<0.3	--	--	SUP	--	<50	6,000	0.5
7/24/1991	--		41.22	22.92	--	18.3	--	--	--	--	--	--	--	--	--	--	--	--
10/3/1991	--	e	41.22	24.90	--	16.32	<50	<0.3	0.8	<0.3	<0.3	--	--	SUP	--	<50	<5000	0.7
10/15/1991	--		41.22	24.10	--	17.12	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1991	--	f	41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/16/1991	--		41.22	23.95	--	17.27	--	--	--	--	--	--	--	--	--	--	--	--
1/6/1992	--		41.22	23.3	--	17.92	<50	<0.3	<0.3	<0.3	<0.3	--	--	ANA	--	<50	<5000	--
1/22/1992	--		41.22	23.14	--	18.08	--	--	--	--	--	--	--	--	--	--	--	--
1/28/1992	--		41.22	22.99	--	18.23	--	--	--	--	--	--	--	--	--	--	--	--
2/5/1992	--		41.22	22.63	--	18.59	--	--	--	--	--	--	--	--	--	--	--	--
2/12/1992	--		41.22	22.04	--	19.18	--	--	--	--	--	--	--	--	--	--	--	--
2/17/1992	--		41.22	20.84	--	20.38	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1992	--		41.22	18.29	--	22.93	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1992	--		41.22	18.86	--	22.36	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	63	<5000	--
4/14/1992	--		41.22	19.45	--	21.77	<50	--	--	--	--	--	--	--	--	--	--	--
4/29/1992	--		41.22	20.35	--	20.87	<50	--	--	--	--	--	--	--	--	--	--	--
5/7/1992	--		41.22	20.84	--	20.38	<50	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--		41.22	22.34	--	18.88	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
10/8/1992	--		41.22	23.73	--	17.49	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
12/31/1992	--		41.22	21.12	--	20.1	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
4/21/1993	--	g,n	41.22	17.68	--	17.68	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	<50	<5000	--
7/7/1993	--	e,n	41.22	20.3	--	20.92	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	1.0
9/21/1993	--	n	41.22	21.93	--	19.29	<50	0.9	0.7	0.7	2.6	21.54	--	PACE	--	--	--	--
12/17/1993	--		41.22	21.48	--	19.74	--	--	--	--	--	--	--	--	--	--	--	--
12/23/1993	--	n	41.22	--	--	--	<50	<0.5	<0.5	<0.5	0.7	--	--	PACE	--	--	--	--
4/7/1994	--	n	41.22	20.25	--	20.97	<50	<0.5	<0.5	<0.5	<0.5	12.2	5.9	PACE	--	--	--	--
7/6/1994	--	n	41.22	20.59	--	20.63	<50	<0.5	<.5	<0.5	<.5	--	3.1	PACE	--	--	--	--
10/7/1994	--	n	41.22	22.04	--	19.18	<50	<0.5	<.5	<0.5	<0.5	15.2	2.8	PACE	--	--	--	--
1/27/1995	--		41.22	26.12	--	15.10	<50	<0.5	<.5	<0.5	<1	--	4.8	ATI	--	440	<5000	
3/30/1995	--		41.22	12.34	--	28.88	<50	<0.50	<.50	<0.50	<1.0	--	7.2	ATI	--	--	--	--
6/20/1995	--		41.22	16.42	--	24.8	<50	<0.50	<0.50	<0.50	<1.0	--	6.0	ATI	--	--	--	--
10/3/1995	--		41.22	20.06	--	21.16	<50	<0.50	<0.50	<0.50	<1.0	<5.0	5.7	ATI	--	--	--	--
12/6/1995	--		41.22	21.31	--	19.91	<50	<0.50	<.50	<0.50	<1.0	46	5.4	ATI	--	--	--	--
3/21/1996	--		41.22	12.28	--	28.94	<50	<0.5	<1.0	<1.0	<1.0	<1.0	7.4	SPL	--	--	--	--
6/21/1996	--		41.22	13.28	--	27.94	<50	<0.5	<1	<1	<1	0	7.3	SPL	--	--	--	--
9/6/1996	--		41.22	13.94	--	27.28	--	--	--	--	--	--	--	--	--	--	--	--
9/9/1996	--		41.22	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	7.4	SPL	--	--	--	--
12/19/1996	--		41.22	12.19	--	29.03	<50	<0.5	<1.0	<1.0	<1.0	<10	7.9	SPL	--	--	--	--
3/17/1997	--		41.22	11.59	--	29.63	--	--	--	--	--	--	--	--	--	--	--	--
8/12/1997	--		41.22	13.21	--	28.01	--	--	--	--	--	--	--	--	--	--	--	--
12/10/1997	--		41.22	12.34	--	28.88	--	--	--	--	--	--	--	--	--	--	--	--
3/12/1998	--		41.22	11.04	--	30.18	--	--	--	--	--	--	--	--	--	--	--	--
6/23/1998	--		41.22	11.77	--	29.46	--	--	--	--	--	--	--	--	--	--	--	--
3/31/1999	--		41.22	12.38	--	28.84	--	--	--	--	--	--	--	--	--	--	--	--
8/25/1999	--		41.22	17.72	--	23.5	--	--	--	--	--	--	--	--	--	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE						
MW-2 Cont'd																		
3/9/2000	--		41.22	11.94	--	29.28	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2001	--		41.22	10.31	--	30.91	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2002	--		41.22	14.35	--	26.87	--	--	--	--	--	--	--	--	--	--	--	--
3/18/2002	P	q	41.22	13.11	--	28.11	--	--	--	--	--	--	--	--	--	--	--	--
3/11/2003	P		41.22	13.24	--	27.98	--	--	--	--	--	--	--	--	--	--	--	--
12/9/2003	P		41.22	18.58	--	22.64	350	<0.50	<0.50	0.56	2.8	24	--	SEQM	6.2	--	--	--
3/9/2004	--	p	41.22	12.52	--	28.7	74	<.50	<0.50	0.83	4.7	27	--	SEQM	6.5	--	--	--
9/17/2004	--	r	41.22	18.05	--	23.17	59	<0.50	<0.50	<0.50	<0.50	21	--	SEQM	6.3	--	--	--
3/7/2005	--	p	41.22	2.32	--	38.90	--	--	--	--	--	--	--	--	--	--	--	--
9/6/2005			41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2006			41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/5/2006	--	p	41.22	10.46	--	30.76	79	<0.50	5.1	<0.50	0.73	<0.50	--	TAMC	6.4	--	--	--
3/5/2007	--	p	41.22	12.25	--	28.97	--	--	--	--	--	--	--	--	--	--	--	--
9/7/2007	--	r	41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2008	--	w	41.22	12.33	--	28.8/9	--	--	--	--	--	--	--	--	--	--	--	--
9/3/2008	--	r	41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/4/2009	--	r	41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/30/2009	--	r,x	41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3																		
2/5/1990	--		40.74	17.45	--	23.29	1,400	15	<2.5	11	8	--	--	SUP	--	--	--	--
2/14/1991	--		40.74	18.52	--	22.22	320	8	<0.3	8	1	--	--	SUP	--	--	--	--
5/13/1991	--		40.74	19.32	--	21.42	640	13	<0.3	18	1	--	--	SUP	--	--	--	--
7/24/1991	--		40.74	20.69	--	20.05	--	--	--	--	--	--	--	--	--	--	--	--
10/3/1991	--		40.74	19.47	--	21.27	940	21	<0.3	23	2.1			SUP	--	--	--	--
10/15/1991	--		40.74	20.46	--	20.28	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1991	--		40.74	18.29	--	22.45	--	--	--	--	--	--	--	--	--	--	--	--
12/16/1991	--		40.74	18.34	--	22.40	--	--	--	--	--	--	--	--	--	--	--	--
1/6/1992	--		40.74	18.50	--	22.24	580	6.1	1	6.1	7.1	--	--	ANA	--	--	--	--
1/22/1992	--		40.74	17.86	--	22.88	--	--	--	--	--	--	--	--	--	--	--	--
1/28/1992	--		40.74	15.84	--	24.90	--	--	--	--	--	--	--	--	--	--	--	--
2/5/1992	--		40.74	17.53	--	23.21	--	--	--	--	--	--	--	--	--	--	--	--
2/12/1992	--		40.74	17.15	--	23.59	--	--	--	--	--	--	--	--	--	--	--	--
2/17/1992	--		40.74	16.18	--	24.56	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1992	--		40.74	14.80	--	25.94	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1992	--		40.74	17.106	--	23.68	1,100	30	4.6	32	11	--	--	ANA	--	--	--	--
4/14/1992	--		40.74	15.22	--	25.52	--	--	--	--	--	--	--	--	--	--	--	--
4/29/1992	--		40.74	15.90	--	24.84	--	--	--	--	--	--	--	--	--	--	--	--
5/7/1992	--		40.74	16.35	--	24.39	--	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--		40.74	17.74	--	23.00	1,200	38	<2.5	24	<2.5	--	--	ANA	--	--	--	--
10/8/1992	--		40.74	19.06	--	21.68	1,400	31	<0.5	25	13	--	--	ANA	--	--	--	--
12/31/1992	--	h	40.74	--	--	--	960	11	3.6	10	3.8	--	--	ANA	--	--	--	--
12/31/1992	--		40.74	16.61	--	24.13	820	12	4.1	13	5.9	--	--	ANA	--	--	--	--
4/21/1993	--	n	40.74	14.24	--	26.50	420	5.6	<0.5	3.9	1.4	--	--	PACE	--	--	--	--
4/21/1993	--	h, n	40.74	--	--	--	390	5	<0.5	3.7	1.5	--	--	PACE	--	--	--	--
7/7/1993	--	i, n	40.13	15.19	--	24.94	54	0.6	0.6	<0.5	<0.5	12.68	--	PACE	--	--	--	--
9/21/1993	--	n	40.13	16.58	--	23.55	540	7.9	0.9	4.7	2.4	--	--	PACE	--	--	--	--
12/17/1993	--		40.13	15.82	--	24.31	--	--	--	--	--	--	--	--	--	--	--	--
12/23/1993	--	n	40.13	--	--	--	500	9.8	1.5	3.3	2.1	--	--	PACE	--	--	--	--
12/23/1993	--	h	40.13	--	--	--	480	9.2	<0.5	5.4	58.3	--	--	PACE	--	--	--	--
4/7/1994	--	n	40.13	28.50	--	11.63	460	20	7.4	8.9	11	18.2	--	PACE	--	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE						
MW-3 Cont'd																		
4/7/1994	--	h	40.13	--	--	--	460	20	7.7	9	11	--	--	PACE	--	--	--	--
7/6/1994	--	n	40.13	--	--	--	460	10	0.6	1.7	6.4	5.54	4.8	PACE	--	--	--	--
10/7/1994	--	n	40.13	27.65	--	12.48	300	28	<0.5	2.2	12	31.4	4.4	PACE	--	--	31	--
1/27/1995	--	j	40.13	27.65	--	12.48	620	--	--	--	--	--	7.6	--	--	--	--	--
3/30/1995	--		40.13	26.05	--	14.08	--	10	6	3.4	18	--	--	ATI	--	--	--	--
6/20/1995	--		40.13	19.49	--	20.64	300	7.2	3.4	0.85	15	--	--	ATI	--	--	--	--
10/3/1995	--		40.13	24.93	--	15.20	170	2.1	<0.50	0.81	8	6.7	--	ATI	--	--	--	--
12/6/1995	--		40.13	--	--	--	170	6.1	3	1.7	190	53	--	ATI	--	--	--	--
12/6/1995	--	h	40.13	25.14	--	14.99	1,400	6.7	3.1	2.8	210	64	--	ATI	--	--	--	--
3/21/1996	--		40.13	9.48	--	30.65	1,700	0.5	<1	<1	1	<10	7.3	SPL	--	--	--	--
6/21/1996	--		40.13	11.60	--	28.53	<50	13	<1	<1	<1	12	7.6	SPL	--	--	--	--
9/6/1996	--		40.13	12.23	--	27.90	<50	--	--	--	--	--	--	--	--	--	--	--
9/9/1996	--		40.13	--	--	--	--	6.5	<5.0	<5.0	<5.0	<50	7.6	SPL	--	--	--	--
12/19/1996	--		40.13	10.46	--	29.67	<250	4.1	<1.0	<1.0	<1.0	<10	8.4	SPL	--	--	--	--
3/17/1997	--		40.13	9.86	--	30.27	<50	<5	<1.0	<1.0	<1.0	0	7.4	SPL	--	--	--	--
8/12/1997	--		40.13	12.11	--	28.02	50	0.79	<1.0	<1.0	<1.0	10	6.1	SPL	--	--	--	--
12/10/1997	--		40.13	10.90	--	29.23	<50	<0.5	<1.0	<1.0	<1.0	<10	3.2	SPL	--	--	--	--
3/12/1998	--		40.13	10.20	--	29.93	<50	<0.5	<1.0	<1.0	<1.0	0	6.3	SPL	--	--	--	--
3/12/1998	--	h	40.13	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	SPL	--	--	--	--
6/23/1998	--		40.13	10.17	--	29.96	50	<0.5	<1.0	<1.0	<1.0	<10	3.4	SPL	--	--	--	--
3/31/1999	--		40.13	11.46	--	28.68	60	<1.0	<1.0	<1.0	<1.0	6.2	--	SPL	--	--	--	--
8/25/1999	--		40.13	12.52	--	27.61	<50	<1.0	<1.0	<1.0	<1.0	7.7	--	SPL	--	--	--	--
3/9/2000	--		40.13	12.39	--	27.74	<50	<0.5	0.54	<0.5	1.7	6.3	--	PACE	--	--	--	--
3/8/2001	--		40.13	10.41	--	29.72	<50	<0.5	<0.5	<0.5	0.59	7.7	--	PACE	--	--	--	--
3/8/2002	--		40.13	9.83	--	30.30	62	<0.5	<0.5	<0.5	<1.0	11.6	--	PACE	--	--	--	--
3/18/2002	--		40.13	9.20	--	30.93	--	--	--	--	--	--	--	--	--	--	--	--
3/11/2003	--		40.13	10.54	--	29.59	<50	<0.50	<0.50	<0.50	<0.50	6.7	--	SEQ	--	--	--	--
12/9/2003	P		40.13	12.88	--	27.25	<50	<0.50	<0.50	<0.50	<0.50	6.4	--	SEQM	6.3	--	--	--
3/9/2004	P		40.13	9.49	--	30.64	<50	<0.50	<0.50	<0.50	0.63	6.9	--	SEQM	6.1	--	--	--
9/17/2004	--		40.13	12.76	--	27.37	--	--	--	--	--	--	--	--	--	--	--	--
3/7/2005	P		40.13	7.30	--	32.83	<50	<0.50	<0.50	<0.50	0.52	5.1	--	SEQM	7.0	--	--	--
9/6/2005	--		42.92	10.81	--	32.11	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2006	P	u	42.92	8.85	--	34.07	<50	<0.50	<0.50	<0.50	<0.50	6.9	--	SEQM	6.8	--	--	--
9/5/2006	--		42.92	9.86	--	33.06	--	--	--	--	--	--	--	--	--	--	--	--
3/5/2007	P		42.92	8.33	--	34.59	<50	<0.50	<0.50	<0.50	<0.50	5.4	2.31	TANC	6.95	--	--	--
9/7/2007	--		42.92	11.10	--	31.82	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2008	P		42.92	8.92	--	34.00	<50	<0.50	<0.50	<0.50	<0.50	4.2	2.5	CEL	6.86	--	--	--
9/3/2008	--		42.92	12.19	--	30.73	--	--	--	--	--	--	--	--	--	--	--	--
3/4/2009	P		42.92	8.28	--	34.64	<50	<0.50	<0.50	<0.50	<0.50	4.9	1.19	CEL	6.71	--	--	--
9/30/2009	P	x	40.13	11.60	--	28.53	<50	<0.50	<0.50	<0.50	<0.50	6.8	--	CEL	7.12	--	--	--
MW-4																		
2/5/1990	--			20.75	--	19.36	620	<0.5	9	<0.5	10	--	--	SUP	--	--	--	--
2/14/1991	--			21.73	--	18.38	180	<0.3	<0.3	0.4	2	--	--	SUP	--	--	--	--
5/13/1991	--			18.55	--	21.56	72	0.7	<0.3	<0.3	<0.3	--	--	SUP				
7/24/1991	--			21.31	--	18.80	--	--	--	--	--	--	--	--	--	--	--	--
10/3/1991	--			22.57	--	17.54	57	<0.3	<0.3	<0.3	<0.3	--	--	SUP	--	--	--	--
10/15/1991	--			22.88	--	17.23	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1991	--			22.54	--	17.57	--	--	--	--	--	--	--	--	--	--	--	--
12/16/1991	--			22.59	--	17.52	--	--	--	--	--	--	--	--	--	--	--	--
1/6/1992	--			22.00	--	18.11	480	0.8	3.2	1.9	7.7	--	--	ANA				

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE						
MW-4 Cont'd																		
1/22/1992	--			21.50	--	18.53	--	--		--	--	--	--	--	--	--	--	--
1/28/1992	--			21.42	--	18.69	--	--	--	--	--	--	--	--	--	--	--	--
2/5/1992	--		40.11	21.10	--	19.01	--	--	--	--	--	--	--	--	--	--	--	--
2/12/1992	--		40.11	20.74	--	19.37	--	--	--	--	--	--	--	--	--	--	--	--
2/17/1992	--		40.11	19.78	--	20.33	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1992	--		40.11	16.80	--	23.31	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1992	--		40.11	17.13	--	22.98	<50	<0.5	<0.5	<.5	<0.5	--	--	ANA	--	--	--	--
4/14/1992	--		40.11	17.74	--	22.37	--	--	--	--	--	--	--	--	--	--	--	--
4/29/1992	--		40.11	18.56	--	21.55	--	--	--	--	--	--	--	--	--	--	--	--
5/7/1992	--		40.11	19.10	--	21.01	--	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--		40.11	20.71	--	19.40	<50	0.6	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
10/8/1992	--		40.11	22.43	--	17.68	270	<0.5	2.1	2.5	3.2	--	--	ANA	--	--	--	--
12/31/1992	--		40.11	19.58	--	20.53	150	<0.5	<.5	<0.5	1.3	--	--	ANA	--	--	--	--
4/21/1993	--	n	40.11	17.79	--	22.32	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
7/7/1993	--	n	40.11	18.44	--	21.67	160	1.2	5.4	3.8	19	5.51	--	PACE	--	--	--	--
9/21/1993	--	n	40.11	20.14	--	19.97	71	<0.5	1.9	<0.5	2.1	--	--	PACE	--	--	--	--
12/17/1993	--		40.11	19.80	--	20.31	--	--	--	--	--	--	--	--	--	--	--	--
12/23/1993	--	n	40.11	--	--	--	<50	3.1	1.6	0.8	3.8	5.7	--	PACE	--	--	--	--
4/7/1994	--	n	40.11	19.12	--	20.99	<50	<0.5	<0.5	<0.5	<0.5	11.7	6.6	PACE	--	--	--	--
7/6/1994	--	n	40.11	19.90	--	20.21	62	<0.5	<.5	<0.5	<0.5	--	4.1	PACE	--	--	--	--
10/7/1994	--	n	40.11	20.07	--	20.04	<50	<0.5	<0.5	<0.5	<0.5	7.38	3.6	PACE	--	--	--	--
1/27/1995	--		40.11	13.72	--	26.39	<50	<0.5	<0.5	<0.5	<1	--	2.7	ATI	--	--	--	--
3/30/1995	--		40.11	11.46	--	28.65	<50	<0.50	<0.50	<0.50	<1.0	--	8.3	ATI	--	--	--	--
6/20/1995	--		40.11	14.78	--	25.33	<50	<0.50	<0.50	<0.50	<1.0	--	--	ATI	--	--	--	--
10/3/1995	--		40.11	19.62	--	20.49	<50	<0.50	<0.50	<0.50	<1.0	5	5.8	ATI	--	--	--	--
12/6/1995	--		40.11	19.91	--	20.2	<50	<.50	<0.50	<0.50	<1.0	47	5.7	ATI	--	--	--	--
3/21/1996	--		40.11	11.12	--	28.99	<50	<.5	<1	<1	<1	<10	7.8	SPL	--	--	--	--
6/21/1996	--		40.11	12.21	--	27.9	<50	<0.5	<1	<1	<1	<10	7.9	SPL	--	--	--	--
9/6/1996	--		40.11	12.89	--	27.22	--	--	--	--	--	--	--	--	--	--	--	--
9/9/1996	--		40.11	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	7.2	SPL	--	--	--	--
12/19/1996	--		40.11	11.01	--	29.1	<50	<0.5	<1.0	<1.0	<1.0	<10	8.4	SPL	--	--	--	--
3/17/1997	--		40.11	10.42	--	29.69	--	--	--	--	--	--	--	--	--	--	--	--
8/12/1997	--		40.11	12.77	--	27.31	--	--	--	--	--	--	--	--	--	--	--	--
12/10/1997	--		40.11	11.22	--	28.89	--	--	--	--	--	--	--	--	--	--	--	--
3/12/1998	--		40.11	10.81	--	29.3	--	--	--	--	--	--	--	--	--	--	--	--
6/23/1998	--		40.11	10.61	--	29.5	--	--	--	--	--	--	--	--	--	--	--	--
3/31/1999	--		40.11	11.46	--	28.65	--	--	--	--	--	--	--	--	--	--	--	--
8/25/1999	--		40.11	16.16	--	23.95	--	--	--	--	--	--	--	--	--	--	--	--
3/9/2000	--		40.11	12.23	--	27.88	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2001	--		40.11	11.04	--	29.07	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2002	--		40.11	12.73	--	27.38	--	--	--	--	--	--	--	--	--	--	--	--
3/18/2002	--		40.11	11.62	--	28.49	--	--	--	--	--	--	--	--	--	--	--	--
3/11/2003	--		40.11	13.44	--	26.67	--	--	--	--	--	--	--	--	--	--	--	--
12/9/2003	P		40.11	15.03	--	25.08	<250	<2.5	<2.5	<2.5	<2.5	130	--	SEQM	6.1	--	--	--
3/9/2004	P		40.11	11.04	--	29.07	<50	<0.50	<0.50	<0.50	<0.50	35	--	SEQM	5.5	--	--	--
9/17/2004	P		40.11	16.75	--	23.36	<250	<2.5	<2.5	<2.5	<2.5	140	--	SEQM	6.5	--	--	--
3/7/2005	P		40.11	11.02	--	29.09	67	<0.50	<0.50	<0.50	<0.50	24	--	SEQM	6.6	--	--	--
9/6/2005	P	s,t	42.88	14.64	--	28.24	81	<0.50	<0.50	<0.50	<1.5	180	--	SEQM	6.7	--	--	--
3/6/2006	P		42.88	12.42	--	30.46	<100	<1.0	<1.0	<1.0	<1.0	110	--	SEQM	6.4	--	--	--
9/5/2006	--		42.88	13.81	--	29.07	130	<1.0	<1.0	<1.0	<1.0	190	--	TAMC	6.5	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE						
MW-4 Cont'd																		
3/5/2007	P		42.88	10.63	--	32.258	<50	<0.50	<.50	<0.50	<0.50	13	3.34	TAMC	7.11	--	--	--
9/7/2007	P	s,v (MTBE)	42.88	14.77	--	28.11	90	<0.50	<0.50	<0.50	<0.50	130	1.14	TAMC	6.68	--	--	--
3/6/2008	P		42.88	11.3	--	31.58	<50	<0.50	<0.50	<0.50	<0.50	170	1.76	CEL	6.62	--	--	--
9/3/2008	P		42.88	16.11	--	26.77	<50	<5.0	<5.0	<5.0	<5.0	150	1.97	CEL	6.33	--	--	--
3/4/2009	P		42.88	10.78	--	31.1	140	<5.0	<.0	<5.0	<5.0	110	1.31	CEL	6.47	--	--	--
9/30/2009	P	x,y (GRO)	40.1	16.48	--	23.62	240	<2.0	<2.0	<2.0	<2.0	140	0.08	CEL	6.88	--	--	--
MW-5	--																	
10/3/1991	--		39.55	18.08	--	21.47	79,000	13,000	7,400	1,400	6,200	--	--	SUP	--	--	--	--
10/15/1991	--		39.55	18.55	--	21.00	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1991	--	a	39.55	18.44	0.13	20.98	--	--	--	--	--	--	--	--	--	--	--	--
12/16/1991	--	a	39.55	18.66	0.01	20.88	--	--	--	--	--	--	--	--	--	--	--	--
1/6/1992	--	a	39.55	19.12	0.11	20.32	--	--	--	--	--	--	--	--	--	--	--	--
1/22/1992	--		39.55	14.59	--	24.96	--	--	--	--	--	--	--	--	--	--	--	--
1/28/1992	--		39.55	15.25	--	24.36	--	--	--	--	--	--	--	--	--	--	--	--
2/5/1992	--	q	39.55	15.58	--	23.97	--	--	--	--	--	--	--	--	--	--	--	--
2/12/1992	--	a	39.55	15.54	0.01	24.00	--	--	--	--	--	--	--	--	--	--	--	--
2/17/1992	--	q	39.55	13.98	--	25.57	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1992	--	a	39.55	13.63	0.04	25.88	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1992	--	a	39.55	13.17	0.01	26.37	--	--	--	--	--	--	--	--	--	--	--	--
4/14/1992	--	a	39.55	13.45	0.01	26.09	--	--	--	--	--	--	--	--	--	--	--	--
4/29/1992	--	a	39.55	13.75	0.07	25.73	--	--	--	--	--	--	--	--	--	--	--	--
5/7/1992	--	a	39.55	16.15	0.04	23.36	--	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--	a	39.55	17.67	0.08	21.80	--	--	--	--	--	--	--	--	--	--	--	--
9/1/1992	--	a	39.55	17.83	0.50	21.22	--	--	--	--	--	--	--	--	--	--	--	--
10/8/1992	--	a	39.55	17.86	0.92	20.77	--	--	--	--	--	--	--	--	--	--	--	--
12/31/1992	--	q	39.55	15.20	--	24.35	--	--	--	--	--	--	--	--	--	--	--	--
4/21/1993	--	a	39.55	12.64	0.02	26.89	--	--	--	--	--	--	--	--	--	--	--	--
7/7/1993	--	a, i	39.14	12.68	0.82	25.64	--	--	--	--	--	--	--	--	--	--	--	--
9/21/1993	--	q	39.14	14.35	--	24.79	--	--	--	--	--	--	--	--	--	--	--	--
12/17/1993	--	a	39.14	12.61	0.41	26.12	--	--	--	--	--	--	--	--	--	--	--	--
4/7/1994	--	n	39.14	30.00	--	9.14	66,000	3,000	1,700	250	6,800	2,002	--	PACE	--	--	--	--
7/6/1994	--	n	39.14	--	--	--	29,000	1,900	330	63	2,700	1,141	--	PACE	--	--	--	--
10/7/1994	--	h	39.14	--	--	--	45,000	2,900	540	260	2,600	--	--	PACE	--	--	--	--
10/7/1994	--	n	39.14	28.70	--	10.44	250,000	2,600	660	830	5,200	37.7	4.2	PACE	--	--	--	--
1/27/1995	--		39.14	28.70	--	10.44	--	--	--	--	--	--	--	--	--	--	--	--
3/30/1995	--	h	39.14	--	--	--	43,000	7,900	2,500	440	6,200	--	--	ATI	--	--	--	--
3/30/1995	--		39.14	28.95	--	10.19	50,000	7,900	2,600	520	6,400	--	5.5	ATI	--	--	--	--
6/20/1995	--	h	39.14	--	--	--	26,000	3,500	290	<25	3,300	--	--	ATI	--	--	--	--
6/20/1995	--		39.14	22.54	--	16.60	34,000	5,100	1,900	300	3,700	--	--	ATI	--	--	--	--
10/3/1995	--	h	39.14	--	--	--	12,000	46	39	10	1,600	320	--	ATI	--	--	--	--
10/3/1995	--		39.14	18.84	--	20.30	12,000	68	42	11	1,600	330	--	ATI	--	--	--	--
12/6/1995	--		39.14	19.07	--	20.07	16,000	1,200	93	51	700	600	--	ATI	--	--	--	--
3/21/1996	--	h	39.14	--	--	--	1,900	92	30	7	270	<10	--	SPL	--	--	--	--
3/21/1996	--		39.14	7.43	--	31.71	1,500	89	28	6	250	<10	7.2	SPL	--	--	--	--
6/21/1996	--		39.14	9.87	--	29.27	3,500	740	150	19	400	<100	7.1	SPL	--	--	--	--
6/21/1996	--	h	39.14	--	--	--	2,700	680	140	20	400	<50	--	SPL	--	--	--	--
9/6/1996	--		39.14	10.52	--	28.62	--	--	--	--	--	--	--	--	--	--	--	--
9/9/1996	--		39.14	--	--	--	82,000	3,100	1,700	850	9,100	<2500	7.5	SPL	--	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE						
MW-5 Cont'd																		
9/9/1996	--	h	39.14	--	--	--	90,000	2,900	1,600	6710	6,900	<2500	--	SPL	--	--	--	--
12/19/1996	--		39.14	8.62	--	30.52	41,000	790	820	120	2,040	<500	7.7	SPL	--	--	--	--
12/19/1996	--	h	39.14	--	--	--	26,000	490	430	63	1,140	<500	--	SPL	--	--	--	--
3/17/1997	--		39.14	8.22	--	30.92	5,500	1.9	2.4	<1.0	<1.0	29	6.4	SPL	--	--	--	--
3/17/1997	--	h	39.14	--	--	--	6,600	2.5	2.7	<1.0	<1.0	28	--	SPL	--	--	--	--
8/12/1997	--	h	39.14	--	--	--	36,000	6,100	2,500	720	4,500	<500	--	SPL	--	--	--	--
8/12/1997	--	a	39.14	12.18	0.22	26.74	33,000	6,400	2,400	680	4,400	<1000	6.8	SPL	--	--	--	--
12/10/1997	--	h	39.14	--	--	--	37,000	2,900	2,500	440	4,800	--	--	SPL	--	--	--	--
12/10/1997	--	a	39.14	10.78	0.06	28.30	31,000	3,000	2,500	560	5,100	500	1.8	SPL	--	--	--	--
3/12/1998	--	a	39.14	10.11	0.22	28.81	100,000	1,600	870	250	2,600	<250	6.1	SPL	--	--	--	--
6/23/1998	--	h	39.14	--	--	--	27,000	2,600	840	400	2,950	<500	--	SPL	--	--	--	--
6/23/1998	--	a	39.14	10.20	0.02	28.92	27,000	2,500	840	370	2,900	<250	2.1	SPL	--	--	--	--
3/31/1999	--	f	39.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/25/1999	--	a	39.14	14.69	0.38	24.07	180,000	2,700	400	830	2,800	26	--	SPL	--	--	--	--
3/9/2000	--	a	39.14	14.83	0.6	23.71	53,000	12,000	2,600	1,900	9,100	<5.0	--	PACE	--	--	--	--
3/8/2001	--	f	39.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2002	--	a	39.14	11.45	1.5	26.19	33,000	8,240	1,080	1,010	2,900	34.3	--	PACE	--	--	--	--
3/18/2002	--		39.14	8.03	--	31.11	--	--	--	--	--	--	--	--	--	--	--	--
3/11/2003	--	a	39.14	9.60	0.45	29.09	--	--	--	--	--	--	--	--	--	--	--	--
12/9/2003	--	a	39.14	11.44	0.03	27.72	--	--	--	--	--	--	--	--	--	--	--	--
3/9/2004	P		39.14	7.91	--	31.23	31,000	3,900	1,100	780	3,600	<50	--	SEQM	--	--	--	--
9/17/2004	--	a	39.14	12.13	0.15	27.13	--	--	--	--	--	--	--	--	--	--	--	--
3/7/2005	--	a	39.14	8.62	0.02	27.13	--	--	--	--	--	--	--	--	--	--	--	--
9/6/2005	--	a	41.98	11.16	0.18	30.96	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2006	P	a, q	41.98	8.60	SHEEN	33.38	32,000	7,500	810	1,200	2,300	<50	--	SEQM	--	--	--	--
3/6/2006	--	a	41.98	6.16	0.03	35.82	--	--	--	--	--	--	--	--	--	--	--	--
3/5/2007	P	q	41.98	8.34	SHEEN	33.64	90,000	10,000	4,200	1,900	7,900	<50	1.3	TAMC	6.91	--	--	--
9/7/2007	--	a	41.98	15.15	0.15	26.94	--	--	--	--	--	--	--	--	--	--	--	--
1/14/2008	--	a	41.98	10.30	0.49	32.05	--	--	--	--	--	--	--	--	--	--	--	--
2/27/2008	--	a	41.98	13.22	0.12	28.85	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2008	--	a	41.98	12.90	0.14	29.19	--	--	--	--	--	--	--	--	--	--	--	--
9/3/2008	--	a	41.98	12.90	0.99	29.82	--	--	--	--	--	--	--	--	--	--	--	--
3/4/2009	--	a	41.98	8.45	0.16	33.65	--	--	--	--	--	--	--	--	--	--	--	--
4/8/2009	--	x	39.14	9.05	0.67	30.59	--	--	--	--	--	--	--	--	--	--	--	--
5/11/2009	--		39.14	9.10	0.32	30.28	--	--	--	--	--	--	--	--	--	--	--	--
6/16/2009	--		39.14	9.15	0.02	30.01	--	--	--	--	--	--	--	--	--	--	--	--
7/2/2009	--		39.14	9.33	0.12	29.90	--	--	--	--	--	--	--	--	--	--	--	--
8/6/2009	--		39.14	10.05	0.01	29.10	--	--	--	--	--	--	--	--	--	--	--	--
9/30/2009	--		39.14	10.55	0.06	28.64	--	--	--	--	--	--	--	--	--	--	--	--
MW-6																		
10/3/1991	--		41.59	20.73	--	20.86	<50	0.7	0.8	<0.3	1.3	--	--	SUP	--	--	--	--
10/15/1991	--		41.59	21.20	--	20.39	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1991	--		41.59	21.26	--	20.33	--	--	--	--	--	--	--	--	--	--	--	--
12/16/1991	--		41.59	21.12	--	20.47	--	--	--	--	--	--	--	--	--	--	--	--
1/6/1992	--		41.59	20.29	--	21.30	<50	<0.5	<0.5	<0.5	1.6	--	--	ANA	--	--	--	--
1/22/1992	--		41.59	20.12	--	21.47	--	--	--	--	--	--	--	--	--	--	--	--
1/28/1992	--		41.59	20.20	--	21.39	--	--	--	--	--	--	--	--	--	--	--	--
2/5/1992	--		41.59	20.09	--	21.50	--	--	--	--	--	--	--	--	--	--	--	--
2/12/1992	--		41.59	19.15	--	22.44	--	--	--	--	--	--	--	--	--	--	--	--
2/17/1992	--		41.59	18.02	--	23.57	--	--	--	--	--	--	--	--	--	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE						
MW-6 Cont'd																		
4/3/1992	--		41.59	16.62	--	24.97	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1992	--		41.59	17.06	--	24.53	<50	0.6	<0.5	0.8	<0.5	--	--	ANA	--	--	--	--
4/14/1992	--		41.59	17.23	--	24.36	--	--	--	--	--	--	--	--	--	--	--	--
4/29/1992	--		41.59	18.12	--	23.47	--	--	--	--	--	--	--	--	--	--	--	--
5/7/1992	--		41.59	18.52	--	23.07	--	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--		41.59	19.71	--	21.88	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
10/8/1992	--		41.59	21.22	--	20.37	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
10/8/1992	--	h	41.59	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
12/31/1992	--		41.59	21.33	--	20.26	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
4/21/1993	--	n	41.59	16.45	--	24.14	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
7/7/1993	--	j, n	41.59	18.68	--	22.91	<50	<0.5	<0.5	<0.5	<0.5	28.96	--	PACE	--	--	29	
9/21/1993	--	n	41.59	19.64	--	21.95	<50	<0.5	<0.5	<0.5	1.6	--	--	PACE	--	--	--	--
12/17/1993	--		41.59	21.08	--	20.51	--	--	--	--	--	--	--	--	--	--	--	--
12/23/1993	--	n	41.59	--	--	--	<50	<0.5	0.5	<0.5	0.6	13.95	--	PACE	--	--	--	--
4/7/1994	--	n	41.59	21.27	--	20.32	<50	<0.5	<0.5	<0.5	<0.5	35.1	6.1	PACE	--	--	--	--
7/6/1994	--	n	41.59	19.81	--	21.78	<50	<0.5	<0.5	<0.5	<0.5	--	4.0	PACE	--	--	--	--
7/6/1994	--	h	41.59	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
10/7/1994	--	j, n	41.59	21.25	--	20.34	<50	<0.5	<0.5	<0.5	<0.5	24.3	3.5	PACE	--	--	24	
1/27/1995	--		41.59	12.39	--	29.20	<50	<0.5	<0.5	<0.5	<1	--	4.2	ATI	--	--	--	--
3/30/1995	--		41.59	11.34	--	30.25	<50	<0.50	<0.50	<0.50	<1.0	--	6.1	ATI	--	--	--	--
6/20/1995	--		41.59	15.12	--	26.74	<50	<0.50	<0.50	<0.50	<1.0	--	--	ATI	--	--	--	--
10/3/1995	--		41.59	20.68	--	20.91	<50	<0.50	<0.50	<0.50	<1.0	66	6.4	ATI	--	--	--	--
12/6/1995	--		41.59	23.77	--	17.82	<50	<0.50	<0.50	<0.50	<1.0	45	5.7	ATI	--	--	--	--
3/21/1996	--		41.59	11.55	--	30.04	<50	<0.5	<1	<1	<1	41	9.1	SPL	--	--	--	--
6/21/1995	--		41.59	12.60	--	28.99	<50	<0.5	<1	<1	<1	<10	8.6	SPL	--	--	--	--
9/6/1996	--		41.59	13.25	--	28.34	--	--	--	--	--	--	--	--	--	--	--	--
9/9/1996	--	k	41.59	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	22.22	7.9	SPL	--	--	--	--
12/19/1996	--		41.59	11.45	--	30.14	<50	<0.5	<1.0	<1.0	<1.0	<10	7.7	--	--	--	--	--
3/17/1997	--		41.59	10.80	--	30.79	--	--	--	--	--	--	--	--	--	--	--	--
2/1/1997	--		41.59	13.11	--	28.48	--	--	--	--	--	--	--	--	--	--	--	--
12/10/1997	--		41.59	13.84	--	27.75	--	--	--	--	--	--	--	--	--	--	--	--
3/12/1998	--		41.59	11.17	--	30.42	--	--	--	--	--	--	--	--	--	--	--	--
6/23/1998	--		41.59	13.27	--	28.32	--	--	--	--	--	--	--	--	--	--	--	--
3/31/1999	--		41.59	12.91	--	28.68	--	--	--	--	--	--	--	--	--	--	--	--
8/25/1999	--		41.59	15.93	--	25.66	--	--	--	--	--	--	--	--	--	--	--	--
3/9/2000	--		41.59	11.49	--	30.10	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2001	--		41.59	10.81	--	30.78	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2002	--		41.59	14.28	--	27.31	--	--	--	--	--	--	--	--	--	--	--	--
3/18/2002	--		41.59	13.10	--	28.49	--	--	--	--	--	--	--	--	--	--	--	--
3/11/2003	--		41.59	13.63	--	27.96	--	--	--	--	--	--	--	--	--	--	--	--
12/9/2003	P		41.59	14.26	--	27.33	<50	<0.50	<0.50	<0.50	<0.50	12	--	SEQM	6.4	--	--	--
3/9/2004	NP		41.59	11.87	--	29.72	<50	<0.50	<0.50	<0.50	<0.50	10	--	SEWM	7.1	--	--	--
9/17/2004	--		41.59	16.45	--	25.14	--	--	--	--	--	--	--		--	--	--	--
3/7/2005	P		41.59	13.65	--	27.94	<50	<0.50	<0.50	<0.50	<0.50	5.8	--	SEWM	6.7	--	--	--
9/6/2005	--		44.37	14.23	--	30.14	--	--	--	--	--	--	--		--	--	--	--
3/6/2006	P	u	44.37	12.89	--	31.48	<50	<0.50	<0.50	<0.50	<0.50	8.1	--	SEWM	6.8	--	--	--
9/5/2006	--		44.37	14.10	--	30.27	--	--	--	--	--	--	--		--	--	--	--
3/5/2007	P		44.37	11.43	--	32.94	<50	<0.50	<0.50	<0.50	<0.50	5.6	2.57	TAMC	7.7	--	--	--
9/7/2007	--		44.37	16.00	--	28.37	--	--	--	--	--	--	--		--	--	--	--
3/6/2008	P		44.37	11.84	--	32.53	<50	<0.50	<0.50	<0.50	<0.50	1.9	2.34	CEL	6.81	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	MtBE						
MW-6 Cont'd																		
9/3/2008	--		44.37	16.24	--	28.13	--	--	--	--	--	--	--		--	--	--	--
3/4/2009	P		44.37	11.68	--	32.69	<50	<0.50	<0.50	<0.50	<0.50	2.8	4.66	CEL	6.82	--	--	--
9/30/2009	P	x	41.58	16.83	--	24.75	<50	<0.50	<0.50	<0.50	<0.50	4.4	0.10	CEL	7.00	--	--	--
MW-7																		
10/3/1991	--		40.64	14.93	--	25.71	360	62	13	3.4	20	--	--	SUP	--	--	--	--
10/15/1991	--		40.64	15.16	--	25.48	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1991	--		40.64	15.41	--	25.23	--	--	--	--	--	--	--	--	--	--	--	--
12/16/1991	--		40.64	15.21	--	25.43	--	--	--	--	--	--	--	--	--	--	--	--
1/6/1992	--		40.64	14.56	--	26.08	1,100	170	<0.5	24	23	--	--	ANA	--	--	--	--
1/22/1992	--		40.64	14.63	--	26.01	--	--	--	--	--	--	--	--	--	--	--	--
1/28/1992	--		40.64	14.73	--	285.91	--	--	--	--	--	--	--	--	--	--	--	--
2/5/1992	--		40.64	14.58	--	26.06	--	--	--	--	--	--	--	--	--	--	--	--
2/12/1992	--		40.64	13.94	--	26.70	--	--	--	--	--	--	--	--	--	--	--	--
2/17/1992	--		40.64	13.10	--	27.54	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1992	--		40.64	12.66	--	27.98	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1992	--		40.64	12.77	--	27.87	750	150	<0.5	23	9.9	--	--	ANA	--	--	--	--
4/14/1992	--		40.64	13.02	--	27.62	--	--	--	--	--	--	--	--	--	--	--	--
4/29/1992	--		40.64	13.59	--	27.05	--	--	--	--	--	--	--	--	--	--	--	--
5/7/1992	--		40.64	13.95	--	26.69	--	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--		40.64	14.73	--	25.91	660	210	<2.5	33	8	--	--	ANA	--	--	--	--
10/8/1992	--		40.64	15.75	--	24.89	320	49	1.4	13	6.2	--	--	ANA	--	--	--	--
12/31/1992	--		40.64	13.57	--	27.07	900	100	<2.5	28	4.3	--	--	ANA	--	--	--	--
4/21/1993	--	n	40.64	14.56	--	26.08	510	83	1.2	10	5.8	--	--	PACE	--	--	--	--
7/7/1993	--	h,n	40.32	--	--	--	1,100	170	1.9	29	2.84	9.84	--	PACE	--	--	--	--
7/7/1993	--	i,n	40.32	13.40	--	26.92	1,100	160	2	27	4	10.84	--	PACE	--	--	--	--
9/21/1993	--	h,n	40.32	--	--	--	640	140	1.7	23	2.4	--	--	PACE	--	--	--	--
9/21/1993	--	n	40.32	14.40	--	25.92	690	150	3.1	26	5.7	--	--	PACE	--	--	--	--
12/17/1993	--		40.32	13.65	--	26.67	--	--	--	--	--	--	--	--	--	--	--	--
12/23/1993	--	n	40.32	--	--	--	250	64	1.2	9	1.8	7.81	--	PACE	--	--	--	--
4/7/1994	--	n	40.32	30.62	--	9.70	140	32	1.4	<0.5	<0.5	6.32	--	PACE	--	--	--	--
7/6/1994	--	n	40.32	16.88	--	23.44	410	94	1.3	10	3.5	<5.0	4.4	PACE	--	--	--	--
10/7/1994	--	n	40.32	25.59	--	14.73	<50	9.2	<0.5	<0.5	<0.5	<5.0	4.9	PACE	--	--	--	--
1/27/1995	--		40.32	9.82	--	30.50	810	570	3	60	17	--	0	ATI	--	--	--	--
1/27/1995	--	h	40.32	--	--	--	930	620	4	77	21	--	--	ATI	--	--	--	--
3/30/1995	--		40.32	9.15	--	31.17	180	65	0.53	2	<1.0	--	7.8	ATI	--	--	--	--
6/20/1995	--		40.32	11.38	--	28.94	2,800	980	<5.0	<5.0	43	--	--	ATI	--	--	--	--
10/3/1995	--		40.32	29.95	--	10.37	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	ATI	--	--	--	--
12/6/1995	--		40.32	29.85	--	10.47	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	ATI	--	--	--	--
3/21/1996	--		40.32	9.76	--	30.56	1,000	390	2	40	13	<10	7.4	SPL	--	--	--	--
6/21/1996	--		40.32	11.01	--	29.31	<250	40	<5	<5	<5	<50	7.4	SPL	--	--	--	--
9/6/1996	--		40.32	11.68	--	28.64	--	--	--	--	--	--	--	--	--	--	--	--
9/9/1996	--		40.32	--	--	--	<250	13	<5.0	<5.0	<5.0	<50	7.2	SPL	--	--	--	--
12/19/1996	--		40.32	10.78	--	29.54	70	1.2	<1.0	1	<1.0	<10	8.3	SPL	--	--	--	--
3/17/1997	--		40.32	9.96	--	30.36	--	--	--	--	--	--	--	--	--	--	--	--
8/12/1997	--		40.32	11.44	--	28.88	--	--	--	--	--	--	--	--	--	--	--	--
12/10/1997	--		40.32	10.42	--	29.90	--	--	--	--	--	--	--	--	--	--	--	--
3/12/1998	--		40.32	9.51	--	30.81	--	--	--	--	--	--	--	--	--	--	--	--
6/23/1998	--		40.32	9.98	--	30.34	--	--	--	--	--	--	--	--	--	--	--	--
3/31/1999	--		40.32	10.38	--	29.94	--	--	--	--	--	--	--	--	--	--	--	--
8/25/1999	--		40.32	12.38	--	27.94	--	--	--	--	--	--	--	--	--	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	MtBE						
MW-7 Cont'd																		
3/9/2000	--		40.32	8.48	--	31.84	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2001	--		40.32	8.37	--	31.95	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2002	--	f	40.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/18/2002	--		40.32	9.94	--	30.38	--	--	--	--	--	--	--	--	--	--	--	--
3/11/2003	--		40.32	11.26	--	29.06	--	--	--	--	--	--	--	--	--	--	--	--
12/9/2003	P		40.32	12.70	--	27.56	270	26	<0.50	<0.50	<0.50	8.7	--	SEQM	6.1	--	--	--
3/9/2004	P		40.32	10.91	--	29.41	320	49	0.73	1.8	0.59	6.9	--	SEQM	6.2	--	--	--
9/17/2004	P		40.32	13.20	--	27.12	330	17	<0.50	<0.50	<0.50	7.0	--	SEQM	6.6	--	--	--
3/7/2005	P		40.32	8.18	--	32.14	340	41	0.79	0.79	0.73	7.2	--	SEQM	6.9	--	--	--
9/6/2005	P		43.10	11.80	--	31.30	1,100	130	1.2	1.8	<1.5	16	--	SEQM	6.7	--	--	--
3/6/2006	P		43.10	8.39	--	34.71	440	31	0.78	0.74	0.81	8.3	--	SEQM	7.1	--	--	--
9/5/2006	--		43.10	11.45	--	31.65	2,000	260	3.1	5.9	<2.5	12	--	TAMC	6.6	--	--	--
3/5/2007	P		43.10	9.31	--	33.79	2,200	110	2.2	4.0	1.8	7.6	1.06	TAMC	7.26	--	--	--
9/7/2007	P		43.10	12.18	--	30.92	220	8.4	<0.50	<0.50	<0.50	1.2	0.98	TAMC	6.89	--	--	--
3/6/2008	P		43.10	10.05	--	33.05	1,800	54	1.2	1.1	<1.0	<1.0	--	CEL	7.02	--	--	--
9/36/2008	P		43.10	13.17	--	29.93	540	13	0.69	<0.50	<0.50	5.5	4.77	CEL	6.88	--	--	--
3/4/2009	P		43.10	8.25	--	34.85	720	15	0.59	0.53	<0.50	3.4	1.29	CEL	6.93	--	--	--
9/30/2009	P	x	40.40	12.70	--	27.70	1,200	44	1.0	0.74	0.79	3.3	0.11	CEL	6.94	--	--	--
MW-8																		
10/3/1991	--		38.18	22.37	--	15.81	<50	<0.3	0.6	<0.3	0.9	--	--	SUP	--	--	--	--
10/15/1991	--		38.18	22.70	--	15.48	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1991	--		38.18	22.44	--	15.74	--	--	--	--	--	--	--	--	--	--	--	--
12/16/1991	--		38.18	22.47	--	15.71	--	--	--	--	--	--	--	--	--	--	--	--
1/6/1992	--		38.18	21.94	--	16.24	<50	<0.5	<0.5	<0.50	<0.5	--	--	ANA	--	--	--	--
1/225/1992	--		38.18	21.44	--	16.74	--	--	--	--	--	--	--	--	--	--	--	--
1/28/1992	--		38.18	21.20	--	16.98	--	--	--	--	--	--	--	--	--	--	--	--
2/5/1992	--		38.18	20.88	--	17.30	--	--	--	--	--	--	--	--	--	--	--	--
2/12/1992	--		38.18	20.54	--	17.64	--	--	--	--	--	--	--	--	--	--	--	--
2/17/1992	--		38.18	19.99	--	18.19	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1992	--		38.18	16.75	--	21.43	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1992	--		38.18	16.57	--	21.69	<50	<0.5	<0.5	<.5	<0.5	--	--	ANA	--	--	--	--
4/14/1992	--	f	38.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/29/1992	--		38.18	18.61	--	19.57	--	--	--	--	--	--	--	--	--	--	--	--
5/7/1995	--		38.18	18.41	--	19.77	--	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--		38.18	20.35	--	17.83	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
10/8/1992	--	f	38.18	21.74	--	16.44	--	--	--	--	--	--	--	--	--	--	--	--
12/31/1992	--		38.18	19.09	--	19.09	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
4/21/1993	--	n	38.18	18.92	--	19.26	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
7/7/1993	--	n	38.18	17.76	--	20.42	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	--	--	--
9/21/1993	--	n	38.18	19.71	--	18.47	<50	2.9	2.2	2.2	7.1	--	--	PACE	--	--	--	--
12/17/1993	--		38.18	21.33	--	16.85	--	--	--	--	--	--	--	--	--	--	--	--
12/23/1993	--	n	38.18	--	--	--	<50	<0.5	<0.5	<0.5	0.6	<5.0	--	PACE	--	--	--	--
4/7/1994	--	n	38.18	21.51	--	16.67	<50	<0.5	<0.5	<0.5	<0.5	<5.0	6.6	PACE	--	--	--	--
7/6/1994	--	n	38.18	17.41	--	20.77	<50	<0.5	<.5	<.5	<0.5	<5.0	4.4	--	--	--	--	--
10/7/1994	--	n	38.18	19.20	--	18.98	<50	<0.5	<0.5	<0.5	<0.5	<5.0	3.7	--	--	--	--	--
1/27/1995	--		38.18	12.25	--	25.93	<50	<0.5	<0.5	<.5	<1	--	2.9	ATI	--	--	--	--
3/30/1995	--		38.18	10.35	--	27.83	<50	<0.50	<0.50	<.50	<1.0	--	8.3	ATI	--	--	--	--
6/20/1995	--		38.18	13.37	--	24.81	<50	<0.50	<0.50	<.50	<1.0	--	6.9	ATI	--	--	--	--
10/3/1995	--	f	38.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/6/1995	--		38.18	18.42	--	19.76	<50	<0.50	<0.50	<0.50	<1.0	47	5.3	ATI	--	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE						
MW-8 Cont'd																		
3/21/1996	--	f	38.18	--	--	--	--	--	--	--		--	--		--	--	--	--
6/21/1996	--		38.18	13.03	--	25.15	<50	<0.5	<1	<1	<1	<10	7.0	SPL	--	--	--	--
9/6/1996	--		38.18	13.70	--	24.48	--	--	--	--	--	--	--	--	--	--	--	--
9/9/1996	--		38.18	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	7.0	SPL	--	--	--	--
12/19/1996	--		38.18	11.93	--	26.25	<50	<0.5	<1.0	<1.0	<1.0	<10	7.6	SPL	--	--	--	--
3/17/1997	--		38.18	11.29	--	26.89	--	--	--	--	--	--	--	--	--	--	--	--
8/12/1997	--		38.18	13.73	--	24.45	--	--	--	--	--	--	--	--	--	--	--	--
12/110/1997	--		38.18	11.88	--	26.30	--	--	--	--	--	--	--	--	--	--	--	--
3/12/1998	--		38.18	11.89	--	26.29	--	--	--	--	--	--	--	--	--	--	--	--
6/23/1998	--		38.18	11.33	--	26.85	--	--	--	--	--	--	--	--	--	--	--	--
3/31/1999	--		38.18	12.68	--	25.50	--	--	--	--	--	--	--	--	--	--	--	--
8/25/1999	--		38.18	14.93	--	23.25	--	--	--	--	--	--	--	--	--	--	--	--
3/9/2000	--		38.18	9.14	--	29.04	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2001	--		38.18	8.41	--	29.77	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2002	--		38.18	11.18	--	27.00	--	--	--	--	--	--	--	--	--	--	--	--
3/18/2002	--		38.18	10.72	--	27.46	--	--	--	--	--	--	--	--	--	--	--	--
3/11/2003	--		38.18	10.46	--	27.72	--	--	--	--	--	--	--	--	--	--	--	--
3/9/2004	P		38.18	9.79	--	28.39	<50	<0.50	<0.50	<0.50	<0.50	0.5	--	SEQM	7.2	--	--	--
9/17/20047	--		38.18	15.35	--	22.83	--	--	--	--	--	--	--	--	--	--	--	--
3/7/2005	P		38.18	7.94	--	30.24	<50	<0.50	<0.50	<0.50	<.50	<0.50	--	SEQM	6.7	--	--	--
9/6/2005	--		40.95	13.06	--	27.89	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2006	P	u	40.95	9.26	--	31.69	<50	<0.50	<0.50	<0.50	<0.50	0.59		SEQM	7.2	--	--	--
9/5/2006	--		40.95	12.61	--	28.34	--	--	--	--	--	--	--	--	--	--	--	--
3/5/2007	P		40.95	9.12	--	31.83	<50	<0.50	<0.50	<0.50	0.53	<0.50	6.79	TAMC	7.17	--	--	--
9/7/2007	--		40.95	13.56	--	27.39	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2008	P		40.95	9.80	--	31.15	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.14	CEL	6.86	--	--	--
9/3/2008	--		40.95	14.20	--	26.75	--	--	--	--	--	--	--	--	--	--	--	--
3/4/2009	P		40.95	9.51	--	31.44	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.62	CEL	6.96	--	--	--
9/30/2009	--	x	38.19	14.92	--	23.27	--	--	--	--	--	--	--	--	--	--	--	--
MW-9																		
10/3/1991	--		41.25	14.12	--	27.13	<50	<0.3	0.4	<0.3	<0.3	--	--	SUP	--	--	--	--
10/15/1991	--		41.25	14.27	--	26.98	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1991	--		41.25	13.84	--	27.41	--	--	--	--	--	--	--	--	--	--	--	--
12/16/1991	--		41.25	14.18	--	27.07	--	--	--	--	--	--	--	--	--	--	--	--
1/6/1992	--		41.25	13.42	--	27.83	<50	<0.5	<0.5	<0.5	0.9	--	--	ANA	--	--	--	--
1/2/1992	--		41.25	13.75	--	27.50	--	--	--	--	--	--	--	--	--	--	--	--
1/28/1992	--		41.25	14.76	--	26.49	--	--	--	--	--	--	--	--	--	--	--	--
2/5/1992	--		41.25	13.38	--	27.81	--	--	--	--	--	--	--	--	--	--	--	--
2/12/1992	--		41.25	11.86	--	29.39	--	--	--	--	--	--	--	--	--	--	--	--
2/17/1992	--		41.25	10.78	--	30.47	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1992	--		41.25	11.63	--	29.62	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1992	--		41.25	12.25	--	29.00	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
4/14/1992	--		41.25	12.32	--	28.93	--	--	--	--	--	--	--	--	--	--	--	--
4/29/1992	--		41.25	13.07	--	28.18	--	--	--	--	--	--	--	--	--	--	--	--
5/7/1992	--		41.25	14.43	--	26.82	--	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--		41.25	13.85	--	27.40	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
10/5/1992	--		41.25	14.89	--	26.36	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
12/31/1992	--		41.25	11.90	--	29.35	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
4/21/1993	--	n	41.25	13.68	--	27.57	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
7/7/1993	--	n	41.25	13.12	--	28.13	<50	<0.5	<.5	<0.5	<0.5	<5.0	--	PACE	--	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE						
MW-9 Cont'd																		
9/21/1993	--	n	41.25	14.00	--	27.25	<0	<0.5	<.5	<0.5	0.9	--	--	PACE	--	--	--	--
12/17/1993	--		41.25	12.98	--	28.27	--	--	--	--	--	--	--	--	--	--	--	--
12/23/1993	--	n	41.25	--	--	--	<50	<0.5	<0.5	<0.5	0.9	<5.0	--	PACE	--	--	--	--
4/7/1994	--	n	41.25	13.24	--	28.01	<0	<0.5	<0.5	<0.5	<0.5	<5.0	4.7	PACE	--	--	--	--
7/6/1994	--	n	41.25	13.77	--	27.48	<50	<0.5	<0.5	<0.5	<.5	--	3.9	PACE	--	--	--	--
10/7/1994	--	n	41.25	14.60	--	26.65	<50	<0.5	<0.5	<0.5	<0.5	<5.0	3.0	PACE	--	--	--	--
1/27/1995	--		41.25	8.47	--	32.78	<50	<0.5	<0.5	<0.5	<1	--	2.58	ATI	--	--	--	--
3/30/1995	--		41.25	8.19	--	33.06	<50	<0.50	<0.50	<0.50	<1.0	--	8.4	ATI	--	--	--	--
6/20/1995	--		41.25	11.26	--	30.00	<50	<0.50	<0.50	<0.50	<1.0	--	8.1	ATI	--	--	--	--
10/3/1995	--		41.25	14.68	--	26.57	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.0	ATI	--	--	--	--
15/6/1995	--		41.25	16.07	--	25.18	<0	<0.50	<0.50	<0.50	<1.0	46	5.4	ATI	--	--	--	--
3/21/1996	--		41.25	9.60	--	31.65	<50	<0.5	<1	<1	<1	<10	8.0	SPL	--	--	--	--
6/21/1996	--		41.25	10.86	--	30.39	<50	<0.5	<1	<1	<1	<10	7.8	SPL	--	--	--	--
9/6/1996	--		41.25	11.52	--	29.73	--	--	--	--	--	--	--	--	--	--	--	--
9/9/1996	--	k	41.25	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	20/21	7.3	SPL	--	--	--	--
12/19/1996	--		41.25	10.43	--	30.82	<50	<0.5	<1.0	<1.0	<1.0	<10	7.3	SPL	--	--	--	--
3/17/1997	--		41.25	9.87	--	31.38	--	--	--	--	--	--	--	--	--	--	--	--
8/12/1997	--		41.25	11.44	--	29.81	--	--	--	--	--	--	--	--	--	--	--	--
12/10/1997	--		41.25	10.44	--	30.81	--	--	--	--	--	--	--	--	--	--	--	--
3/12/1998	--		41.25	9.50	--	31.75	--	--	--	--	--	--	--	--	--	--	--	--
6/23/1998	--		41.25	10.06	--	31.19	--	--	--	--	--	--	--	--	--	--	--	--
3/31/1999	--		41.25	9.06	--	32.19	--	--	--	--	--	--	--	--	--	--	--	--
8/25/1999	--		41.25	12.00	--	29.25	--	--	--	--	--	--	--	--	--	--	--	--
3/9/2000	--		41.25	10.57	--	30.68	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2001	--		41.25	9.73	--	31.52	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2002	--		41.25	11.89	--	29.36	--	--	--	--	--	--	--	--	--	--	--	--
3/18/2002	--		41.25	9.68	--	31.57	--	--	--	--	--	--	--	--	--	--	--	--
3/11/2003	--		41.25	9.21	--	32.04	--	--	--	--	--	--	--	--	--	--	--	--
3/9/2004	--		41.25	10.99	--	30.26	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.6	--	--	--
9/17/2004	--		41.25	13.35	--	27.90	--	--	--	--	--	--	--	--	--	--	--	--
3/7/2005	P		41.25	8.94	--	32.31	<0	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.9	--	--	--
9/6/2005	--		44.06	11.99	--	32.07	--	--	--	--	--	--	--	--	--	--	--	--
3/6/20069	P	u	44.06	8.26	--	35.80	<50	<50	<0.50	<.50	<0.51	<.50	--	SEQM	6.9	--	--	--
9/5/2006	--		44.06	11.63	--	32.43	--	--	--	--	--	--	--	--	--	--	--	--
3/5/2007	P		44.06	9.33	--	34.73	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.22	TAMC	7.03	--	--	--
9/8/2007	--		44.06	12.28	--	31.78	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2008	P		44.06	10.11	--	33.95	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.72	CEL	6.9	--	--	--
9/36/2008	--		44.06	13.49	--	30.57	--	--	--	--	--	--	--	--	--	--	--	--
3/4/2009	P		44.06	8.15	--	35.91	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.03	CEL	6.84	--	--	--
9/30/2009	--	x	41.25	12.98	--	28.27	--	--	--	--	--	--	--	--	--	--	--	--
MW-10																		
6/16/2009	--		39.78	8.60	0.01	31.19	--	--	--	--	--	--	--	--	--	--	--	--
7/22/2009	--		39.78	9.68	0.01	30.11	--	--	--	--	--	--	--	--	--	--	--	--
8/6/2009	--		39.78	9.48	--	30.30	--	--	--	--	--	--	--	--	--	--	--	--
9/30/2009	--		39.78	9.69	0.01	30.10	--	--	--	--	--	--	--	--	--	--	--	--
MW-11																		
9/30/2009	P	x	40.04	10.55	--	29.49	30,000	850	1,400	1,000	3,700	27	--	CEL	7.09	--	--	--
MW-12																		
9/30/2009	--	x	40.32	11.02	0.02	29.32	--	--	--	--	--	--	--	--	--	--	--	--

Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW Thickness (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentration in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)	HVOC (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE						
QC-2																		
10/8/1992	--	l	41.25	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
12/31/1992	--	l	41.25	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
4/21/1993	--	l,n	41.25	--	--	--	--	--	--	--	--	--	--	PACE	--	--	--	--
7/7/1993	--	l,n	41.25	--	--	--	<50	<0.5	<0.5	<0.5	0.6	--	--	PACE	--	--	--	--
9/21/1993	--	l,n	41.25	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
12/23/1993	--	l	41.25	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
4/7/1994	--	l	41.25	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
7/6/1994	--	l	41.25	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
10/7/1994	--	l	41.25	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
1/27/1995	--	l	41.25	--	--	--	<50	<0.5	0.5	<0.5	<1	--	--	ATI	--	--	--	--
3/30/1995	--	l	41.25	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	ATI	--	--	--	--
6/20/1995	--	l	41.25	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	ATI	--	--	--	--
10/3/1995	--	l	41.25	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	ATI	--	--	--	--
12/6/1995	--	l	41.25	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	ATI	--	--	--	--
3/21/1996	--	l	41.25	--	--	--	<50	<1	<1	<1	<1	<10	--	SPL	--	--	--	--
6/21/1996	--	l	41.25	--	--	--	<50	<1	<1	<1	<1	<10	--	SPL	--	--	--	--

Notes for Table 1
Summary of Ground-Water Monitoring Data:Relative Water Elevations and Laboratory Analyses
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

ACRONYMS:
--/--- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft bgs
ft bgs = Feet below ground surface
GRO = Gasoline range organics, range C4-C12
GWE = Groundwater elevation in ft
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
ND = Not detected
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing elevation in ft
TPH-g = Total petroleum hydrocarbons as gasoline
• g/L = Micrograms per liter
ANA = Anametrix, Inc.
PACE = Pace, Inc.
ATI = Analytical Technologies, Inc.
CEI = Ceimic Corporation
SPL = Southern Petroleum Laboratories
SEQ/SEQM= Sequoia Analytical/Sequoia Analytical - Morgan Hill (Laboratories)
SUP = Superior Analytical Laboratory

FOOTNOTES:
(a) Free product in well.
(c) Well destroyed during tank removal in November 1990.
(d) Methylene chloride.
(e) 1,2-Dichloroethane.
(f) Well inaccessible.
(g) Sample collected from MW-2 for TPH-d analysis received in laboratory 7 days after collection; sample exceeded EPA recommended holding time for TPH-d on a water matrix.
(h) Blind duplicate.
(i) TOC lowered.
(j) A copy of the documentation for this data is included in Appendix C of Alisto report 10-014-07-001.
(k) EPA Methods 8020/8260 used.
(l) Travel blank.
(n) A copy of the documentation for this data is included in the Blaine Tech Services, Inc. report 020308-DW-2. The data for samples taken on April 21, 1993, have been destroyed. No chromatograms could be located for the samples taken on: July 7, 1993, for well MW-2 and TB; September 21, 1993, for all wells MW-3, MW-4, MW-6, MW-7, MW-8, MW-9, the DUP and TB; December 23, 1993, for wells MW-2 and MW-3; and July 6, 1994, for wells MW-2, MW-4, MW-6, and MW-9.
(p) Well not sampled due to damage during site construction.
(q) Sheen in well.
(r) Well dry.
(s) The hydrocarbon result for GRO was partly due to individual peaks in the quantification range.
(t) MS and/or MSD were below the acceptance limits for MTBE. Matrix interference was suspected.
(u) Possible high bias for benzene due to CCV falling outside acceptance criteria.
(v) The sample concentration is greater than four times the spike concentration.
(w) Insufficient water to sample.
(x) Well surveyed 4/13/2009.
(y) Quantitation of unknown hydrocarbon(s) in sample based on gasoline.

NOTES:
GWE adjusted assuming a specific gravity of 0.75 for free product.
Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g has been changed to GRO. The resulting data may be impacted by the potential inclusion of non-TPHg analytes within the requested fuel range resulting in a higher concentration being reported.
GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through the present.

Table 2
Summary of Fuel Adeditives Analytical Data
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well ID and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2									
12/9/2003	<100	<20	24	<0.50	<0.50	<0.50	--	--	
3/9/2004	<100	<20	27	<0.50	<0.50	<0.50	<0.50	<0.50	
9/17/2004	<100	<20	21	<050	<0.50	<0.50	<0.50	<0.50	
9/5/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
12/9/2003	<100	<20	6.4	<0.50	<0.50	<0.50	--	--	
3/9/2004	<100	<20	6.9	<0.50	<0.50	<0.50	<0.50	<0.50	
3/7/2005	<100	<20	5.1	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2006	<300	<20	6.9	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2007	<300	<20	5.4	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<300	<10	4.2	<0.50	<0.50	<0.50	<0.50	<0.50	
3/4/2009	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
9/30/2009	<300	<10	6.8	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									
12/9/2003	<500	<100	130	<2.5	<2.5	2.7	--	--	
3/9/2004	<100	<20	35	<0.50	<0.50	<0.50	<0.50	<0.50	
9/17/2004	<500	<100	140	<2.5	<2.5	2.6	<2.5	<2.5	
3/7/2005	<100	<20	42	<0.50	<.50	0.56	<0.50	<0.50	
9/6/2005	<150	<10	180	<0.50	<0.50	2.8	<0.50	<0.50	a
3/6/20096	<600	<40	110	<1.0	<1.0	1.4	<1.0	<1.0	
9/5/2006	<600	<40	190	<1.0	<1.0	1.7	<1.0	<1.0	
3/5/2007	<300	<20	13	<0.50	<0.50	<0.50	<0.50	<0.50	
9/7/2007	<300	<20	130	<0.50	<0.50	1.7	<0.50	<0.50	b (MTBE)
3/6/2008	<300	14	170	<0.50	<.50	2.1	<0.50	<0.50	
9/3/2008	<3000	<100	150	<5.0	<5.0	<5.0	<5.0	<5.0	
3/4/2009	<3000	<100	110	<5.0	<5.0	<5.0	<5.0	<5.0	
9/30/2009	<1200	<40	140	<2.0	<2.0	<2.0	<2.0	<2.0	
MW-5									
3/9/2004	<10,000	<2,000	<50	<50	<50	<50	96	<50	
3/6/2006	<30,000	<2,000	<50	60	<50	<50	<50	<50	
6/5/2007	<30,000	<2,000	<50	57	<50	<50	<50	<50	
MW-6									
12/9/2003	<100	<20	12	<0.50	<0.50	<0.50	--	--	
3/9/2004	<100	<20	10	<0.50	<0.50	<0.50	0.58	1.58	
3/7/2005	<100	<20	5.8	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2
Summary of Fuel Adeditives Analytical Data
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well ID and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-6 Cont'd									
3/6/2006	<300	<20	8.1	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2007	<300	<20	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
3/4/2009	<300	<10	2.8	<.50	<0.50	<0.50	<0.50	<0.50	
9/30/2009	<300	<10	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-7									
12/9/2003	<100	<20	8.7	<0.50	<0.50	<0.50	--	--	
3/9/2004	<100	<20	6.9	<0.50	<0.50	<0.50	1.2	<0.50	
9/17/2004	<100	<20	7	<0.50	<0.50	<0.50	<0.50	<0.50	
3/7/2005	<100	<20	7.2	<0.50	<0.50	<0.50	<0.50	<.50	
9/6/2005	<150	30	16	0.6	<0.50	<0.50	<0.50	<0.50	
3/6/2006	<300	<20	8.3	<0.50	<0.50	<0.50	<0.50	<.50	
9/5/2006	<1,500	<100	12	<2.5	<2.5	<2.5	<2.5	<2.5	
3/5/2007	<600	<40	7.6	<1.0	<1.0	<1.0	<1.0	<1.0	
9/7/2007	<300	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<600	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
9/3/2008	<300	17	5.5	<0.50	<0.50	<0.50	<0.50	<.50	
3/4/2009	<300	12	3.4	<0.50	<0.50	<0.50	<0.50	<0.50	
9/30/2009	<300	<10	3.3	<0.50	<0.50	<0.50	<0.50	<.50	
MW-8									
3/9/2004	<100	<20	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	
3/7/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2006	<300	<20	<0.59	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-9									
3/9/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/7/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2
Summary of Fuel Adeditives Analytical Data
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well ID and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-11									
9/30/2009	<6,000	<200	27	<10	<10	<10	<10	<10	

ACRONYMS:
TBA = tert-Butyl alcohol
MTBE = Methyl tert-butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert-butyl ether
TAME = tert-Amyl methyl ether
1,2-DCA = 1,2-Dichloroethane
EDB = 1,2-Dibromoethane
• g/L = micrograms per liter
< = Not detected at or above specified laboratory reporting limit
-- = Data not available, not analyzed, or not applicable

FOOTNOTES:
(a) MS and/or MSD below acceptance limits for MTBE. Matrix interference suspected.
(b) The sample concentration is greater than four times the spike concentration.

NOTES:
All fuel oxygenate compounds analyzed using EPA Method 8260B.

Table 3
Historical Ground-Water Flow Direction and Gradient
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
3/6/2006	Southwest	0.05
9/5/2006	Southwest	0.05
2/21/2007	Southwest	0.02
9/7/2007	Southwest	0.03
3/6/2008	Southwest	0.01
9/3/2008	Southwest	0.006
3/4/2009	Southwest	0.02
9/30/2009	Northwest	0.07

Table 4
Summary of Free Product Removal
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well ID	Date of Removal Event	DTW (feet)	Product Thickness (feet)	Product Removed (gallons)	Cumulative Product Removed (gallons)
MW-5	11/5/1992	--	--	0.200	0.200
MW-5	2/25/1993	--	--	0.100	0.300
MW-5	3/18/1993	--	--	0.100	0.400
MW-5	4/13/1993	--	--	0.100	0.500
MW-5	4/23/1993	--	--	13.0*	13.500
MW-5	5/24/1993	--	--	0.100	13.600
MW-5	10/14/1993	--	--	0.300	13.900
MW-5	11/10/1993	--	--	0.400	14.300
MW-5	12/23/1993	--	--	0.400	14.700
MW-5	8/12/1997	12.18	0.22	--	14.700
MW-5	12/10/1997	10.78	0.06	--	14.700
MW-5	3/12/1998	10.11	0.22	0.200	14.900
MW-5	6/23/1998	10.20	0.02	<0.050	14.900
MW-5	9/11/1998	11.61	0.04	0.100	15.000
MW-5	8/25/1999	14.69	0.38	0.070	15.070
MW-5	3/9/2000	14.83	0.60	0.400	15.470
MW-5	7/14/2003	12.72	0.03	0.019	15.489
MW-5	8/25/2003	14.04	0.00	0.000	15.489
MW-5	9/25/2003	14.38	0.08	0.052	15.542
MW-5	10/3/2003	12.15	0.06	0.040	15.582
MW-5	11/12/2003	12.74	0.19	0.120	15.702
MW-5	12/9/2003	11.44	0.03	0.040	15.742
MW-5	2/2/2004	6.47	0.04	0.030	15.772
MW-5	2/9/2004	10.61	0.04	0.030	15.802
MW-5	3/9/2004	7.91	--	--	15.802
MW-5	4/13/2004	9.68	0.28	0.200	16.002
MW-5	5/5/2004	11.93	Sheen	--	16.002
MW-5	6/3/2004	12.60	Sheen	--	16.002
MW-5	7/2/2004	11.11	0.10	0.060	16.062
MW-5	8/31/2004	12.80	0.05	0.132	16.194
MW-5	9/17/2004	12.13	0.15	--	16.194
MW-5	10/25/2004	10.66	0.26	0.170	16.364
MW-5	11/8/2004	9.98	0.02	0.020	16.384
MW-5	12/15/2004	8.76	0.01	0.010	16.394
MW-5	1/13/2005	7.12	--	--	16.394
MW-5	2/1/2005	8.10	0.01	0.007	16.400
MW-5	3/7/2005	8.62	0.02	0.013	16.413
MW-5	4/29/2005	9.39	--	--	16.413
MW-5	5/12/2005	7.51	0.01	0.007	16.420
MW-5	6/23/2005	7.70	--	--	16.420
MW-5	7/2/2005	10.81	--	--	16.420
MW-5	8/24/2005	10.53	--	--	16.420
MW-5	9/6/2005	11.16	0.18	0.119	16.539
MW-5	1/27/2006	9.02	0.02	0.013	16.433
MW-5	2/15/2006	8.38	0.02	0.013	16.446
MW-5	3/6/2006	8.60	Sheen	--	16.446
MW-5	4/21/2006	8.02	0.27	0.251	16.697
MW-5	5/30/2006	9.13	0.07	0.045	16.742
MW-5	6/27/2006	9.49	0.09	0.058	16.801
MW-5	7/31/2006	10.08	0.08	0.052	16.853
MW-5	8/28/2006	10.75	0.09	0.059	16.911
MW-5	9/5/2006	6.16	0.03	0.020	16.931

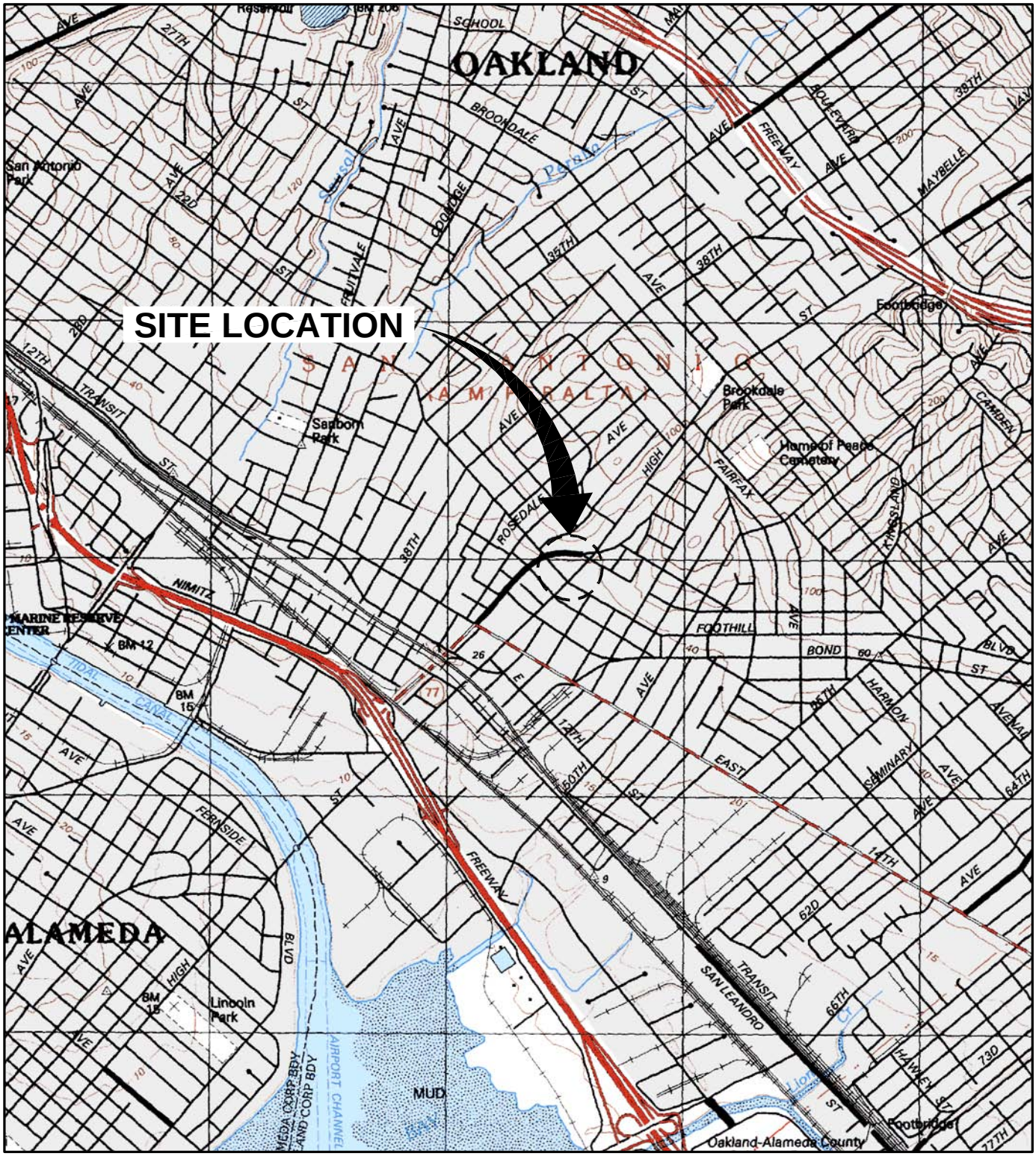
Table 4
Summary of Free Product Removal
Former BP Service Station #11109
4280 Foothill Boulevard
Oakland, California

Well ID	Date of Removal Event	DTW (feet)	Product Thickness (feet)	Product Removed (gallons)	Cumulative Product Removed (gallons)
MW-5	10/1/2006	--	--	--	16.931
MW-5	11/1/2006	--	--	--	16.931
MW-5	12/1/2006	--	--	--	16.931
MW-5	1/1/2007	--	--	--	16.931
MW-5	2/1/2007	--	--	--	16.931
MW-5	3/5/2007	8.34	Sheen	--	16.931
MW-5	4/1/2007	--	--	--	16.931
MW-5	5/1/2007	--	--	--	16.931
MW-5	6/1/2007	--	--	--	16.931
MW-5	7/1/2007	--	--	--	16.931
MW-5	8/1/2007	--	--	--	16.931
MW-5	9/7/2007	15.15	0.15	--	16.931
MW-5	9/12/2007	15.42	0.02	4.00*	20.931
MW-5	10/17/2007	12.50	0.35	5.5*	26.431
MW-5	11/8/2007	13.20	0.40	5.0*	31.431
MW-5	12/12/2007	12.25	0.52	3.5*	34.931
MW-5	1/14/2008	10.30	0.49	5.0*	39.931
MW-5	2/27/2008	13.22	0.12	4.0*	43.931
MW-5	3/6/2008	12.90	0.14	3.0*	46.931
MW-5	4/1/2008	9.52	0.07	4.0*	50.931
MW-5	5/20/2008	8.68	0.07	7.0*	57.931
MW-5	6/18/2008	10.46	0.18	0.00	57.931
MW-5	7/16/2008	11.25	0.00	0.0375	57.968
MW-5	8/13/2008	--	--	2.125*	60.093
MW-5	9/3/2008	12.90	0.99	3.0*	63.093
MW-5	9/15/2008	12.75	0.15	4.0*	67.093
MW-5	10/15/2008	13.43	0.50	5.0*	72.093
MW-5	11/20/2008	13.55	0.63	2.625*	74.718
MW-5	12/18/2008	12.62	0.37	3.625*	78.343
MW-5	1/14/2009	12.43	0.11	4.0*	82.343
MW-5	2/17/2009	8.80	0.33	4.0*	86.343
MW-5	3/4/2009	8.46	0.16	4.0*	90.343
MW-5	4/8/2009	9.05	0.22	6.0*	96.343
MW-5	5/11/2009	9.10	0.32	8.0*	104.343
MW-5	6/16/2009	9.15	0.02	5.5*	109.843
MW-10	6/16/2009	8.60	0.01	2.5*	112.343
MW-5	7/22/2009	9.33	0.12	6.0*	118.343
MW-10	7/22/2009	9.68	0.01	3.0*	121.343
MW-5	8/6/2009	10.05	0.01	5.0*	126.343
MW-5	9/30/2009	10.55	0.06	8.0*	134.343
MW-10	9/30/2009	9.69	0.01	3.0*	137.343
MW-12	9/30/2009	11.01	0.02	4.0*	141.343

ACRONYMS:
-- = Not available/applicable/measured/calculated
* = FP/water mixture

ARCADIS

Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD.,OAKLAND WEST, CA., 1993, AND SAN LEANDRO, 1993, REVISED 1996.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

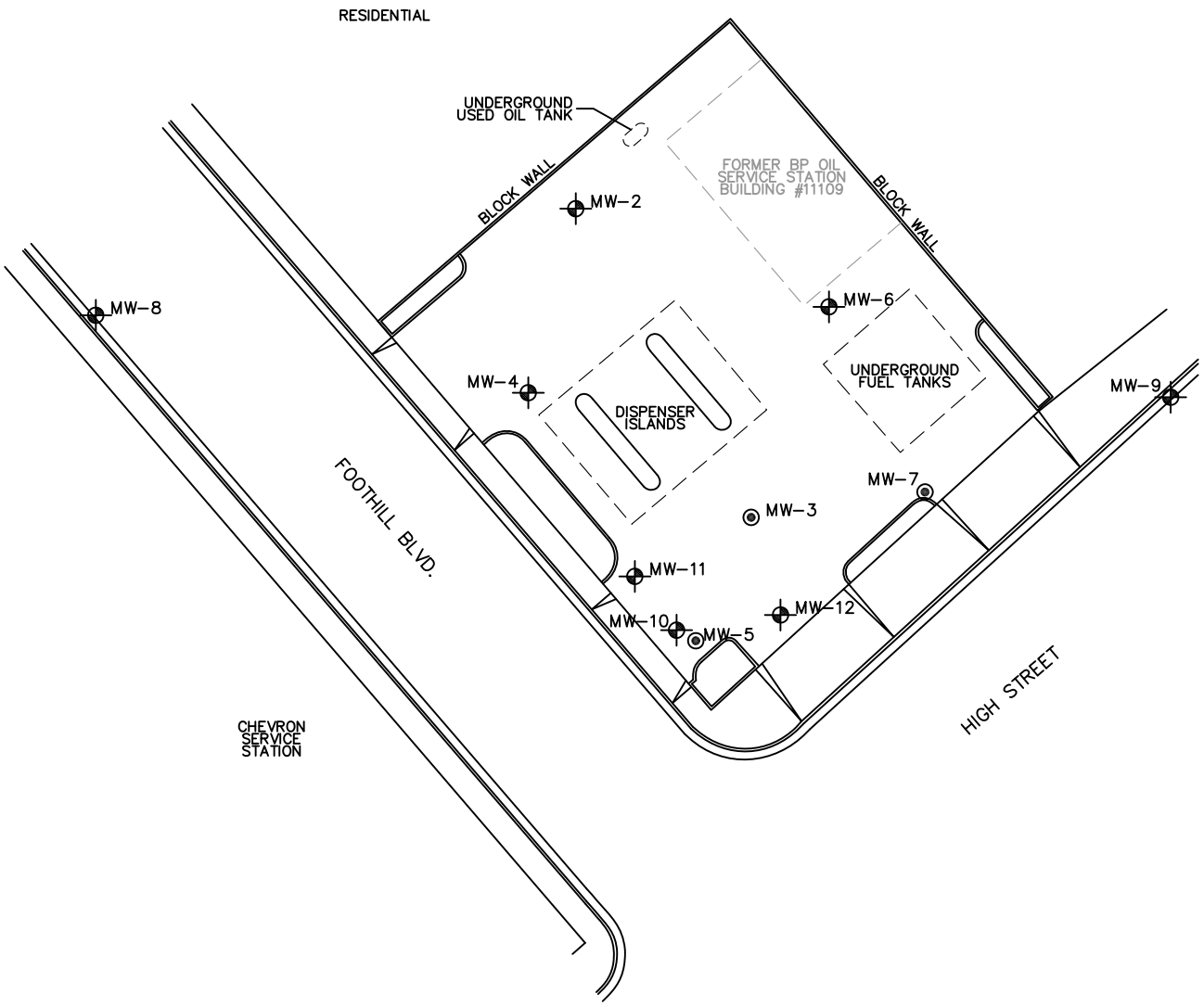
FORMER BP STATION #11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS LD:--- PIC:--- PM: H. PHILLIPS TM: B. McKENNA LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Petaluma\ACTIVE\GP09BPNAC106\E0000\GP09BPNAC106-1.dwg LAYOUT: 1SAVED: 11/20/2009 8:30 AM ACADVER: 17.1S (LMS TECH) PAGESETUP: SETUP:1PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 11/20/2009 8:40 AM BY: HARRIS, JESSICA
XREFS: IMAGES: PROJECTNAME: ---
GP09BX01.tif
GP09BX03.tiff



0 50' 100'

GRAPHIC SCALE

LEGEND

MONITORING WELL

RECOVERY WELL

NOTE: BASE MAP PROVIDED BY BROADBENT & ASSOCIATES, INC., DATED 10/26/2009, REFERENCE NO. 06-88-646, AT A SCALE OF 1"=40'.

FORMER BP STATION #11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

SITE PLAN

ARCADIS

FIGURE
2

ARCADIS

Appendix A

ACEH Letter dated August 13, 2009

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

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

August 13, 2009

Paul Supple
Atlantic Richfield Company
(A BP Affiliated Company)
P.O. Box 1257
San Ramon, CA 94583

Steve Mahoney
30 Northwest Street
Yerlington, NV 89447

Terry Grayson
Conoco Phillips
76 Broadway Street
Sacramento, CA 95818

Khalid & Romana Usman
3670 Ralston Avenue
Hillsborough, CA 94010

Subject: Fuel Leak Case No. RO0000426 and GeoTracker Global ID T0600100217, BP #11109, 4280 Foothill Boulevard, Oakland, CA 94601

Dear Mr. Supple, Mr. Grayson, Mr. Mahoney & Mr. & Mrs. Usman:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Soil and Groundwater Investigation Report," dated June 17, 2009, which was prepared by Broadbent & Associates, Inc. (BAI) for the subject site. BAI summarized installation of monitoring wells MW-10 through MW-12 and the results of the dual-phase extraction pilot test. Although induced vacuum was not observed in observation wells, drawdown was observed, PID readings in the influent vapor stream ranged from 270 to 1817 ppm, and an average of 1.54 lbs of gasoline per hour (91 lbs total) was recovered from the site. As a result, BAI recommends one year of groundwater sampling for the newly installed wells and include the wells in the "monthly monitoring/bailing of free product/separate phase hydrocarbons presently conducted at well MW-5." BAI also recommends preparation of a formal Feasibility Study and proceed with Corrective Action Design of a DPE treatment system.

ACEH generally concurs with the proposed scope of work and requests that you address the following technical comments and send us the technical reports described below.

TECHNICAL COMMENTS

1. **Feasibility Study** – The pilot test was approved and was referred to as an interim remedial measure, thereby precluding the preparation of a formal Feasibility Study (FS), which would have evaluated several cleanup alternatives that would have likelihood for successfully cleaning up the site. Although ACEH encourages the preparation of an FS, it was not a requirement for an interim remediation measure. As you may be aware, the UST Cleanup Fund typically reimburses costs associated with the most cost-effective remedial alternative. Since it was not determined that DPE is the most cost-effective remedial approach, the UST Cleanup Fund may not fully reimburse all costs associated with the proposed DPE system.

Consequently, BAI now proposes preparation of a formal FS and then proceeding with designing the DPE treatment system. If DPE has already been selected, based on pilot testing results, ACEH does not see the utility of developing an FS since a remediation alternative has already been selected and pilot tested, unless the results would change the final remedial alternative, in which case another pilot test may be necessary prior corrective action implementation. If preparation of the FS is solely for potential cost reimbursement considerations from the UST Cleanup Fund, but the remedial alternative has already been selected, the then the preparation of the formal FS appears to a moot point. Please contact the UST Cleanup Fund to address cost reimbursement concerns.

2. **Correction Action Plan** – Since the DPE pilot testing was successful, preparation of the CAP, as recommended by BAI appears appropriate. In the CAP, please include a concise background of soil and groundwater investigations performed in connection with this case and an assessment of the residual impacts of the chemicals of concern (COCs) for the site and the surrounding area where the unauthorized release has migrated or may migrate. The CAP should also include, but not limited to, a detailed description of site lithology, including soil permeability, and most importantly, contamination cleanup levels and cleanup goals, in accordance with the San Francisco Regional Water Quality Control Board Basin Plan and appropriate ESL guidance for all COCs and for the appropriate groundwater designation. Please note that soil cleanup levels should ultimately (within a reasonable timeframe) achieve water quality objectives (cleanup goals) for groundwater in accordance with San Francisco Regional Water Quality Control Board Basin Plan. Please propose appropriate cleanup levels and cleanup goals in accordance with 23 CCR Section 2725, 2726, and 2727 in the CAP. Please submit a CAP that addresses the above-mentioned concerns by the date specified below.

3. **Landowner Notification Form** – As you may be aware, an investigation resulting from underground storage tank leaks was performed at the subject property to which you are named as the primary or active responsible party. Pursuant to Section 25297.15 (a), Alameda County Environmental Health (ACEH), the local agency, shall not consider cleanup or site closure proposals from the primary or active responsible party, issue a closure letter, or make a determination that no further action is required with respect to a site upon which there was an unauthorized release of hazardous substances from an underground storage tank subject to this chapter unless all current record owners of fee title to the site of the proposed action have been notified of the proposed action by the primary or active responsible party. ACEH is required to notify the primary or active responsible party of their requirement to certify in writing to the local agency that the notification requirement in the above-mentioned regulation has been satisfied and to provide the local agency with a complete mailing list of all record fee title owners.

   To satisfy the above-mentioned requirement, please complete the enclosed "List of Landowners Form," and mail it back to ACEH within thirty (30) days from the date of this letter. Also your comments, if any, must be considered prior to the proposed cleanup or closure. Please respond within 30 days from the date of this letter for your comments to be considered.

4. **Groundwater Contaminant Plume Monitoring** – Quarterly groundwater monitoring may be appropriate for a period of one year for the newly installed groundwater monitoring wells MW-

10 through MW-12. In the upcoming groundwater sampling report, please include a groundwater monitoring plan for review. This may include quarterly monitoring for the newly installed wells and semi-annual and/or less frequent monitoring for existing wells.

NOTIFICATION OF FIELDWORK ACTIVITIES

Please schedule and complete the fieldwork activities by the date specified below and provide ACEH with at least three (3) business days notification prior to conducting the fieldwork.

TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Paresh Khatri), according to the following schedule:

- **October 12, 2009** – Feasibility Study and/or Corrective Action Plan
- **October 5 or 30, 2009** – Groundwater Monitoring Report (3rd Quarter 2009)

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

ELECTRONIC SUBMITTAL OF REPORTS

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

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

If you have any questions, please call me at (510) 777-2478 or send me an electronic mail message at paresh.khatri@acgov.org.

Sincerely,

Paresh C. Khatri
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions
Landowner Notification Form

cc: Tom Venus, Broadbent & Associates, 1324 Mangrove Avenue, Suite 212, Chico, CA 95926 (*Sent via E-mail to: tvenus@broadbentinc.com*)
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (*Sent via E-mail to: lgriffin@oaklandnet.com*)
Donna Drogos, ACEH (*Sent via E-mail to: donna.drogos@acgov.org*)
Paresh Khatri, ACEH (*Sent via E-mail to: paresh.khatri@acgov.org*)
GeoTracker
File

LIST OF LANDOWNERS FORM

County of Alameda
Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

CERTIFIED LIST OF RECORD FEE TITLE OWNERS FOR:

Site Name: BP #11109

Address: 4280 Foothill Boulevard

City, State, Zip: 4280 Foothill Boulevard, Oakland, CA 94601

Record ID #: RO0000426

Please fill out item 1 if there are multiple site landowners (attach an extra sheet if necessary). If you are the sole site landowner, skip item 1 and fill out item 2.

1. In accordance with Section 25297.15(a) of Chapter 6.7 of the California Health & Safety Code, I, _____ (name of primary responsible party), certify that the following is a complete list of current record fee title owners and their mailing addresses for the above site:

   Name: _____

   Address: _____

   City, State, Zip: _____

   E-mail Address: _____

   Name: _____

   Address: _____

   City, State, Zip: _____

   E-mail Address: _____

   Name: _____

   Address: _____

   City, State, Zip: _____

   E-mail Address: _____

2. In accordance with Section 25297.15(a) of Chapter 6.7 of the California Health & Safety Code, I _____, certify that I am the sole landowner for the above site.

Sincerely,

_____	_____	_____	_____
Signature of Primary Responsible Party	Printed Name	Date	E-mail Address

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

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

REQUIREMENTS

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

Additional Recommendations

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

Submission Instructions

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

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

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

ARCADIS

Appendix B

Previous Environmental Activities

Previous Environmental Activities
Former BP Site No. 11109

One 550-gallon steel waste oil UST was removed from the Site on 21 July 1986. The date of original installation of the tank is unknown. Kaprealian Engineering Inc. (KEI) collected soil samples for laboratory analysis during removal activities. According to KEI (1986), no visible contamination was noted beneath the asphalt or directly beneath the waste oil tank. One soil sample was collected from approximately seven feet below ground surface (bgs). The soil sample was analyzed for volatile organic compounds (VOCs) by EPA Method 8240 and total petroleum hydrocarbons (TPH) by a reportedly unknown method. The requested analytes were not detected above their laboratory reporting limits. KEI concluded that no further investigation was necessary. No additional information was provided in the report which described the location of the tank, the sample locations (other than depth), the volume of soil removed, or backfilling operations.

Target Environmental Services Inc. (Target) conducted a soil gas survey at the Site for Mobil on 10 March 1989. Sixteen on-site locations were sampled. Analysis of the soil gas samples by EPA Method 602 revealed the presence of hydrocarbons at the Site with the chromatograms reportedly confirming the presence of gasoline. Maximum concentrations detected during analysis included Pentane/Methyl-Tertiary Butyl Ether (MTBE) at 5,497 parts per billion (ppb), Benzene at 150 ppb, Toluene at 291 ppb, Ethylbenzene at 345 ppb, m- and p- Xylenes at 291 ppb, and o-Xylene at 120 ppb. The maximum calculated concentration of total volatiles was reported to be 46,500 ppb. Target concluded that the data suggested two sources of subsurface hydrocarbons; one west of the main building (described as weathered gasoline) and one between an eastern pump island and the UST complex (described as slightly weathered gasoline). Target concluded that the easterly occurrence of volatile hydrocarbons was more recent.

Rittenhouse-Zeman & Associates Inc. (RZA) performed a limited subsurface exploration at the Site on 19 April 1989. This evaluation included drilling two borings to total depths of approximately 31.5 feet bgs (B-1 and B-2), converting the borings to monitoring wells (MW-1 and MW-2, respectively), and collecting and analyzing soil and ground-water samples. The borings, one each in the eastern and western areas of the Site, were reportedly located using the results of Target's earlier soil gas survey. Soil types logged during drilling included gravelly clay and sandy gravel (fill), and silty clay, silty sand, and sandy clay in native soils to the total explored depths of approximately 31.5 feet bgs. Ground water was encountered in both borings at approximately 26 feet bgs at the time of drilling and subsequently stabilized at approximately 14 and 20 feet bgs (MW-1 and MW-2, respectively). One soil sample from each boring was submitted for analysis of Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) and TPH. TPH was reportedly detected in the soil sample collected from boring B-1 at 15 milligrams per kilogram (mg/kg), but was not detected above the laboratory reporting limit in the sample collected from boring B-2. BTEX was not detected above the laboratory reporting limit in either soil sample. RZA did not describe the soil sample depths. Ground-water samples collected from each well were submitted to the laboratory for BTEX analysis. The ground-water sample collected from well MW-1 reportedly contained BTEX concentrations of 860 micrograms per liter (• g/L), 160 • g/L, 570 • g/L, and 1,200 • g/L, respectively. The ground-water sample collected from well MW-2 was reportedly lost by the laboratory.

Alton Geoscience Inc. (AGS) conducted a site investigation in January 1990. This investigation consisted of drilling two borings (B-3 and B-4) to total depths of approximately 33.5 and 29.5 feet bgs, respectively,

converting each boring to a monitoring well (MW-3 and MW-4), and collecting and analyzing soil and ground-water samples. Boring B-3/MW-3 was located west of the easternmost pump island, and boring B-4/MW-4 was located west of the westernmost pump island. Soils logged during drilling included a mixture of silty clay, clayey sand, and sandy clay to the total explored depth of 33.5 feet bgs. Ground water was encountered during drilling at approximately 31 and 20 feet bgs (B-3 and B-4, respectively) and subsequently stabilized at approximately 17 and 21 feet bgs (B-3 and B-4, respectively). Soil samples were collected from each boring at five foot intervals between five and 25 feet bgs and at 29 feet bgs, respectively. Soil samples were submitted for laboratory analysis of Total Petroleum Hydrocarbons as Gasoline (TPH-G) and BTEX. Concentrations of TPH-G at 16 mg/kg and xylenes at 0.17 mg/kg were detected above laboratory reporting limits in a soil sample collected from boring B-4 at approximately 25 ft bgs. No other analytes were detected above laboratory reporting limits in the soil samples. Groundwater samples were collected from wells MW-2 through MW-4 in February 1990 and submitted for laboratory analysis of TPH-G and BTEX. TPH-G was detected at a maximum concentration of 1,400 • g/L and BTEX concentrations were detected up to 15 • g/L, 9.0 • g/L, 11 • g/L, and 13 • g/L, respectively, in wells MW-2 through MW-4. AGS reported that a sample was not collected from well MW-1 due to the presence of free-floating product. In their February 16, 1990 Site Investigation Report, AGS reported that ground-water flow at the Site was toward the northeast, although the figure presented in the report depicted the ground-water flow direction toward the northwest.

On September 14, 1990 one 6,000 gallon regular (leaded) gasoline steel UST, one 8,000 gallon super-unleaded gasoline steel UST, and one 10,000 gallon regular unleaded gasoline fiberglass UST were removed from the Site by Paradiso Construction Company under observation of KEI. These three USTs were removed from an excavation on the eastern corner of the Site. KEI reported that no apparent cracks or holes were observed in USTs upon removal. Initially, five discrete soil samples were collected from the excavation, four from the bottom of the excavation at depths of approximately 14.5 ft bgs (A1, A2, B1, and B2), and one from the sidewall (SW1) at a depth of approximately 12.0 ft bgs. Per the direction of the ACEH representative and due to observed contamination, additional excavation and sampling occurred on September 25, 1990. Two sidewall samples labeled SW2-19 and SW-4-16 were collected at depths of 19 and 16 ft bgs, respectively. Due to reported obvious contamination in the excavated soil from the new UST pit location (adjacent to the old UST pit area), additional samples labeled A3-16, A4-16.5, A4-19, B3-14.5, and B3-24 were collected at depths ranging from 16 to 24 ft bgs. In an attempt to define the lateral extent of soil contamination, KEI returned to the Site on September 26, 1990 to collect additional sidewall samples. Two samples labeled SW3-9.5 and SW-5 were collected at depths of 9.5 and 17 ft bgs, respectively. KEI returned to the Site on September 28, 1990 to collect soil samples from beneath two product dispensers. Two samples, labeled D1-4 and D2-11, were collected from bulk material excavated at depths of 4.0 and 11.0 ft bgs, respectively. In addition, one soil sample labeled SW6-11 was collected from the east side of sample point D2-11 at a depth of 11 ft bgs. KEI again returned to the Site on October 16, 1990 in order to complete soil sampling in the pump island area. Four samples, labeled D3 through D6, were collected from beneath four product dispensers ranging from 4.0 to 6.0 ft bgs. Approximately 1,950 cubic yards of soil was excavated and removed from Site. Ground water was reportedly not encountered during excavation activities. Each soil sample was analyzed for TPH-G and BTEX, with two samples additionally analyzed for Total Lead. Concentrations of TPH-G (up to 910 mg/kg), Benzene (up to 6.0 mg/kg), Toluene (up to 13 mg/kg), Ethylbenzene (up to 19 mg/kg), Total Xylenes (up to 82 mg/kg), and Total Lead (12 mg/kg) were detected in soil samples collected.

BP retained AGS to conduct a supplemental site investigation in September 1990. AGS completed a Sensitive Receptors Survey and found no reported public water supply wells in the area. The survey described the Site as being surrounded by single family residences to the north and northwest and a church to the northeast. At the intersection of Foothill Boulevard and High Street, Alton reported that Freemont High School bounded the Site on the east corner, a Shell service station on the south corner, and a Chevron service station on the west corner.

In 1991, AGS drilled five additional soil borings which were converted into three on-site monitoring wells (MW-5, MW-6, and MW-7) and two off-site monitoring wells (MW-8 and MW-9). The borings were drilled to total depths ranging between 31.5 to 36.5 ft bgs. Ten to 15-ft slotted monitoring well screens were installed to total depths of 30 to 35 ft bgs. Wells MW-5, MW-6, MW-8, and MW-9 were installed to assess the extent of petroleum hydrocarbon impacted ground water. Well MW-7 was installed to facilitate removal of free-floating product previously encountered in MW-1, which reportedly was destroyed during tank replacement activities. Soil types encountered during drilling consisted of predominantly silty clay and clayey sand mixtures, with minor clayey to sandy gravel lenses. Ground water initially encountered between 20 to 35 ft bgs during drilling, subsequently stabilized between 14 ft bgs to 24 ft bgs.

AGS collected 17 soil samples from the borings for MW-5 through MW-9 (one to six samples per location). Samples were submitted to the laboratory for TPH-G and BTEX analyses. Eight of the soil samples were also submitted for organic lead analysis. TPH-G and BTEX were not detected above the laboratory reporting limits in the soil samples collected from the off-site locations (MW-8 and MW-9). Maximum concentrations of TPH-G (6,100 mg/kg) and BTEX (14 mg/kg Benzene, 58 mg/kg Toluene, 55 mg/kg Ethylbenzene, 260 mg/kg Total Xylenes) were detected in soil samples collected from the boring for MW-5 between 11 and 21 feet bgs. TPH-G and BTEX were also detected in soil samples collected from the borings for MW-4 and MW-6 at depths of 25 and 25.5 feet bgs. Organic lead was not detected above the laboratory reporting limit in the soil samples.

AGS submitted a Feasibility Study and Remedial Work Plan to BP on 2 April 1992. AGS identified remedial action objectives to abate the potential impacts from: (1) free-floating product observed in well MW-5, (2) dissolved-phase gasoline hydrocarbons detected in each of the onsite wells, and (3) 1,2-DCA and methylene chloride detected in ground water in the vicinity of well MW-2. AGS selected ground-water extraction utilizing wells MW-3, MW-5, and MW-7 at an extraction rate of approximately 0.5 gallons per minute (gpm), followed by carbon treatment, as the appropriate remedial method. As part of the report, AGS prepared a work plan to address recovery, containment, and treatment of free-floating and dissolved-phase ground-water contamination. AGS also stated that, while vapor recovery was not addressed in the work plan, vapor conveyance lines would be installed in trenches to facilitate the addition of a vapor extraction system at a later date.

Alameda County provided conditional approval of the ground-water extraction and treatment system (GWETS) in June 1992. In April 1993, BP applied for a Wastewater Discharge Permit from the East Bay Municipal Utility District (EBMUD) for discharge of treated wastewater from the GWETS to the sanitary sewer collection system. The permit application reportedly described the remedial system as consisting of three recovery wells (MW-3, MW-5, and MW-7), sediment filters, an oil/water separator, and carbon treatment before discharge to the sewer. The aboveground GWETS assembly was located in the northern corner of the property. BP was reportedly issued a permit from EBMUD on 23 August 1993, for the effective period of September 1993 through August 1994. However, the GWETS was apparently not

operated in 1993. Alisto Engineering Group (AEG) reported that the system became operational and discharge began in February 1994.

On 19 October 1994 EMCON drilled two soil borings at the Site (TB-1 and TB-2) using Cone-Penetrometer Testing (CPT) drilling equipment in the vicinity of the current UST complex. Soil types encountered during drilling to depths of 25 and 27.5 ft bgs included gravel, clayey sand, and sandy clay. Field photo-ionization detector (PID) readings measured in soil samples collected during drilling ranged from 1 ppm (TB-2) to 49 ppm (TB-1). Four soil samples collected at depths of 16 to 27.5 ft bgs were submitted for TPH-G, TPH-Diesel (TPH-D), TPH-Oil (TPH-O), and BTEX analyses. TPH-G (51 mg/kg), TPH-O (8 mg/kg), Benzene (0.09 mg/kg), Ethylbenzene (0.4 mg/kg), and Total Xylenes (0.8 mg/kg) were detected in a soil sample collected from boring TB-2 at 16-16.5 ft bgs. TPH-O (33 mg/kg) was detected in a soil sample collected from boring TB-1 at 24.5-25 ft bgs. EMCON also completed a HydroPunch™ boring (THP-1) adjacent to the waste oil UST to a depth of 37.3 ft bgs. Soils encountered included clayey sand and sandy clay. PID readings in soil samples collected from boring THP-1 ranged up to 0.2 ppm. TPH-G, TPH-D, TPH-O, BTEX, and halogenated volatile organic compounds (HVOCs) were not detected in two soil samples analyzed from depths of 9.5 ft bgs and 17.5 ft bgs. No ground-water sample was recovered from the boring.

On behalf of BP, AEG completed sampling of the GWETS and semi-annual reporting to EBMUD for the period from 15 February 1994 through 27 December 1995. In July of 1996, BP reported to EBMUD that the GWETS had been shut down during the reporting period of 1 January 1996 to 30 June 1996. During the operational period of 15 February 1994 through 27 December 1995, AEG reported that a total of 344,650 gallons had been treated at an average flow rate ranging from 0.03 to 0.97 gallons per minute. During this period, combined influent concentrations into the GWETS generally decreased over time for the constituents analyzed with TPH-G ranging from 19,000 • g/L to 1,100 • g/L and Benzene from 3,100 • g/L to 28 • g/L. MTBE was not reported during this period.

Periodic ground-water monitoring and sampling from the Site monitoring wells has occurred since 1990 by various consultants working for BP. Tabular summaries of ground-water elevation, analytical results, ground-water flow directions and gradients, summary of separate-phase hydrocarbons (SPH, or Free Product – FP) removed from Site monitoring wells are contained within Appendix C. In addition, per the direction of ACEH, monitoring and sampling at the Site was coordinated with the consultants working at the nearby Chevron Station No. 9-0076.

In March 2009 BAI installed monitoring wells MW-10 through MW-12 to a maximum depth of 30 feet bgs. Each well was constructed of 4-inch, schedule 40, Polyvinyl Chloride (PVC) pipe, with 0.020-inch screen from approximately 7 to 30-feet bgs. During April and May 2009 BAI conducted a 5-day Dual-Phase Extraction Pilot Test as approved by ACEH in their letter dated 19 February 2009. The results of BAI's Dual-Phase Extraction Pilot Test were reported in BAI's Soil and Groundwater Investigation Report dated June 17, 2009. In a regulatory letter dated August 13, 2009 the ACEH requested a feasibility study and corrective action report.

ARCADIS

Appendix C

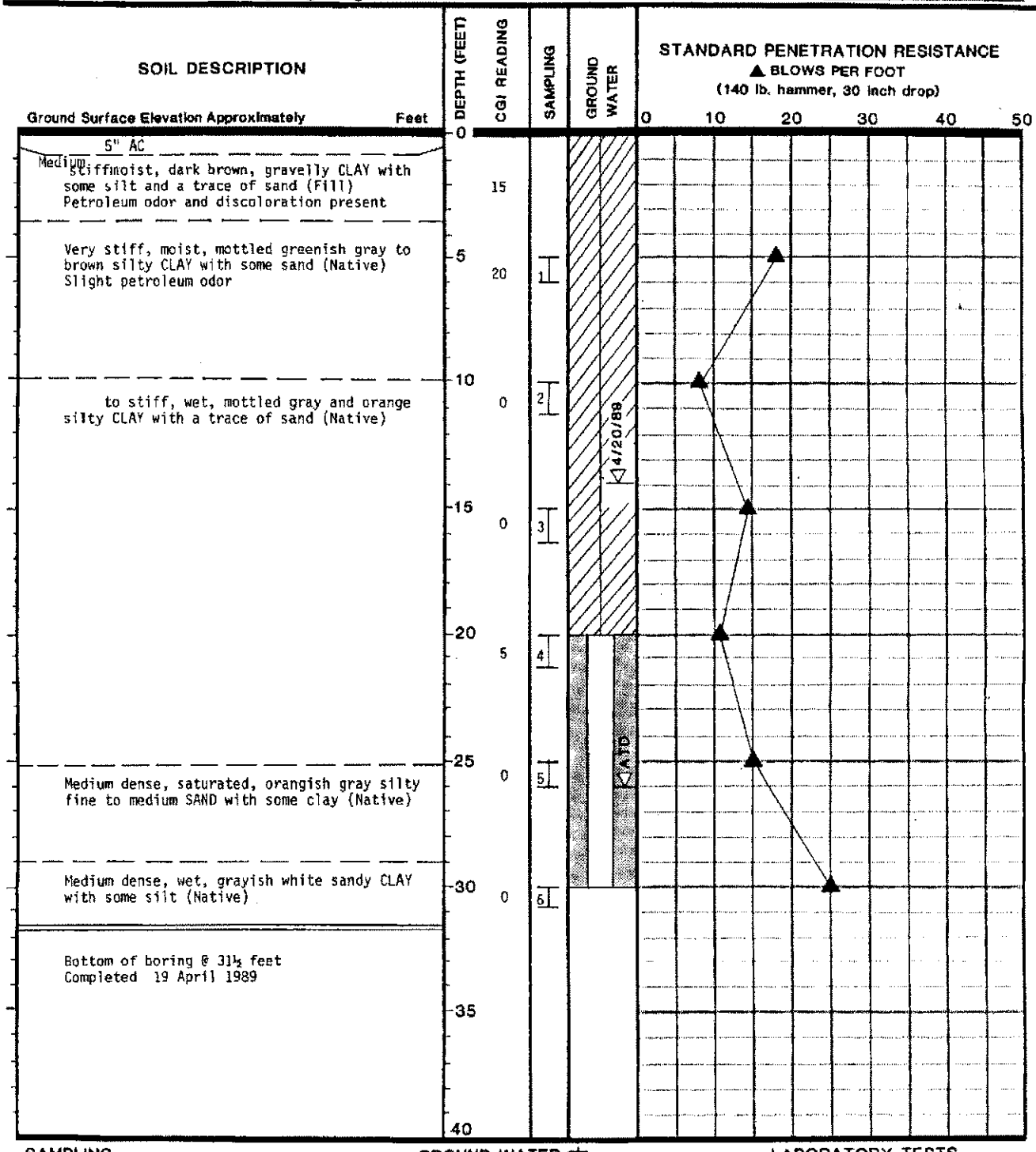
Historical Soil Boring Logs and
Geological Cross Sections

RZA

RITTENHOUSE-ZEMAN & ASSOC., INC.
Geotechnical / Hydrogeological Consultants

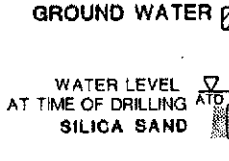
BORING NUMBER B-1 W.O. W-6095

PROJECT NAME Oakland, CA Mobil



SAMPLING
- I 2" OD SPLIT SPOON SAMPLE
- II 3" OD SHELBY SAMPLE
- ⊠ 2.5" ID RING SAMPLE
- B BULK SAMPLE
- ★ SAMPLE NOT RECOVERED

GROUND WATER



LABORATORY TESTS
- ● % WATER CONTENT
- NP NON PLASTIC

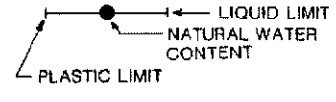
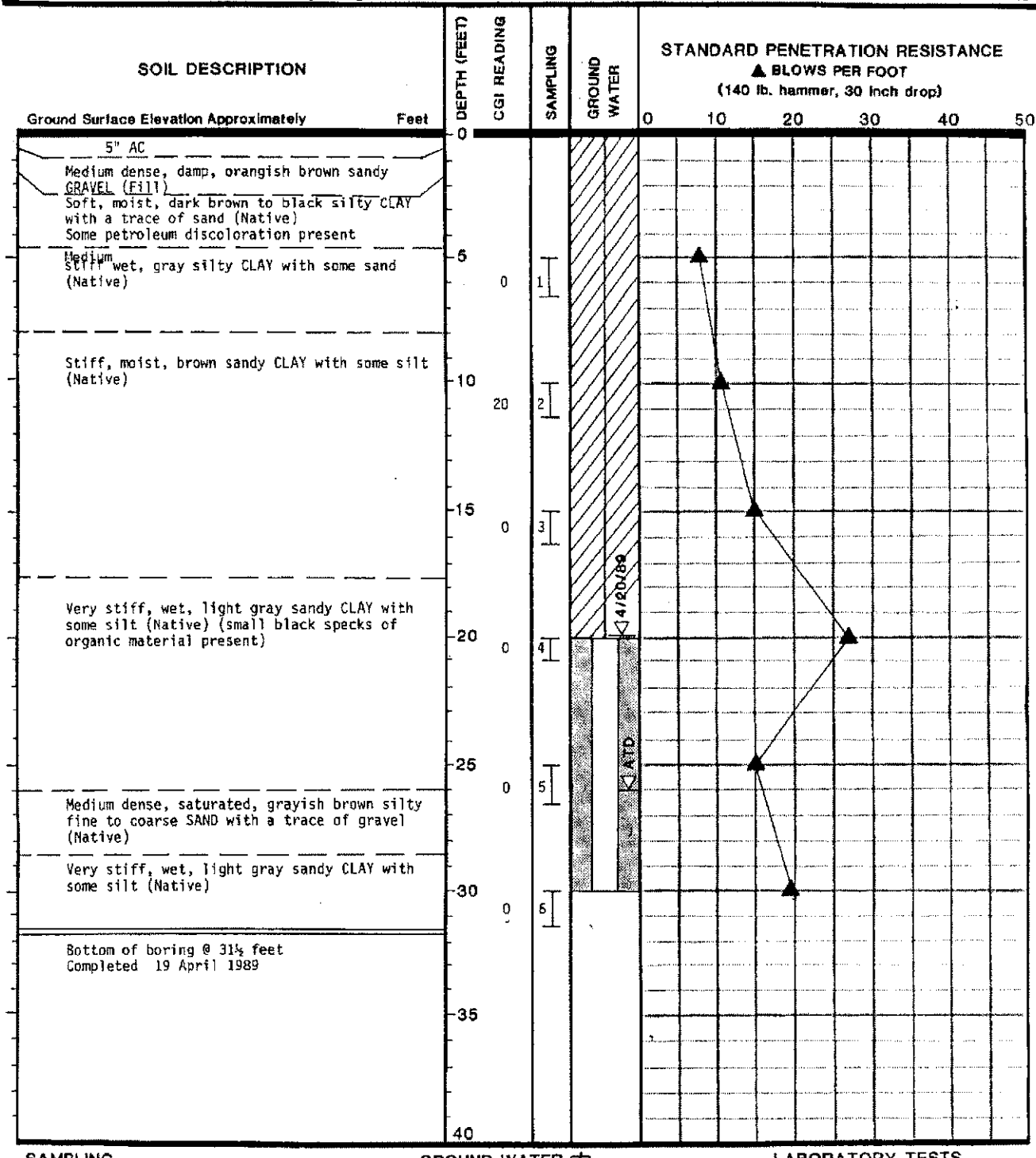


FIGURE 2

RZA

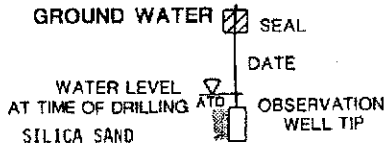
RITTENHOUSE-ZEMAN & ASSOC., INC.
Geotechnical / Hydrogeological Consultants

BORING NUMBER B-2 W.O. W-6095
PROJECT NAME Oakland, CA Mobil



SAMPLING
- 2" OD SPLIT SPOON SAMPLE
- 3" OD SHELBY SAMPLE
- 2.5" ID RING SAMPLE
- B BULK SAMPLE
- * SAMPLE NOT RECOVERED

GROUND WATER



LABORATORY TESTS

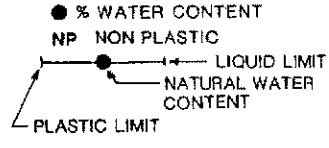


FIGURE 3

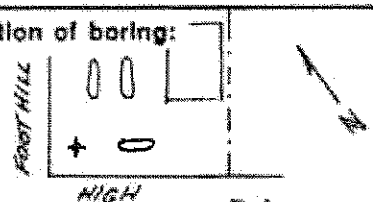
ALTON GEOSCIENCE

LOG OF EXPLORATORY BORING

PROJECT NO. 30-103 DATE 01/29/90
CLIENT Mobil Oil Corporation
LOCATION 4280 Foothill Blvd., Oakland
LOGGED BY B. Nagle DRILLER Bayland

BORING NO. B-3
Sheet 1 of 1

Field location of boring:



Ground Elev. Datum

Drilling method Hollow-stem auger
Hole Dia. 10"

Casing Installation Data 4" perforated (0.020") pipe 32-20', #3 lonestar sand 33-18', bentonite pellets 18-17'; cement seal to surface.

Water Level	6.72	20.28				
Time	11:00	13:51				
Date	1/29/90	2/05/90				

Blow Counts	PID/OVA	Depth	Sample	Soil Group Symbol (USCS)	Litho-graphic Symbol	DESCRIPTION
						3" asphalt; 6" baserock
		2		CL		SILTY CLAY: Black, moist, high plasticity.
	25	4				Appearance of fine to coarse grained sand; color change to dark brown.
3,4,8	50	6		CL		
		8				SILTY CLAY: Mottled olive green/brown, moist, moderate plasticity, stiff; gravels up to ¼".
		10				
10,13,17	40	12		CL		SANDY CLAY: Brown, moist, low plasticity, very stiff; gravels up to ½".
		14				Driller felt auger out of gravels at 13'
6,7,9	40	16				SILTY CLAY: Tan, damp to moist, medium plasticity, stiff, blue-gray staining along occasional rootlets.
		18				
		20		CL		Change to very moist, increase in ½" carbon granules.
5,9,10	25	22				
		24				
4,9,15	50	26				SANDY CLAY: Blue-gray to tan, moist, low plasticity, stiff.
	100 in Shoe	28		CL		Color change to light gray.
5,6,9		30				Top of 32'-33½' sample wet with sandy gravel stringers up to 2".
7,10,14		32		CL		SILTY CLAY: Mottled brown and gray, damp, medium plasticity, very stiff.
						Boring terminated at 33½'. Free ground water encountered at approximately 31'.

ALTON GEOSCIENCE

LOG OF EXPLORATORY BORING

PROJECT NO. 30-103 DATE 01/30/90
CLIENT Mobil Oil Corporation
LOCATION 4280 Foothill Blvd., Oakland
LOGGED BY B. Nagle DRILLER Bayland

BORING NO B-4
Sheet 1 of 1

Field location of boring:

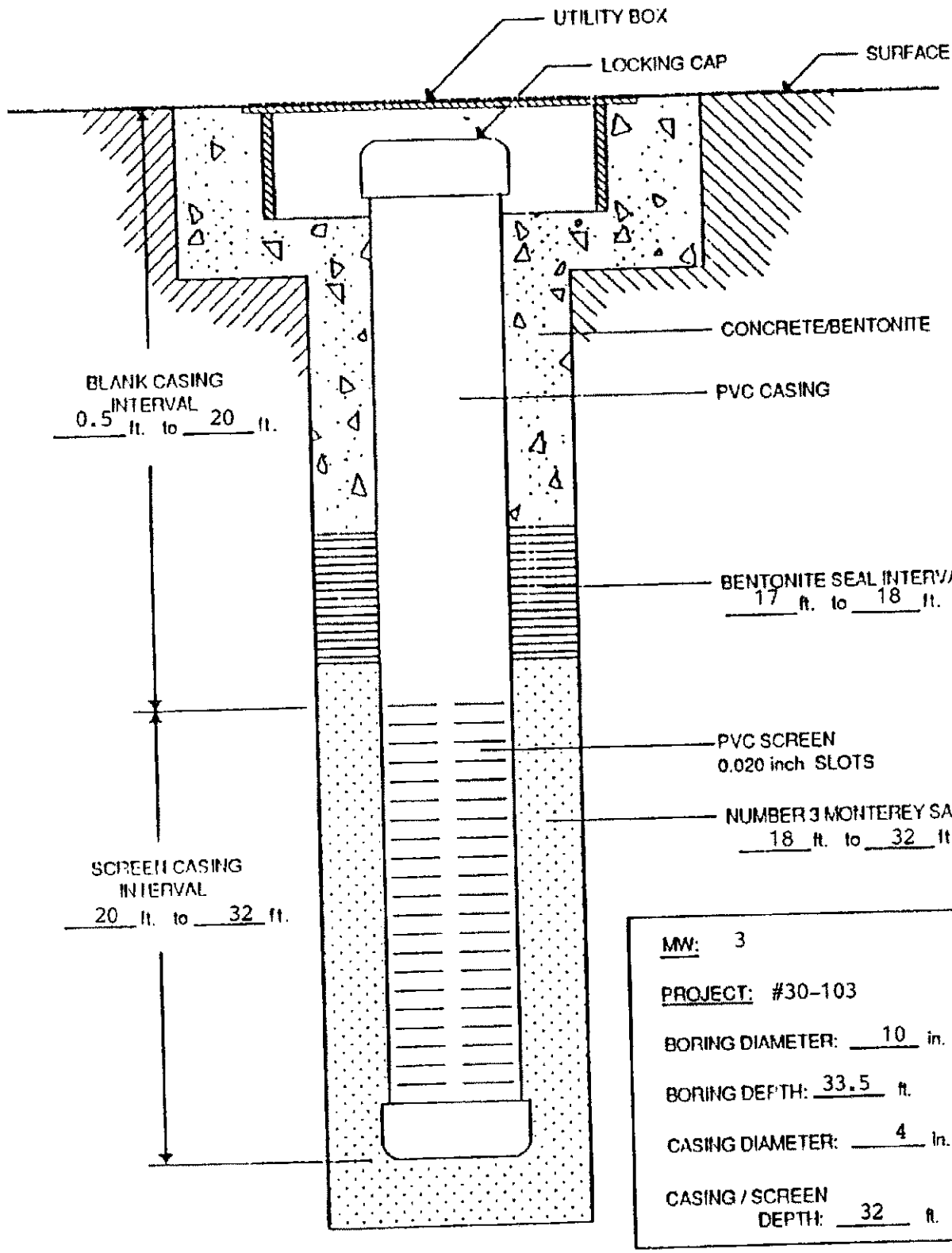
Ground Elev. HIGH Datum

Drilling method Hollow-stem auger
Hole Dia. 10"
Casing Installation Data 4" perforated (0.020") pipe
27-20': #3 lonestar 27-18½, bentonite pellets 18½-17½; neat cement seal 17½ to surface.

Water Level	17.07	16.32				
Time	13:30	13:15				
Date	1/30/90	2/05/90				

Blow Counts	PID / OVA	Depth	Sample	Soil Group Symbol (uscs)	Litho-graphic Symbol	DESCRIPTION
						4" asphalt, 6" baserock
		2				
						SILTY CLAY: Dark brown, damp to moist, high plasticity,
		4				stiff.
4,7,7	20	6				SILTY CLAY: Mottled orange-brown, damp, low plasticity,
						stiff; minor fine sand and angular gravels up to ¼".
		8				
						SANDY CLAY: Light brown, damp, medium plasticity, stiff;
		10				occasional carbon granules.
3,5,7	40					
		12				Driller felt increase in resistance at 13½ feet.
		14				CLAYEY SAND: Brown, moist, medium dense; occasional fine to
						coarse grained gravels up to ¼".
		16				
6,9,11	25					Driller felt smoother drilling at approximately 17'.
		18				
		20	▽			
4,5,13		▼				SANDY CLAY: Light brown, moist, low plasticity, stiff
		22				CLAYEY SAND: Light brown, wet, medium dense.
		24		?—?	?—?	SILTY CLAY: Mottled blue gray and brown, low plasticity,
5,9,12	75	26				very stiff; minor very fine sand.
						Driller needed more pressure to drill at 27'.
		28				
3,7,10	70					CLAYEY SILT: Whiteish gray to tan, moist, low plasticity,
						very stiff; some fine sand.
						Boring terminated at 29½ feet.
						Free ground water encountered at approximately 20 feet.

MONITORING WELL CONSTRUCTION DETAIL



MW: 3

PROJECT: #30-103

BORING DIAMETER: 10 in.

BORING DEPTH: 33.5 ft.

CASING DIAMETER: 4 in.

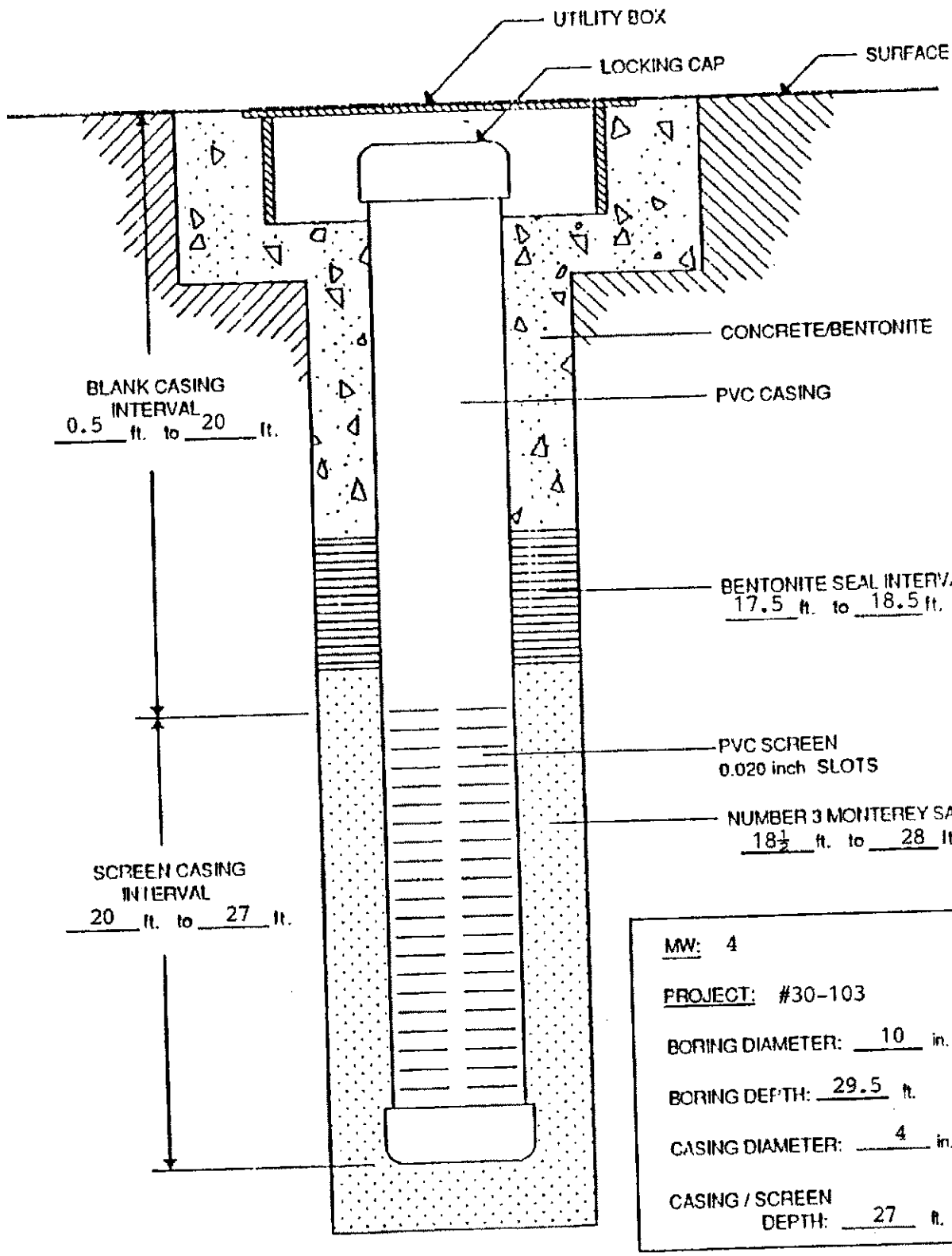
CASING / SCREEN DEPTH: 32 ft.

ALTON GEOSCIENCE
1170 BURNETT AVE., STE S
CONCORD, CA. 94520

NOTE: DRAWING IS NOT TO SCALE

PROJECT #30-103

MONITORING WELL CONSTRUCTION DETAIL



MW: 4

PROJECT: #30-103

BORING DIAMETER: 10 in.

BORING DEPTH: 29.5 ft.

CASING DIAMETER: 4 in.

CASING / SCREEN DEPTH: 27 ft.

ALTON GEOSCIENCE
1170 BURNETT AVE., STE S
CONCORD, CA. 94520

NOTE: DRAWING IS NOT TO SCALE PROJECT #30-103

ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-0248 DATE DRILLED 9/09/91
CLIENT BP Oil Co., Service Station No. 30-0248
LOCATION 4280 Foothill Blvd., Oakland, CA
LOGGED BY B. Nagle APPROVED BY

BORING NO. MW-5
WELL NO. MW-5

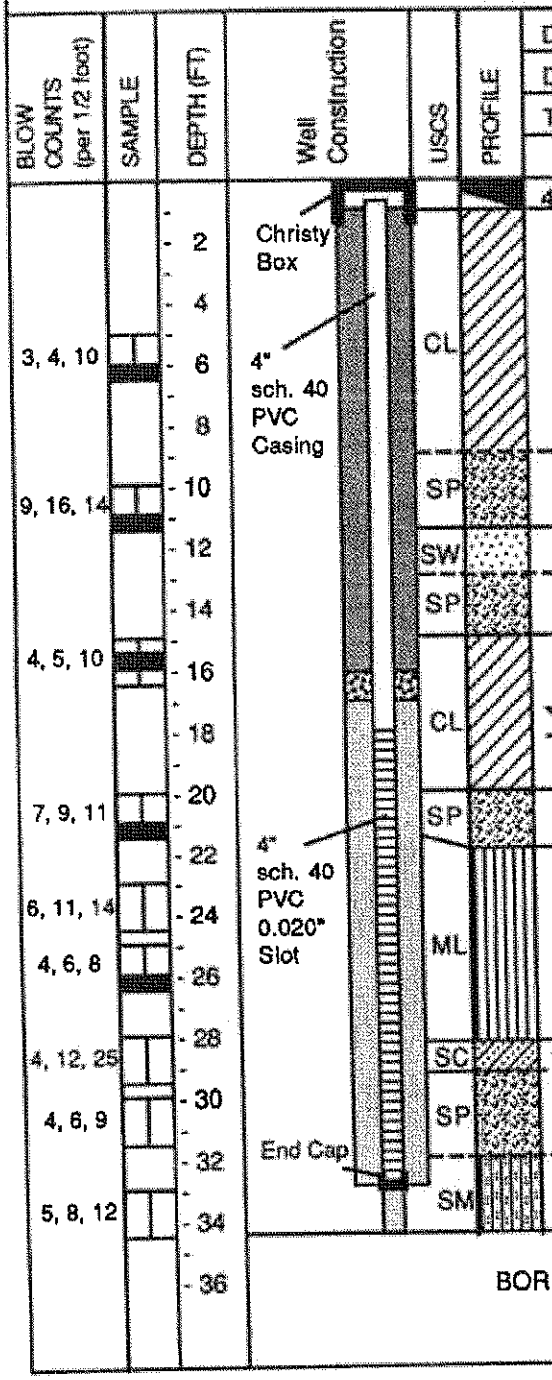
FIELD SKETCH OF BORING LOCATION

(SEE SITE PLAN)

TOP OF CASING ELEVATION 36.55

DRILLING METHOD C.M.E. 55, HSA HOLE DIAM. 10"
SAMPLER TYPE California Modified Split-Spoon Sampler
CASING DATA 4" diameter, Schedule 40 PVC, 18' blank, 15' slotted
DRILLER Soils Exploration

DEPTH TO WATER	18.08'	18.55'	18.66'
DATE	10/03/91	10/15/91	12/16/91
TIME	--	--	--



COMMENTS

4" Asphalt, 2" Road Base

SILTY CLAY: dark brown, damp, moderate plasticity.

SILTY CLAY: dark brown with olive gray mottling, stiff; occasional sand and gravel.

SANDY CLAY: olive green, damp, low plasticity.

GRAVELY SAND: olive green, damp, medium dense.

SAND: olive green, damp, fine grained.

GRAVELY SAND: olive green, damp.

SILTY CLAY: light brown, damp, medium plasticity, stiff; olive green staining along occasional rootlets, minor fine grained sand.

GRAVELY SAND: olive gray to brown to gray, moist, medium dense; hydrocarbon sheen.

CLAYEYSILT: tan, moist, stiff, with minor sands; blue-gray staining along occasional rootlets at 25'.

SAME, firm.

CLAYEY SAND: mottled tan and bluish gray, wet, very stiff.

GRAVELY SAND: gray, wet, loose to medium dense; abundant silty sand lenses.

SILTY SAND: light brown, moist, stiff to very stiff; occasional wet sandy gravel.

BORING TERMINATED AT 34.5 FEET BELOW GRADE.

ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-0248 DATE DRILLED 9/09/91
CLIENT BP Oil Co., Service Station No. 30-0248
LOCATION 4280 Foothill Blvd., Oakland, CA
LOGGED BY B. Nagle APPROVED BY

BORING NO. MW-6
WELL NO. MW-6

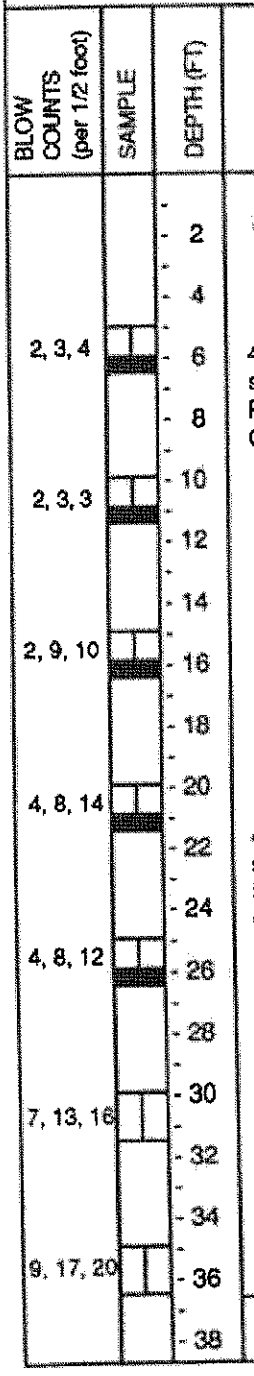
FIELD SKETCH OF BORING LOCATION

(SEE SITE PLAN)

TOP OF CASING ELEVATION

DRILLING METHOD C.M.E. 55, HSA HOLE DIAM. 10"
SAMPLER TYPE California Modified Split-Spoon Sampler
CASING DATA 4" diameter, Schedule 40 PVC, 20' blank, 15' slotted
DRILLER Soils Exploration

DEPTH TO WATER	20.73'	21.20'	21.12'
DATE	10/03/91	10/15/91	12/16/91
TIME	--	--	--



COMMENTS
4" Asphalt, 1" Road Base and Pea Gravel
SILTY CLAY: dark brown, damp.
SILTY CLAY: tan, damp, firm, some sand, occasional gravel. Abundant pea gravel at approximately 7 to 9 feet.
SAND: brown, damp, loose, fine grained, no fines; with thin clay bed.
SILTY SAND: tan, mottled olive green, damp,: occasional gravels to 1/2".
SILTY CLAY: tan, mottled olive green, damp, medium plasticity, stiff.
CLAYEY SAND: tan, damp, medium dense, fine to coarse grained.
SAME: increase in sand content, bluish gray staining at 25.5' to 26'.
SILTY - CLAYEY SAND: light tan, moist, medium dense.
SILTY SAND: tan, wet, medium dense; with occasional gravel lenses.
BORING TERMINATED AT 36.5 FEET BELOW GRADE.

ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-0248 DATE DRILLED 9/09/91
CLIENT BP Oil Co., Service Station No. 30-0248
LOCATION 4280 Foothill Blvd., Oakland, CA
LOGGED BY B. Nagle APPROVED BY

BORING NO. MW-7
WELL NO. MW-7
Page 1 of 1

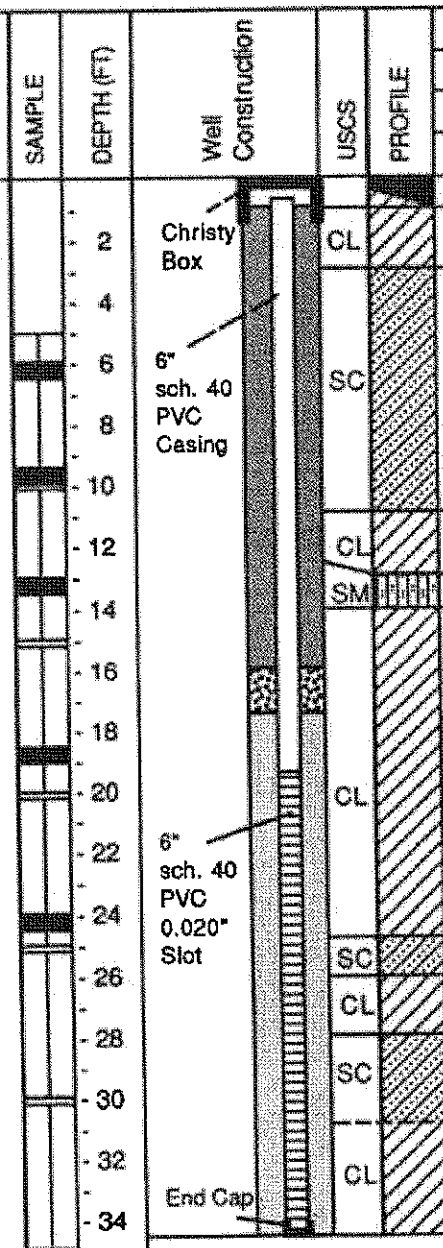
FIELD SKETCH OF BORING LOCATION

(SEE SITE PLAN)

TOP OF CASING ELEVATION _____

DRILLING METHOD C.M.E. 55, HSA HOLE DIAM. 12"
SAMPLER TYPE Continuous
CASING DATA 6" diameter, Schedule 40 PVC, 19.5 blank, 15 slotted
DRILLER Soils Exploration

DEPTH TO WATER	14.93'	15.16'	15.21'
DATE	10/03/91	10/15/91	12/16/91
TIME	--	--	--



COMMENTS
3" Asphalt, 6" Road Base
SILTY CLAY: dark brown, damp, medium plasticity.
CLAYEY SAND: bluish gray, damp; occasional gravel up to 1" diameter. SAME: brown to bluish gray, damp; abundant gravel, occasional silty clay lens.
SILTY CLAY: mottled bluish gray - orange brown, damp, medium plasticity; stained along rootlets.
SILTY SAND: bluish gray to brown, damp.
SILTY CLAY: mottled bluish gray - orange brown, damp, medium plasticity; stiff. SAME: mottled bluish gray - orange brown, damp, medium plasticity; stiff. SANDY CLAY: mottled bluish gray - olive green, damp, medium plasticity, very stiff. SILTY CLAY: brown, damp, medium plasticity, very stiff. SANDY CLAY: olive green, wet, low plasticity.
CLAYEY SAND: brown, wet, medium dense.
SANDY CLAY: tan, moist to wet, low plasticity.
CLAYEY SAND: tan, wet, medium dense; some orange brown mottling.
SANDY CLAY: tan, moist to wet, low plasticity, stiff; increasing sand at 34', clay fractions along horizontal planes.
BORING TERMINATED AT 34.5 FEET BELOW GRADE.

ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-0248 DATE DRILLED 9/11/91
CLIENT BP Oil Co., Service Station No. 30-0248
LOCATION 4280 Foothill Blvd., Oakland, CA
LOGGED BY B. Nagle APPROVED BY

BORING NO. MW-8
WELL NO. MW-8
Page 1 of 1

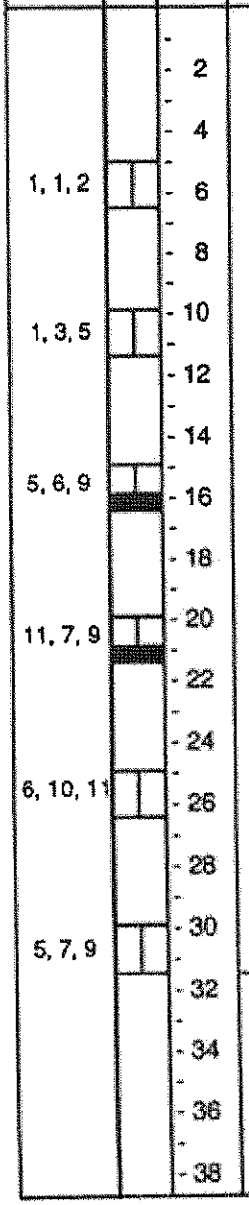
FIELD SKETCH OF BORING LOCATION

(SEE SITE PLAN)

TOP OF CASING ELEVATION

DRILLING METHOD C.M.E. 55, HSA HOLE DIAM. 8"
SAMPLER TYPE California Modified Split-Spoon Sampler
CASING DATA 2" diameter, Schedule 40 PVC, 19' blank, 13' slotted
DRILLER Soils Exploration

DEPTH TO WATER	22.37'	22.70'	22.47'
DATE	10/03/91	10/15/91	12/16/91
TIME	--	--	--



COMMENTS

3" Asphalt, 4" Concrete, 12" Road Base and Pea Gravel

SILTY CLAY: dark brown, damp, moderate plasticity.

SANDY CLAY: mottled light - dark brown, moist, low plasticity, soft; abundant coarse grained sand.

SAME: light brown, moist, firm; fine grained sand.

SILTY CLAY: brown, damp, low plasticity, stiff; abundant coarse grained sand.

CLAYEY GRAVEL: lens.

SILTY CLAY: brown, wet, medium plasticity, stiff; abundant coarse grained sand.

CLAYEY SAND: light brown, wet, medium dense.

SILTY CLAY: light brown, damp, medium plasticity, stiff; occasional coarse grained sand and black rootlets.

BORING TERMINATED AT 31.5 FEET BELOW GRADE.

ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-0248 DATE DRILLED 9/11/91
CLIENT BP Oil Co., Service Station No. 30-0248
LOCATION 4280 Foothill Blvd., Oakland, CA
LOGGED BY B. Nagle APPROVED BY _____

BORING NO. MW-9
WELL NO. MW-9

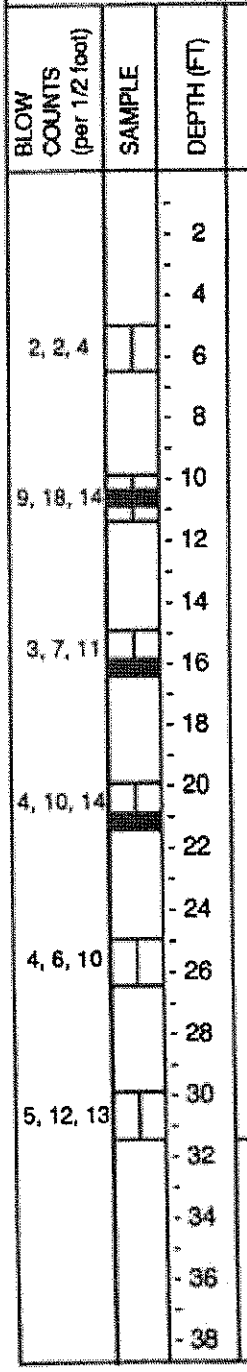
FIELD SKETCH OF BORING LOCATION

(SEE SITE PLAN)

TOP OF CASING ELEVATION _____

DRILLING METHOD C.M.E. 55, HSA HOLE DIAM. 8"
SAMPLER TYPE California Modified Split-Spoon Sampler
CASING DATA 2" diameter, Schedule 40 PVC, 20' blank, 10' slotted
DRILLER Soils Exploration

DEPTH TO WATER	14.12'	14.27'	14.18'
DATE	10/03/91	10/15/91	12/16/91
TIME	--	--	--



COMMENTS

3" Asphalt, 6" Concrete, 12" Road Base and Pea Gravel

SILTY CLAY: dark brown, damp, high plasticity, firm.

SANDY CLAY:dark brown, damp, firm, soft; fine to coarse grained sand.

SANDY GRAVEL: olive green to brown, damp, medium dense; with clay matrix.

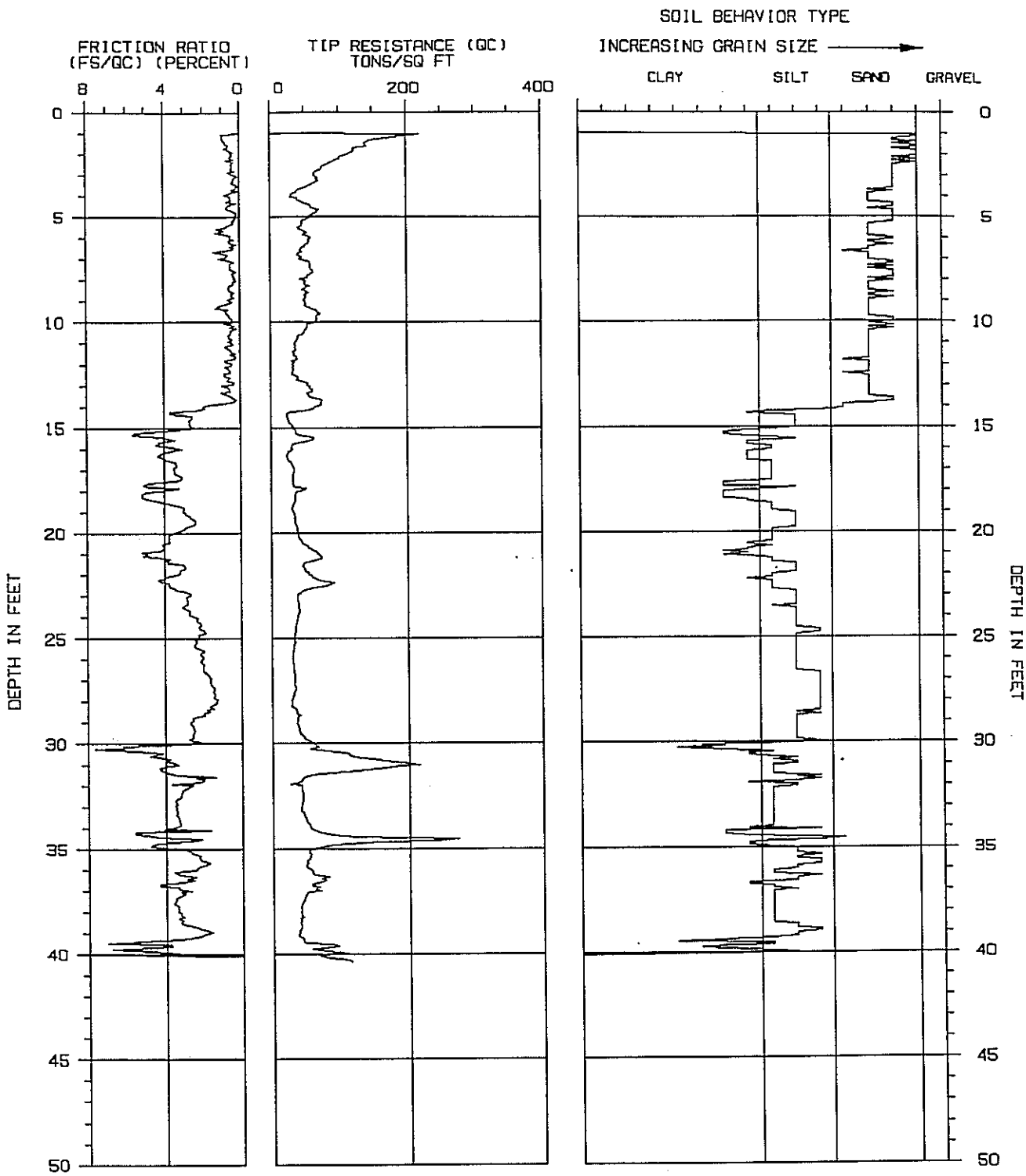
SANDY CLAY: brown, damp, stiff; with abundant gravel. No gravels at 16'.

SAME: very stiff,occasional carbonacious gravels.

SAME: stiff, with orangish brown mottling, SATURATED

SILTY CLAY: brown, damp, medium plasticity, very stiff; minor fine to coarse grained sand.

BORING TERMINATED AT 31.5 FEET BELOW GRADE.



TOP 1.0 FT IS DISTURBED SOIL

TIP RESISTANCE NOT CORRECTED FOR END AREA EFFECT

ASSUMED TOTAL UNIT WT = 115 PCF

ASSUMED DEPTH OF WATER TABLE = 42.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: 11109-SB1

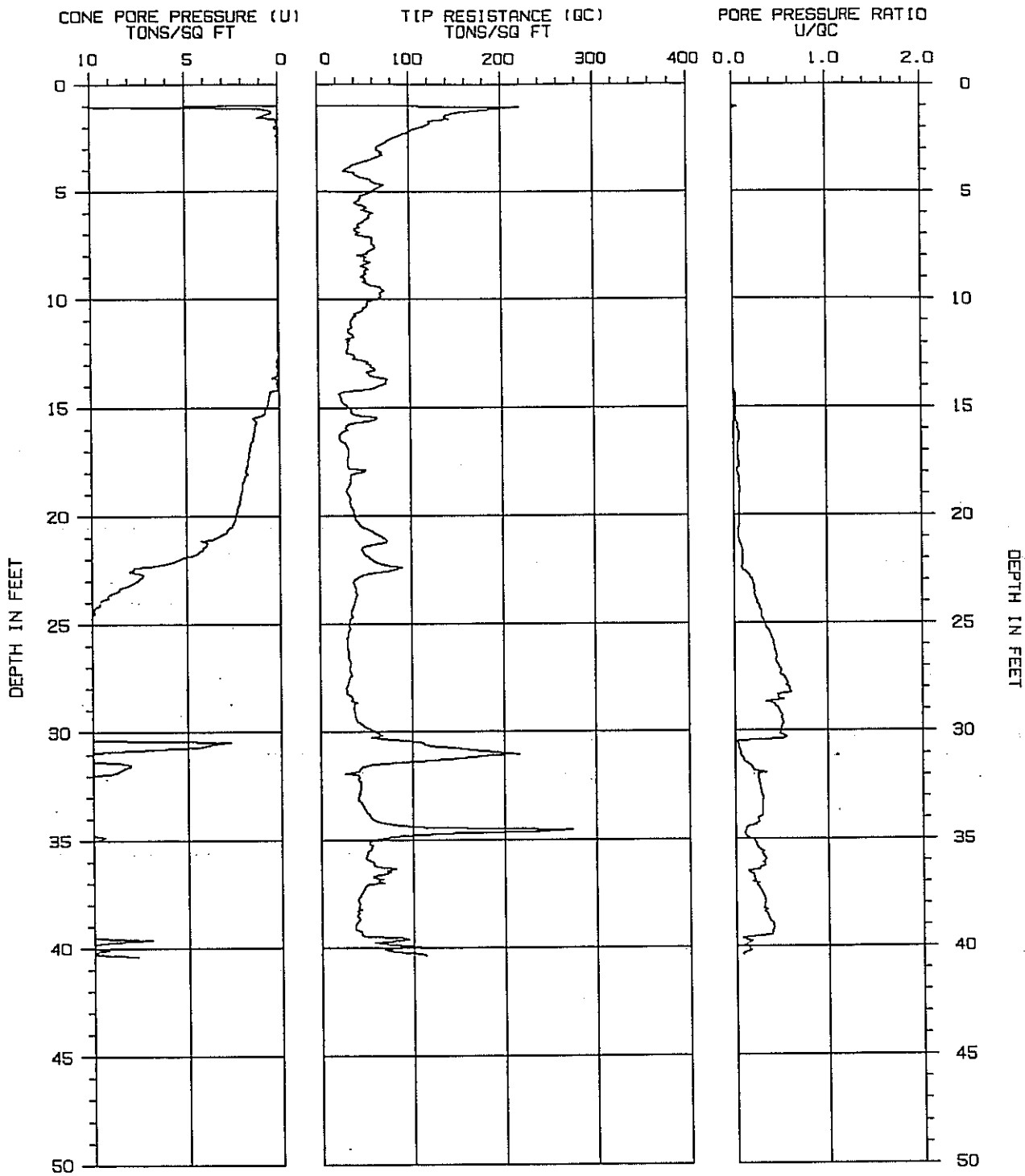
PROJECT NAME : EMCON/TOSCO

PROJECT NUMBER : 95-381-09301

CONE/RIG : 472/RIG#3

DATE/TIME: 10-19-94 12:07

THE EARTH TECHNOLOGY CORPORATION



TOP 1.0 FT IS DISTURBED SOIL

TIP RESISTANCE NOT CORRECTED FOR END AREA EFFECT

CONE PENETRATION TEST

SOUNDING NUMBER: 11109-SB1

PROJECT NAME : EMCON/TOSCO

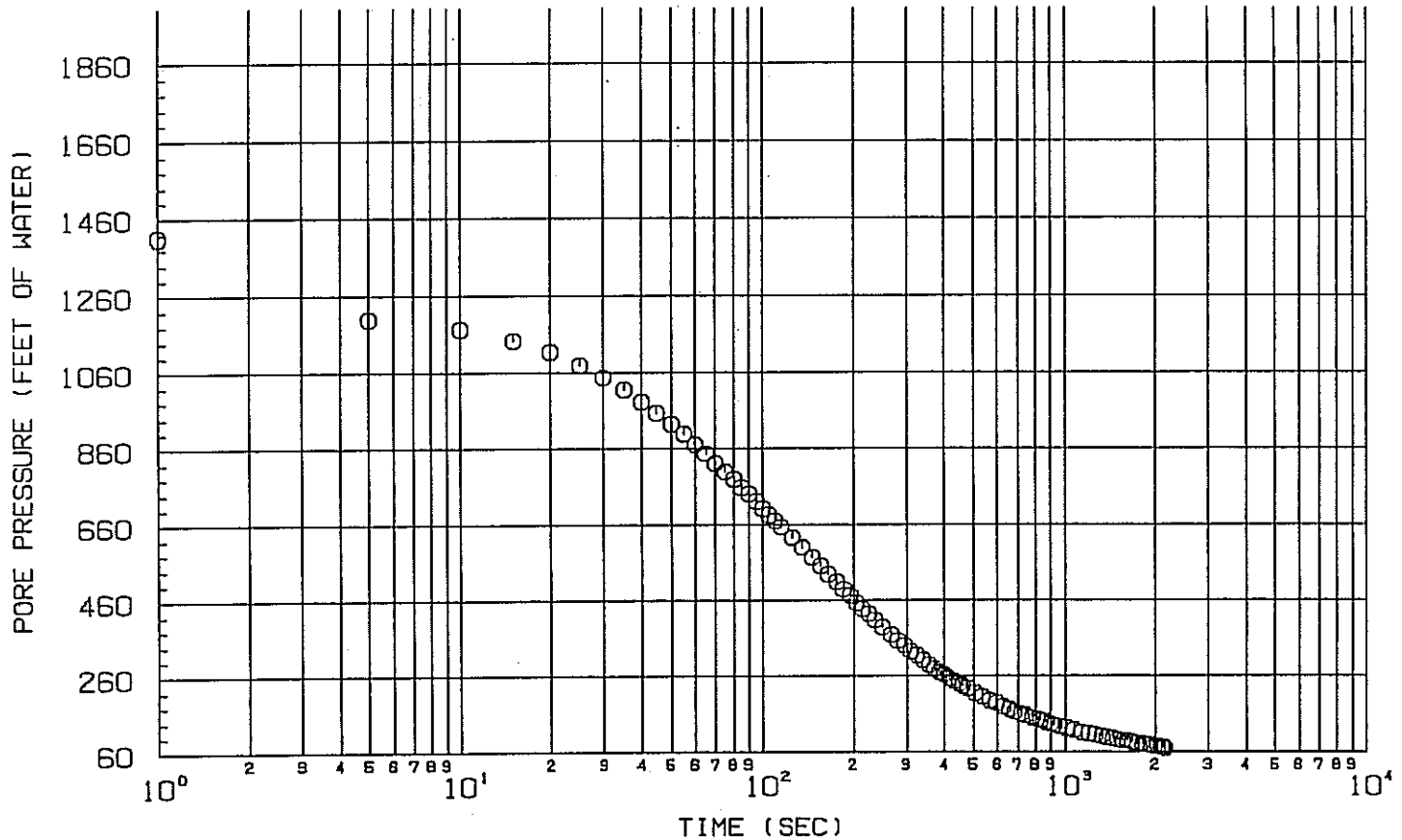
PROJECT NUMBER : 95-381-09301

CONE/RIG : 472/RIG#3

DATE/TIME: 10-19-94 12:07

THE EARTH TECHNOLOGY CORPORATION

PORE PRESSURE DISSIPATION CURVES



DEPTH: ⊙ 30.3 FT

TIP-SENSING PIEZOMETRIC CPT

SOUNDING NUMBER: 11109-SB1

PROJECT NAME : EMCON/TOSCO

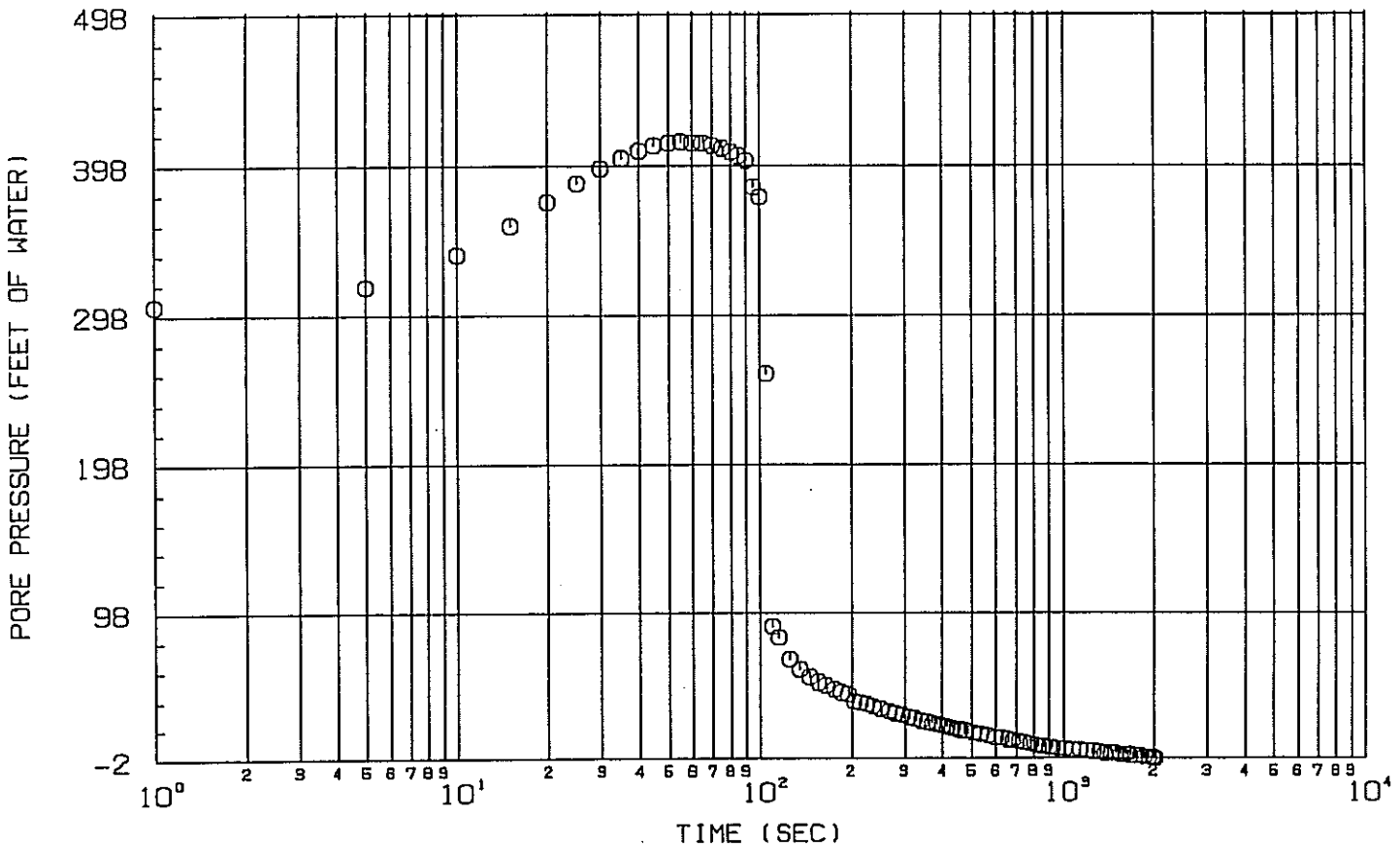
PROJECT NUMBER : 95-381-09301

CONE/RIG : 472/RIG#3

DATE/TIME: 10-19-94 12:07

THE EARTH TECHNOLOGY CORPORATION

PORE PRESSURE DISSIPATION CURVES



DEPTH: ⊙ 40.4 FT

TIP-SENSING PIEZOMETRIC CPT

SOUNDING NUMBER: 11109-SB1

PROJECT NAME : EMCON/TOSCO

PROJECT NUMBER : 95-381-09301

CONE/RIG : 472/RIG#3

DATE/TIME: 10-19-94 12:07

THE EARTH TECHNOLOGY CORPORATION

CONE PENETRATION TEST

SOUNDING : 11109-SB1
PROJECT : EMCON/TOSCO
DATE/TIME: 10-19-94 12:07

PROJECT No.: 95-381-09301
CONE/RIG : 472/RIG#3

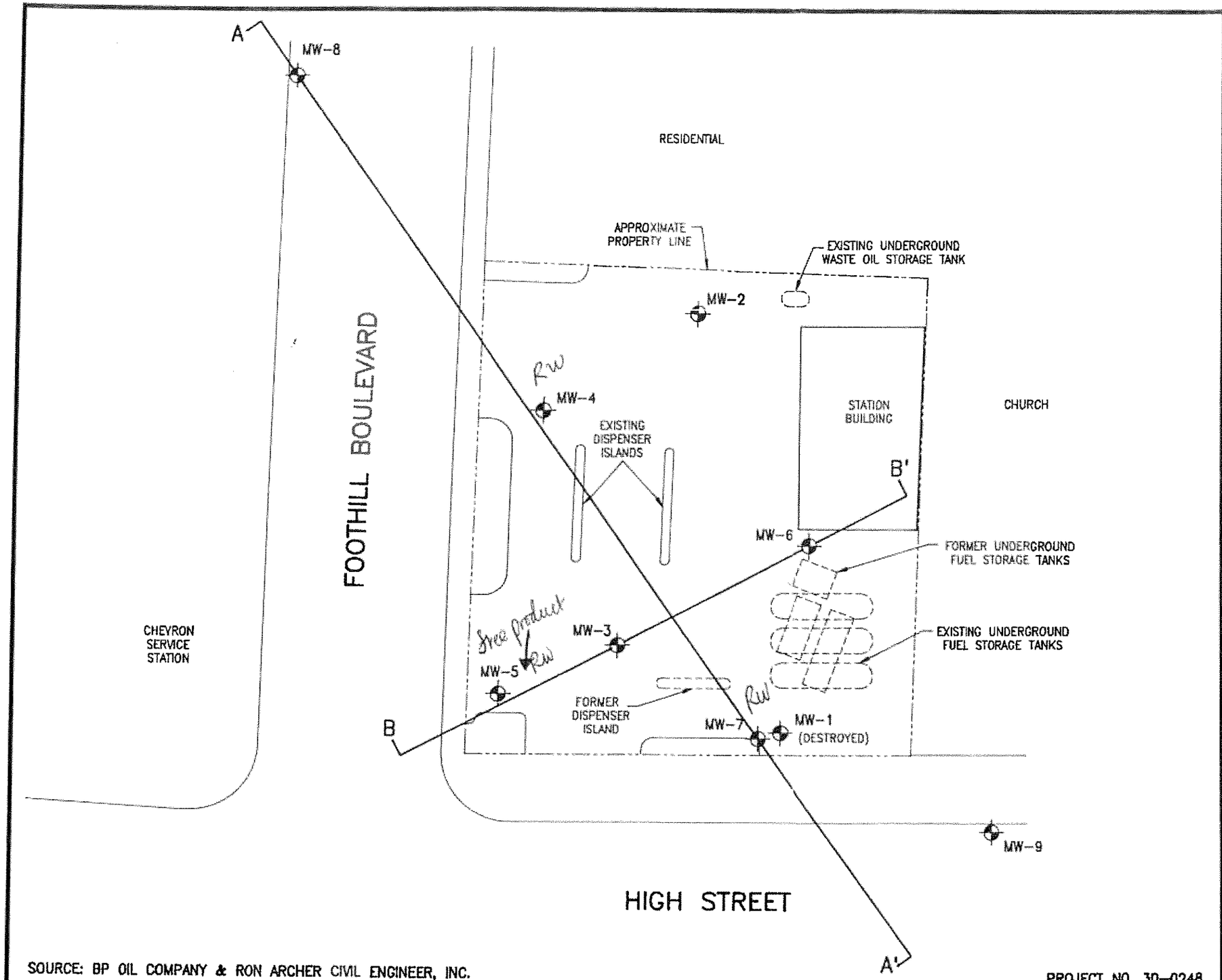
DEPTH (ft)	TIP RESISTANCE (tsf)	NORMALIZED TIP RESISTANCE (tsf)	FRICTION RATIO (%)	CONE PORE PRESSURE (tsf)	SOIL BEHAVIOR TYPE
.49	.0	.0	.00	.00	
.98	.0	.0	.00	.00	
1.48	137.8	285.4	.77	.84	SAND to SILTY SAND
1.97	117.8	229.3	.51	.16	SANDY GRAVEL to SAND
2.46	84.8	156.8	.43	.03	SAND to SILTY SAND
2.95	64.3	113.8	.44	-.04	SAND to SILTY SAND
3.44	62.1	105.8	.31	.01	SAND to SILTY SAND
3.94	30.6	50.4	.79	.02	SAND to SILTY SAND
4.43	58.3	92.9	.56	.02	SAND to SILTY SAND
4.92	58.6	90.8	.25	.03	SAND to SILTY SAND
5.41	45.0	67.9	.66	.03	SAND to SILTY SAND
5.91	54.1	79.5	.50	.03	SAND to SILTY SAND
6.40	49.1	70.5	.53	.03	SAND to SILTY SAND
6.89	46.4	65.1	.69	.03	SAND to SILTY SAND
7.38	58.4	80.1	.48	.03	SAND to SILTY SAND
7.87	53.9	72.4	.26	.03	SAND to SILTY SAND
8.37	51.3	67.7	.62	.04	SAND to SILTY SAND
8.86	51.5	66.6	.33	.04	SAND to SILTY SAND
9.35	59.4	75.4	1.29	.04	SAND to SILTY SAND
9.84	69.3	86.5	.50	.04	SAND to SILTY SAND
10.33	52.4	64.2	.25	.04	SAND to SILTY SAND
10.83	38.0	45.9	.44	.04	SAND to SILTY SAND
11.32	36.4	43.2	.54	.04	SAND to SILTY SAND
11.81	30.8	35.9	.83	.04	SILTY SAND to SANDY SILT
12.30	31.8	36.6	.58	.05	SAND to SILTY SAND
12.80	44.9	50.9	.74	.08	SAND to SILTY SAND
13.29	60.3	67.4	.54	.08	SAND to SILTY SAND
13.78	73.2	80.6	.32	.12	SAND to SILTY SAND
14.27	29.6	32.2	3.71	.47	SANDY SILT to CLAYEY SILT
14.76	27.0	28.9	2.70	.61	SANDY SILT to CLAYEY SILT
15.26	36.1	38.1	5.55	.79	*SANDY CLAY to SILTY CLAY
15.75	35.6	37.1	4.29	1.29	CLAYEY SILT to SILTY CLAY
16.24	22.7	23.4	4.21	1.40	CLAYEY SILT to SILTY CLAY
16.73	30.3	30.8	3.40	1.55	SANDY SILT to CLAYEY SILT
17.22	32.1	32.2	3.29	1.65	SANDY SILT to CLAYEY SILT
17.72	32.5	32.3	5.08	1.77	*SANDY CLAY to SILTY CLAY
18.21	34.7	34.0	5.19	1.88	*SANDY CLAY to SILTY CLAY
18.70	31.2	30.2	3.23	1.99	SANDY SILT to CLAYEY SILT
19.19	34.5	33.0	2.74	2.12	SANDY SILT to CLAYEY SILT
19.69	37.2	35.2	2.77	2.27	SANDY SILT to CLAYEY SILT
20.18	40.6	38.0	3.77	2.40	SANDY SILT to CLAYEY SILT

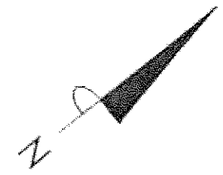
TOP 1.0 FT IS DISTURBED SOIL
*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 PCF
ASSUMED DEPTH OF WATER TABLE = 42.0 FT

SOUNDING : 11109-SB1

DEPTH (ft)	TIP RESISTANCE (tsf)	NORMALIZED TIP RESISTANCE (tsf)	FRICTION RATIO (%)	CONE PORE PRESSURE (tsf)	SOIL BEHAVIOR TYPE
20.67	54.5	50.4	4.00	2.81	*CLAYEY SAND to SANDY CLAY
21.16	73.8	67.5	4.44	4.23	*SANDY CLAY to SILTY CLAY
21.65	47.7	43.1	2.93	4.29	SANDY SILT to CLAYEY SILT
22.15	61.3	54.9	3.96	5.77	*CLAYEY SAND to SANDY CLAY
22.64	62.0	54.9	3.51	7.62	SANDY SILT to CLAYEY SILT
23.13	37.9	33.2	2.91	7.85	SANDY SILT to CLAYEY SILT
23.62	41.2	35.7	2.91	9.01	SANDY SILT to CLAYEY SILT
24.11	37.3	32.0	2.34	9.60	SANDY SILT to CLAYEY SILT
24.61	35.5	30.1	2.06	10.20	SILTY SAND to SANDY SILT
25.10	31.3	26.3	2.49	10.39	SANDY SILT to CLAYEY SILT
25.59	30.9	25.7	1.99	12.16	SANDY SILT to CLAYEY SILT
26.08	30.1	24.8	2.18	13.13	SANDY SILT to CLAYEY SILT
26.57	32.0	26.1	2.03	14.60	SANDY SILT to CLAYEY SILT
27.07	33.0	26.7	1.64	15.89	SILTY SAND to SANDY SILT
27.56	31.9	25.5	1.50	17.35	SILTY SAND to SANDY SILT
28.05	28.9	22.9	1.34	17.00	SILTY SAND to SANDY SILT
28.54	34.1	26.8	2.03	17.82	SANDY SILT to CLAYEY SILT
29.04	37.1	28.8	2.73	17.94	SANDY SILT to CLAYEY SILT
29.53	41.4	31.9	2.58	21.41	SANDY SILT to CLAYEY SILT
30.02	61.7	47.1	2.91	30.43	SANDY SILT to CLAYEY SILT
30.51	112.3	84.9	4.39	3.27	*SANDY CLAY to SILTY CLAY
31.00	215.2	161.2	3.37	11.71	*CLAYEY SAND to SANDY CLAY
31.50	56.6	42.0	3.46	7.95	SANDY SILT to CLAYEY SILT
31.99	42.0	30.9	2.61	10.19	SANDY SILT to CLAYEY SILT
32.48	43.5	31.7	3.23	11.51	SANDY SILT to CLAYEY SILT
32.97	41.8	30.2	3.50	12.18	SANDY SILT to CLAYEY SILT
33.46	46.6	33.4	3.35	13.61	SANDY SILT to CLAYEY SILT
33.96	55.2	39.2	3.51	15.82	SANDY SILT to CLAYEY SILT
34.45	120.6	84.8	4.35	16.97	*CLAYEY SAND to SANDY CLAY
34.94	64.2	44.8	3.87	9.56	SANDY SILT to CLAYEY SILT
35.43	54.4	37.6	2.33	13.44	SANDY SILT to CLAYEY SILT
35.93	50.5	34.6	2.48	16.51	SANDY SILT to CLAYEY SILT
36.42	71.0	48.2	2.93	17.65	SANDY SILT to CLAYEY SILT
36.91	60.9	41.0	3.36	13.34	SANDY SILT to CLAYEY SILT
37.40	44.6	29.8	3.45	11.91	SANDY SILT to CLAYEY SILT
37.89	41.0	27.1	3.35	12.83	SANDY SILT to CLAYEY SILT
38.39	41.4	27.2	3.18	12.73	SANDY SILT to CLAYEY SILT
38.88	38.0	24.7	1.90	14.64	SILTY SAND to SANDY SILT
39.37	43.8	28.3	5.33	17.31	*SANDY CLAY to SILTY CLAY
39.86	77.3	49.4	4.76	10.12	*SANDY CLAY to SILTY CLAY

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 PCF
ASSUMED DEPTH OF WATER TABLE = 42.0 FT





APPROXIMATE SCALE IN FEET

LEGEND:

GROUND WATER MONITORING WELL

A A' LINE OF HYDROGEOLOGIC CROSS SECTION

SOURCE: BP OIL COMPANY & RON ARCHER CIVIL ENGINEER, INC.

PROJECT NO. 30-0248

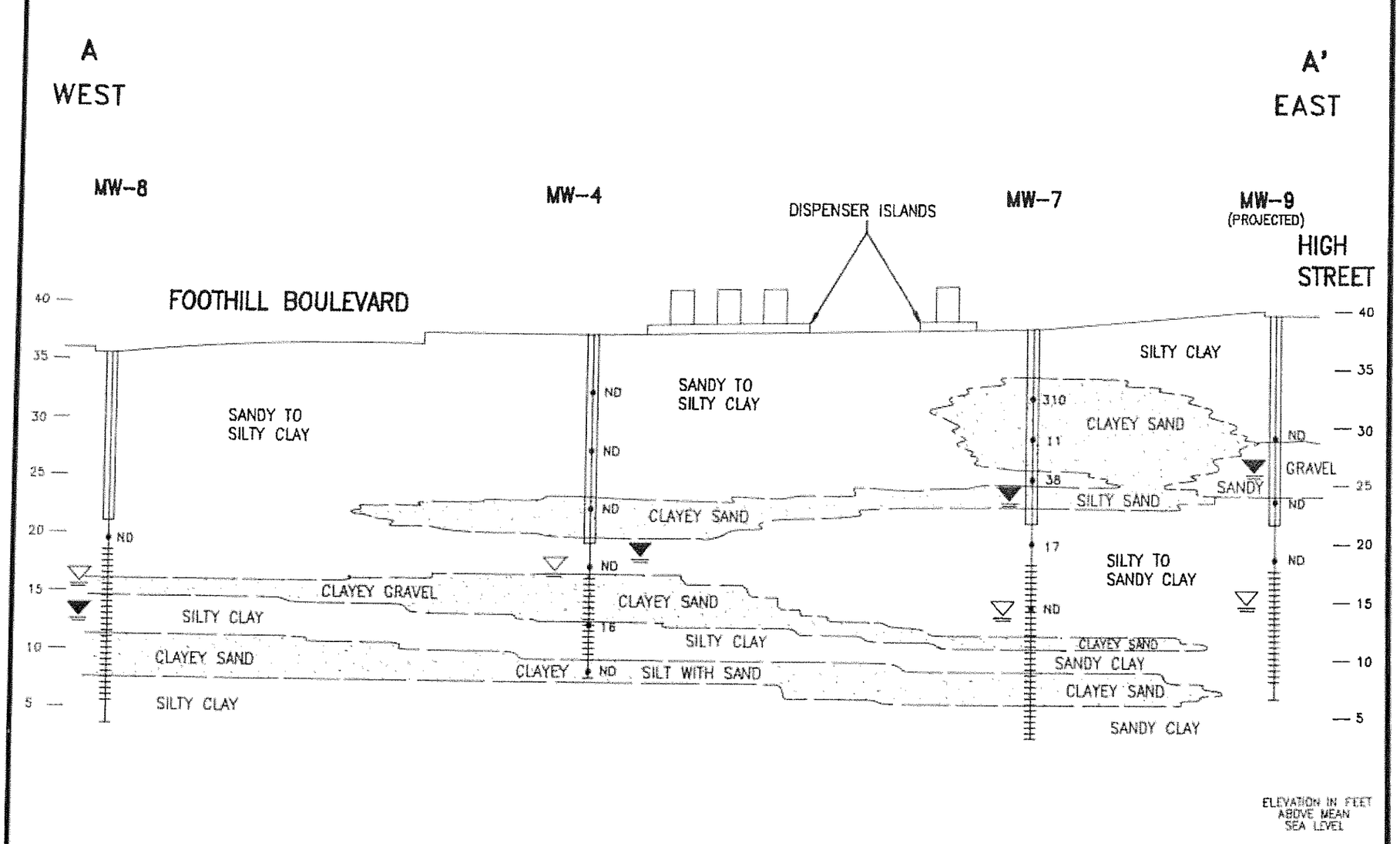
FIGURE 2: SITE PLAN

BP OIL COMPANY
SERVICE STATION NO. 11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

ALTON GEOSCIENCE
Pleasanton, California

248-SP

3/23/92



PROJECT NO. 30-0248

248-CSA

10
5
0
0 15 30
APPROXIMATE SCALE IN FEET

LEGEND:

- GROUND WATER MONITORING WELL SHOWING SEAL AND SLOTTING
- GEOLOGIC CONTACT
- WATER LEVEL ENCOUNTERED DURING DRILLING
- STABILIZED WATER LEVEL ON OCTOBER 3, 1991
- • 17 SOIL SAMPLE LOCATION AND TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATIONS IN PARTS PER MILLION
- ND NOT DETECTED AT OR ABOVE LABORATORY DETECTION LIMITS

FIGURE 3: HYDROGEOLOGIC CROSS SECTION A-A'

BP OIL COMPANY
SERVICE STATION NO. 11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

ALTON GEOSCIENCE
1000 Burnett Ave. Ste. 140

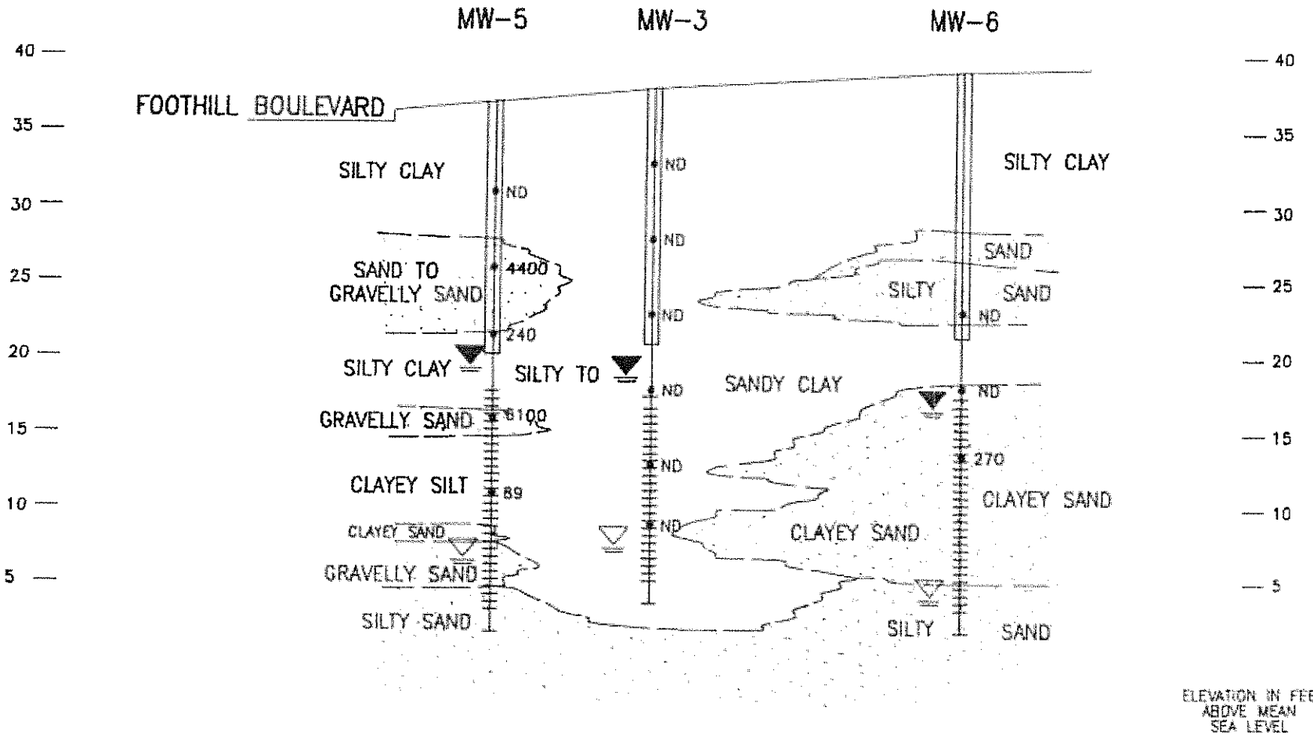
3/23/92

B

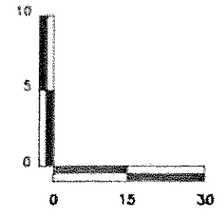
SOUTH

B'

NORTH



ELEVATION IN FEET ABOVE MEAN SEA LEVEL



APPROXIMATE SCALE IN FEET

LEGEND:

- GROUND WATER MONITORING WELL SHOWING SEAL AND SLOTTING
- GEOLOGIC CONTACT
- WATER LEVEL ENCOUNTERED DURING DRILLING
- STABILIZED WATER LEVEL ON OCTOBER 3, 1991
- • 270 SOIL SAMPLE LOCATION AND TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATIONS IN PARTS PER MILLION
- ND NOT DETECTED AT OR ABOVE LABORATORY DETECTION LIMITS

FIGURE 4: HYDROGEOLOGIC CROSS SECTION B–B'

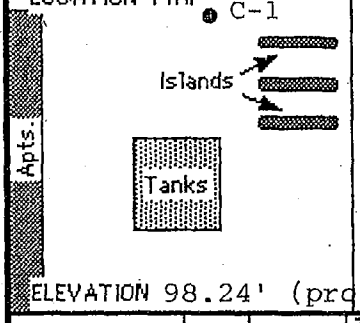
BP OIL COMPANY
SERVICE STATION NO. 11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

ALTON GEOSCIENCE
Pleasanton, California

PROJECT NO. 30-0248

248-CSB

3/23/92



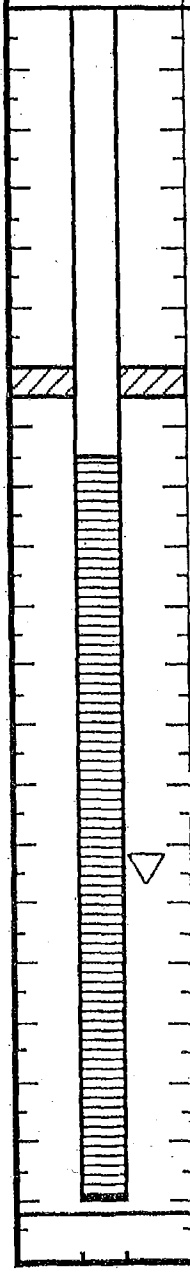
PACIFIC ENVIRONMENTAL GROUP, INC.

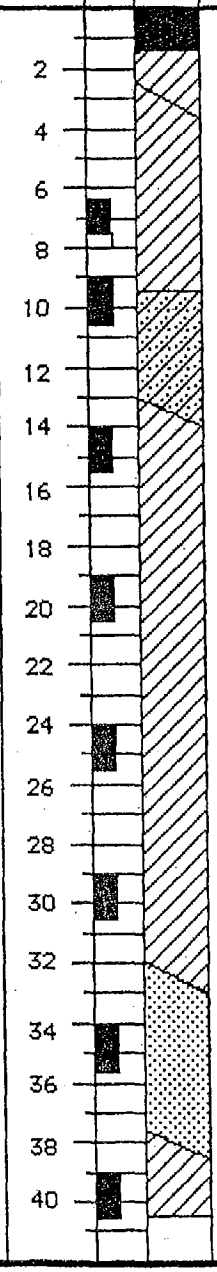
WELL / BORING NO. C-1
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: SCH. 40 PVC
SLOT SIZE: 0.020
GRAVEL PACK: CA

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH: 40'
WELL DIAMETER: 3"

C-A attached at back of report





LITHOLOGY/REMARKS

ASPHALT AND BASEROCK.

CLAY; fill; black; silty; 0-10% fine to coarse sand; disturbed; soft; no product odor.

CLAY; olive; silty; 0-10%fine to medium sand; red to black; FeO stained.
@ 7': 20-30% fine to coarse sand; trace caliche; occasional pores; FeO mottled; stiff; trace fine to coarse gravel; no product odor.

CLAYEY SAND; yellowish brown; 15-25% fines; fine to coarse grained; 0-10% fine to coarse gravel; sub-rounded; no product odor.

CLAY; olive to strong brown; 10-20% fine to medium sand; trace coarse sand; FeO stains; very stiff; wet in root holes; no product odor.

@ 19': 20-30% fine sand intermittently; moderate plasticity; no product odor.

@ 24': 20-30% fine to coarse sand; trace fine gravel; very stiff; moderate plasticity; no product odor.

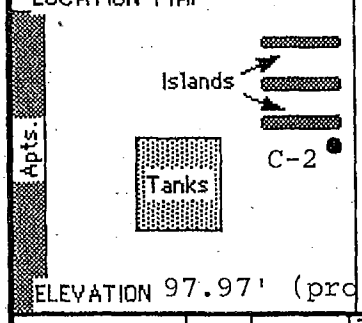
@ 29': light gray; 0-10% fine sand; moderate plasticity; caliche mottle; very stiff; no product odor.

SAND TO CLAYEY SAND; olive to brown; 5-20% fines; fine to coarse grained; 10-25% fine to medium gravel; very dense; faint product odor.

CLAY; strong brown; as above; 20-30% fine sand to coarse gravel; stiff; no product odor.

Bottom of boring at 40-1/2'

LOCATION MAP



ELEVATION 97.97' (project)

PACIFIC ENVIRONMENTAL GROUP, INC.

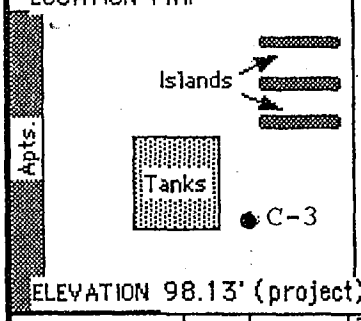
WELL / BORING NO. C-2
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: SCH. 40 PVC
SLOT SIZE: 0.020
GRAVEL PACK: CA

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH: 40'
WELL DIAMETER: 3"

WELL COMPLETION	MOISTURE CONTENT	PENETRATION RESISTANCE (BLOW/FT)	DEPTH (feet)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
			0				ASPHALT AND BASEROCK.
			2			CL	CLAY FILL; black; abundant root fragments; silty; 0-10% fine sand; soft; faint product odor.
	Dp	22	4			CL	CLAY; gray;5-15% fine to coarse sand; moderate plasticity; silty; trace fine gravel; stiff; no product odor.
			6				
			8			CL-GC	CLAY TO CLAYEY GRAVEL; strong brown; 30-60% fine to coarse sand and gravel; FeO mottled; sub-rounded to sub-angular; very stiff; strong product odor.
	Dp-Mst	42	10				
			12				
			14			CL	CLAY; Yellowish brown; silty; moderate plasticity; occasional root fragments; FeO mottled; very stiff; 10-20% fine to medium sand; no product odor.
	Mst -Wt	50	16				
			18				
	Mst --Wt	not rec.	20				
			22				@ 24': contains up to 25% fine to coarse sand and fine gravel; faint product odor.
			24				
	Mst --Wt	70	26				
			28				@ 29': Strong product odor.
	Wt	42	30				
			32			SC	CLAYEY SAND; dark yellowish brown; 15-20% fines; fine to medium grained; medium dense; no product odor.
	Wt	24	34				
			36				
			38				CLAY; dark yellowish brown; 15-30% fine to coarse sand; silty; 10-15% fine to medium gravel; very stiff; no product odor.
	Wt	57	40			CL	
							Bottom of Boring at 40-1/2'

LOCATION MAP



ELEVATION 98.13' (project)

PACIFIC ENVIRONMENTAL GROUP, INC.

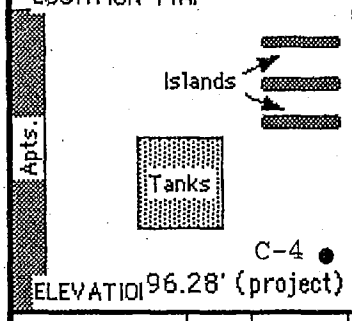
WELL / BORING NO. C-3
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: SCH. 40 PVC
SLOT SIZE: 0.020
GRAVEL PACK: CA

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH: 40'
WELL DIAMETER: 3"

WELL COMPLETION	MOISTURE CONTENT	PENETRATION RESISTANCE (BLOW/FT)	DEPTH (feet)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
			0				ASPHALT AND BASEROCK.
			2			CL	CLAY FILL; olive to black; 0-10% fine sand; silty; soft; no product odor.
			4			CL	CLAY; olive; 5-10% fine to coarse sand; slightly silty; stiff; no product odor.
	Dp	P	6				
			8				
	Dp	79	10				@ 9': yellowish brown; 30-40% fine sand to medium gravel; stiff; faint product odor.
			12				
	Dp	36	14				@ 14': yellowish brown; 5-10% fine to medium sand; FeO mottled; trace root fragments; moderate plasticity; no product odor.
			16				
			18				
	Dp	38	20				@ 19': no product odor.
			22				
	Dp	46	24				@ 24': no product odor.
			26				
			28				
	Wt	59	30			GC	CLAYEY GRAVEL; yellowish brown; 20-30% fines; 20% fine to coarse sand; fine to coarse grained; FeO stained; very stiff; no product odor.
			32				
	Wt	25	34			CL	CLAY; olive to yellowish brown; moderate plasticity; FeO stained; 0-5% fine to coarse sand; very stiff; no product odor.
			36				
			38				
	Wt	70	40				Bottom of Boring at 40-1/2'

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

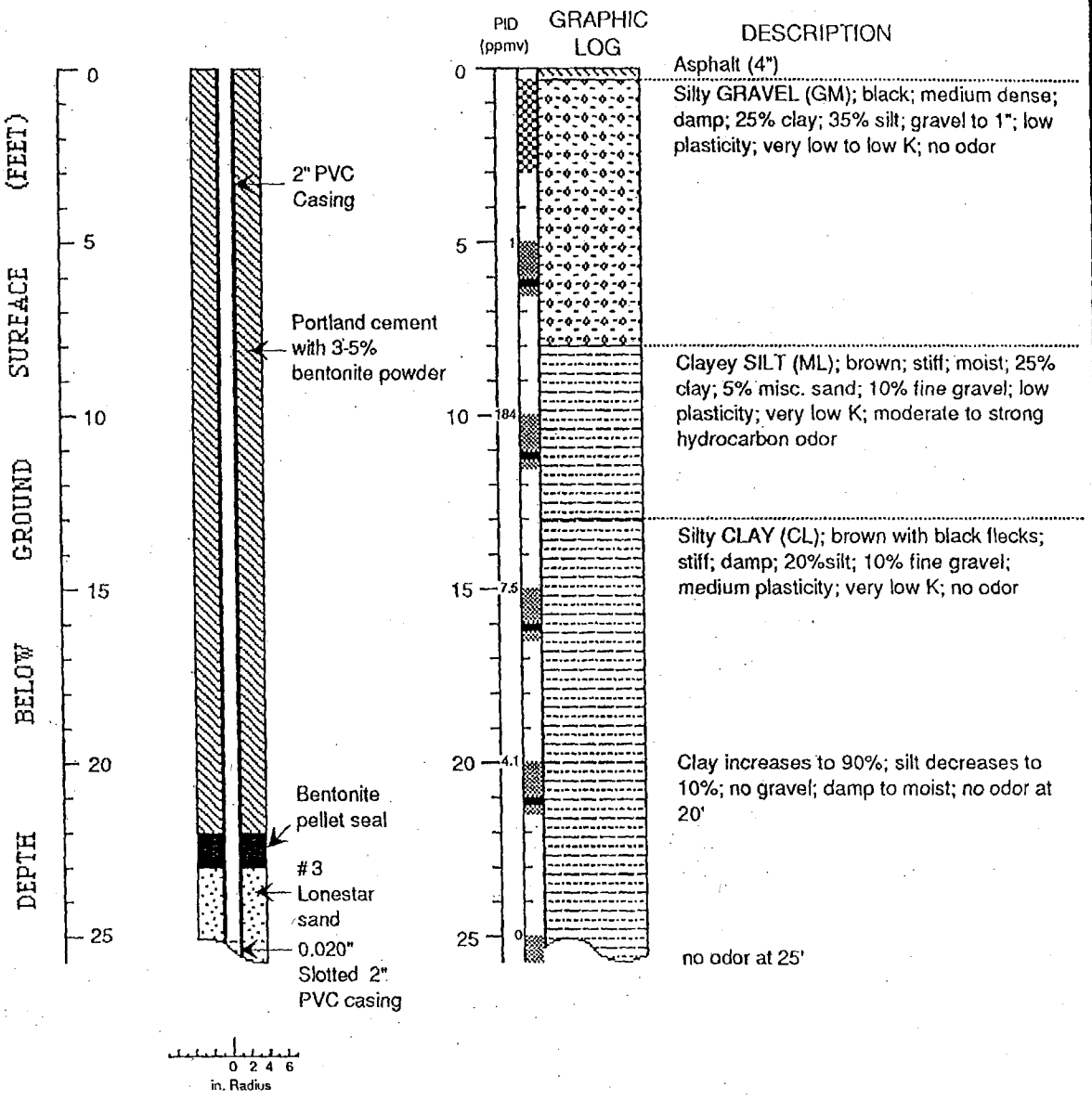
WELL / BORING NO. C-4
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: SCH. 40 PVC
SLOT SIZE: 0.020
GRAVEL PACK: CA

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH: 40'
WELL DIAMETER: 3"

WELL COMPLETION	MOISTURE CONTENT	PENETRATION RESISTANCE (BLOW/FT)	DEPTH (feet)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
			2			CL	ASPHALT AND BASEROCK. CLAY; fill; black; silty; 0-10% fine sand; no product odor.
	Dp	P	4			CL	CLAY; olive; 5-10% fine to coarse sand; slighty silty; stiff; damp; no product odor.
	Dp	39	10			SC	CLAYEY SAND; yellowish brown; 20-40% fines; fine to medium grained; FeO stained; trace root fragments; hard; strong product odor.
	Dp	37	14			CL	CLAY; strong brown; slightly silty; moderate plasticity; 10-30% fine sand to medium gravel; hard; no product odor.
	Dp	49	20				@ 19': no product odor.
	Dp	N/A	24				@ 24': decrease sand; no product odor.
	Mst -Wt	41	30				@ 29': olive; 0-10% fine to medium sand; hard; no product odor.
	Mst -Wt	80	34				@ 34': yellowish brown; 20-25% fine to medium sand; silty; hard; no product odor.
	Mst -Wt	>32	40				@ 39': olive; 0-10% fine to medium sand; slightly silty; hard; no product odor. Bottom of Boring at 40-1/2'

Well C-5 (BH-E)



EXPLANATION

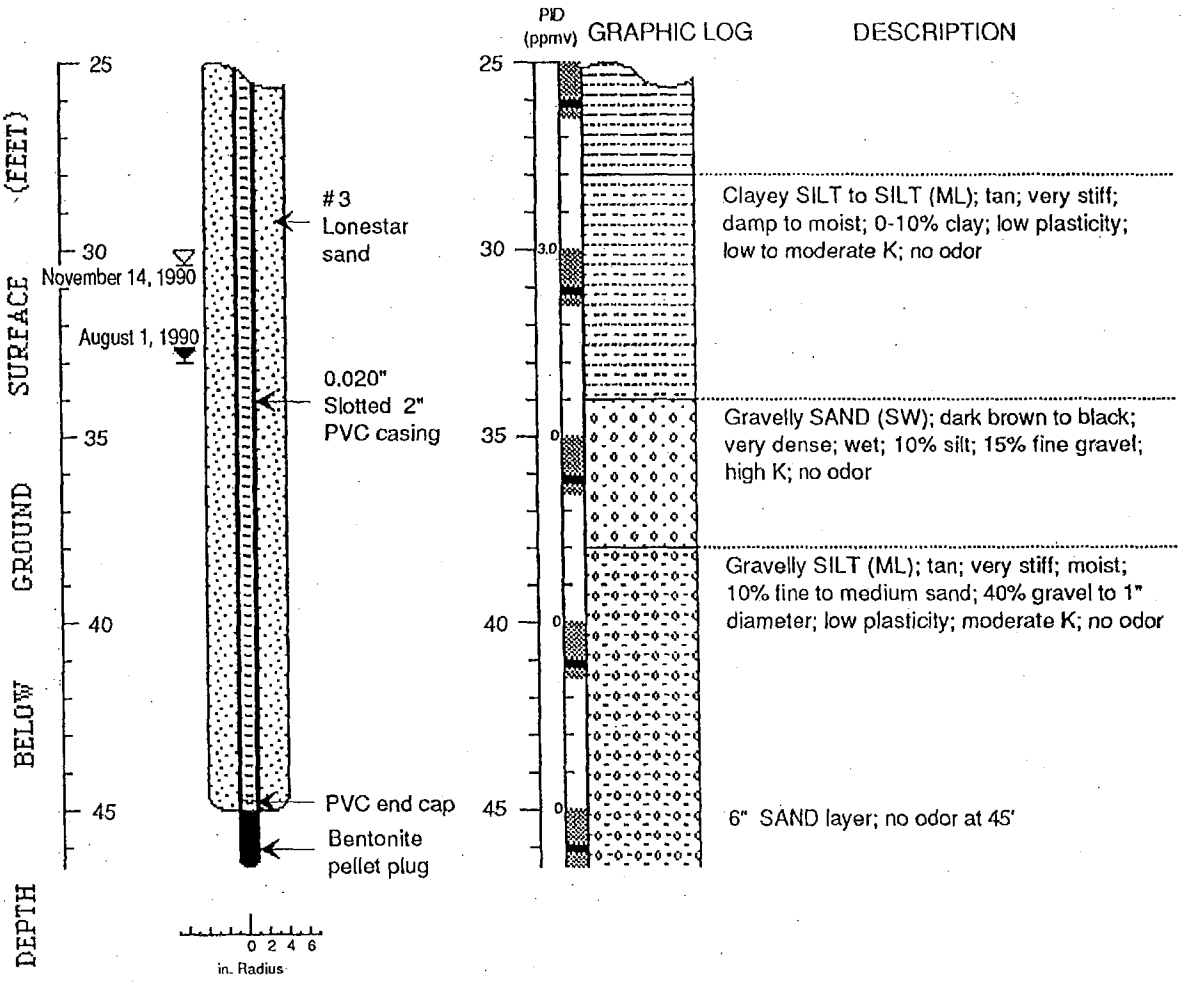
- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged by:	Robert E. Kitay
Supervisor:	James W. Carmody; RG 4872
Drilling Company:	Soils Exploration Services, Vacaville, CA
Driller:	Russ Ellis
Drilling Method:	Hollow stem auger
Date Drilled:	August 1, 1990
Well Head Completion:	2" locking well-plug with traffic-rated vaul
Type of sampler:	Split barrel (2" ID)
Ground surface elevation:	35.83 feet above mean sea level

Well Construction and Boring Log Details - Well C-5 (BH-E)

Chevron Service Station #9-0076
Oakland, California

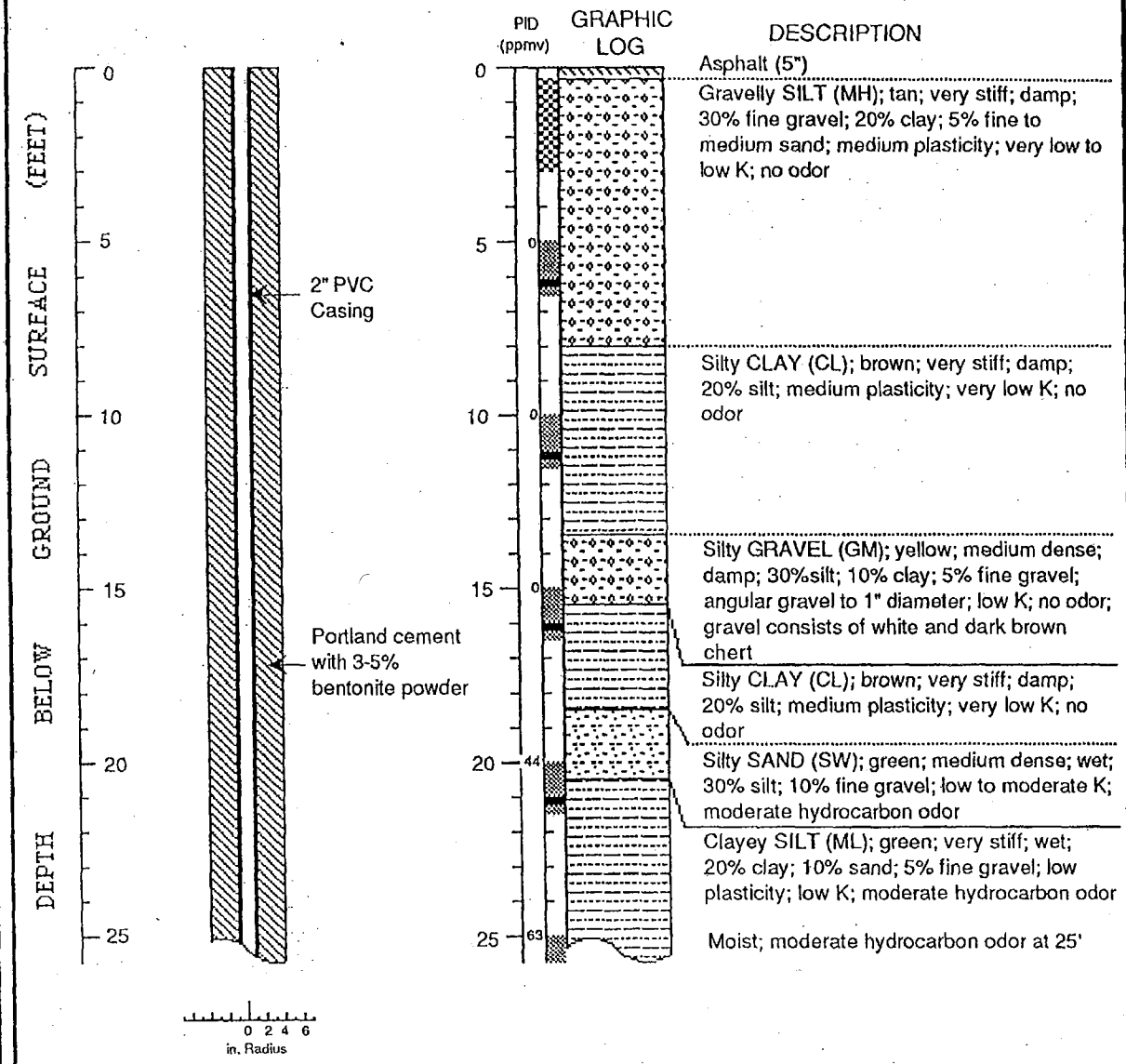
WELL C-5 (BH-E) (cont.)



Well Construction and Boring Log Details - Well C-5 (BH-E)

Chevron Service Station #9-0076
Oakland, California

Well C-6 (BH-F)



EXPLANATION

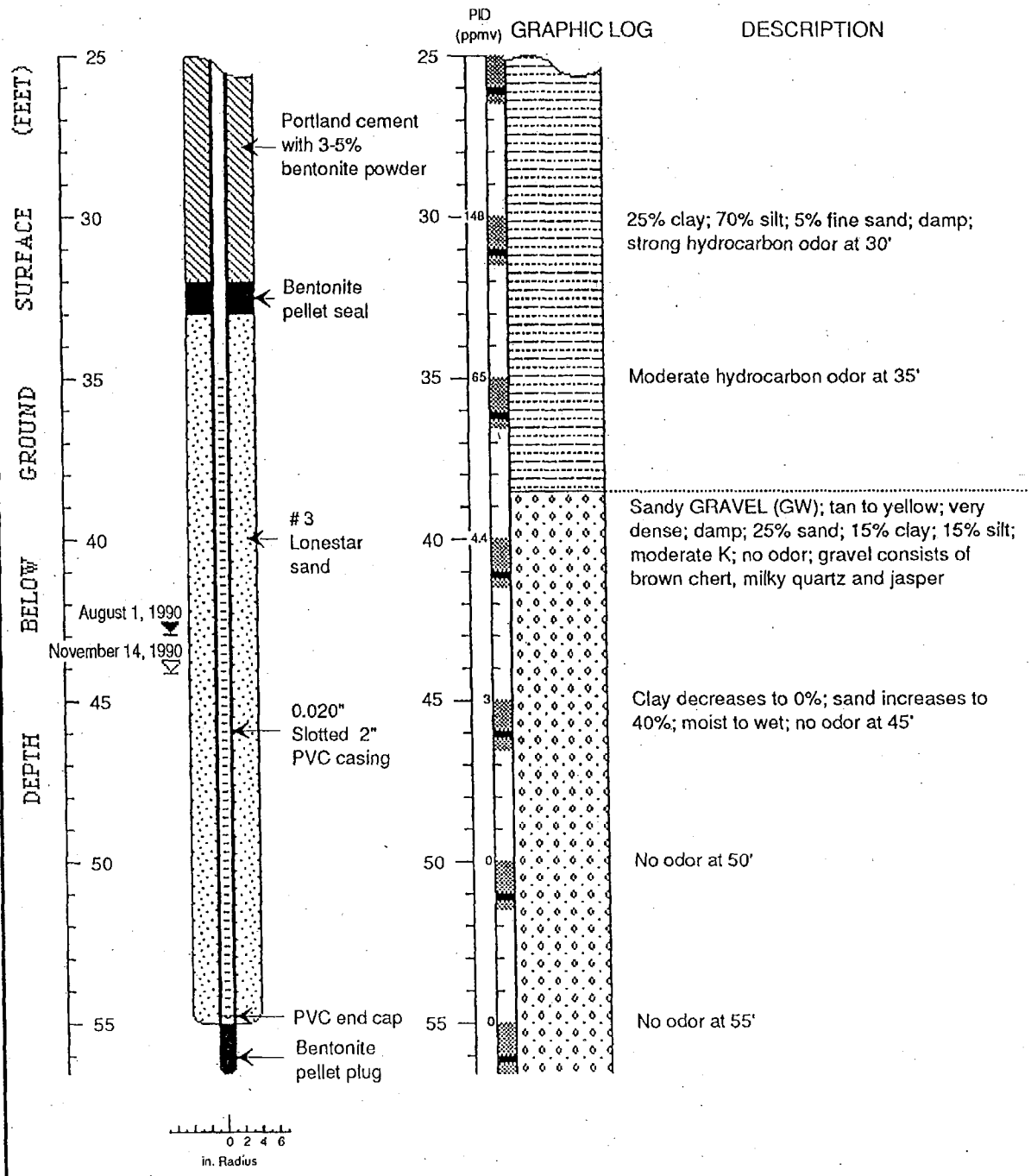
- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged by:	Robert E. Kitay
Supervisor:	James W. Carmody; RG 4872
Drilling Company:	Soils Exploration Services, Vacaville, CA
Driller:	Russ Ellis
Drilling Method:	Hollow stem auger
Date Drilled:	August 1, 1990
Well Head Completion:	2" locking well-plug with traffic-ratted vault
Type of sampler:	Split barrel (2" ID)
Ground surface elevation:	

Well Construction and Boring Log Details - Well C-6 (BH-F)

Chevron Service Station #9-0076
Oakland, California

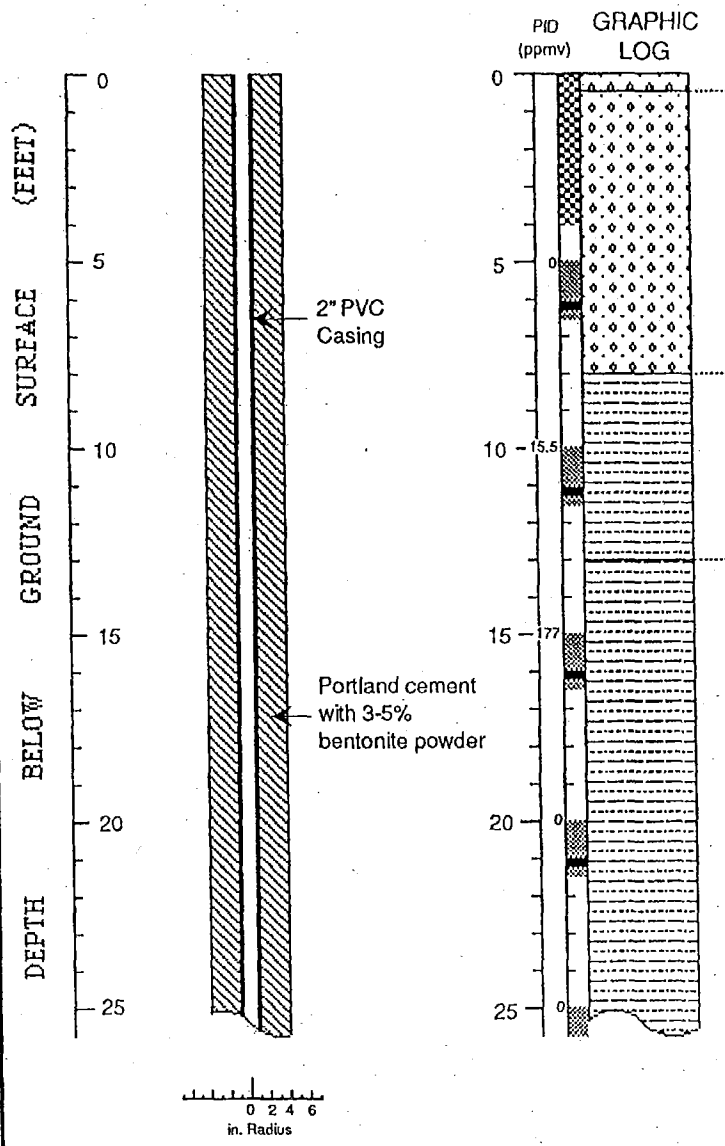
WELL C-6 (BH-F) (cont.)



Well Construction and Boring Log Details - Well C-6 (BH-F)

Chevron Service Station #9-0076
Oakland, California

Well C-7 (BH-G)



DESCRIPTION
Topsoil (6")
Sandy GRAVEL (GW); light brown mottled red-brown; medium dense; damp; 20% sand; 10% silt; gravel to 1" diameter; very high K; no odor; FeO staining
Clayey SILT (MH); olive; very stiff; damp; 10% clay; 5-10% fine sand; medium plasticity; low K; no odor
Silty CLAY (CL); brown; very stiff; damp to moist; 35% silt; 5% fine sand; medium plasticity; very low K; strong hydrocarbon odor
Wet; no odor at 20'
Clay increases to 85%; silt decreases to 10%; medium to high plasticity; no odor at 25'

EXPLANATION

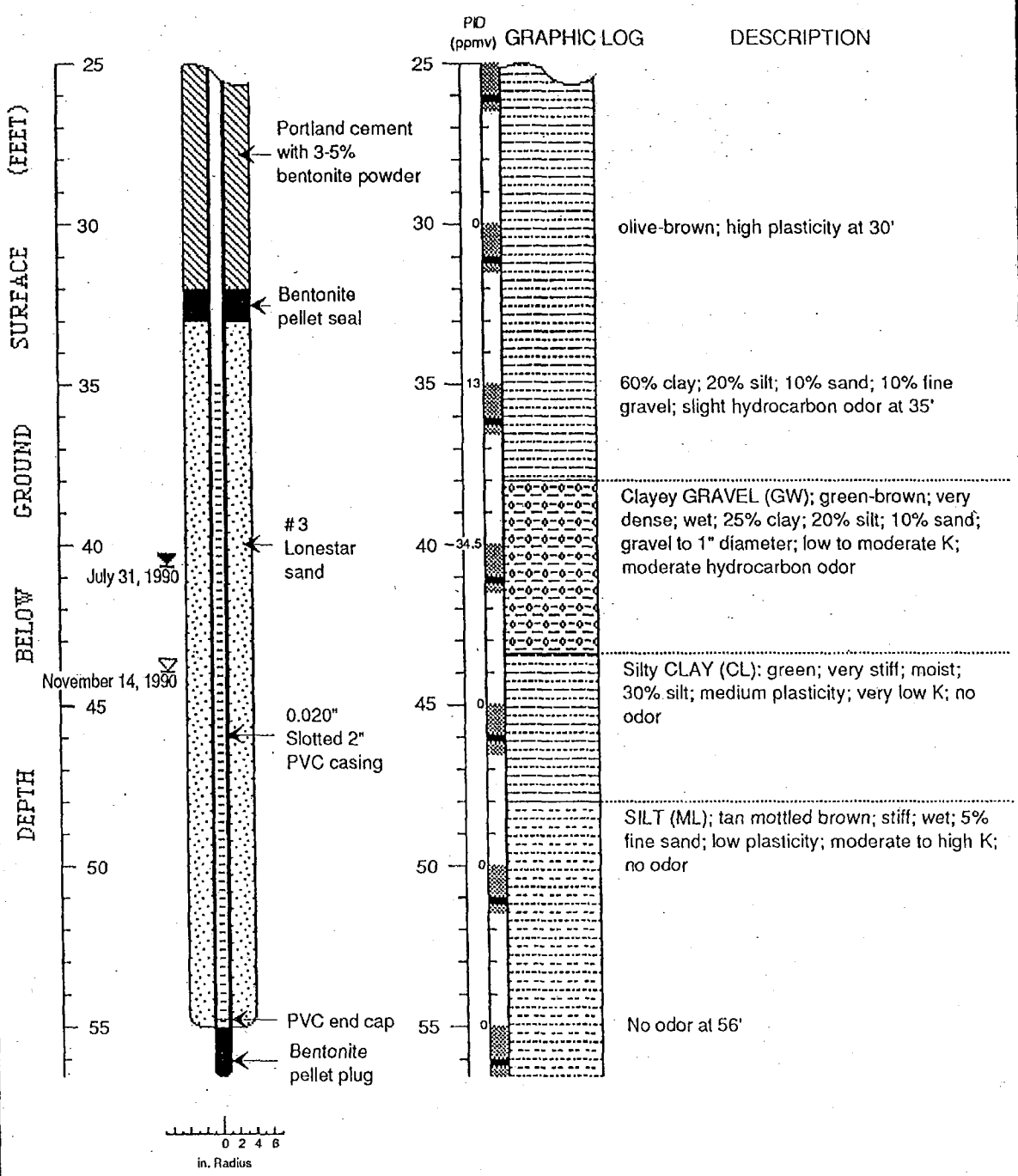
- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged by:	Robert E. Kitay
Supervisor:	James W. Carmody; RG 4872
Drilling Company:	Soils Exploration Services, Vacaville, CA
Driller:	Russ Ellis
Drilling Method:	Hollow stem auger
Date Drilled:	July 31, 1990
Well Head Completion:	2" locking well-plug, stovepipe, traffic-ratted vault
Type of sampler:	Split barrel (2" ID)
Ground surface elevation:	32.65 feet above mean sea level

Well Construction and Boring Log Details - Well C-7 (BH-G)

Chevron Service Station #9-0076
Oakland, California

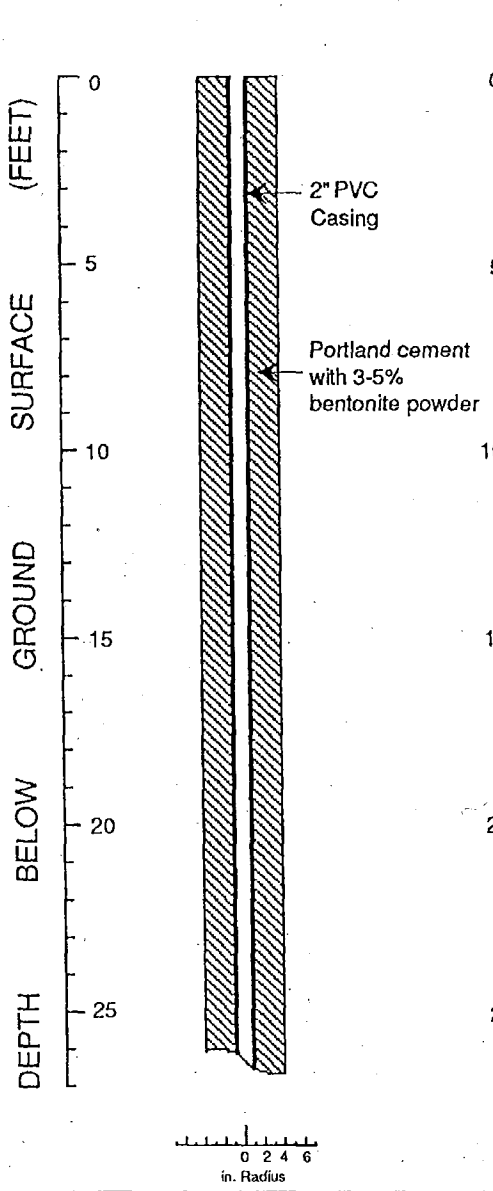
WELL C-7 (BH-G) (cont.)



Well Construction and Boring Log Details - Well C-7 (BH-G)

Chevron Service Station #9-0076
Oakland, California

WELL C-8 (BH-H)



PID (ppmv)	GRAPHIC LOG	DESCRIPTION
0		Asphalt
		SILT (ML); light tan-gray; medium stiff; dry to damp; 90 % silt; 5% fine to coarse sands; 5% clay; low K; no odor
5		Clayey SAND (SM/SC); yellow brown; stiff; dry to damp; 60% coarse sand; 20% clay; 20% silt; moderate K; no odor
		Sandy SILT (MH); olive-tan to white; stiff; dry; 60% silt; 30% fine sand; 10% clay; medium plasticity; low K; no odor
0		
10		Gravelly SAND (SW); brown-tan; medium dense; moist; 70% fine to coarse sand; 20% gravel to .5" diameter; 10% silt; high to very high K; no odor
0		Silty CLAY (CL); brown; stiff; damp; 50% clay; 25% silt; 20% fine sand; 5% gravel to .25" diameter; medium plasticity; very low K; no odor
15		
0		Silty CLAY (CL); brown-tan; very stiff; damp; 75% clay; 20% silt; 5% very fine sand; medium plasticity; very low K; no odor
0		
20		Silty SAND (SP); brown; loose; damp; 70% very fine sand; 30 % silt; moderate to high K; no odor
0		Silty CLAY (CL); gray-blue; stiff; damp; 50% clay; 45% silt; 5% very fine sand; medium plasticity; very low K; no odor
25		

EXPLANATION

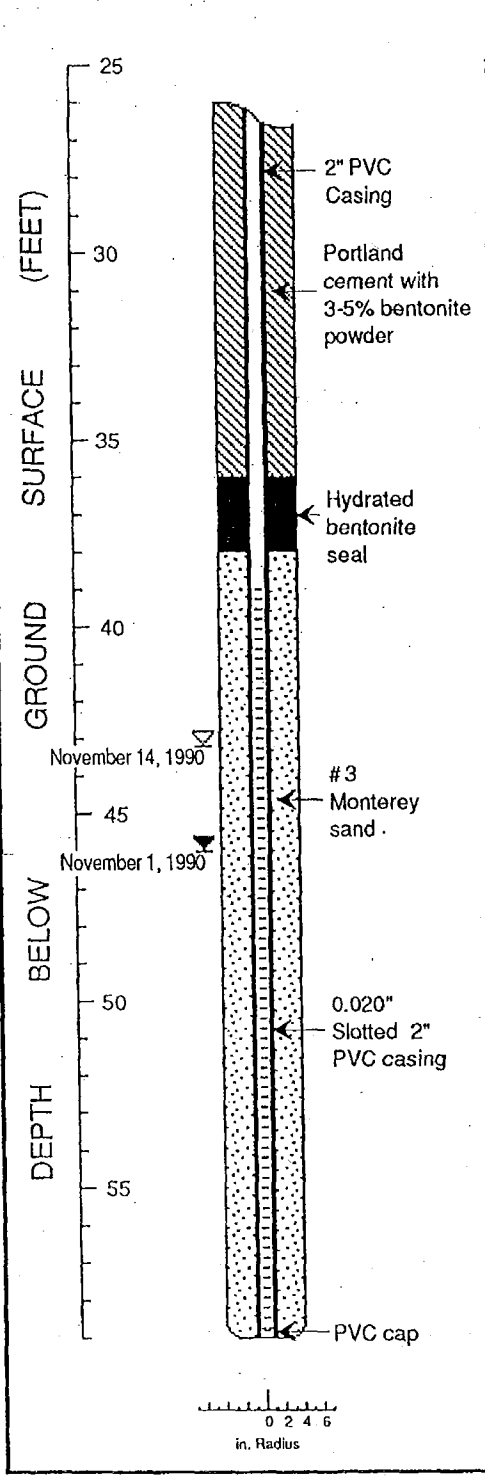
- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

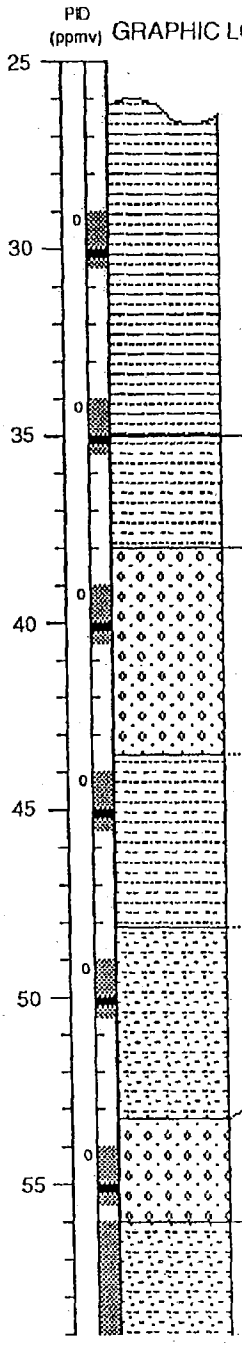
Logged by: Robert Kitay / Mariette Shin
Supervisor: James W. Carmody; RG 4872
Drilling Company: Soils Exploration Services, Vacaville, CA
Driller: Rick Carr
Drilling Method: Hollow-stem auger
Date Drilled: November 1, 1990
Well Head Completion: 2" locking well-plug; traffic rated vault
Type of Sampler: Split barrel (2" ID)
Ground Surface Elevation: 31.17 feet above mean sea level

Boring Log and Well Construction Details - Well C-8 (BH-H)

Chevron Service Station #9-0076
Oakland, California

WELL C-8 (BH-H) (cont.)





DESCRIPTION

Black streaks across sample at 34'

Sandy CLAY/Silty CLAY (CL); light-gray to white; stiff; moist; 50% clay; 30% sand; 20% silt; high plasticity; very low K; no odor (Contact-driller)

Gravelly SAND/ Silty SAND (SW); yellow-brown to orange; medium dense to dense; moist; 50% very fine to coarse sand; 20% gravel to .5" diameter; 20% silt; 10% clay; low to moderate K; no odor

SILT to Sandy SILT (ML); light brown mottled gray-green; medium stiff; 60-100% silt; 0-40% very fine sand; moderate K; no odor Wet at 46'

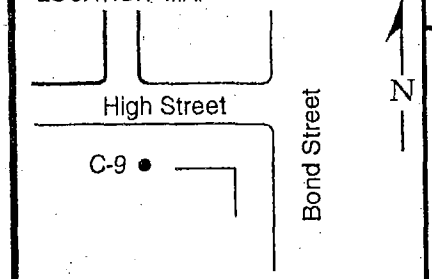
Silty SAND (SW); brown; dense; wet; 90% fine to coarse sand; 10% silt; high K; no odor

Gravelly SAND (SW); tan-brown; dense; very moist to wet; 60% very fine to coarse sand; 25% gravel to .75" diameter; 15% silt; high K ; no odor

Silty SAND (ML); tan-brown; damp to moist; medium dense to dense; 70% fine to coarse sand; 25% silt; 5% gravel to .3" diameter; moderate K; no odor

Boring Log and Well Construction Details - Well C-8 (BH-H)

Chevron Service Station #9-0076
Oakland, California

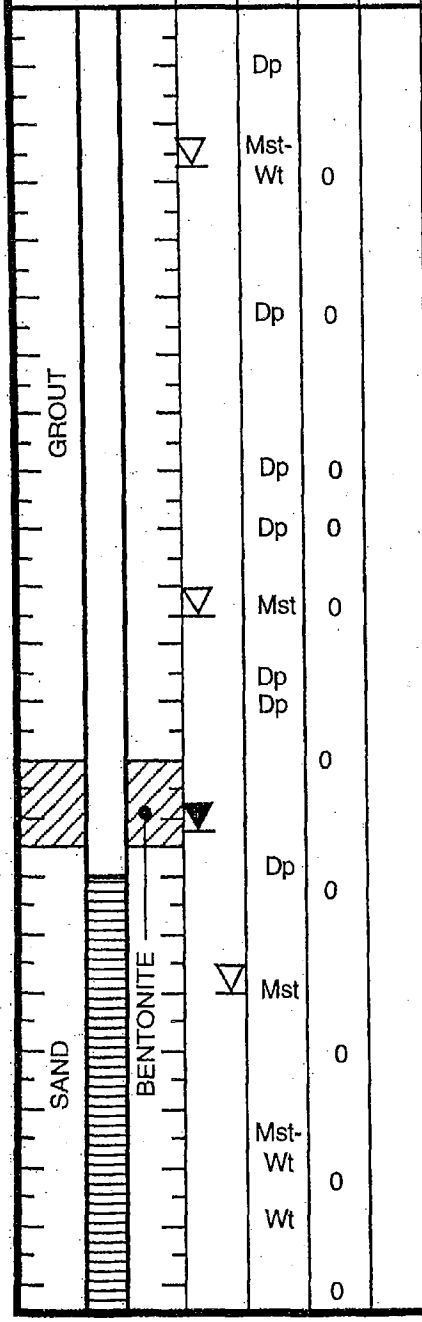


PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. C-9
PAGE 1 OF 1

PROJECT NO. 325-024.1B
LOGGED BY: CWR
DRILLER: MDE
DRILLING METHOD: HSA
SAMPLING METHOD: CORE
CASING TYPE: SCH 40 PVC
SLOT SIZE: 0.020"
SAND PACK: #3 SAND

CLIENT: CHEVRON
DATE DRILLED: 7-10-96
LOCATION: 4265 Foothill Blvd.
HOLE DIAMETER: 8"
HOLE DEPTH: 45'
WELL DIAMETER: 2"
WELL DEPTH: 45'
CASING STICKUP: NA



MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
							GC	ASPHALT 4"
Dp			2				CL	CLAYEY GRAVEL - FILL: dark yellowish brown; 15-20% clay; 10% medium sand; 70-75% subangular gravel to 2" diameter; wood chips; no product odor.
Mst-Wt	0		4				CL	CLAY: dark yellowish brown; moderate plasticity; 90% clay with minor silt; 10% medium sand; no product odor.
			6					SANDY CLAY: dark yellowish brown; moderate plasticity; 60-70% clay; 30-40% coarse subangular sand to fine subangular gravel; no product odor.
			8					@10': as above; yellowish brown with pervasive gray and black mottling in thin horizontal bands; low to moderate plasticity; 60% clay; 20% silt; 20% medium sand; blocky fractures; manganese oxide streaks and specks; no product odor.
Dp	0		10					
			12					
			14				CL	SILTY CLAY: dark yellowish brown; moderate plasticity; 60% clay; 30% silt; 10% fine sand; manganese oxide specks; some fracturing; no product odor.
Dp	0		16					
Dp	0		18					@21': as above; yellowish brown with light gray mottling; moderate plasticity; trace manganese oxide specks; blocky fractures; no product odor.
Mst	0		20					SANDY CLAY: yellowish brown; pervasive orange brown and gray mottling; moderate plasticity; 60% clay; 10% silt; 30% fine sand; manganese oxide specks; some fracturing; no product odor.
Dp			22					
Dp			24				CL	
	0		26					@30': gray with yellowish brown; moderate plasticity; manganese oxide specks; 70% clay; 10% silt; 20% fine sand; trace fine gravel; extensive blocky fractures; no product odor.
			28					
Dp	0		30					@35': as above; yellowish brown with pervasive gray mottling in horizontal bands; low to moderate plasticity; 50% clay; 20% silt; 30% fine sand; trace white mudstone lithic fragments; no product odor.
			32					
Mst			34					CLAYEY SAND: yellowish brown; 30-40% clay; 20% silt; 40-50% fine sand; gray mottling; no product odor.
	0		36				SC	CLAYEY GRAVEL: yellowish brown; 20-30% clay; 20% medium to coarse sand; 50-60% subangular to subrounded gravel comprised of predominately weathered clastic and volcanic fragments; no product odor.
			38					
Mst-Wt	0		40				GC	GRAVEL: black, brown, and white; trace fines; 10% coarse sand; 85% subrounded to subangular gravel to 4" diameter; clastics and volcanic fragments; no product odor.
Wt			42				GW	
	0		44					BOTTOM OF BORING AT 45'

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

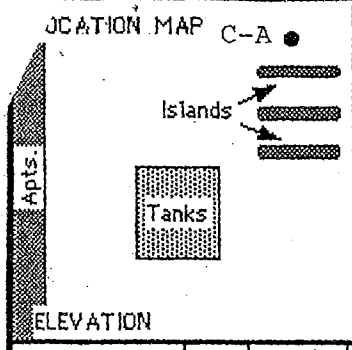
BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	C-10
JOB/SITE NAME	9-0076	**DRILLING STARTED**	08-Aug-03
LOCATION	4265 Foothill Boulevard, Oakland CA	**DRILLING COMPLETED**	08-Aug-03
PROJECT NUMBER	41D-1977	**WELL DEVELOPMENT DATE (YIELD)**	09-Sep-03
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	38.69 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	38.37 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	10 to 30 fbg
LOGGED BY	I. Robb	**DEPTH TO WATER (First Encountered)**	24.0 fbg (08-Aug-03) ▽
REVIEWED BY	B. Foss	**DEPTH TO WATER (Static)**	17.18 fbg (09-Sep-03) ▼

REMARKS Well installed with limited access drill rig (no blow counts available)

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Vac cleared to 8 fbg		Concrete
				5					Portland Type I/II
								8.0	Bentonite Seal
<50	NA	C-10@10'		10	SM		**Silty SAND with clay:** Light Brown; dry; 50% sand, 35% silt, 15% clay; low plasticity, low permeability.	9.0 10.5	Monterey Sand #2/16
<50	NA	C-10@15'		15	SM		**Silty Clayey SAND:** Light Brown; dry; 40% sand, 35% silt, 20% clay, 5% gravel; moderate plasticity, low permeability.	14.0 15.5	
							▼		
<50	NA	C-10@20'		20	SC		**Clayey Sandy SILT:** Light Brown; dry; 40% silt, 35% clay, 20% sand, 5% gravel; high plasticity, low permeability.	19.0 20.5	2"-diam., 0.010" Slotted Schedule 40 PVC
<50	NA	C-10@25'		25	SC		**Clayey Sandy SILT:** Light Brown; dry; 40% silt, 35% clay, 20% sand, 5% gravel; high plasticity, low permeability.	▽ 24.0 25.5	
<50	NA	C-10@30'		30	CL		**Silty CLAY:** Light Brown; dry; 65% clay, 35% silt; high plasticity, low permeability.	28.5 30.0	Bottom of Boring @ 30 fbg

WELL LOG (TPH-G) I:\9-0076 OAKLAND\9-0076 ADD'L INVESTIGATION FOR DIVESTMENT\9-0076.GPJ DEFAULT.GDT 10/8/03



PACIFIC ENVIRONMENTAL GROUP, INC.

WELL / BORING NO. C-A
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: NA
SLOT SIZE:
GRAVEL PACK:

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH:
WELL DIAMETER:

WELL COMPLETION	MOISTURE CONTENT	PENETRATION RESISTANCE (BLOW/FT)	DEPTH (feet)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
Backfilled with Concrete	Dp	12	2			SC	ASPHALT AND BASEROCK.
		16	4				CLAYEY SAND; fill; dark olive; 20-30% fines; fine to coarse grained; trace fine gravel; medium dense; damp; faint product odor to strong product odor starting at 4'.
		11	6				@ 5-1/2': intermixed SW and GW fill materials; some free product; still primarily SC.
		4	8				@7': free product.
		9	10				@8-1/2': free product.
		10	12				@10': nearly saturated with product.
	Dp	50	14			SC/ GC	CLAYEY SAND and CLAYEY GRAVEL; interbedded; olive; 20-30% fines; silty; SAND; fine to coarse grained; 0-15% fine to medium gravel; very dense; faint product odor; GRAVEL; 15-25% fine to coarse sand; FeO mottled; fine to coarse grained; very dense; sub-rounded; damp; faint product odor.
		24	16				@16': strong product odor.
		28	18				
		18				CL	
	Mst	49	20				CLAY; strong brown; moderate plasticity; FeO mottled; slightly silty; stiff; 0-10% fine to medium sand; faint product odor.
			22				
		64	24				@23-1/2': faint product odor.
			26				Bottom of Boring at 25 feet.
			28				
			30				
			32				
			34				
			36				
			38				
			40				

SOIL BORING LOG **Boring No. MW-10** **Sheet: 1 of 2**

Client	Former BP Station 11109	Date	March 23, 2009
Address	4280 Foothill Boulevard	Drilling Co.	Woodward Drilling rig type: BK-81
	Oakland, CA	Driller	Dave
Project No.	E11109	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	24-inch length split spoon
Well Pack	sand: 6 ft. to 30 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 7 ft. to 30 ft.
	bent.: 4 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.020-in.
	grout: 0 ft. to 4 ft.	Depth to GW:	▽ first encountered: 13' bgs. static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
					1		Cleared to 6.5' bgs. with air knife	
					2			
					3			
					4			
					5			
					6			
					7			
					8			
		9 14			9	ML	Clayey silt with sand, ML, dark grayish brown, moist, hard, low plasticity 60% silt, 30% clay, 10% medium grained sand	197
	MW-10 10'	17 20	0835	75	10			
		21 36			11	SC	Clayey sand with gravel, SC, dark grayish brown, moist, very dense 65% coarse grained sand, 20% clay, 15% fine gravel	447
	MW-10 12'	50/5" -	0840	50	12			
		27 36			13	▽ SM	Silty sand, SM, dark grayish brown, wet, very dense 85% medium to coarse grained sand, 15% silt	1027
S	MW-10 14'	42 50/5"	0850	100	14			
		10 10			15			
	MW-10 16'	14 15	0855	0	16			
		12 12			17	CL	Clay, CL, dark yellowish brown, moist, hard, high plasticity 100% clay	70.9
	MW-10 18'	20 27	0900	75	18			
		12 16			19	SC	Clayey sand with gravel, SC, dark grayish brown, wet, dense 65% medium to coarse grained sand, 20% clay, 15% fine gravel	366
S	MW-10 20'	18 20	0905	100	20			

Recovery

Sample

Comments: Strong hydrocarbon odor from surface to total depth.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-10** **Sheet: 2 of 2**

Client	Former BP Station 11109	Date	March 23, 2009
Address	4280 Foothill Boulevard	Drilling Co.	Woodward Drilling rig type: BK-81
	Oakland, CA	Driller	Dave
Project No.	E11109	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	24-inch length split spoon
Well Pack	sand: 6 ft. to 30 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 7 ft. to 30 ft.
	bent.: 4 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.020-in.
	grout: 0 ft. to 4 ft.	Depth to GW:	▽ first encountered: 13' bgs. static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
		12						Clayey sand with gravel, SC, dark grayish brown, wet, very dense	176
		25				21	SC	65% coarse grained sand, 25% clay, 15% fine gravel	
		32							
	MW-10 22'	36	0915	75		22			70.8
		17							
		18				23			
		20						Clay, CL, dark yellowish brown, moist, hard, high plasticity	
	MW-10 24'	26	0920	75		24	CL	100% clay	
		10							245
		18				25			
		20						Sandy clay, CL, dark grayish brown, moist, hard, medium plasticity	
S	MW-10 26'	22	0930	100		26		70% clay, 30% fine grained sand	
		10							43.2
		18				27			
		20					SC	Clayey sand, SC, grayish brown, moist, dense	
	MW-10 28'	23	0935	100		28		70% very fine grained sand, 30% clay	
		12							33.8
		12				29			
		15					CL	Silty clay, CL, dark grayish brown, moist, hard, medium plasticity	
S	MW-10 30'	18	0940	100		30		60% clay, 40% silt	
						31			
						32			
						33			
						34			
						35			
						36			
						37			
						38			
						39			
						40			

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-11** **Sheet: 1 of 2**

Client	Former BP Station 11109	Date	March 23, 2009
Address	4280 Foothill Boulevard	Drilling Co.	Woodward Drilling rig type: BK-81
	Oakland, CA	Driller	Dave
Project No.	E11109	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	24-inch length split spoon
Well Pack	sand: 6 ft. to 30 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 7 ft. to 30 ft.
	bent.: 4 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.020-in.
	grout: 0 ft. to 4 ft.	Depth to GW:	▽ first encountered: 13'bgs. static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Cleared to 6.5' bgs. with air knife	
						2			
						3			
						4			
						5			
						6			
						7			
						8			
		12 17				9	ML	Clayey silt with gravel, ML, dark grayish brown, moist, hard, low plasticity 60% silt, 25% clay, 15% fine gravel	155
S	MW-11 10'	20 23	1305	50		10			
		16 23				11	CL	Clay with gravel, CL, dark grayish brown, moist, hard, low plasticity 70% clay, 30% medium to coarse grained sand	118
	MW-11 12'	29 32	1315	75		12			
		26 28				13	▽ SM	Silty sand with gravel, SM, dark grayish brown, wet, very dense 60% medium to coarse grained sand, 25% silt, 15% medium gravel	51.3
	MW-11 14'	30 32	1320	100		14			
		7 8				15		Silty sand with gravel, SM, dark grayish brown, wet, medium dense 60% medium to coarse grained sand, 25% silt, 15% medium gravel	205
S	MW-11 16'	10 12	1330	100		16		Sandy clay, CL, dark grayish brown, moist, very stiff, medium plasticity 75% clay, 25% coarse grained sand	
		10 12				17		Clay with gravel, CL, dark yellowish brown, moist, hard, medium plasticity 85% clay, 15% fine to medium gravel	51.1
	MW-11 18'	15 18	1335	100		18	CL		
		12 13				19		Sandy clay, CL, dark yellowish brown, moist, very stiff, medium plasticity 80% clay, 20% coarse grained sand	42.8
	MW-11 20'	15 16	1340	100		20			

Recovery

Sample

Comments: Strong hydrocarbon odor from surface to total depth.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-11** **Sheet: 2 of 2**

Client	Former BP Station 11109	Date	March 23, 2009
Address	4280 Foothill Boulevard	Drilling Co.	Woodward Drilling rig type: BK-81
	Oakland, CA	Driller	Dave
Project No.	E11109	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	24-inch length split spoon
Well Pack	sand: 6 ft. to 30 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 7 ft. to 30 ft.
	bent.: 4 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.020-in.
	grout: 0 ft. to 4 ft.	Depth to GW:	▽ first encountered: 13'bgs. static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
		30					CL		397
		32				21			
		50/4"						Clayey sand with gravel, SC, dark yellowish brown, moist, very dense	
	MW-11 22'	-	1345	100		22		65% medium graiend sand, 25% clay, 15% fine gravel	
		25					SC		1397
		27				23			
		30						Clayey sand with gravel, SC, dark yellowish brown, wet, very dense	
S	MW-11 24'	32	1355	75		24		60% medium grained sand, 20% clay, 20% fine gravel	
		13							97.9
		16				25			
		20						Sandy clay, CL, dark grayish brown, moist hard, medium plasticity	
	MW-11 26'	26	1400	100		26	CL	70% clay, 30% fine frained sand	
		15							473
		15				27			
		20						Clayey sand, SC, dark grayish brown, moist to wet, dense	
	MW-11 28'	21	1405	100		28	SC	60% fine grained sand, 40% clay	
		12							214
		18				29			
		20					CL	Clay, CL, dark grayish brown, moist to wet, hard, medium plasticity	
S	MW-11 30'	26	1425	100		30		100% clay	
						31			
						32			
						33			
						34			
						35			
						36			
						37			
						38			
						39			
						40			

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-12** **Sheet: 1 of 2**

Client	Former BP Station 11109	Date	March 24, 2009
Address	4280 Foothill Boulevard	Drilling Co.	Woodward Drilling rig type: BK-81
	Oakland, CA	Driller	Dave
Project No.	E11109	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	24-inch length split spoon
Well Pack	sand: 6 ft. to 30 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 7 ft. to 30 ft.
	bent.: 4 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.020-in.
	grout: 0 ft. to 4 ft.	Depth to GW:	▽ first encountered: 13' bgs. static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Cleared to 6.5' bgs. with air knife	
						2			
						3			
						4			
						5			
						6			
						7			
						8			
		10 11				9		Clayey silt, ML, dark grayish brown, moist, very stiff, low plasticity 60% silt, 40% clay	
S	MW-12 10'	14 16	0835	50		10	ML		
		10 15				11		Clayey silt with sand, ML, dark grayish brown, moist, hard, low plasticity 60% silt, 30% clay, 10% fine grained sand	
	MW-12 12'	50/6" -	0840	67		12			
		28 50/6"				13	▽ SC	Clayey sand with gravel, SC, dark grayish brown, moist, very dense 65% coarse grained sand, 20% clay, 15% fine to medium gravel	
	MW-12 14'	- -	0845	100		14			
		12 15				15		Clay trace gravel, CL, dark grayish brown, moist, hard, high plasticity 95% clay, 5% fine gravel	
S	MW-12 16'	20 23	0850	100		16			
		19 20				17	CL	Clay, CL, dark brown, moist, hard, high plasticity, 100% clay	
	MW-12 18'	20 24	0900	100		18			
		14 18				19		Silty clay with sand, CL, dark yellowish brown, moist, hard, medium plasticity 60% clay, 25% silt, 15% fine grained sand	
	MW-12 20'	20 21	0905	100		20			

Recovery

Sample

Comments: Strong hydrocarbon odor from surface to total depth.
PID readings not available.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-12** **Sheet: 2 of 2**

Client	Former BP Station 11109	Date	March 24, 2009
Address	4280 Foothill Boulevard	Drilling Co.	Woodward Drilling rig type: BK-81
	Oakland, CA	Driller	Dave
Project No.	E11109	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	24-inch length split spoon
Well Pack	sand: 6 ft. to 30 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 7 ft. to 30 ft.
	bent.: 4 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.020-in.
	grout: 0 ft. to 4 ft.	Depth to GW:	▽ first encountered static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
		15					CL		
		19				21			
		20						Clayey sand with gravel, SC, dark grayish brown, wet, very dense	
S	MW-12 22'	42	0910	100		22	SC	65% coarse grained sand, 25% clay, 15% fine gravel	
		15							
		20				23			
		30							
	MW-12 24'	32	0920	0		24			
		12							
		12				25	CL		
		14						Sandy clay, CL, dark grayish brown, wet, very stiff, medium plasticity	
	MW-12 26'	17	0930	100		26		70% clay, 30% fine grained sand	
		10							
		10				27			
		17						Clayey sand, SC, dark grayish brown, wet, dense	
	MW-12 28'	20	0940	100		28		70% very fine grained sand, 30% clay	
		17							
		20				29	SC		
		23						Clayey sand, SC, dark grayish brown, wet, dense	
S	MW-12 30'	24	0950	100		30		60% very fine grained sand, 40% clay	
						31			
						32			
						33			
						34			
						35			
						36			
						37			
						38			
						39			
						40			

Comments:

STRATUS ENVIRONMENTAL, INC.

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

ARCADIS

Appendix D

DPE Pilot Test Results

Table 1. DPE Pilot Test Extraction Well Data
Former BP Service Station #11109, 4280 Foothill Boulevard, Oakland, California

Extraction Event	Cumulative Testing Time (hours)	Depth to Water (feet)	Drawdown (feet)	Applied System Vacuum (inches Hg)	Air Flow Rate (SCFM)	Volume of Water Pumped		PID Readings	
						(cumulative gal)	(gpm)*	Influent (ppm)	Effluent (ppm)
MW-5	0	9.54	---	---	---	0.00	0.00	---	---
(4/27/2009)	Startup	31.00	-21.46	---	---	0.00	0.00	---	---
Stinger tip set approximately	1	31.00	-21.46	24.0	48.00	0.00	0.00	888	5.0
two feet above well bottom, or	2	31.00	-21.46	24.0	48.00	60.00	1.00	482	5.0
approx. 21.5 ft below water surface	3	31.00	-21.46	24.0	48.00	60.00	0.00	412	4.0
	4	31.00	-21.46	24.0	48.00	60.00	0.00	323	4.0
	5	31.00	-21.46	25.0	48.00	90.00	0.50	320	3.0
	6	31.00	-21.46	24.0	48.00	90.00	0.00	299	4.0
	7	31.00	-21.46	25.0	48.00	90.00	0.00	270	4.0
	8	31.00	-21.46	24.0	48.00	110.00	0.33	261	4.0
	9	31.00	-21.46	24.0	48.00	110.00	0.00	267	3.0
Test terminated	**10**	**31.00**	**-21.46**	**24.0**	**48.00**	**130.00**	**0.33**	**299**	**4.0**
MW-12	0	9.93[1]	---	---	---	0.00	0.00	---	---
(4/28/2009)	Startup	29.00	-19.07	---	---	0.00	0.00	---	---
Stinger tip set approximately	0.5	29.00	-19.07	25.0	36.00	0.00	0.00	433	5.0
one foot above well bottom, or	1.5	29.00	-19.07	25.0	30.00	70.00	1.17	428	4.0
approx. 19 ft below water surface	2.5	29.00	-19.07	25.0	36.00	70.00	0.00	362	4.0
	3.5	29.00	-19.07	25.0	36.00	70.00	0.00	295	4.0
	4.5	29.00	-19.07	25.0	36.00	140.00	1.17	316	3.0
	5.5	29.00	-19.07	25.0	36.00	140.00	0.00	328	4.0
	6.5	29.00	-19.07	25.0	36.00	190.00	0.83	325	4.0
	7.5	29.00	-19.07	25.0	38.00	230.00	0.67	328	3.0
	8.5	29.00	-19.07	25.0	38.00	230.00	0.00	353	3.0
	9.5	29.00	-19.07	25.0	38.00	230.00	0.00	347	3.0
	10.5	29.00	-19.07	25.0	38.00	300.00	1.17	357	3.0
Test terminated	**11**	**29.00**	**-19.07**	**25.0**	**38.00**	**330.00**	**0.50**	**447**	**3.0**
MW-10	0	8.82[1]	---	---	---	0.00	0.00	---	---
(4/29/2009)	Startup	29.00	-20.18	---	---	0.00	0.00	---	---
Stinger tip set approximately	0.5	29.00	-20.18	23.0	46.00	0.00	0.00	1081	7.0
one foot above well bottom, or	1.5	29.00	-20.18	23.0	35.00	0.00	0.00	1084	7.0
approx. 20 ft below water surface	2.5	29.00	-20.18	23.0	36.00	40.00	0.67	1106	7.0
	3.5	29.00	-20.18	23.0	46.00	40.00	0.00	1021	1.0
	4.5	29.00	-20.18	23.0	46.00	40.00	0.00	1091	0.0
	5.5	29.00	-20.18	23.0	46.00	110.00	1.17	942	0.0
	6.5	29.00	-20.18	23.0	46.00	110.00	0.00	841	0.0
	7.5	29.00	-20.18	23.0	46.00	130.00	0.33	824	2.0
	8.5	29.00	-20.18	23.0	46.00	130.00	0.00	830	3.0
	9.5	29.00	-20.18	23.0	46.00	130.00	0.00	823	3.0
	10.5	29.00	-20.18	23.0	46.00	130.00	0.00	843	3.0
Test terminated	**11**	**29.00**	**-20.18**	**23.0**	**46.00**	**180.00**	**0.83**	**900**	**3.0**
MW-11	0	8.75[1]	---	---	---	0.00	0.00	---	---
(4/30/2009)	Startup	29.00	-20.25	---	---	0.00	0.00	---	---
Stinger tip set approximately	0.5	29.00	-20.25	24.0	46.00	0.00	0.00	562	5.0
one foot above well bottom, or	1.5	29.00	-20.25	24.0	46.00	30.00	0.50	1108	6.0
approx. 20.25 ft below water surface	2.5	29.00	-20.25	24.0	45.00	30.00	0.00	1007	3.5
	3.5	29.00	-20.25	24.0	46.00	30.00	0.00	715	4.0
	4.5	29.00	-20.25	24.0	46.00	40.00	0.17	757	4.0
	5.5	29.00	-20.25	24.0	46.00	90.00	0.83	627	2.2
	6.5	29.00	-20.25	24.0	45.00	110.00	0.33	571	2.0
	7.5	29.00	-20.25	24.0	46.00	120.00	0.17	527	2.0
	8.5	29.00	-20.25	24.0	46.00	120.00	0.00	485	2.8
	9.5	29.00	-20.25	24.0	46.00	120.00	0.00	525	1.7
	10.5	29.00	-20.25	24.0	49.00	120.00	0.00	528	8.1
Test terminated	**11.5**	**29.00**	**-20.25**	**24.0**	**46.00**	**190.00**	**1.17**	**520**	**7.0**
MW-5, MW-10, MW-11 & MW-12	0	---	---	---	---	0.00	0.00	---	---
(4/30/2009-5/1/2009)	Startup	---	---	22.5	80.00	0.00	0.00	1236	4.2
Stinger tips set at various depths	1	---	---	22.5	70.00	150.00	2.50	1189	3.0
within each well	2	---	---	22.5	80.00	220.00	1.17	1328	2.4
	3	---	---	22.5	80.00	220.00	0.00	1303	4.0
	4	---	---	22.5	80.00	290.00	1.17	1351	4.0
	5	---	---	23.0	80.00	310.00	0.33	1350	4.0
	6	---	---	23.0	80.00	380.00	1.17	1431	4.0
	7	---	---	23.0	80.00	450.00	1.17	1426	3.0
	8	---	---	23.0	80.00	450.00	0.00	1414	3.0
	9	---	---	23.0	80.00	520.00	1.17	1460	3.0
	10	---	---	23.0	80.00	520.00	0.00	1833	5.0
	11	---	---	23.0	80.00	520.00	0.00	1820	5.0
Test terminated	**12**	**---**	**---**	**23.0**	**80.00**	**630.00**	**1.83**	**1817**	**5.0**

Notes:

Depth to water values are calculated based on the estimated depth of the stinger

--- - Not Applicable

* - Estimated

[1] - Depth to water value from 4/27/2009 prior to initiation of DPE activities

Table 2. DPE Pilot Test Observation Well Data
Former BP Service Station #11109, 4280 Foothill Boulevard, Oakland, California

MW-5 Extraction

	Observation Wells									
	MW-3[a]		MW-7[ab]		MW-10		MW-11		MW-12	
Hours	VAC	DTW	VAC	DTW	VAC	DTW	VAC	DTW	VAC	DTW
0	0.00	9.98	0.00	11.91	0.00	8.82	0.00	8.75	0.00	9.93
1	0.00	9.96	0.00	11.45	0.00	10.54	0.00	8.72	0.00	9.97
2	0.00	9.94	0.00	11.40	0.00	12.46	0.00	8.83	0.00	10.34
3	0.00	9.97	0.00	11.37	0.00	13.82	0.00	9.02	0.00	10.62
4	0.00	9.95	0.00	11.37	0.00	14.30	0.00	9.11	0.00	10.75
5	0.00	9.96	0.00	11.37	0.00	15.31	0.00	9.32	0.00	11.00
6	0.00	9.99	0.00	11.37	0.00	16.00	0.00	9.50	0.00	11.16
7	0.00	9.99	0.00	11.37	0.00	16.61	0.00	9.65	0.00	11.35
8	0.00	10.02	0.00	11.38	0.00	17.25	0.00	9.82	0.00	11.50
9	0.00	10.03	0.00	11.38	0.00	17.58	0.00	9.94	0.00	11.61
10	0.00	10.05	0.00	11.35	0.00	17.85	0.00	10.05	0.00	11.70
	Final DD:	-0.07	Final DD:	0.56	Final DD:	-9.03	Final DD:	-1.30	Final DD:	-1.77
	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00

MW-12 Extraction

	Observation Wells									
	MW-3[a]		MW-5[a]		MW-7[ab]		MW-10		MW-11	
Hours	VAC	DTW	VAC	DTW	VAC	DTW	VAC	DTW	VAC	DTW
0.5	0.00	10.40	0.00	13.00	0.00	11.43	0.00	12.30	0.00	10.12
1.5	0.00	10.40	0.00	12.92	0.00	11.44	0.00	12.17	0.00	10.10
2.5	0.00	10.40	0.00	13.06	0.00	11.50	0.00	12.22	0.00	10.11
3.5	0.00	10.42	0.00	13.28	0.00	11.58	0.00	12.35	0.00	10.15
4.5	0.00	10.49	0.00	13.53	0.00	11.70	0.00	12.51	0.00	10.20
5.5	0.00	10.55	0.00	13.24	0.00	11.80	0.00	12.67	0.00	10.24
6.5	0.00	10.65	0.00	13.90	0.00	11.92	0.00	12.80	0.00	10.28
7.5	0.00	10.75	0.00	14.05	0.00	12.00	0.00	12.93	0.00	10.32
8.5	0.00	10.86	0.00	14.20	0.00	12.10	0.00	13.06	0.00	10.36
9.5	0.00	10.96	0.00	14.30	0.00	12.16	0.00	13.16	0.00	10.39
10.5	0.00	11.02	0.00	14.41	0.00	12.24	0.00	13.27	0.00	10.44
11	0.00	11.19	0.00	14.52	0.00	12.29	0.00	13.35	0.00	10.49
	Final DD:	-0.79	Final DD:	-1.52	Final DD:	-0.86	Final DD:	-1.05	Final DD:	-0.37
	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00

MW-10 Extraction

	Observation Wells									
	MW-3[a]		MW-5[a]		MW-7[ab]		MW-11		MW-12	
Hours	VAC	DTW	VAC	DTW	VAC	DTW	VAC	DTW	VAC	DTW
0.5	0.00	11.70	0.00	13.89	0.00	12.00	0.00	10.50	0.00	13.95
1.5	0.00	11.65	0.00	18.41	0.00	11.96	0.00	11.04	0.00	13.66
2.5	0.00	11.64	0.00	18.92	0.00	11.93	0.00	11.46	0.00	13.55
3.5	0.00	11.63	0.00	20.78	0.00	11.91	0.00	11.72	0.00	13.50
4.5	0.00	11.60	0.00	21.73	0.00	11.90	0.00	12.05	0.00	13.44
5.5	0.00	11.60	0.00	22.18	0.00	11.89	0.00	12.24	0.00	13.39
6.5	0.00	11.60	0.00	22.49	0.00	11.90	0.00	12.36	0.00	13.37
7.5	0.00	11.58	0.00	22.58	0.00	11.86	0.00	12.55	0.00	13.31
8.5	0.00	11.59	0.00	23.10	0.00	11.87	0.00	12.69	0.00	13.27
9.5	0.00	11.59	0.00	23.30	0.00	11.87	0.00	12.82	0.00	13.24
10.5	0.00	11.59	0.00	23.47	0.00	11.86	0.00	12.95	0.00	13.20
12	0.00	11.60	0.00	23.64	0.00	11.84	0.00	13.06	0.00	13.15
	Final DD:	0.10	Final DD:	-9.75	Final DD:	0.16	Final DD:	-2.56	Final DD:	0.80
	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00

Table 2. DPE Pilot Test Observation Well Data
Former BP Service Station #11109, 4280 Foothill Boulevard, Oakland, California

MW-11 Extraction

	Observation Wells									
	MW-3[a]		MW-5[a]		MW-7[ab]		MW-10		MW-12	
Hours	VAC	DTW	VAC	DTW	VAC	DTW	VAC	DTW	VAC	DTW
0.5	0.00	11.62	0.00	16.80	0.00	11.74	0.00	15.12	0.00	12.34
1.5	0.00	11.60	0.00	15.91	0.00	11.75	0.00	14.94	0.00	12.25
2.5	0.00	11.60	0.00	15.58	0.00	11.75	0.00	14.99	0.00	12.22
3.5	0.00	11.60	0.00	15.27	0.00	11.75	0.00	15.06	0.00	12.19
4.5	0.00	11.60	0.00	14.98	0.00	11.75	0.00	15.12	0.00	12.16
5.5	0.00	11.62	0.00	14.77	0.00	11.77	0.00	15.15	0.00	12.14
6.5	0.00	11.65	0.00	14.61	0.00	11.79	0.00	15.14	0.00	12.12
7.5	0.00	11.66	0.00	14.46	0.00	11.81	0.00	15.15	0.00	12.09
8.5	0.00	11.70	0.00	14.31	0.00	11.80	0.00	15.18	0.00	12.00
9.5	0.00	11.71	0.00	14.25	0.00	11.81	0.00	15.11	0.00	11.98
10.5	0.00	11.74	0.00	14.14	0.00	11.79	0.00	15.11	0.00	11.93
11.5	0.00	11.77	0.00	14.10	0.00	11.79	0.00	15.11	0.00	11.90
	Final DD:	-0.15	Final DD:	2.70	Final DD:	-0.05	Final DD:	0.01	Final DD:	0.44
	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00

MW-5, MW-10, MW-11, & MW-12 Extraction

	Observation Wells							
	MW-3[a]		MW-4[a]		MW-6[a]		MW-7[ab]	
Hours	VAC	DTW	VAC	DTW	VAC	DTW	VAC	DTW
0	0.00	11.79	0.00	14.00	0.00	14.73	0.00	11.75
1	0.00	11.77	0.00	14.01	0.00	14.73	0.00	11.74
2	0.00	11.78	0.00	14.04	0.00	14.73	0.00	11.78
3	0.00	11.83	0.00	14.05	0.00	14.73	0.00	11.86
4	0.00	11.88	0.00	14.05	0.00	14.73	0.00	11.94
6	0.00	12.09	0.00	14.06	0.00	14.76	0.00	12.12
8	0.00	12.41	0.00	14.07	0.00	14.77	0.00	12.31
10	0.00	12.70	0.00	14.08	0.00	14.80	0.00	12.45
12	0.00	12.87	0.00	14.05	0.00	14.80	0.00	12.51
	Final DD:	-1.08	Final DD:	-0.05	Final DD:	-0.07	Final DD:	-0.76
	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00	Max. Vac:	0.00

Notes:

[a] - Observation well screen interval submerged during test.

[b] - Depth to water measured from fixture not top of casing.

VAC - Vacuum (in.Hg)

DTW - Depth to Water (feet)

Final DD - Final observed drawdown at end of test (feet).

Max Vac - Maximum recorded vacuum during test (in.Hg).

Table 3. Summary of DPE Vapor Data: Laboratory Analyses and Estimated Removal
Former BP Station #11109, 4280 Foothill Boulevard, Oakland, California

Extraction Event	Influent Air Sample		Air (average)		Influent Air Concentrations in ppmv							Removal Rate (lbs/hr)		Net removal	
	Date	Time	Flow Rate SCFM	Vacuum in.Hg	PID Readings	Benzene	Toluene	Ethyl-benzene	Xylenes	GRO	MTBE	GRO	Benzene	GRO (lbs)	Benzene (lbs)
MW-5	4/27/2009	9:10	**DPE Test Initiated on MW-5**		---	---	---	---	---	---	---	---	---	---	---
MW-5	4/27/2009	11:00	48.00	24.00	482	4.5	2.1	3.5	14	780	<0.50	0.592	0.0027	0.641	0.0029
MW-5	4/27/2009	16:55	48.00	24.00	261	5.0	1.9	1.4	3.8	410	<0.35	0.311	0.0030	1.710	0.0162
MW-5	4/27/2009	18:45	48.00	24.00	299	4.5	2.0	1.7	4.0	430	<0.30	0.326	0.0027	1.794	0.0146
MW-12	4/28/2009	6:00	**DPE Test Initiated on MW-12**		---	---	---	---	---	---	---	---	---	---	---
MW-12	4/28/2009	7:35	30.00	25.00	428	9.4	1.2	2.4	3.8	680	<0.70	0.322	0.0035	0.349	0.0038
MW-12	4/28/2009	13:35	38.00	25.00	328	5.8	1.0	3.5	6.6	690	<0.50	0.414	0.0027	2.175	0.0142
MW-12	4/28/2009	17:15	38.00	25.00	357	6.3	1.4	5.4	11	830	<0.56	0.498	0.0029	2.326	0.0137
MW-10	4/29/2009	6:00	**DPE Test Initiated on MW-10**		---	---	---	---	---	---	---	---	---	---	---
MW-10	4/29/2009	7:46	35.00	23.00	1084	14	12	11	36	1,900	<1.0	1.051	0.0060	1.138	0.0065
MW-10	4/29/2009	13:35	46.00	23.00	824	11	9.1	9.4	27	2,200	<1.0	1.599	0.0062	7.862	0.0306
MW-10	4/29/2009	17:30	46.00	23.00	843	9.1	7.6	8.4	23	2,300	<1.0	1.672	0.0051	8.497	0.0262
MW-11	4/30/2009	6:00	**DPE Test Initiated on MW-11**		---	---	---	---	---	---	---	---	---	---	---
MW-11	4/30/2009	7:07	46.00	24.00	1108	4.3	4.7	4.1	13	1,000	<0.50	0.727	0.0024	0.787	0.0026
MW-11	4/30/2009	13:01	46.00	24.00	527	4.2	6.1	5.4	18	1,000	<0.50	0.727	0.0024	3.573	0.0117
MW-11	4/30/2009	17:00	49.00	24.00	528	4.5	6.3	5.8	19	1,100	<0.50	0.852	0.0027	4.329	0.0138
MW-5, MW-10, MW-11, & MW-12	4/30/2009	18:00	**DPE Test Initiated on MW-5, MW-10, MW-11, & MW-12**		---	---	---	---	---	---	---	---	---	---	---
MW-5, MW-10, MW-11, & MW-12	4/30/2009	19:05	70.00	22.50	1189	14	9.6	10	30	3,300	<1.6	3.650	0.0121	3.953	0.0131
MW-5, MW-10, MW-11, & MW-12	5/1/2009	1:00	80.00	23.00	1426	13	11	11	32	3,700	<2.0	4.677	0.0128	22.994	0.0629
MW-5, MW-10, MW-11, & MW-12	5/1/2009	5:00	80.00	23.00	1833	14	13	13	37	4,500	<2.0	5.688	0.0138	28.912	0.0700
Totals and Averages for 2009 DPE Pilot Test			50	23.8	767.8	8.51	6.21	6.74	19.59	1742.14	---	1.540	0.0054	91.0	0.3028

Total Gallons Removed:	14.68	0.0488

Sample calculations:

Removal rate calculation:

lbs/hour = ("x" ppm/1,000,000) * ("Q" ft^3/min)*("M.W." lb/lb-mol)*(60 min/hr)*(lb-mol/379.5 ft^3)

where: "x" is influent concentration in ppmv
"Q" is the average flow rate in ft^3/min
"M.W." is the molecular weight in lb/lb-mol (100.2 for GRO, 78.1 for benzene)

gallons removed = lbs / density (density for GRO is 6.2 lbs/gallon)

Notes:

SCFM - Standard cubic feet per minute.
in.Hg - Inches of mercury.
ppmv - Parts per million by volume.
GRO - Total Petroleum Hydrocarbons - Gasoline Range Organics.
MTBE - Methyl-tert-butyl ether
--- - Not sampled and/or Not applicable

Table 4. Summary of DPE Ground-Water Laboratory Analytical Data
Former BP Service Station #11109, 4280 Foothill Boulevard, Oakland, California

Laboratory Analytical Results (µg/l)											
Extraction Event	**Collection Date and Time**	**GRO**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**	**DIPE**	**ETBE**	**TBA**	**TAME**
MW-5	**4/27/09, 11:05**	22,000	710	430	380	2,000	74	<10	<10	280	<10
MW-5	**4/27/09, 17:00**	4,900	110	61	53	380	10	<2.5	<2.5	200	<2.5
MW-5	**4/27/09, 18:30**	3,600	81	44	42	250	5.8	<2.5	<2.5	200	<2.5
MW-12	**4/28/09, 7:30**	6,400	610	41	100	340	<10	<10	<10	<200	<10
MW-12	**4/28/09, 13:30**	4,500	72	12	76	210	<2.5	<2.5	<2.5	100	<2.5
MW-12	**4/28/09, 17:40**	4,900	62	13	84	260	<5.0	<5.0	<5.0	100	<5.0
MW-10	**4/29/09, 7:50**	19,000	1,000	780	620	2,700	<10	<10	<10	<200	<10
MW-10	**4/29/09, 13:30**	20,000	260	210	180	830	<10	<10	<10	<200	<10
MW-10	**4/29/09, 17:35**	15,000	160	140	130	620	<10	<10	<10	<200	<10
MW-11	**4/30/09, 7:05**	4,500	58	61	55	290	7.2	<2.0	<2.0	110	<2.0
MW-11	**4/30/09, 13:03**	3,900	46	75	69	350	2.2	<2.0	<2.0	140	<2.0
MW-11	**4/30/09, 17:05**	3,700	45	70	61	320	<2.0	<2.0	<2.0	140	<2.0
MW-5, MW-10, MW-11, & MW-12	**4/30/09, 19:15**	19,000	300	320	430	1,500	<10	<10	<10	<200	<10
MW-5, MW-10, MW-11, & MW-12	**5/01/09, 01:05**	46,000	120	140	190	750	<10	<10	<10	<200	<10
MW-5, MW-10, MW-11, & MW-12	**5/01/09, 05:05**	25,000	140	170	230	920	<10	<10	<10	<200	<10

Notes:

GRO - Total Petroleum Hydrocarbons - Gasoline Range Organics.
MTBE - Methyl-tert-butyl ether
DIPE - Di-isopropyl ether
ETBE - Ethyl ter-butyl ether
TBA - Tert-Butyl alcohol
TAME - Tert-Amyl methyl ether

Table 5. DPE Ground-Water Extraction Data and Estimated Recovery
Former BP Service Station #11109, 4280 Foothill Boulevard, Oakland, California

Date Sampled	Extraction Event	Period		Estimated Volume Processed			Influent Concentration, µg/L		Net Removal	
		Start Time	Sample Time	Initial Totalizer	Final Totalizer	Gallons Pumped	GRO	Benzene	GRO	Benzene
4/27/2009	MW-5	9:10	11:05	6,120	6,180	60	22,000	710	0.0110 lbs	0.00035469 lbs
4/27/2009	MW-5	11:05	17:00	6,180	6,230	50	4,900	110	0.0020 lbs	0.00004579 lbs
4/27/2009	MW-5	17:00	18:30	6,230	6,250	20	3,600	81	0.0006 lbs	0.00001349 lbs
4/28/2009	MW-12	6:00	7:30	6,250	6,320	70	6,400	610	0.0037 lbs	0.00035552 lbs
4/28/2009	MW-12	7:30	13:30	6,320	6,480	160	4,500	72	0.0060 lbs	0.00009592 lbs
4/28/2009	MW-12	13:30	17:40	6,480	6,580	100	4,900	62	0.0041 lbs	0.00005162 lbs
4/29/2009	MW-10	6:00	7:50	6,580	6,580	0	19,000	1,000	0.0000 lbs	0.00000000 lbs
4/29/2009	MW-10	7:50	13:30	6,580	6,710	130	20,000	260	0.0216 lbs	0.00028142 lbs
4/29/2009	MW-10	13:30	17:35	6,710	6,760	50	15,000	160	0.0062 lbs	0.00006661 lbs
4/30/2009	MW-11	6:00	7:05	6,760	6,790	30	4,500	58	0.0011 lbs	0.00001449 lbs
4/30/2009	MW-11	7:05	13:03	6,790	6,880	90	3,900	46	0.0029 lbs	0.00003447 lbs
4/30/2009	MW-11	13:03	17:05	6,880	6,950	70	3,700	45	0.0022 lbs	0.00002623 lbs
4/30/2009	MW-5, MW-10, MW-11, & MW-12	18:00	19:15	6,950	6,950	0	19,000	300	0.0000 lbs	0.00000000 lbs
5/1/2009	MW-5, MW-10, MW-11, & MW-12	19:15	1:05	6,950	7,400	450	46,000	120	0.1723 lbs	0.00044960 lbs
5/1/2009	MW-5, MW-10, MW-11, & MW-12	1:05	5:05	7,400	7,580	180	25,000	140	0.0375 lbs	0.00020981 lbs
Totals						1,460			0.2713 lbs 0.0438 gals	0.002000 lbs 0.000323 gals

Sample calculations:

Removal rate calculation:

lbs removed = ("x" µg/L)*(gram/1,000,000 µg)*(lb/454 grams)*(3.78 L/gal)*(gallons pumped)
where "x" is influent concentration

Gallons removal calculation (for GRO):

gallons removed = lbs * gallon/6.2 lbs (density for GRO is 6.2; density for MTBE is 6.2)

Notes:

µg/L - micrograms per liter
GRO - total petroleum hydrocarbons - gasoline range organics
MTBE - methyl tertiary butyl ether

ARCADIS

Appendix E

Historical Soil Data

TARGET ENVIRONMENTAL SERVICES, 3/1989

TABLE 1

SOIL GAS

LABORATORY RESULTS
FLAME IONIZATION DETECTOR ANALYSIS
CONCENTRATIONS IN MICROGRAMS-PER-LITER

SAMPLE	PENTANE/ MTBE[1]	BENZENE	TOLUENE	ETHYL-BENZENE	m- & p-XYLENE	o-XYLENE	TOTAL VOLATILES[2]
1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7.5
[redacted]	[redacted]73	[redacted].2	21	13	9.6	8.9	[redacted],643
[redacted]	[redacted]5,497	[redacted]150	[redacted]91	[redacted]345	[redacted]181	[redacted]83	[redacted],500
4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
[redacted]	13	<1.0	4.3	<1.0	<1.0	<1.0	[redacted]
6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
7	3.8	<1.0	<1.0	<1.0	<1.0	<1.0	30
8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
[redacted]	2.4	<1.0	3.3	2.4	<1.0	<1.0	[redacted]9
10	4.5	<1.0	<1.0	<1.0	<1.0	<1.0	89
11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
[redacted]	6.5	<1.0	6.3	<1.0	<1.0	<1.0	[redacted]8
13	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	19
[redacted]	10	3.0	112	64	291	120	[redacted]50
15	2.9	<1.0	<1.0	<1.0	<1.0	<1.0	25
16	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
FIELD CONTROL SAMPLES							
17	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
LABORATORY SYRINGE BLANKS							
BM1-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
DUPLICATE ANALYSES							
10	4.5	<1.0	<1.0	<1.0	<1.0	<1.0	89
10R	4.1	<1.0	<1.0	<1.0	<1.0	<1.0	84

[1]CONCENTRATIONS BASED ON RESPONSE FACTOR OF MTBE

[2]CALCULATED USING THE SUM OF THE AREAS OF ALL INTEGRATED CHROMATOGRAM PEAKS, AND THE INSTRUMENT RESPONSE FACTOR FOR TOLUENE

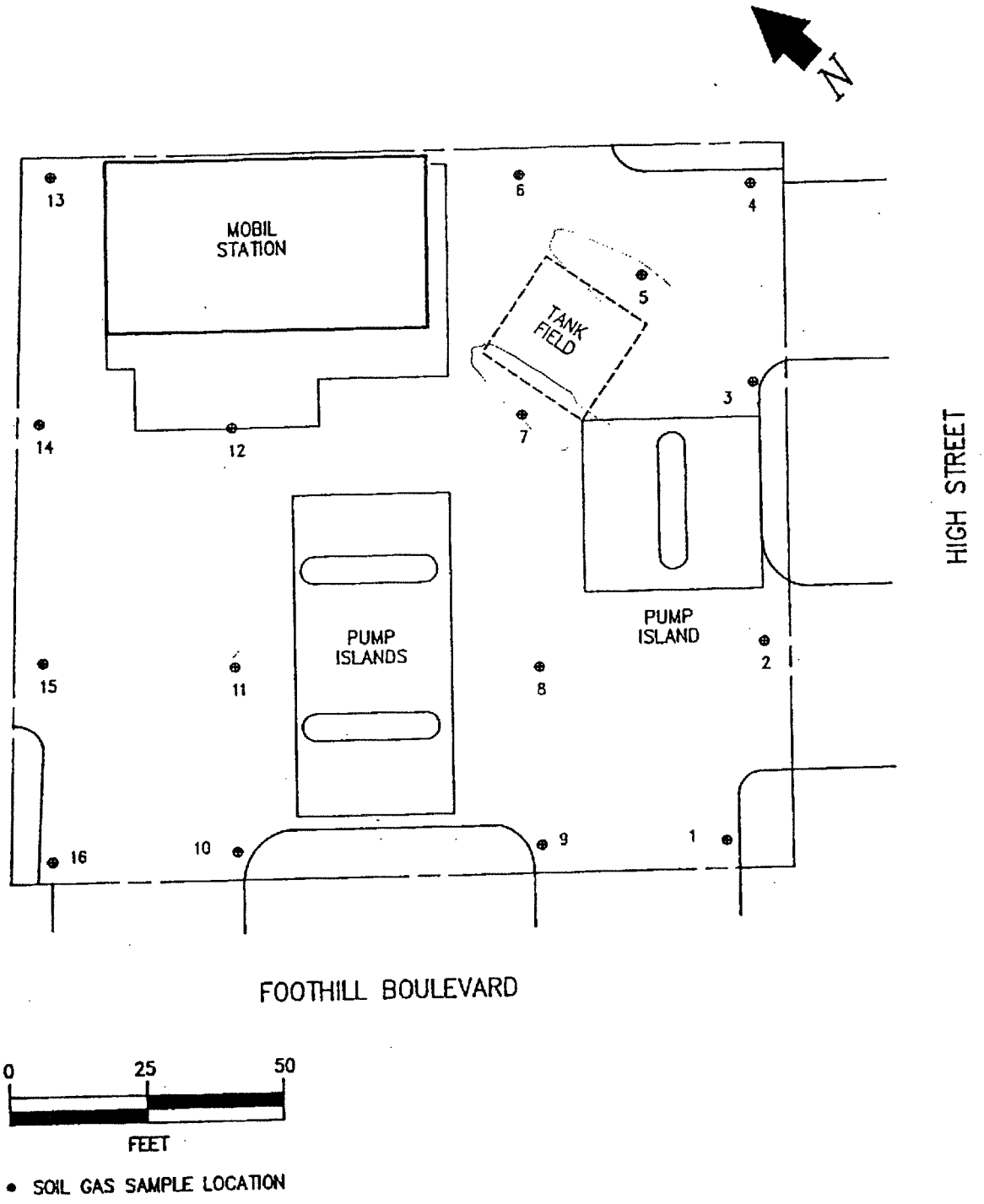


FIGURE 1. Sample Locations

TARGET ENVIRONMENTAL SERVICES, INC.

This map is integral to a written report and should be viewed in that context.

MOBIL SERVICE STATION #10-H69
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

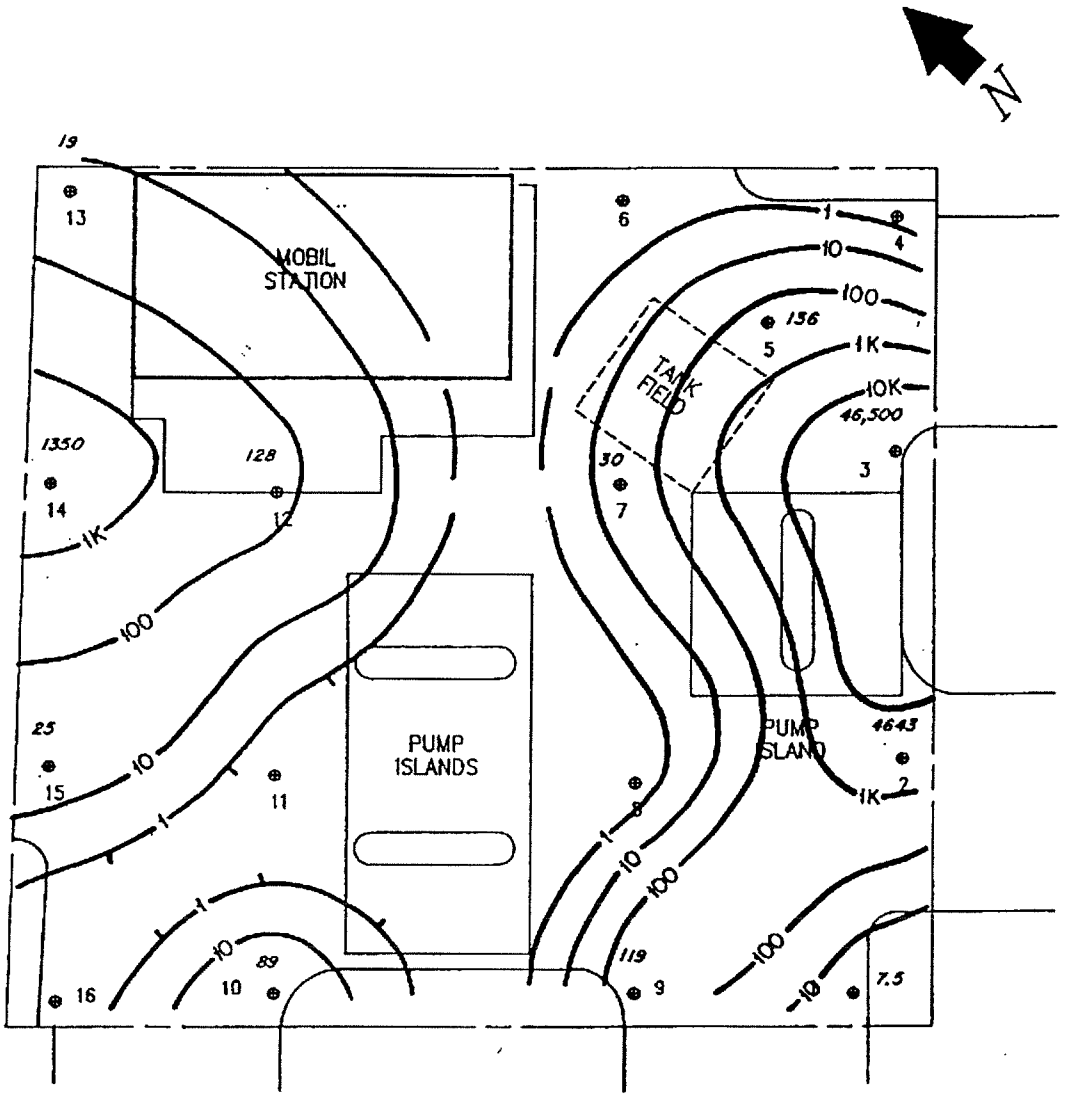


FIGURE 2. FID Total Volatiles (calc'd µg/l)

TARGET ENVIRONMENTAL SERVICES, INC.

This map is integral to a written report and should be viewed in that context.

MOBIL SERVICE STATION #10-H69
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

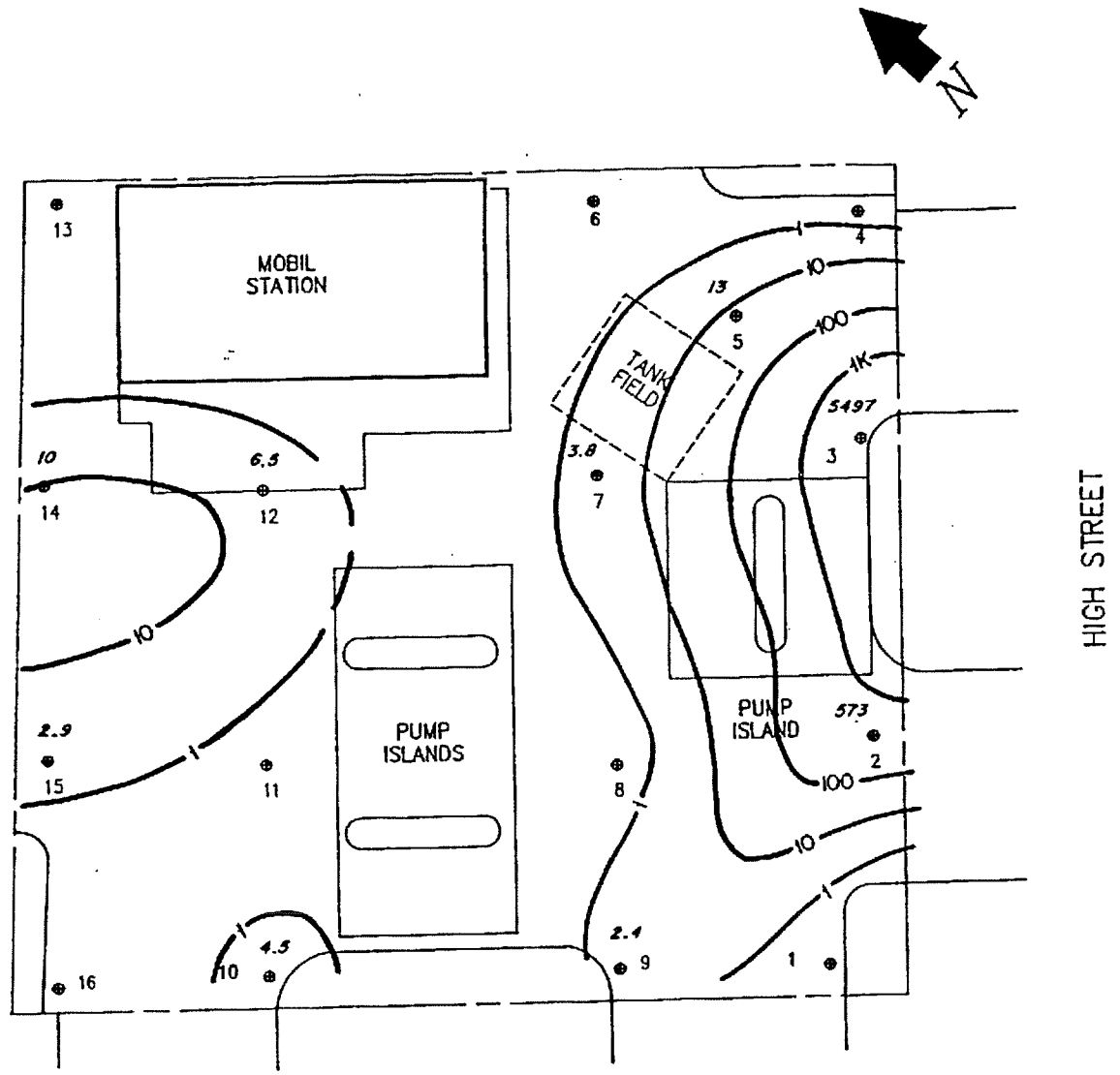
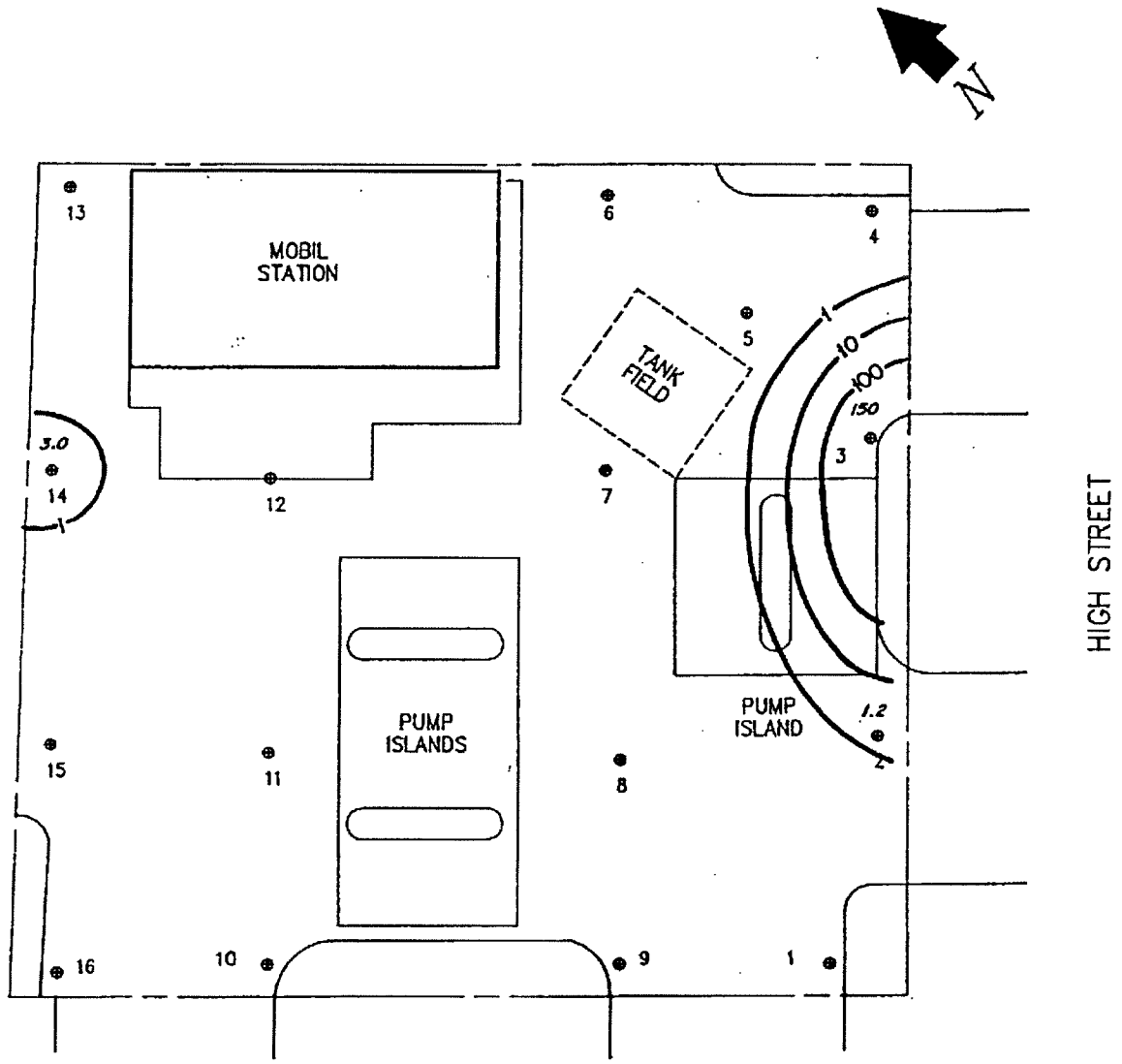


FIGURE 3. MTBE and Pentane (µg/l)

TARGET ENVIRONMENTAL SERVICES, INC.

This map is integral to a written report and should be viewed in that context.

MOBIL SERVICE STATION #10-H69
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA



0 25 50

FEET

• SOIL GAS SAMPLE LOCATION

FIGURE 4. Benzene (µg/l)

TARGET ENVIRONMENTAL SERVICES, INC.

This map is integral to a written report and should be viewed in that context.

MOBIL SERVICE STATION #10-H69
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

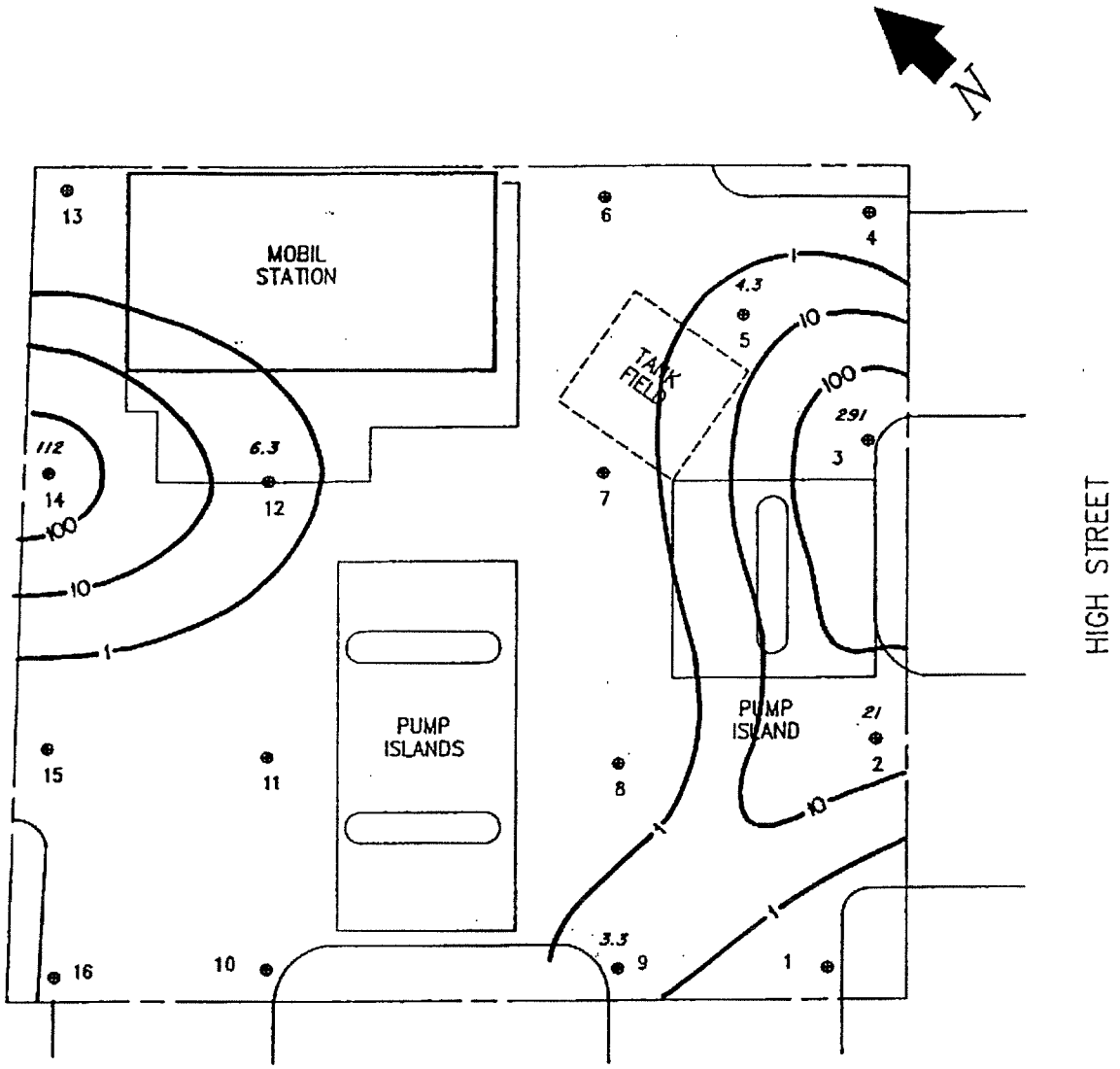


FIGURE 5. Toluene (µg/l)

TARGET ENVIRONMENTAL SERVICES, INC.

This map is integral to a written report and should be viewed in that context.

MOBIL SERVICE STATION #10-H69
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

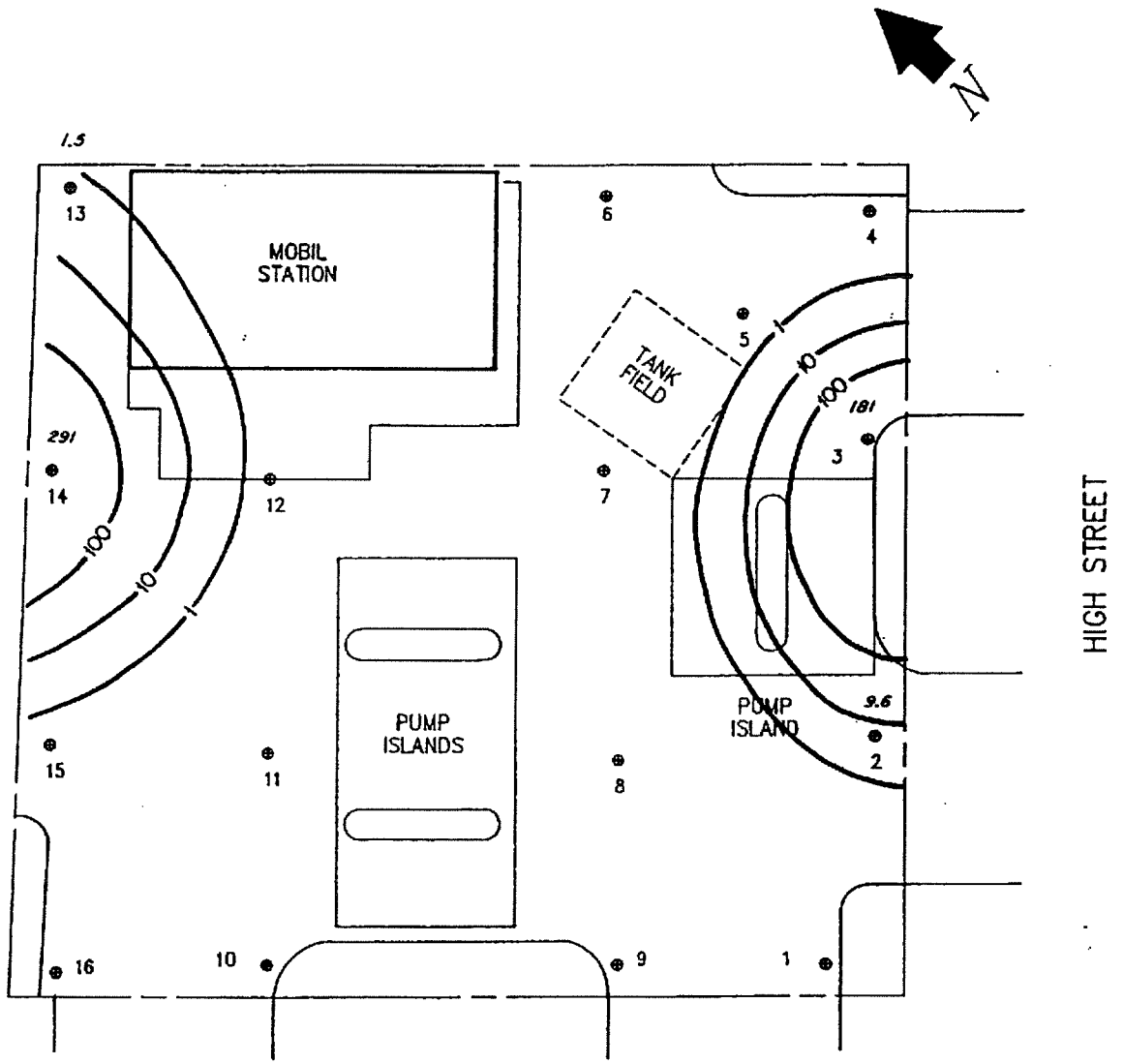
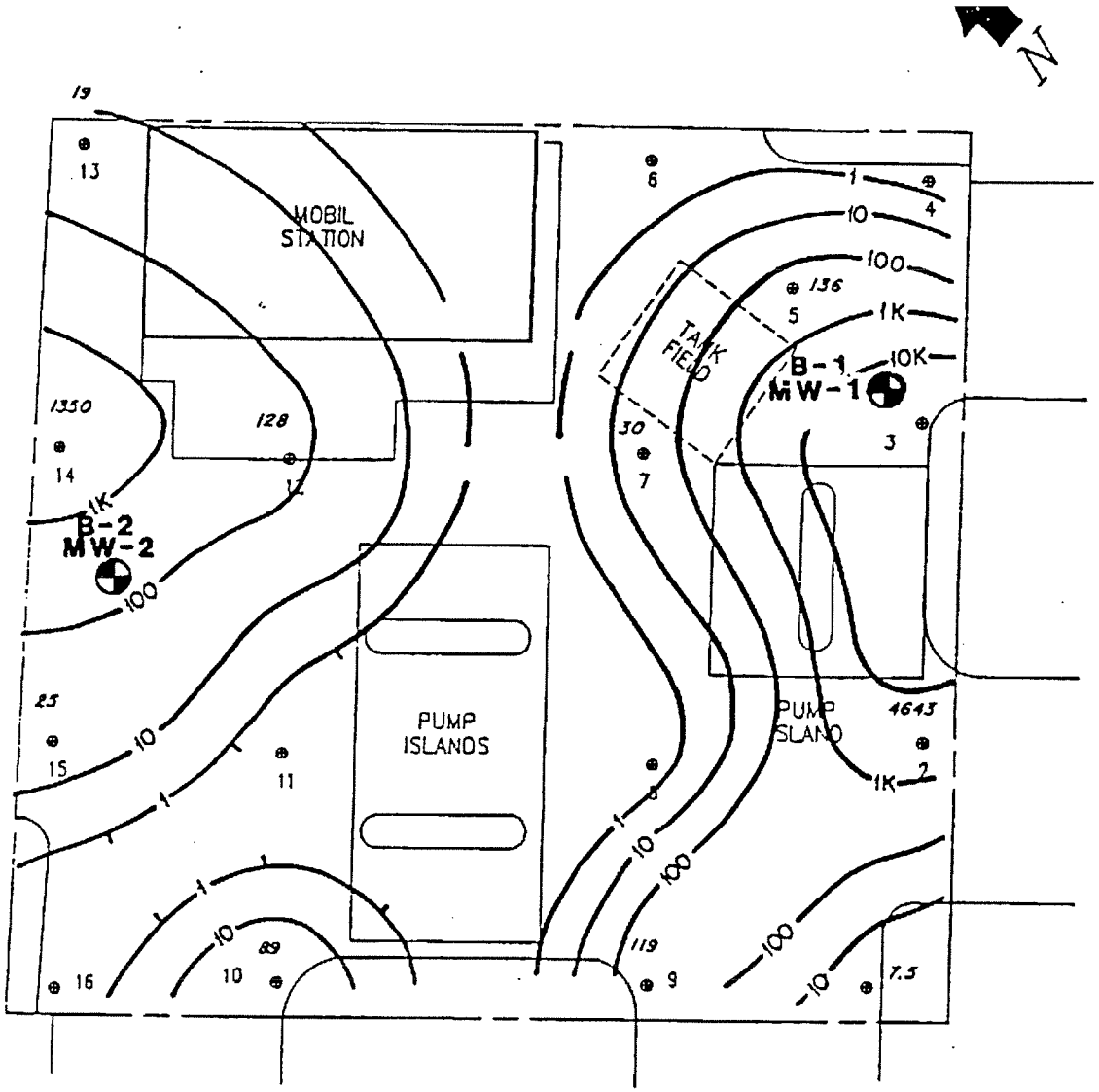


FIGURE 6. m- and p- Xylene ($\mu g/l$)

TARGET ENVIRONMENTAL SERVICES, INC.

This map is integral to a written report and should be viewed in that context.

MOBIL SERVICE STATION #10-H69
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA



0 25 50

FEET

- SOIL GAS SAMPLE LOCATION
- APPROXIMATE BORING & WELL LOCATION
- —10— TOTAL VOLATILE CONCENTRATIONS FROM SOIL GAS SURVEY (ug/l)

BASED ON FIGURE PROVIDED BY
TARGET ENVIRONMENTAL SERVICES, INC.

This map is integral to a written report and should be viewed in that context.

MOBIL SERVICE STATION #10-H69
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

SITE & EXPLORATION PLAN

APR 1989 **W-6095**

FIGURE 1

GTEL ENVIRONMENTAL LABORATORIES, INC.

Western Region
4080-C Pike Ln., Concord, CA 94520
(415) 685-7852
In CA: (800) 544-3422
Outside CA: (800) 423-7143

04/25/89 KF PAGE 1 OF 1

WORK ORD#: C904459
CLIENT: STEVE EVANS/SHAUN DONNAN
RITTENHOUSE-ZEMAN & ASSOC.
1400 140TH AVENUE NE
BELLEVUE, WA 98005
PROJECT#: SEA-0101-5
LOCATION: OAKLAND, CA

SAMPLED: 04/19/89 BY: S. EVANS
RECEIVED: 04/21/89
ANALYZED: 04/24/89 BY: K. PATTON

MATRIX: SOIL W-6095
UNITS: mg/Kg (ppm)

PARAMETER	MDL	SAMPLE # I.D.	01 S-1A	02 S-2A			
Benzene	0.5		<0.5	<0.5			
Toluene	0.5		<0.5	<0.5			
Ethylbenzene	0.5		<0.5	<0.5			
Xylenes	0.5		<0.5	<0.5			
Total BTEX	0.5		<0.5	<0.5			

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: Modified EPA 5030/8020

TABLE 1.

Emma P. Popek

EMMA P. POPEK, Laboratory Director

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Western Region
4080-C Pike Ln., Concord, CA 94520
(415) 685-7852
In CA: (800) 544-3422
Outside CA: (800) 423-7143

04/26/89MT Page 1 of 1

WORK ORD#: C904461
CLIENT: STEVE EVANS/SHAUN DONNAN
RITTENHOUSE-ZEMAN & ASSOC.
1400 140TH AVENUE NE
BELLEVUE, WA 98005
PROJECT#: SEA-0101-7
LOCATION: OAKLAND, CA

SAMPLED: 04/19/89 BY: S. EVANS
RECEIVED: 04/20/89
ANALYZED: 04/24/89 BY: T. ALUSI
J. FLORO
MATRIX: Soil
UNITS: mg/Kg (ppm) JOB# 6095

PARAMETER	MDL	SAMPLE # I.D.	01 S-1B	02 S-2B		
Total Petroleum Hydrocarbons	5		15	<5		

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: APHA Standard Methods 503D/E

Table 2

Emma P. Popek

EMMA P. POPEK, Laboratory Director

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Western Region
4080-C Pike Ln., Concord, CA 94520
(415) 685-7852
In CA: (800) 544-3422
Outside CA: (800) 423-7143

04/25/89 jp PAGE 1 OF 1

WORK ORD#:C904460
CLIENT: STEVE EVANS/SHAUN DONNAN
RITTENHOUS-ZEMAN & ASSOCIATES, INC.
1400 140TH AVENUE
BELLEVUE, WASHINGTON 98005
PROJECT#: SEA-0101-6
LOCATION: OAKLAND, CA

SAMPLED: 04/19/89 BY: STEVE EVANS
RECEIVED: 04/20/89
ANALYZED: 04/23/89 BY: C. MANUEL

MATRIX: WATER W-6095
UNITS: ug/L (ppb)

PARAMETER	MDL	SAMPLE # I.D. 01 S-3A
Benzene	0.5	860
Toluene	0.5	160
Ethylbenzene	0.5	570
Xylenes	0.5	1200
Total BTEX	0.5	2800

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: Modified EPA 5030/8020

TABLE 3

Emma P. Popek

EMMA P. POPEK, Director

TABLE 2

Summary of Analytical Results of Soil Samples
BP Oil Company Service Station No. 11109
4280 Foothill Boulevard, Oakland, California

Project No.: 30-0248

Concentrations in parts per million (ppm)

SAMPLE ID	DATE OF SAMPLING	SAMPLE DEPTH (feet)	TPH-G	B	T	E	X	TOTAL ORGANIC PB	LAB
MW-3	01/29/90	5	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-3	01/29/90	10	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-3	01/29/90	15	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-3	01/29/90	20	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-3	01/29/90	25	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-3	01/29/90	29	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-4	01/30/90	5	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-4	01/30/90	10	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-4	01/30/90	15	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-4	01/30/90	20	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-4	01/30/90	25	16	ND<.050	ND<.050	ND<.050	.170	---	SAL
MW-4	01/30/90	29	ND<1	ND<.005	ND<.005	ND<.005	ND<.005	---	SAL
MW-5	09/09/91	6	ND<1	.003	ND<.003	ND<.003	.003	ND<2	SAL
MW-5	09/09/91	11	4400	8.5	58	55	260	ND<2	SAL
MW-5	09/09/91	15.5	240	1	1.4	2.5	9.5	ND<2	SAL
MW-5	09/09/91	21	6100	14	47	34	120	---	SAL
MW-5	09/09/91	26	89	.23	.390	.5	1	---	SAL
MW-6	09/09/91	16	ND<1	ND<.003	ND<.003	ND<.003	ND<.003	---	SAL
MW-6	09/09/91	21	ND<1	ND<.003	ND<.003	ND<.003	ND<.003	---	SAL
MW-6	09/09/91	25.5	270	ND<.030	.780	.340	.510	---	SAL
MW-7	09/10/91	6	310	ND<.150	.860	.690	1.6	ND<2	SAL
MW-7	09/10/91	9.5	11	ND<.003	.035	.013	.028	ND<2	SAL
MW-7	09/10/91	13	38	.120	.110	.089	.120	ND<2	SAL
MW-7	09/10/91	18.5	17	.053	.035	.160	.098	ND<2	SAL
MW-7	09/10/91	24	ND<1	.003	ND<.003	.003	ND<.003	ND<2	SAL

Source: Alton, March 24, 1992a

Table C-3
Page 1 of 2

TABLE 2

Summary of Analytical Results of Soil Samples
BP Oil Company Service Station No. 11109
4280 Foothill Boulevard, Oakland, California

Project No.: 30-0248

Concentrations in parts per million (ppm)

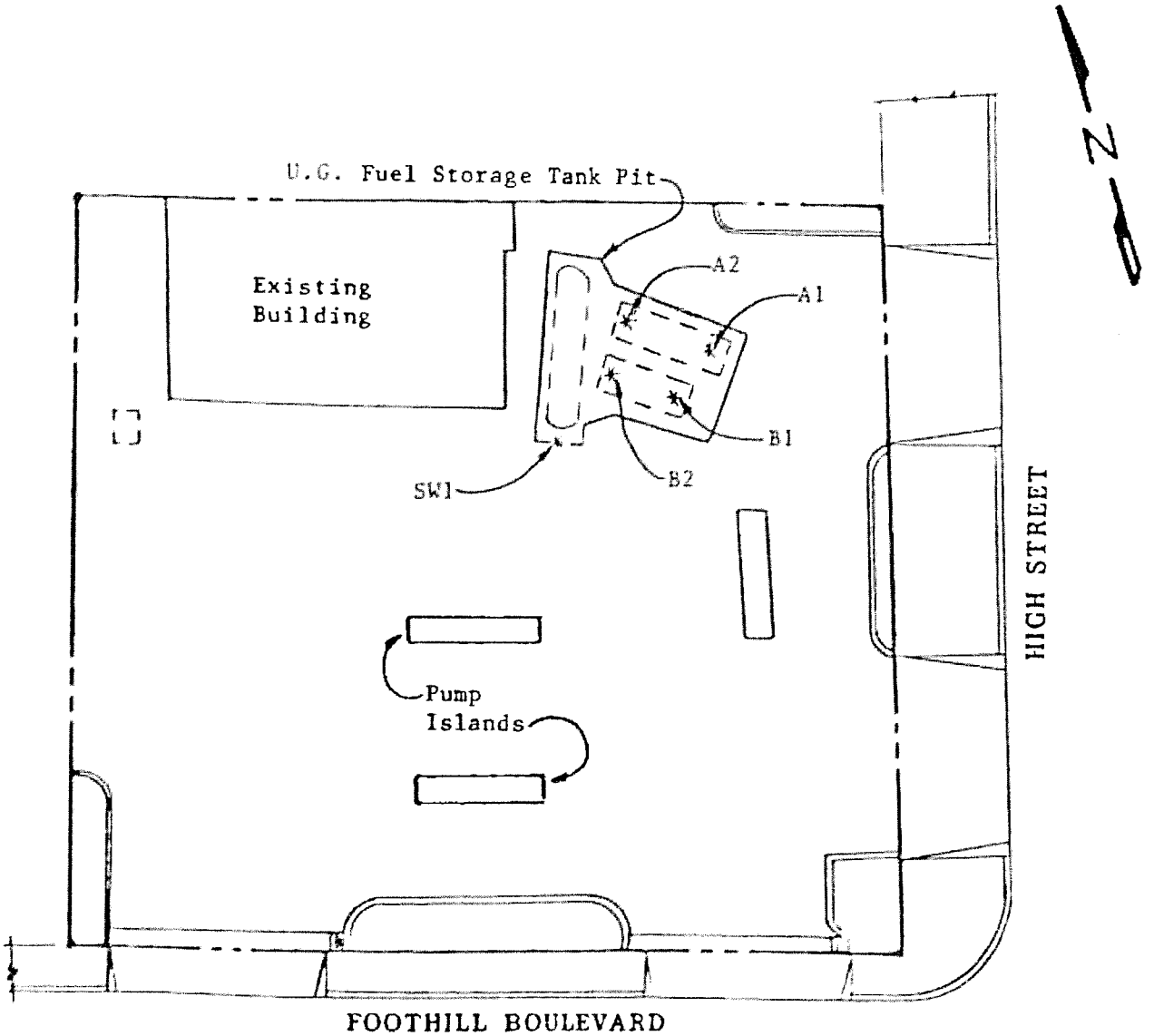
SAMPLE ID	DATE OF SAMPLING	SAMPLE DEPTH (feet)	TPH-G	B	T	E	X	TOTAL ORGANIC PB	LAB
MW-8	09/11/91	16	ND<1	ND<.003	ND<.003	ND<.003	ND<.003	---	SAL
MW-9	09/11/91	10.5	ND<1	ND<.003	ND<.003	ND<.003	ND<.003	---	SAL
MW-9	09/11/91	16	ND<1	ND<.003	ND<.003	ND<.003	ND<.003	---	SAL
MW-9	09/11/91	21	ND<1	ND<.003	ND<.003	ND<.003	ND<.003	---	SAL

EXPLANATION OF ABBREVIATIONS:

TPH-G	:Total Petroleum Hydrocarbons as Gasoline
B	:Benzene
T	:Toluene
E	:Ethylbenzene
X	:Xylenes
ND	:Not detected above given detection limits
SAL	:Superior Analytical Lab

Source: Alton, March 24, 1992a

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
PO BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 1

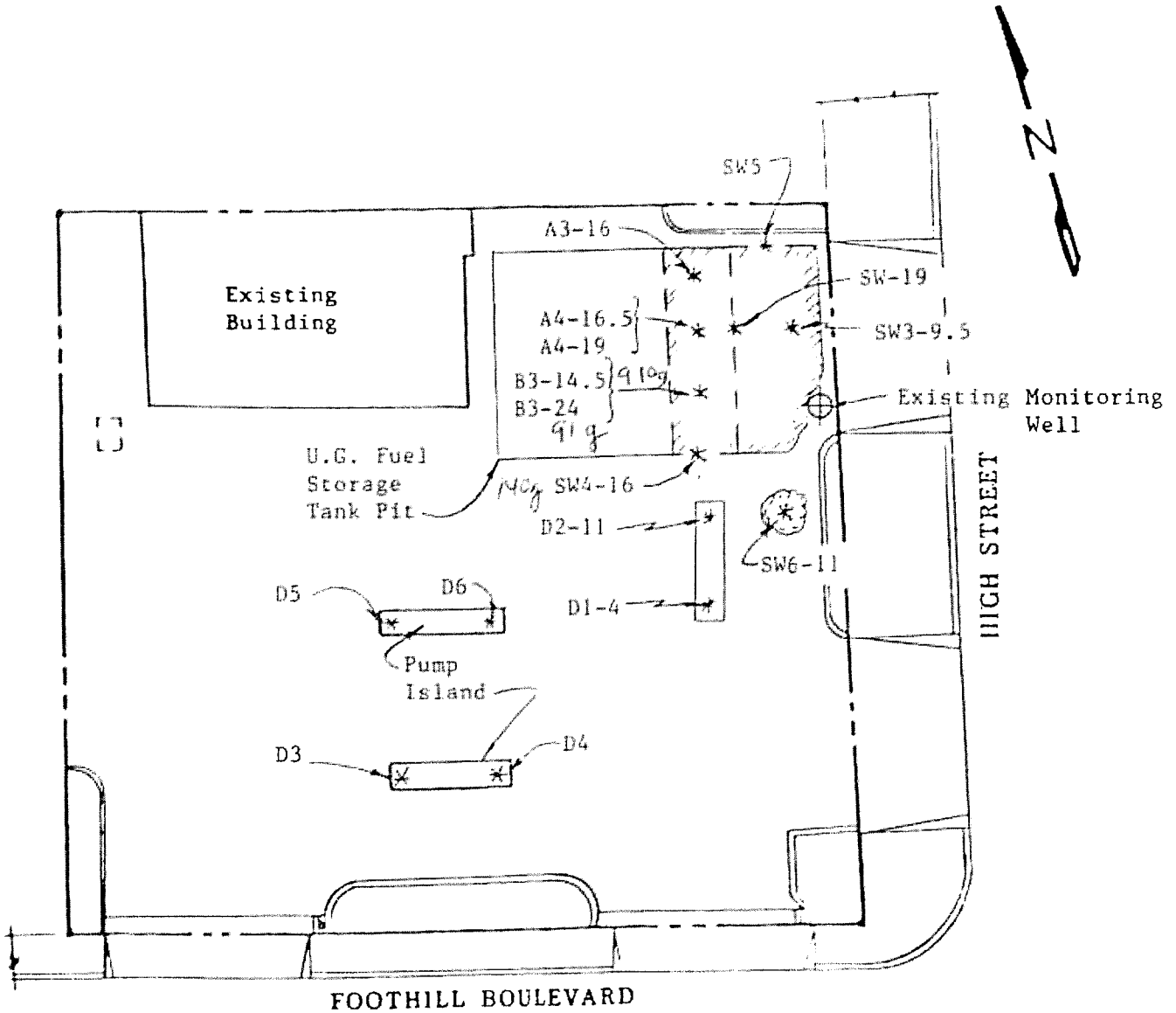
LEGEND

* Sample Point Location

0 30 60
Approx. scale feet

BP Service Station
4280 Foothill Boulevard
Oakland, CA

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
PO BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 2

LEGEND

Sample Point Location

Additional Excavation

0 30 60
Approx. scale feet

BP Service Station
4280 Foothill Boulevard
Oakland, CA

KEI-J90-0911.R1
November 1, 1990

TABLE 1

SUMMARY OF LABORATORY ANALYSES
SOIL SAMPLES COLLECTED FROM THE FUEL TANK PIT
AND PRODUCT DISPENSER AREA

(Collected between September 14 to 28,
and on October 16, 1990)

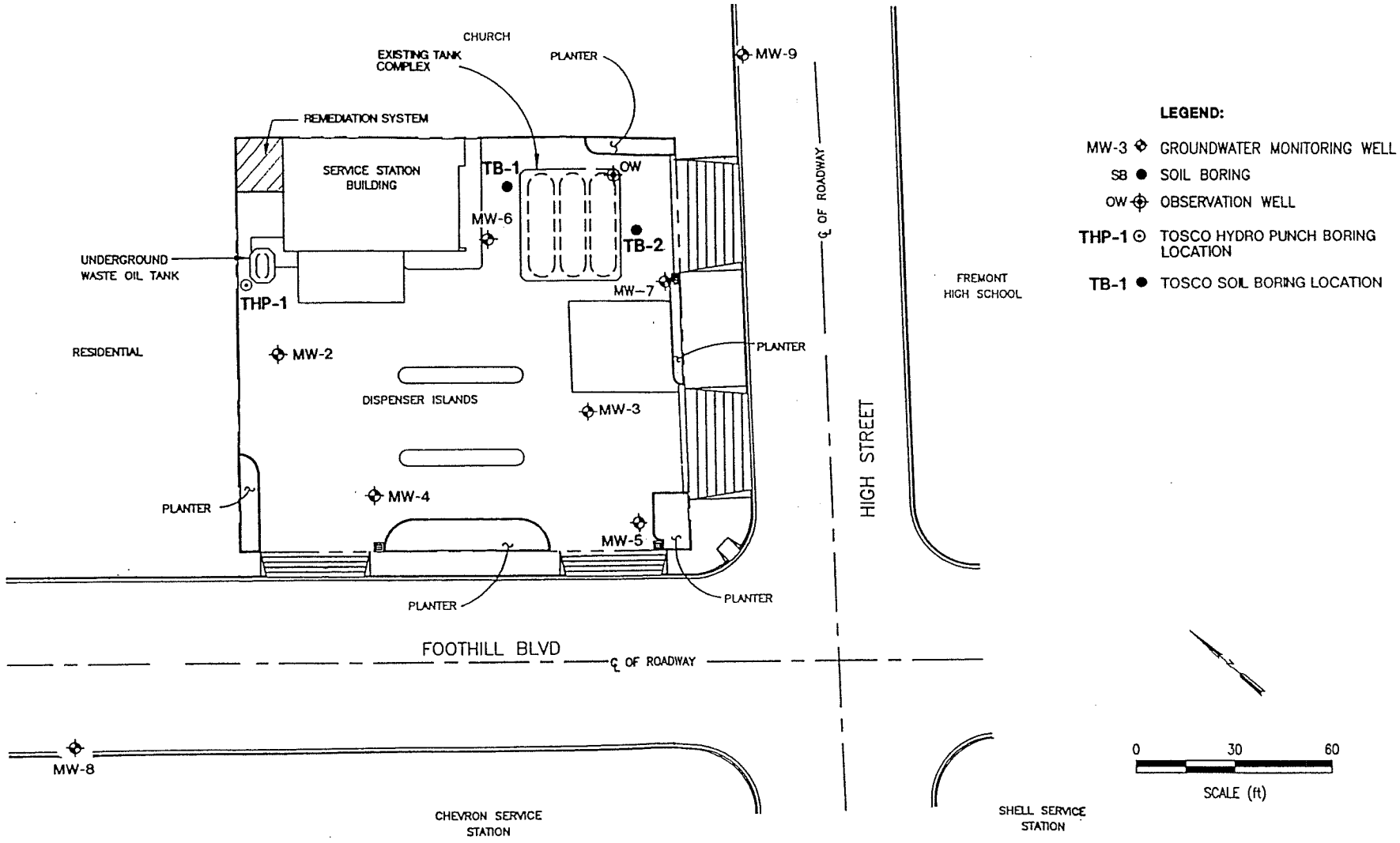
Sample	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
A1	14.5	ND	0.10	0.006	ND	0.006
A2	14.5	ND	ND	0.0080	ND	ND
B1*	14.5	ND	0.034	0.014	ND	ND
B2*	14.5	ND	0.0060	ND	ND	ND
SW1	12	ND	0.018	ND	ND	ND
SW2-19	19	ND	0.12	ND	0.071	0.10
SW3-9.5	9.5	ND	0.051	ND	ND	0.0050
SW4-16	16	140	0.89	0.79	0.44	4.4
SW5	17	4.2	0.040	0.029	0.058	0.069
SW6-11	11	16	0.033	0.16	0.38	0.097
A3-16	16	4.3	0.044	0.010	0.22	0.20
A4-16.5	16.5	5.3	0.058	0.026	ND	0.19
A4-19	19	ND	0.010	ND	0.037	0.050
B3-14.5	14.5	910	6.0	13	82	19
B3-24	24	91	1.7	0.46	ND	0.17
D1-4	4	ND	ND	ND	ND	ND
D2-11	11	31	0.38	1.2	2.8	0.60
D3**	4	ND	ND	0.011	ND	ND
D4**	6	1.9	0.054	0.094	0.20	0.046
D5**	4	6.8	0.0010	0.028	0.018	0.045
D6**	5.5	15	0.51	0.038	1.7	0.62

* Total lead for B1 and B2 were detected at 10 ppm and 12 ppm, respectively.

** Total lead for D3, D4, D5 and D6 were detected at 2.5 ppm, 4.5 ppm, 4.0 ppm and 2.0 ppm, respectively.

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.



EMCON Northwest, Inc.

SOURCE: ALISTO (JULY 8, 1993)

DATE	12-19-94
DWN.	MLP
REV.	
APPR.	
PROJECT NO.	0952-027.03

Figure A-1
TOSCO #11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA
SITE PLAN

Table A-1

Site Number 11109
4280 Foothill Boulevard, Oakland, California

Soil Sample Results of Analyses (ppm)

Sample Number	Depth (feet)	Date Collected	California DHS LUFT Method TPH-G	California DHS LUFT Method Hydrocarbon Scan		BTEX EPA Method 5030/8020			
			TPH-G	TPH-D	TPH-O	Benzene	Toluene	Ethylbenzene	Total Xylenes
THP1-S-9.5-10**	9.5-10	10/19/94	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
THP1-S-17-17.5	17-17.5	10/19/94	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
TB1-S-17-17.5***	17-17.5	10/19/94	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
TB1-S-24.5-25	24.5-25	10/19/94	*nd*	*nd*	33	*nd*	*nd*	*nd*	*nd*
TB2-S-16-16.5	16-16.5	10/19/94	51	*nd*	8	0.09	*nd**	0.4	0.8
TB2-S-27-27.5	27-27.5	10/19/94	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*

NOTE:
- TPH-G = Total petroleum hydrocarbons as gasoline.
- TPH-D = Total petroleum hydrocarbons as diesel.
- TPH-O = Total petroleum hydrocarbons as oil.
- *nd* = Not detected at or above method reporting limit.
- *n/a* = Not applicable.
- — = Not analyzed.
- TW = Tosco well.
- TB = Tosco boring.
- TD = Tosco dispenser soil sample.
- THP = Tosco HydroPunch.
- SGP = Soil gas probe.
- * = Raised method reporting limits (see laboratory report in Attachment D).
- ** = THP1 is referred to as HP1 on the lab report.
- *** = TB1 and TB2 are referred to as SB1 and SB2 on the lab report.