Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 1257
San Ramon, California 94583
Phone: (925) 275-3801
Fax: (925) 275-3815

9 April 2009

Re: Initial Site Conceptual Model with Soil & Ground-Water Investigation Work Plan
Former BP Service Station # 11102
100 MacArthur Boulevard
Oakland, California
ACEH Case #RO0000456

"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."

Submitted by:

Paul Supple
Environmental Business Manager

INITIAL SITE CONCEPTUAL MODEL WITH SOIL & GROUND-WATER INVESTIGATION WORK PLAN

Former BP Service Station No.11102
100 MacArthur Boulevard
Oakland, California

Prepared for:

Mr. Paul Supple
Environmental Business Manager
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583

Prepared by:

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave., Suite 212
Chico, California 95926
(530) 566-1400
www.broadbentinc.com

9 April 2009

Project No. 06-88-643

Broadbent & Associates, Inc.
1324 Mangrove Ave., Suite 212
Chico, CA 95926
Voice (530) 566-1400
Fax (530) 566-1401

BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

9 April 2009

Project No. 06-88-643

Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583
Submitted via ENFOS

Attn.: Mr. Paul Supple

Re: Initial Site Conceptual Model with Soil & Ground-Water Investigation Work Plan, Former BP Service Station No.11102, 100 MacArthur Boulevard, Oakland, California; ACEH Case No.RO0000456

Dear Mr. Supple:

Broadbent & Associates, Inc. (BAI) is pleased to submit this *Initial Site Conceptual Model with Soil & Ground-Water Investigation Work Plan* for Former BP Service Station No.11102 located at 100 MacArthur Boulevard, Oakland, California (Site). This document was prepared in response to a directive letter from Mr. Paresh Khatri of Alameda County Environmental Health (ACEH) dated 8 January 2009.

Should you have questions or require additional information, please do not hesitate to contact us at (530) 566-1400.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, P.E.
Senior Engineer

Robert H. Miller, P.G., C.HG.
Principal Hydrogeologist

PROFESSIONAL GEOLOGIST
ROBERT H. MILLER
No. 561
CERTIFIED HYDROGEOLOGIST
exp. 4-30-10
STATE OF CALIFORNIA

Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH ftp site)
Ms. Shelby Lathrop, ConocoPhillips, 76 Broadway, Sacramento, California 95818
Mr. Chris Jimmerson, Reimbursement Processor, Delta Environmental Consulting Inc., (Submitted via ENFOS)
Electronic copy uploaded to GeoTracker

INITIAL SITE CONCEPTUAL MODEL WITH
SOIL & GROUND-WATER INVESTIGATION WORK PLAN
Former BP Service Station No.11102
100 MacArthur Boulevard, Oakland, California
Fuel Leak Case No. RO0000456

TABLE OF CONTENTS

INITIAL SITE CONCEPTUAL MODEL WITH
SOIL & GROUND-WATER INVESTIGATION WORK PLAN
Former BP Service Station No.11102
100 MacArthur Boulevard, Oakland, California
Fuel Leak Case No. RO0000456

TABLE OF CONTENTS (Concluded)

INITIAL SITE CONCEPTUAL MODEL WITH
SOIL & GROUND-WATER INVESTIGATION WORK PLAN
Former BP Service Station No.11102
100 MacArthur Boulevard, Oakland, California
Fuel Leak Case No. RO0000456

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company, RM - a BP affiliated company, Broadbent & Associates, Inc. (BAI) has prepared this *Initial Site Conceptual Model with Soil & Ground-Water Investigation Work Plan* for the Former BP Service Station No.11102 (herein referred to as Station No.11102), located at 100 MacArthur Boulevard, Oakland, California (Site). This report was prepared in response to the request within the 8 January 2009 directive letter from Mr. Paresh Khatri of Alameda County Environmental Health (ACEH). This report includes discussions on the background and previous environmental activities, regional and Site geology and hydrogeology, definition of contamination within soil and ground water, discussion of preferential pathways, status of Site remediation, sensitive receptors, preliminary risk assessment, discussion of data gaps, proposed scope of work, and proposed schedule. Tables, figures, and appendices referenced within this report are provided following the conclusion of the document's text.

2.0 BACKGROUND INFORMATION

2.1 Site Location

The Site is located at 100 MacArthur Boulevard in Oakland, California. It is an active 76-branded gasoline station. BP acquired the property from Mobil Oil Corporation in 1989. Although BP sold the property to TOSCO Marketing Corporation in 1994, it retained the environmental liability for contamination released prior to this transfer. Current improvements to the Site include three, single-wall fiberglass gasoline underground storage tanks (USTs) (6,000-gallons, 10,000-gallons, and 12,000-gallons) believed to have been installed in 1982, one 1,000-gallon double-walled fiberglass underground waste oil storage tank installed in 1988, two fuel dispenser islands with a total of eight dispensers, and a convenience store building with three vehicle service bays. The majority of the Site surface is paved with cement and asphalt. A Site Location Map is provided as Drawing 1. A recent aerial photo showing the Site and local area development is provided as Drawing 2.

The Site is bound by MacArthur Boulevard to the southwest, Oakland Avenue to the southeast, Harrison Street to the northwest, and single-family residential dwellings to the northeast (uphill from the Site and its retaining wall). Interstate 580 and the associated on- and off-ramps are located across MacArthur Boulevard to the southwest. A small parking lot and several small commercial buildings are located across Oakland Avenue to the southeast. A Quik Stop retail gasoline station is located across Harrison Street to the northwest at 96 West MacArthur Boulevard. The Quik Stop gasoline station is Former Unocal Station No.1871, an active fuel leak case (ACEH Case No.RO0000455 / GeoTracker Global ID No.T0600101493).

2.2 Previous Environmental Activities at Site

Kaprealian Engineering, Inc. (KEI) observed the removal of a steel underground waste oil storage tank, variously reported to have been of 550-gallon or 280-gallon capacity, on

19 September 1988. Work was performed for Mobil Oil Corporation prior to the sale of the property to BP. KEI reported that no holes or cracks were evident in the tank. However, upon UST removal a representative of ACEH reportedly observed a hole in the UST and petroleum product "dripping" from the west sidewall (ERI, 1998). Two soil samples were collected during the tank removal activities: sample WO was collected from the bottom of the tank pit and sample Comp WO was composed of two grab samples collected from the excavated soil stock piled on-site, which equaled approximately 15 cubic yards (yd^3). Total Petroleum Hydrocarbons in the Diesel Range (TPH-D) was reported at concentrations of 2.0 parts per million (ppm) and 1,700 ppm in samples WO and Comp WO, respectively. Total Oil & Grease (TOG) was reported at concentrations of 24 ppm and 65,000 ppm in samples WO and Comp WO, respectively. No Volatile Organic Compounds (VOCs) were detected above the laboratory reporting limit in sample WO (KEI, 10/7/1988). Historical analytical data including a sample location map and tabulated summary results are contained within Appendix A.

On 25 and 26 October 1989 Alton Geoscience, Inc. (Alton) observed the advancement of three soil borings on site. Each boring was drilled to 33 feet below ground surface (ft bgs) and converted into 4-inch diameter ground-water monitoring wells (MW-1, MW-2, and MW-3). The wells were completed to a total depth of 32 ft bgs and screened from 11 ft bgs to total depth. Three soil samples were collected from each boring at depths of approximately 5 ft bgs, 10 ft bgs, and 15 ft bgs. Soil samples were analyzed for Total Petroleum Hydrocarbons in the Gasoline Range (TPH-G), Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX). Soil samples from boring MW-1 adjacent to the former Waste Oil UST were also analyzed for TPH-D and TOG. Benzene was detected in soil samples collected from boring MW-2 at depths of 5 ft bgs and 10 ft bgs at 6 micrograms per kilogram (µg/kg) and 8 µg/kg, respectively. Toluene and Total Xylenes were detected in the 5 ft bgs soil sample collected from boring MW-3 at 6 µg/kg and 13 µg/kg, respectively. Wells MW-1, MW-2, and MW-3 were developed on 4 November 1989 and ground-water samples collected on 11 November 1989. Ground-water samples were analyzed for TPH-G and BTEX, with samples from MW-1 also being analyzed for TOG and Halogenated VOCs. The ground-water sample collected from well MW-1 contained Benzene at 3.4 micrograms per liter (µg/L), Toluene at 0.6 µg/L, and 1,2-Dichloroethane (1,2-DCA) at 0.9 µg/L. The ground-water sample collected from well MW-2 contained Benzene at 6.5 µg/L. No other analytes were detected above their reporting limits (Alton, 12/20/1989). Boring locations and tabulated analytical results are contained within Appendix A. Copies of soil boring and monitoring well construction logs are contained within Appendix B.

Cambria Environmental Technology, Inc. (Cambria) performed a well recovery test on 6 May 1999 to estimate the hydraulic conductivity of the water-bearing zone beneath the site. Static water levels in wells MW-1 and MW-2 were observed to be above the screened intervals, while the water level in well MW-3 was within the screened interval. The pumping test resulted in an average of 10.5 to 11 feet of drawdown in the wells after three to four minutes of pumping at five gallons per minute. Cambria calculated the hydraulic gradient for well MW-1 to be between $9.9x10^{-5}$ centimeters per second (cm/sec) and $1.5x10^{-4}$ cm/sec. Wells MW-2 and MW-3 were calculated to be between $6.5x10^{-6}$ cm/sec and $1.7x10^{-5}$ cm/sec. The geometric mean of the hydraulic gradient for each well was calculated as $2.5x10^{-5}$ cm/sec (Cambria, 2/24/2000).

In their *Historical Review, Utility Survey, and Recovery Testing Report* dated 24 February 2000, Cambria obtained and reviewed nine Sanborn fire insurance maps spanning from 1903 to 1970

and ten aerial photographs spanning from 1930 to 1996. Cambria reported no visually significant historical impacts to the site or surrounding properties. Cambria also conducted a utility, or preferential pathway investigation utilizing information provided by or collected from TOSCO Corporation, Underground Service Alert (USA), and a geophysical survey conducted by CU Surveys of San Ramon, California. Cambria reported that "the storm drain located beneath MacArthur Boulevard is believed to encounter groundwater at least seasonally" (Cambria, 2/24/2000).

Also in 2000, Alisto Engineering Group (Alisto) conducted a sensitive receptor survey and well search for the area surrounding the Site. Sensitive receptors identified were limited to underground utilities previously identified by Cambria. Alisto reported in their 19 October 2000 report that the California Department of Water Resources had no wells on record within a half mile radius of the site with the exception of the three monitoring wells associated with the site itself (Alisto, 10/19/2000). A copy of the sensitive receptor survey and expanded site plans are contained within Appendix D.

On 13 and 14 July 2005, URS Corporation (URS) observed the advancement of five soil borings, completed by Gregg Drilling and Testing Inc. (Gregg Drilling), with the purpose of further characterizing the subsurface hydrocarbon contamination at the Site. Borings SB-4, SB-5, and SB-7 were advanced to a depth of 32 ft bgs, while borings SB-6 and SB-8 were advanced to a depth of 28 ft bgs. Hydropunch® borings were advanced on 13 and 14 July 2005, spaced one to two feet laterally from each of the five soil borings. No water samples were obtained. However, soil samples were collected from within the saturated zones. Soil samples were also collected from each soil boring at approximate five foot intervals. Gasoline Range Organics (GRO) were detected in eleven samples collected from borings SB-4 through SB-7 at concentrations up to 1,300 mg/kg [SB-7 (2-2.5')]. Ethylbenzene was detected above laboratory reporting limits in three samples collected from borings SB-5 and SB-7 at concentrations up to 3.0 mg/kg [SB-7 (2-2.5')]. Total xylenes were detected in four samples collected from borings SB-6 and SB-7 at concentrations up to 3.9 mg/kg [SB-7 (5-5.5')]. Methyl tert-butyl ether (MTBE) was detected in ten samples collected from borings SB-4, SB-5, SB-6, and SB-8 at concentrations up to 3.7 mg/kg [SB-4 (29-29.5')]. Tert-butyl alcohol (TBA) was detected in two samples collected from borings SB-5 and SB-6 at concentrations up to 0.13 mg/kg [SB-6 (19.5-20')]. Other constituents analyzed for but not detected in the collected soil samples included Benzene, Toluene, Ethanol, Tert-Amyl Methyl Ether (TAME), Ethyl Tert-Butyl Ether (ETBE), Di-Isopropyl Ether (DIPE), 1,2-Dibromoethane (EDB), and 1,2-DCA (URS, 8/4/2005). Boring locations and tabulated analytical results are contained within Appendix A. Copies of soil boring logs are provided in Appendix B.

On 7 October 2005 URS observed the advancement of three off-site soil borings (SB-1, SB-2, and SB-3) and one on-site soil boring (SB-4A), completed by Gregg Drilling. Off-site borings SB-1, SB-2, and SB-3 were placed between the Site and the storm drain under MacArthur Boulevard approximately one to two feet into the street from the sidewalk curb. Each offsite boring was hand augered to depth due to the proximity of underground utilities. Borings SB-1 and SB-3 were hand augered to 12 ft bgs, while boring SB-2 was hand augered to eight ft bgs. Ground water was not encountered in the three borings, and no soil samples were collected. Boring SB-4A was placed adjacent to previous boring SB-4 to confirm subsurface soil contaminant concentrations and lithology. Boring SB-4A was advanced to a total depth of 36 ft

bgs with ground water first being encountered at 24.5 ft bgs. Six soil samples were collected from the boring at intervals of approximately five feet. TAME was detected in one sample (SB-4A@20') at a concentration of 0.12 mg/kg. MTBE was detected in each of the six samples collected at concentrations up to 5.0 mg/kg (SB-4A@20'). The remaining analytes GRO, BTEX, TBA, DIPE, ETBE, 1,2-DCA, EDB, and Ethanol, were below laboratory reporting limits for each of the six samples collected (URS, 4/14/2006). Boring locations and tabulated analytical results are contained within Appendix A. Copies of soil boring logs are provided in Appendix B.

Also on 7 October 2005, URS observed Gregg Drilling advance four Hydropunch® borings: one each within borings SB-1, SB-2, and SB-3, and one approximately one to two feet laterally from boring SB-4A. The Hydropunch® screen was exposed in borings SB-1, SB-2, and SB-3 at 12 ft to 14 ft bgs, 14 ft to 16 ft bgs, and 17 ft to 19 ft bgs, respectively. No ground water was encountered in these borings and therefore, no samples were collected. One ground-water sample (SB-4A) was collected from the Hydropunch® boring adjacent to boring SB-4A at a depth of 24 ft bgs. Ground-water sample SB-4A was analyzed for GRO, BTEX, MTBE, TAME, ETBE, DIPE, TBA, EDB, 1,2-DCA, and Ethanol. GRO was detected in the sample at a concentration of 3,000 µg/L, TAME at 110 µg/L, TBA at 5,700 µg/L, and MTBE at 4,500 µg/L. The remaining analytes were below the laboratory reporting limits (URS, 4/14/2006). Boring locations and tabulated analytical results are contained within Appendix A. Copies of soil boring logs are provided in Appendix B.

In their 14 April 2006 report, URS explained that after many attempts they were unable to coordinate with the City of Oakland in order to sample water present in the MacArthur Boulevard storm drain. However, URS also stated that they believed it was unlikely that contamination could migrate via the storm drain (URS, 4/14/2006).

Quarterly ground-water monitoring at the Site was initiated in April 1990 by Alton, and is currently performed by Stratus Environmental, Inc. (Stratus). Historic ground water and soil analytical data, geologic cross-sections, and soil boring and well construction logs are provided within Appendices A through C.

2.3 Previous Environmental Activities at Adjacent Former Unocal Station

As mentioned in Section 2.1, the Site is located southeast of former Unocal Station #1871, an active release site (ACEH Case No.RO0000455 / GeoTracker Global ID No.T0600101493). The former Unocal Station is located immediately northwest of Harrison Street, on the northern corner with MacArthur Boulevard at 66/96 MacArthur Boulevard. A full description of previous environmental activities at this adjacent leak case is beyond the scope of this document. However, some background and specific historical information is useful with respect to Station No.11102. According to GeoTracker, the leak at the former Unocal Station was discovered and stopped on 13-14 May 1992, and reported on 13 September 1994. In June 1999, several additional borings were installed to support subsurface characterization associated with the former Unocal Station, including borings B-4, B-5, B-6, B-8, B-9, B-11, and B-12. In December 2001, several additional monitoring wells were installed for characterization of the former Unocal Station ground-water contamination, including wells MW-10 and MW-11. Unocal monitoring wells MW-10 and MW-11 are installed southwest of MacArthur Boulevard, roughly

west of Station No.11102. Locations of former Unocal borings B-4, B-5, B-6, B-8, B-9, B-11, and B-12, and monitoring wells MW-10 and MW-11 are exhibited on Drawing 4. Copies of the boring logs and well construction diagrams for these specific Unocal monitoring wells are provided in Appendix E. Also provided within Appendix E is a tabular summary of monitoring data for the wells associated with former Unocal Station No.1871.

3.0 HYDROCARBON SOURCE

3.1 Release Source and Volume

The documented source of the release at Station No.11102 is the former waste oil UST in the eastern portion of the Site. The exact volume released is unknown.

3.2 Release Intervention

The removal and replacement of the original waste oil UST in 1988 was conducted as a release intervention. In addition, approximately 15 yd^3 of contaminated soil was reportedly over-excavated and removed at the time of the waste oil UST removal (KEI, 10/7/1988).

4.0 SITE CHARACTERIZATION

4.1 Soil Definition Status

Based on geologic cross sections produced by URS in 2005, and soil boring logs from previous consultants, the shallow local water-bearing zone consists of several thin (1 to 5 feet thick) silty sand layers at depths ranging from 5 to 30 feet bgs. These sand layers are overlain and underlain by generally unsaturated clay and silt layers. According to the geologic cross section and Site boring interpretations, these sand layers appear to be discontinuous, and appear to pinch out or bifurcate into multiple layers laterally over short distances. Copies of available lithologic soil boring logs and well construction details are provided in Appendix B. Constructed geologic cross-sections are provided in Appendix C.

4.2 Ground-Water Definition Status

4.2.1 Ground-Water Depth, Flow Direction, and Gradient

Ground-water depth varies across the Site and through time from approximately 8 to 18 ft bgs. Historically, the ground-water gradient has ranged from 0.03 ft/ft to 0.09 ft/ft. Based on ground-water elevation data, the ground-water flow direction has varied between south and west-northwest, but predominantly southwest to west. Historic ground-water flow directions and gradients are provided in Table 3. A rose diagram showing the percentage occurrence of historic ground-water flow directions is provided on the second page of Table 3.

4.2.2 Separate-Phase Hydrocarbons

Separate-phase hydrocarbons (SPH) or free product has not been detected in ground-water monitoring wells associated with the Site (MW-1, MW-2, and MW-3) during quarterly monitoring or other sampling activities.

4.2.3 Gasoline-Range Organics

Concentrations of TPH-G/GRO have been detected above laboratory reporting limits in each of the three wells associated with the Site (MW-1, MW-2, and MW-3). However, concentrations in well MW-3 have been intermittently detected since monitoring first began. The highest concentration of TPH-G/GRO was reported in well MW-2 (45,000 µg/L), which is located approximately three feet west-southwest of the existing UST complex. The extent of GRO contamination has not been delineated except to the northwest (non-detect in Former Unocal Station boring B-4) and to the west (non-detect in Former Unocal Station boring B-9 and well MW-11). Results of on-site ground-water sampling and laboratory analysis are summarized in Table 1 and Appendix A. Applicable historic soil and ground-water analytical data from Former Unocal Station No.1871 is provided within Appendix E. Fourth Quarter 2008 GRO concentrations are included in the map of ground-water elevation contours provided as Drawing 3. Figure 1 depicts a graphical representation of TPH-G/GRO concentrations versus time.

4.2.4 Diesel-Range Organics

Concentrations of TPH-D and/or Diesel-Range Organics (DRO) have been detected above laboratory reporting limits in each of the three wells associated with the Site (MW-1, MW-2, and MW-3), although TPH-D/DRO has not been analyzed for consistently. However, concentrations in wells MW-2 and MW-3 have been intermittently detected at relatively low levels since monitoring first began. The highest concentration of TPH-D/DRO was reported in well MW-1 at 2,900 µg/L. The extents of TPH-D/DRO contamination have not been delineated except to the west (non-detect in Former Unocal Station well MW-11). Results of on-site ground-water sampling and laboratory analysis are summarized in Table 1 and Appendix A. Applicable historic soil and ground-water analytical data from Former Unocal Station No.1871 is provided within Appendix E.

4.2.5 Benzene, Toluene, Ethylbenzene, and Xylenes

Concentrations of BTEX have been detected above laboratory reporting limits in each of the three wells associated with the Site (MW-1, MW-2, and MW-3). However, concentrations in well MW-3 have been intermittently detected at relatively low levels since monitoring first began. The highest concentrations of BTEX were reported in well MW-1, which is located approximately five feet southeast of the former used oil tank excavation pit, at 440 µg/L, 110 µg/L, 250 µg/L, and 110 µg/L, respectively. The extent of BTEX contamination has been delineated to the south (non-detect in well MW-2 and SB-4), the west (non-detect in Site well MW-3, former Unocal borings B-4, B-9, and former Unocal well MW-11). Results of on-site ground-water sampling and laboratory analysis are summarized in Table 1 and Appendix A. Applicable historic soil and ground-water analytical data from Former Unocal Station No.1871 is provided within Appendix E. Fourth Quarter 2008 Benzene concentrations are included in the map of ground-water elevation contours provided as Drawing 3. Figure 2 depicts a graphical representation of benzene concentrations versus time.

4.2.6 Methyl Tertiary Butyl Ether

Concentrations of MTBE have been detected above laboratory reporting limits in each of the three wells associated with the Site (MW-1, MW-2, and MW-3). The highest concentration of

MTBE was reported in well MW-1 at 49,000 µg/L. The extent of MTBE contamination has not been delineated except to the northwest (non-detect in former Unocal boring B-4) and west (non-detect in former Unocal boring B-9 and well MW-11). Results of on-site ground-water sampling and laboratory analysis are summarized in Table 1 and Appendix A. Applicable historic soil and ground-water analytical data from Former Unocal Station No.1871 is provided within Appendix E. Fourth Quarter 2008 MTBE concentrations are included in the map of ground-water elevation contours provided as Drawing 3. Drawing 4 depicts the MTBE iso-concentration contour map of the Site for Fourth Quarter 2008. Figure 3 depicts a graphical representation of MTBE concentrations versus time.

4.3 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 Merrit 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. The nearest natural drainage is Glen Echo Creek, located approximately 1,450 feet northwest of the Site. Glen Echo Creek flows generally northeast to southwest near the Site vicinity.

4.4 Topography

The Site is situated at an approximate elevation of 90 feet above mean sea level. The Site is relatively flat, but slopes slightly to the west, consistent with the local topography.

4.5 Stratigraphy

Sediments encountered at the Site consist primarily of silty clays or clayey silts with varying amounts of sand and gravel, extending from the ground surface to the total depth investigated, approximately 36 ft bgs. Boring logs are provided in Appendix B. Geologic cross-sections encompassing both on-site and off-site lithology are provided in Appendix C.

4.6 Preferential Pathway Analysis

Alisto produced a map of underground utilities on-site as well as within the public right-of-way, included in their 19 October 2000 *Potential Receptor Survey, Expanded Site Plan and Well Search* report. The map is dated 11 March 1999 and included in Appendix D. Cambria (2000) had previously initiated concern about the storm drain under MacArthur Boulevard encountering

ground water and acting as a preferential pathway. URS (2006), in a later report claims it is unlikely the storm drain could act as a preferential pathway.

The storm drain under MacArthur Boulevard varies in depth from approximately seven feet bgs in front of the Site, to approximately 12.5 ft bgs closer to Harrison Street. The shallowest depth to ground water recorded in wells MW-2 and MW-3 has been approximately nine ft bgs (8.89 ft below top of casing in MW-2 and 9.67 ft below top of casing in MW-3). In 2005, URS advanced three soil/Hydropunch® borings (SB-1 through SB-3) along the storm drain to a depth of 19 feet bgs. A hand auger was utilized to reach a depth of 12 feet bgs in each boring due to the potential presence of underground utilities. Hydropunch® technology was then utilized from 12-19 feet bgs in an attempt to collect ground-water samples. Soil samples from hand-auger cuttings were collected for examination from each boring but not submitted for analysis. Ground water was not encountered in the borings (including three 1-hour Hydropunch® attempts in each boring from 12-14 ft bgs, 14-16 ft bgs, and 17-19 ft bgs). Reportedly, soil borings SB-1 and SB-2 indicated no signs of hydrocarbon contamination. However, notes on the boring log for SB-3 (provided within Appendix B) indicated a minor hydrocarbon odor at six ft bgs and a strong hydrocarbon odor from 6.5 ft bgs to 8.5 ft bgs. A hydrocarbon odor continued to be noted in boring SB-3 until the total depth augered of 12 ft bgs.

5.0 REMEDIATION STATUS

5.1 Remedial Actions Taken

As mentioned previously, the former waste oil tank and significant amount of contaminated soil was excavated and removed from the Site in 1988. Numerous soil borings and monitor wells have also been installed to delineate and monitor the extent of contamination and migration as discussed in previous sections.

5.2 Areas Remediated

Effective remedial action by excavation and removal has taken place in the immediate vicinity of the former waste oil UST in the eastern portion of the Site. Reportedly, approximately 15 yd^3 of contaminated soil was over-excavated and removed for off-site treatment/disposal (KEI, 10/7/1988).

5.3 Remediation Effectiveness

The removal of contaminated soil within the waste oil UST excavation certainly reduced hydrocarbon concentrations in the soil present within the immediate vicinity of the excavation. However, the effectiveness of this remediation effort is unquantifiable in regards to the hydrocarbon concentrations observed in the ground water and other soil on-site.

6.0 WELL AND SENSITIVE RECEPTOR SURVEY

6.1 Designated Beneficial Shallow and Deep Ground-Water Use

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the City of Oakland does not have “any plans to develop local ground-water resources for drinking water

purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity." However, the California Regional Water Quality Control Board – San Francisco Bay Region's Basin Plan denotes existing beneficial uses of municipal and domestic supply (MUN), industrial process supply (PROC), industrial service supply (IND), and agricultural supply (AGR) for the East Bay Plain ground-water basin.

6.2 Well Survey Results

A well survey was conducted by Alisto as part of their *Potential Receptor Survey, Expanded Site Plan and Well Search*, dated 19 October 2000. This survey concluded that no wells are located within a half-mile radius (approximately 2,600 feet) of the Site, with the exception of the three ground-water monitoring wells associated with the Site. However, it is known that there have since been several ground-water monitoring wells installed associated with the Quik Stop / former Unocal Station No.1871 located at the corner of MacArthur Boulevard and Harrison Street (96 MacArthur Blvd.), approximately 300 feet northwest of the Site. A copy of the Well Research and Potential Receptor Survey conducted by Alisto is provided within Appendix D.

6.3 Potential Sensitive Receptors

As mentioned previously, Alisto conducted a potential receptor survey in October 2000. Alisto noted that there were no schools within 1,000 feet of the Site. Glen Echo Creek is the nearest surface body of water within 1000 feet northwest of the Site. The local water supply was described as public and supplied by the East Bay Municipal Water District. The supplier's water source was said to be provided by Sierra snow melt and the Pardee Dam. The aquifer was classified as a Class III aquifer, which is not a potential source of drinking water.

6.4 Likelihood of Impact to Wells

Based on the results of the previous well survey conducted by Alisto, it is unlikely that the ground-water contamination associated with the Site poses a potential threat to wells. Alisto identified no public water supply wells within three miles of the Site, and no private water supply wells within 0.5 miles of the Site.

6.5 Likelihood of Impact to Surface Water

Based on the results of the well survey, Glen Echo Creek is the closest surface water to the Site (approximately 1,450 feet northwest). Ground-water contamination associated with the Site is unlikely to impact Glen Echo Creek due to the observed limit of contamination migration at the Site and direction of ground-water flow.

7.0 RISK ASSESSMENT

7.1 Site Conceptual Exposure Model

The Site is currently an operational 76-branded service station. The Site is open to the public and authorized environmental professionals performing sampling or other relevant activities. Review of historical investigation data indicates that the majority of soil and ground-water contamination associated with the Site is at depths generally greater than five ft bgs and

downgradient of the former waste oil tank pit. Public and general occupational exposure to these secondary sources of contamination is believed to be remote and/or of short duration.

7.2 Exposure Pathways

Potential exposure pathways associated with this Site include human inhalation, ingestion, and absorption risks by environmental professionals. A potential exposure pathway might be human inhalation by tradesmen in the underground utility installation and maintenance occupation. The likelihood of vapor migration has not been verified by a soil-gas investigation. However, the soil concentrations present would seem unlikely to present a viable exposure pathway of concern. It is also noted that the majority of soil and ground-water contamination associated with this Site is located in the central Site area near wells MW-1 and MW-2. Soil and ground-water contamination is very minimal elsewhere on site, with the exception of an elevated TPH-G/GRO result (1,300 mg/kg) from soil sample SB-7 (2-2.5'). In addition, customers are not present for extended periods while utilizing the station, and would be congregating in open-air areas.

7.3 Risk Assessment Status

A formal Risk Assessment has not been performed for this Site. Based on the geologic/ hydrogeologic characteristics and limited viable exposure pathways, consideration should be given to development of risk-based cleanup levels in lieu of strict adherence to Maximum Contaminant Levels for drinking water, Environmental Screening Levels or California Human Health Screening Levels.

7.4 Identified Human Exceedances

Human exceedances are unknown at this time but unlikely due to the geologic/hydrogeologic characteristics and location of the contaminants.

7.5 Identified Ecological Exceedances

Ecological exceedances are unknown at this time but unlikely due to the geologic/hydrogeologic characteristics and location of the contaminants.

8.0 DATA GAPS

To further evaluate the applicability of the potentially viable remediation technologies identified above, additional data must be gathered. The following data gap has been identified:

- Off-site, downgradient soil and ground-water contamination to the southwest is uncharacterized at this time.

9.0 PROPOSED SCOPE OF WORK

9.1 Proposed Well Installation Locations

At the request of ACEH, the purpose of the proposed soil and ground-water investigation is to further characterize residual hydrocarbon contamination within soils and ground-water down-gradient of the source area. On-site soil and ground-water conditions were initially characterized in 1988 by KEI and in 1989 by Alton during and subsequent to the removal of the former waste

oil tank as described in previous sections. Further on-site soil and ground-water characterization was implemented in 2005. As noted by ACEH, concentrations of TPH-G, MTBE and TBA were detected in on-site down-gradient soil and ground-water samples (SB-4, SB-4A, and SB-7) collected during the 2005 characterization activities, indicating off-site characterization was not complete. Analytical results and site maps depicting the boring locations for these previous investigations are provided in Appendix A.

BAI proposes advancing three borings using hollow-stem auger technology at locations shown on Drawing 4. The borings are anticipated to be advanced to a depth of 30 feet bgs; however, the actual total depth will depend upon the ground-water conditions encountered in the field. Upon advancement of the borings, well installation activities will proceed. Boring SB-9 (MW-4) is proposed to be located approximately 60 feet southwest of previous borings SB-4 and SB-4A, in the west planter along MacArthur Boulevard. Boring SB-10 (MW-5) is proposed to be located approximately 80 feet south-southwest of previous boring SB-7 (approximately 85 ft southwest of well MW-3), in the west planter along MacArthur Boulevard. Boring SB-11 (MW-6) is proposed to be located approximately 260 feet southwest of previous boring SB-7, in the planter on the west side of Interstate 580 within the on-ramp loop to I-580 from Harrison Street. These three new wells (MW-4, MW-5, MW-6), along with data from former Unocal wells MW-10 and MW-11, should provide the necessary data to delineate the downgradient extents of ground-water contamination from Station No.11102. The proposed new boring and well locations are shown in Drawing 4. The proposed boring locations are preliminary, and may be subject to change in order to obtain the necessary clearance from underground and above-ground utilities per BP drilling and utility clearance policy.

9.2 Preliminary Activities, Permitting and Notifications

Prior to initiating field activities, Stratus Environmental Inc. (Stratus) will obtain the necessary permits from Alameda County and Cal-Trans; prepare a site health and safety plan (HASP) for the proposed work; clear the Site for subsurface utilities; and provide 72-hour advance written notification to ACEH (email preferred to paresh.khatri@acgov.org) and BAI (email tvenus@broadbentinc.com or mobile phone 530-588-5887) prior to start of field activities. The utility clearance will include notifying Underground Service Alert (USA) of the pending work a minimum of 48 hours prior to initiating the field investigation, and securing the services of a private utility locating company to confirm the absence of underground utilities at the boring location. Boreholes will be physically cleared to 6.5 ft bgs using hand auger or air knife methods, in accordance with the BP ground disturbance defined practice.

The Site-specific HASP will be prepared for use by personnel implementing the work plan. 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. Safety tailgate meetings will also be conducted to review potential hazards and scope of work.

9.3 Soil Boring Activities

A Stratus field geologist will observe a California-licensed drilling company advance the soil borings using a hallow-stem auger drilling rig to a total approximate depth of 30 ft bgs; however, the actual total depth will depend upon the ground-water conditions encountered in the field. Soils will be classified according to the Unified Soil Classification System (USCS), and will be

examined using visual and manual methods for parameters including odor, staining, color, grain size, and moisture content. Soil samples will be collected from each of the three borings at 5-foot intervals, beginning at a depth of 6.5 feet following borehole clearance, until ground water is encountered. The soil samples will be submitted to the laboratory for chemical analysis.

Soil samples will be submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove), a California State-certified environmental laboratory. The soil samples will be analyzed for the following: Gasoline Range Organics (GRO, C6-12) by EPA Method 8015B; BTEX, MTBE, TBA, TAME, ETBE, DIPE, EDB, 1,2-DCA, and Ethanol by EPA Method 8260.

Investigation-derived residuals will be temporarily stored onsite in 55-gallon, DOT-approved drums, pending characterization for proper management. Stratus will coordinate the removal and transportation of surplus soils and liquids to appropriate California-regulated facilities.

9.4 Monitoring Well Construction

The proposed monitoring wells (MW-4 through MW-6) will be constructed of threaded two-inch diameter, Schedule 40 poly-vinyl chloride (PVC) and screened with 0.010-inch machine-cut slots. Monitoring wells MW-4 through MW-6 are proposed to contain screened intervals from 10 feet bgs to 30 feet bgs, the total depth of each well, depending on ground-water conditions encountered in the field. A filter pack consisting of No.2/12 sand will be installed from total depth to two feet above the top of the well screen, which will be overlain by three feet of bentonite, and bentonite-cement grout to the surface. A traffic-rated locking vault will be installed to protect the well head.

9.5 Monitoring Well Development and Sampling

At least 48 hours after well installation the new wells will be developed. The well development process will consist of surging and bailing the well to remove fine-grained sediments from the well and sand filter pack. A minimum of three and a maximum of ten wetted casing volumes of ground water will be removed until water quality clarity indicates removal of fines. Periodic measurements of the water quality parameters pH, temperature, conductivity, and turbidity will be recorded during the development to establish baseline values for ground water. Purge water generated during development activities will be handled according to BP protocols and procedures.

After well development, the new monitoring wells MW-4, MW-5, and MW-6 will be surveyed. A California-licensed Professional Land Surveyor will be scheduled to survey the well heads for top of casing elevation with respect to mean sea level, and for lateral position using northings and eastings per NAD'88. Survey information will be uploaded to GeoTracker.

The wells will be sampled no sooner than 48 hours after well development. The sampling procedure for the wells consists of first measuring the water level and depth to bottom, and checking for the presence of separate phase hydrocarbons (free product) using an electronic oil-water interface probe. If the well does not contain free product, it will be purged of approximately three wetted casing volumes of water (or until dewatered) using a centrifugal pump, gas displacement pump, or bailer. During purging, temperature, pH, and electrical conductivity will be monitored to document that these parameters have stabilized prior to

collecting samples. After purging, water levels will be allowed to partially (at least 80%) recover. Ground-water samples will be collected using a dedicated disposable bailer, placed into appropriate Environmental Protection Agency (EPA) approved containers, labeled, logged onto chain-of-custody records, and transported on ice to the laboratory. Sample labels will include sample name, sampling time and date, analytical methods, and sampler's initials. If the well contains free product, it will not be sampled and free product will be removed according to California Code of Regulations, Title 23, Division 3, Chapter 16, Section 2655, UST Regulations.

Ground-water samples will be analyzed for the following: GRO by EPA Method 8015B, and for BTEX, MTBE, TBA, TAME, ETBE, DIPE, EDB, 1,2-DCA, and Ethanol by EPA Method 8260B.

9.6 Soil and Ground-Water Investigation Report

Upon completion of field activities and receipt of the certified field data package (including copies of permits, field data sheets, boring logs, and the laboratory analytical report with chain-of-custody documentation), BAI will prepare a Soil and Ground-Water Investigation Report. The report will document the results of the investigation, field activities, copies of required permit(s), copies of field notes, soil boring and well construction logs, laboratory analytical reports with copies of chain-of-custody records, discussion of findings, conclusions and recommendations. Deviations from the work plan or data inconsistencies will be discussed in the report.

10.0 PROPOSED SCHEDULE

The schedule for the above-noted work shall proceed as follows:

- Implementation of Soil and Ground-Water Investigation – Upon approval of this work plan and obtaining the necessary permits and property access;
- Soil & Ground-Water Investigation Report – Within 60 days after receipt of certified field data package following completion of fieldwork.

11.0 CLOSURE

The findings presented in this document are based upon: observations of field personnel from previous consultants, the points investigated, and results of analytical tests performed by various laboratories. Our services were performed in accordance with the generally accepted standard of practice at the time this document was written. No other warranty, expressed or implied was made. This report has been prepared for the exclusive use of BP. It is possible that variations in soil or ground-water conditions could exist beyond points explored in this investigation. Also changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

12.0 REFERENCES

ACEH, 8 January 2009. *Fuel Leak Case No. RO0000456 and GeoTracker Global ID T0600100908, BP #11102, 100 W. MacArthur Boulevard, Oakland, CA 94610.* Submitted to Mr. Paul Supple for Atlantic Richfield Company, by Mr. Paresh Khatri.

Alisto Engineering Group, 19 October 2000. *Potential Receptor Survey, Expanded Site Plan and Well Search, BP Oil Company Service Station No. 11102, 100 MacArthur Boulevard, Oakland, California*.

Alton Geoscience, Inc., 20 December 1989. *Preliminary Site Investigation Report, Former Mobil Service Station No. 10-E6A, 100 MacArthur Boulevard, Oakland, California*.

Alton Geoscience, Inc., 2 May 1990. *Quarterly Ground Water Monitoring and Sampling Report for Former Mobil Service Station 10-E6A, 100 MacArthur Boulevard, Oakland, California.*

California Regional Water Quality Control Board, San Francisco Bay Region, Groundwater Committee, June 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA.*

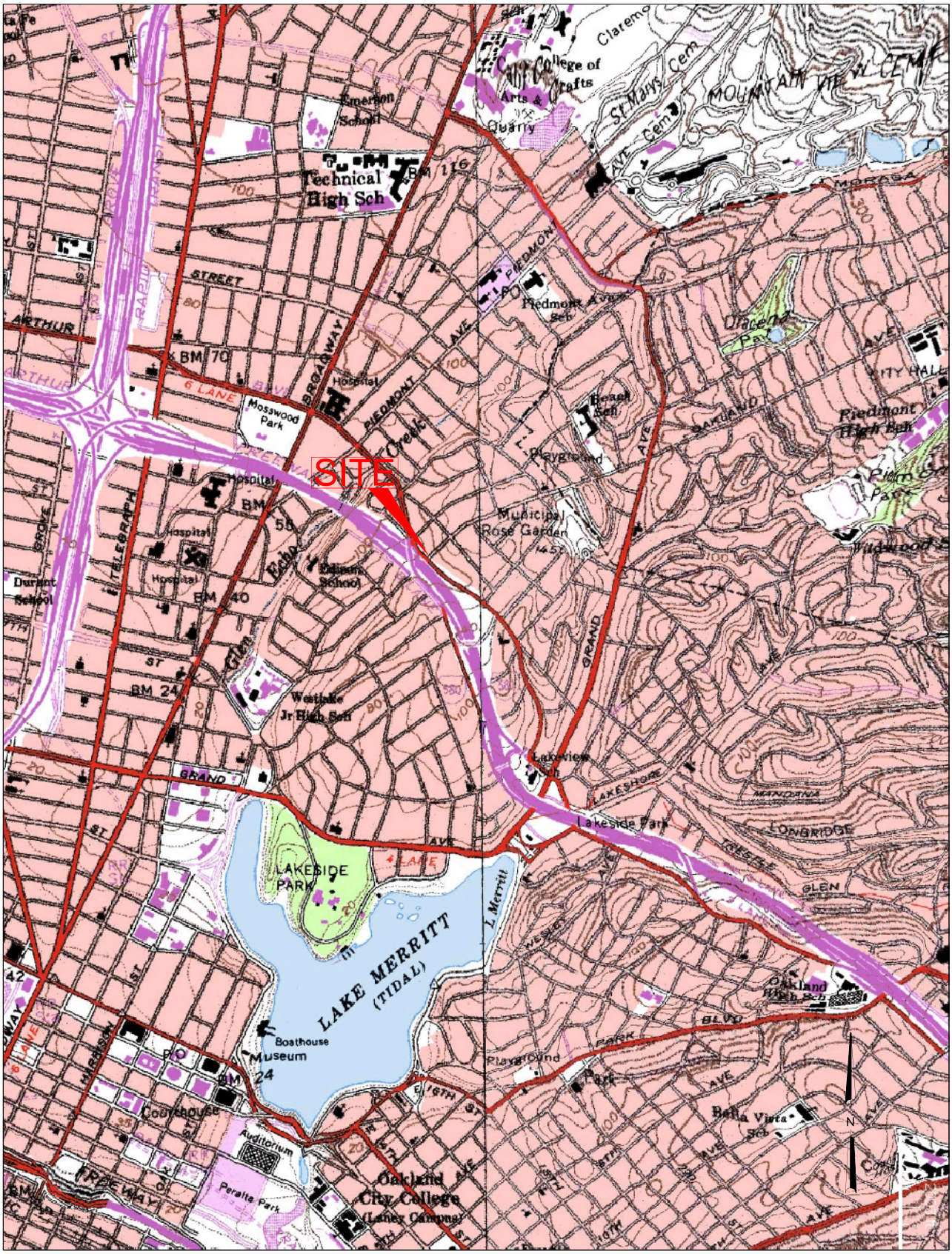
Cambria Environmental Technology, Inc., 24 February 2000. *Historical Review, Utility Survey and Recovery Testing Report, BP Oil Site No. 11102, 100 MacArthur Boulevard, Oakland, California*.

Environmental Resolutions, Inc., 11 July 1998. *Work Plan for Environmental Work at Tosco BP Service Station #11102, 100 MacArthur Boulevard, Oakland, California*.

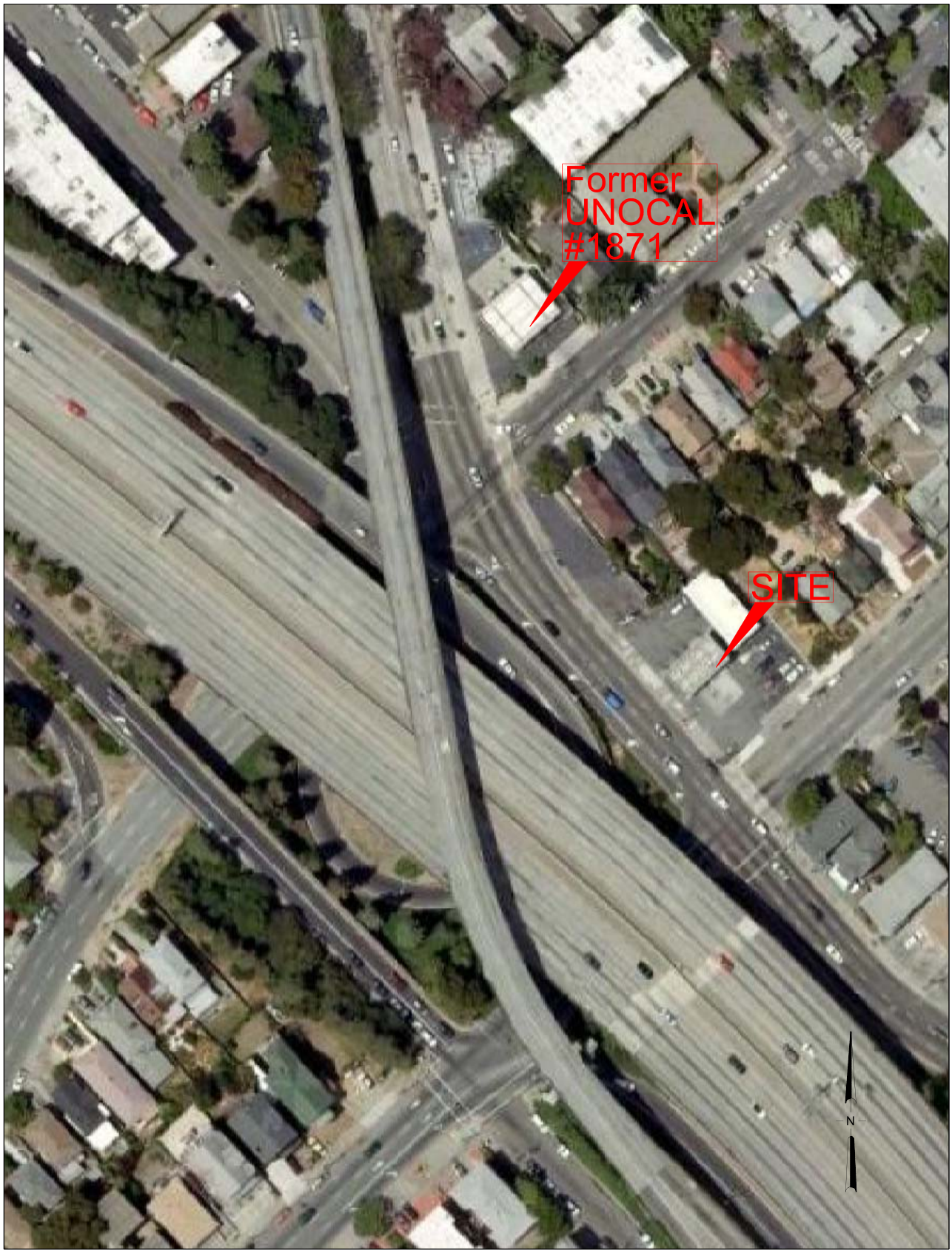
Kaprealian Engineering, Inc., 7 October 1988. *Soil Sampling Report, Mobil Service Station #10-E6A, 100 MacArthur Blvd., Oakland, California.*

URS Corporation, 4 August 2005. *Soil and Water Investigation Report, Former BP Service Station #11102, 100 MacArthur Boulevard, Oakland, California, ACEHS Case No. RO0000456*.

URS Corporation, 14 April 2006. *Supplemental Soil and Water Investigation Report, Former BP Service Station # 11102, 100 MacArthur Boulevard, Oakland, California, ACEHS Case No. RO0000456*.



BROADBENT & ASSOCIATES, INC. ENGINEERING, WATER RESOURCES & ENVIRONMENTAL 1324 Mangrove Ave. Suite 212, Chico, California Project No.: 06-08-643 Date: 3/5/09	Former Station #11102 100 MacArthur Boulevard Oakland, California	Site Location Map	Drawing 1



0 100 200

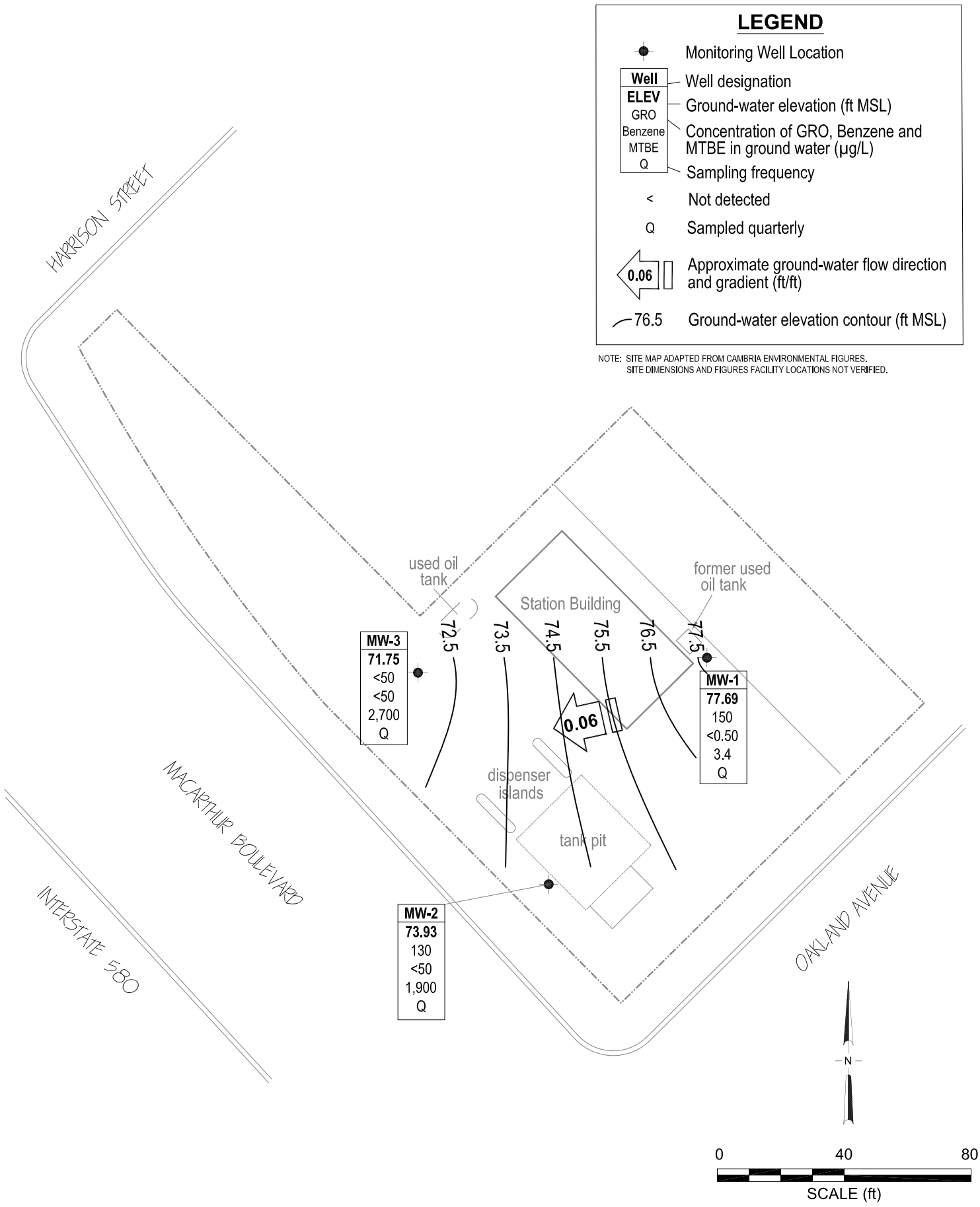
SCALE (feet)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-08-643 Date: 3/5/09

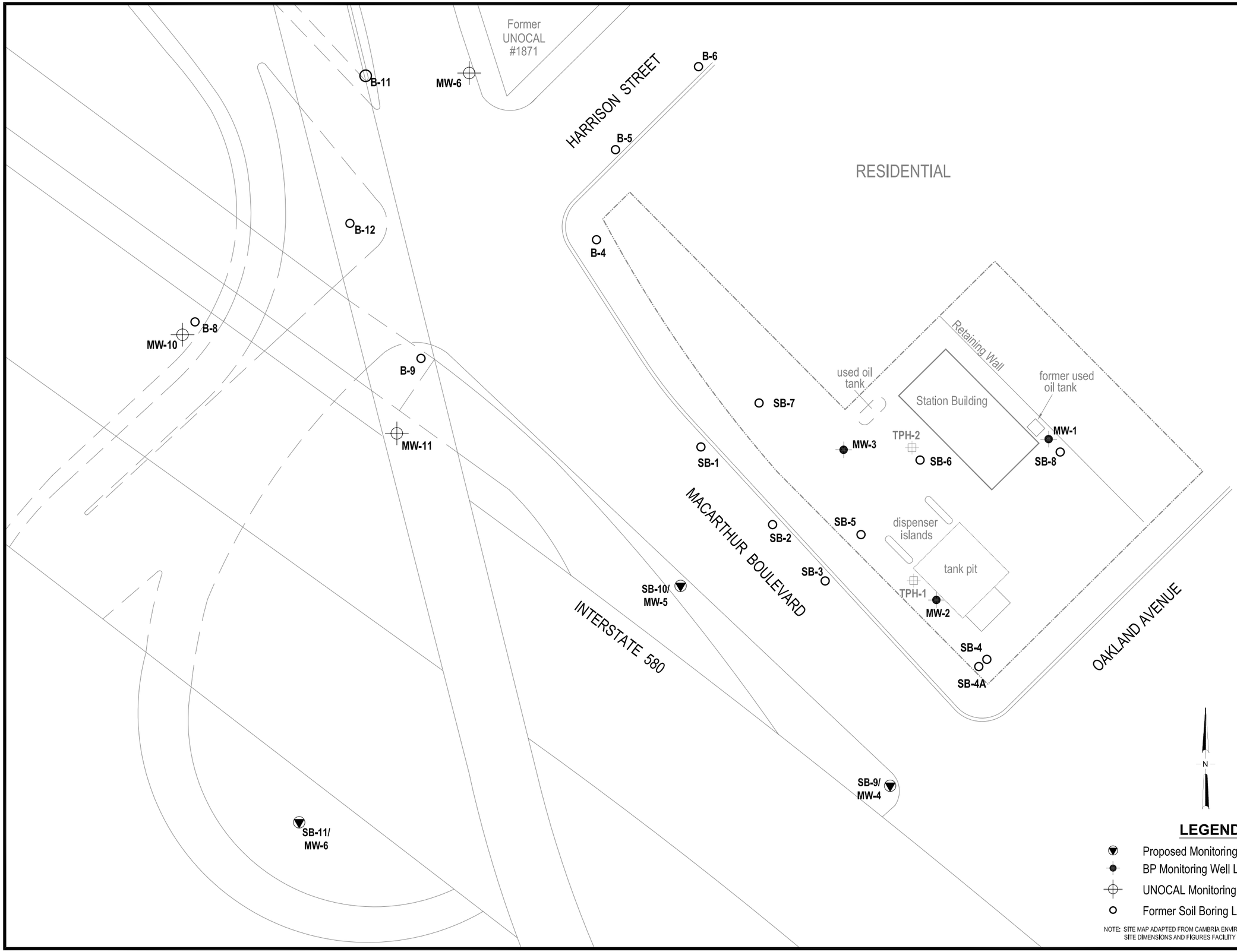
Former Station #11102
100 MacArthur Boulevard
Oakland, California

Area Development Photo

Drawing
2



BROADBENT & ASSOCIATES, INC. ENGINEERING, WATER RESOURCES & ENVIRONMENTAL 1324 Mangrove Ave. Suite 212, Chico, California Project No.: 06-08-643 Date: 1/16/09	Former Station #11102 100 MacArthur Boulevard Oakland, California	Ground-Water Elevation Contour and Analytical Summary Map 19 November 2008	Drawing 3



Drawing 4

Site Layout Plan with Proposed
Soil Boring and Well Locations

Former Station #11102
100 MacArthur Boulevard
Oakland, California

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Avenue, Suite 212 Chico, CA

Project No.: 06-08-643 Date: 3/9/09

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet msl)	DTW (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet msl)	Concentrations 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																		
11/4/1989	--		90.20	13.21	--	76.99	<500	3.4	0.6	<0.3	<0.3	--	--	SAL	--	<50	<5000	--
11/11/1989	--		90.20	13.32	--	76.88	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1990	--		90.20	12.46	--	77.74	820	64	1.9	23	34	--	--	ANA	--	--	--	--
7/30/1990	--		90.20	12.92	--	77.28	190	11	<5.0	<5.0	<5.0	--	--	ANA	--	<50	<5000	--
11/20/1990	--		90.20	14.08	--	76.12	50	2.4	<0.3	<0.3	<0.3	--	--	SAL	--	79	<5000	--
3/1/1991	--		90.20	13.61	--	76.59	<100	0.9	<0.3	<0.3	0.3	--	--	SAL	--	<1000	14,000	--
8/19/1991	--		90.20	15.74	--	74.46	370	35	0.73	6.4	5.6	--	--	SEQ	--	<50	<5000	--
11/13/1991	--		90.20	14.08	--	76.12	60	0.68	<0.3	<0.3	<0.3	--	--	SEQ	--	<50	<5000	--
2/24/1992	--		90.20	12.52	--	77.68	140	3.9	0.66	1.2	3.8	--	--	SEQ	--	100	<5000	--
5/19/1992	--		90.20	11.80	--	78.40	4,200	440	21	250	37	--	--	SEQ	--	910	<5000	--
6/17/1992	--		90.20	12.01	--	78.19	4,000	350	14	150	17	--	--	SEQ	--	560	<5000	--
7/22/1992	--		90.20	12.42	--	77.78	4,000	<5.0	19	210	61	--	--	ANA	--	--	--	--
8/14/1992	--		90.20	12.75	--	77.45	2,400	330	20	150	47	--	--	SEQ	--	1,700	<5000	--
11/11/1992	--		90.20	13.69	--	76.51	260	30	3.4	7.6	6.8	--	--	ANA	--	92	<5000	--
6/7/1993	--		90.20	10.93	--	79.27	3,400	98	11	21	7.6	--	--	PACE	--	440	--	--
6/7/1993	--	c	90.20	--	--	--	3,700	120	12	26	9.5	--	--	PACE	--	--	--	--
12/2/1993	--		90.20	12.72	--	77.48	1,100	8.3	3.6	0.6	1.5	--	--	PACE	--	120	<5000	--
6/22/1994	--	c, d	90.20	--	--	--	2,100	30	3.2	2	15	2,000	--	PACE	--	--	--	--
6/22/1994	--	d	90.20	11.81	--	78.39	2,100	32	3.8	2.2	17	4,000	3.2	PACE	--	<50	<5000	--
1/10/1995	--		90.20	10.97	--	79.23	<500	120	<5	<5	<10	--	3.9	ATI	--	420	--	--
1/10/1995	--	c	90.20	--	--	--	<500	120	<5	5	<10	--	--	ATI	--	--	--	--
6/21/1995	--		90.20	9.38	--	80.82	4,700	16	<5.0	<5.0	<10	--	6.7	ATI	--	1,300	2,900	0.6
6/21/1995	--	c, e	90.20	--	--	--	3,600	<13	<5.0	<5.0	<10	--	--	ATI	--	--	--	--
12/27/1995	--		90.20	11.55	--	78.65	430	<2.5	<2.5	<2.5	<5.0	1,200	6.3	ATI	--	2,100	640	--
6/13/1996	--		90.20	9.28	--	80.92	3,200	51	<12	<12	<12	4,000	6.3	SPL	--	920	2,000	--
12/4/1996	--	f	90.20	11.91	--	78.29	1,400	6.2	<5	<5	<5	2,600	6.7	SPL	--	280	2,000	6
6/10/1997	--	c	90.20	--	--	--	7,700	14	<25	<25	<25	13,000	--	SPL	--	--	--	--
6/10/1997	--		90.20	8.97	--	81.23	7,900	12	<10	<10	<10	15,000	6	SPL	--	1,700	<5	--
12/12/1997	--		90.20	11.37	--	78.83	440	8.8	<1.0	2.6	9.4	6,700	5.5	SPL	--	760	1,200	--
6/18/1998	--		90.20	8.02	--	82.18	7,500	<2.5	<5.0	<5.0	<5.0	5,600	4.9	SPL	--	2,900	<5	--
3/9/1999	--		90.20	9.80	--	80.40	32,000	100	16	72	110	49,000	--	SPL	--	--	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet msl)	DTW (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet msl)	Concentrations 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 Cont.																		
9/28/1999	--		90.20	10.78	--	79.42	1,000	<5.0	<5.0	<5.0	<5.0	730	--	SPL	--	--	--	<1.0
10/14/1999	--		90.20	10.84	--	79.36	--	--	--	--	--	--	--	SPL	--	660	--	--
3/27/2000	--		90.20	9.83	--	80.37	4,300	160	19	37	43	28,000	--	PACE	--	--	--	--
9/28/2000	--		90.20	11.33	--	78.87	2,700	10	2.6	1.1	2.7	28,000	--	PACE	--	--	--	--
3/8/2001	--		90.20	10.96	--	79.24	8,200	23.5	6.09	5.23	8.97	11,600	--	PACE	--	--	--	--
9/21/2001	--		90.20	12.07	--	78.13	6,000	37.9	<0.5	<0.5	<1.5	7,370	--	PACE	--	--	--	--
2/28/2002	--		90.20	10.48	--	79.72	6,400	60.8	<5.0	6.43	<10	7,750	--	PACE	--	--	--	--
9/6/2002	--		90.20	11.20	--	79.00	1,400	<5.0	<5.0	<5.0	<5.0	6,000	--	SEQ	--	--	--	--
2/19/2003	--	h	90.20	11.29	--	78.91	<10000	<100	110	<100	<100	4,500	--	SEQ	--	--	--	--
7/14/2003	--		90.20	11.18	--	79.02	710	11	<10	<10	<10	940	--	SEQ	--	--	--	--
01/14/2004	--		90.20	11.74	--	78.46	<500	<5.0	<5.0	<5.0	<5.0	220	--	SEQM	6.6	--	--	--
04/23/2004	P	l	90.20	11.95	--	78.25	470	3.4	<2.5	<2.5	<2.5	150	--	SEQM	6.7	--	--	--
07/01/2004	P		90.20	11.52	--	78.68	360	<2.5	<2.5	<2.5	<2.5	96	--	SEQM	6.0	--	--	--
10/28/2004	P		90.20	12.56	--	77.64	390	0.94	<0.50	<0.50	<0.50	43	--	SEQM	6.2	--	--	--
01/10/2005	P		90.20	11.85	--	78.35	490	17	<2.5	5.8	5.4	85	--	SEQM	7.6	--	--	--
04/13/2005	P		90.20	10.00	--	80.20	1,000	27	<2.5	<2.5	25	48	--	SEQM	6.6	--	--	--
07/11/2005	P		90.20	9.27	--	80.93	180	<0.50	<0.50	<0.50	<0.50	36	--	SEQM	7.7	--	--	--
10/17/2005	P		90.20	10.96	--	79.24	140	<0.50	<0.50	<0.50	<0.50	20	--	SEQM	8.0	--	--	--
01/17/2006	P		90.20	10.81	--	79.39	120	0.64	<0.50	<0.50	0.56	38	--	SEQM	6.5	--	--	--
04/21/2006	P	m	90.20	9.28	--	80.92	410	1.4	1.0	<0.50	<0.50	17	--	SEQM	6.5	--	--	--
7/17/2006	--		90.20	9.25	--	80.95	<50	<0.50	<0.50	<0.50	<0.50	5.5	--	TAMC	7.7	--	--	--
7/26/2006	--		90.20	8.57	--	81.63	<50	<0.50	<0.50	<0.50	<0.50	4.4	--	TAMC	6.6	--	--	--
10/31/2006	P		90.20	9.80	--	80.40	<50	<0.50	<0.50	<0.50	<0.50	2.8	2.81	TAMC	6.99	--	--	--
1/8/2007	P		90.20	10.36	--	79.84	<50	2.2	<0.50	<0.50	<0.50	6.2	2.51	TAMC	6.97	--	--	--
4/10/2007	P		90.20	10.65	--	79.55	160	1.4	<0.50	<0.50	<0.50	9.0	1.75	TAMC	7.00	--	--	--
7/10/2007	P	p	90.20	10.52	--	79.68	120	<0.50	<0.50	<0.50	<0.50	4.9	2.01	TAMC	6.60	160	--	--
10/24/2007	P		90.20	11.23	--	78.97	100	<0.50	<0.50	<0.50	<0.50	4.9	1.89	TAMC	6.57	--	--	--
1/22/2008	P		90.20	11.22	--	78.98	240	<0.50	<0.50	0.83	1.7	7.2	3.18	TAMC	6.49	--	--	--
4/15/2008	P		90.20	10.26	--	79.94	240	<0.50	<0.50	<0.50	0.73	5.5	3.32	CEL	6.45	--	--	--
7/8/2008	P		90.20	11.10	--	79.10	78	<0.50	<0.50	<0.50	<0.50	5.8	1.65	CEL	6.78	--	--	--
11/19/2008	**P**		**90.20**	**12.51**	**--**	**77.69**	**150**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**3.4**	**1.59**	**CEL**	**6.84**	**--**	**--**	**--**

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet msl)	DTW (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet msl)	Concentrations 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																		
MW-2																		
11/4/1989	--		87.91	15.84	--	72.07	<500	6.5	<0.3	<0.3	<0.3	--	--	SAL	--	--	--	--
11/11/1989	--		87.91	14.75	--	73.16	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1990	--		87.91	15.25	--	72.66	<500	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
7/30/1990	--		87.91	15.59	--	72.32	61	6.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
11/20/1990	--		87.91	17.81	--	70.10	<50	0.3	<0.3	<0.3	<0.3	--	--	SAL	--	--	--	--
3/1/1991	--		87.91	17.11	--	70.80	<100	0.4	<0.3	<0.3	<0.3	--	--	SAL	--	--	--	--
8/19/1991	--		87.91	17.97	--	69.94	<30	<0.3	<0.3	<0.3	<0.3	--	--	SEQ	--	--	--	--
11/13/1991	--		87.91	16.76	--	71.15	38	0.32	<0.3	<0.3	<0.3	--	--	SEQ	--	--	--	--
2/24/1992	--		87.91	15.07	--	72.84	<50	<0.5	<0.5	<0.5	0.58	--	--	SEQ	--	--	--	--
5/19/1992	--		87.91	14.70	--	73.21	<50	0.55	<0.5	<0.5	<0.5	--	--	SEQ	--	--	--	--
7/22/1992	--		87.91	15.60	--	72.31	90	1.3	0.6	0.9	1.9	--	--	ANA	--	--	--	--
8/14/1992	--		87.91	15.88	--	72.03	--	--	--	--	--	--	--	--	--	--	--	--
11/11/1992	--		87.91	16.19	--	71.72	52	2.8	<0.5	<0.5	0.9	--	--	ANA	--	--	--	--
11/11/1992	--	c	87.91	--	--	--	65	3.2	<0.5	<0.5	1	--	--	ANA	--	--	--	--
6/7/1993	--		87.91	14.42	--	73.49	1,200	14	2.8	1.9	1.71	--	--	PACE	--	--	--	--
12/2/1993	--	d	87.91	14.94	--	72.97	790	3.4	0.5	10	<0.5	3,700	--	PACE	--	--	--	--
12/2/1993	--	c, d	87.91	--	--	--	2,100	32	3.8	2.2	17	3,700	--	PACE	--	--	--	--
6/22/1994	--	d	87.91	14.25	--	73.66	110	<0.5	<0.5	<0.5	<0.5	120	3.9	PACE	--	--	--	--
1/10/1995	--		87.91	13.64	--	74.27	<50	<0.5	<0.5	0.6	1	--	4.3	ATI	--	--	--	--
6/21/1995	--		87.91	11.66	--	76.25	4,700	<10	<10	<10	<20	--	7.8	ATI	--	--	--	--
12/27/1995	--		87.91	13.11	--	74.80	6,100	<25	<25	<25	<50	20,000	6.7	ATI	--	--	--	--
12/27/1995	--	c	87.91	--	--	--	6,300	<25	<25	<25	<50	19,000	--	ATI	--	--	--	--
6/13/1996	--		87.91	10.86	--	77.05	8,300	<2.5	<2.5	<2.5	<2.5	13,000	6.5	SPL	--	--	--	--
6/13/1996	--	c	87.91	--	--	--	8,700	<5	<5	<5	<5	13,000	--	SPL	--	--	--	--
12/4/1996	--	c	87.91	--	--	--	5,900	<2.5	<5	<5	<5	11,000	--	SPL	--	--	--	--
12/4/1996	--		87.91	13.03	--	74.88	5,900	<2.5	<5	<5	<5	11,000	6.3	SPL	--	--	--	--
6/10/1997	--		87.91	10.04	--	77.87	<50	<0.5	<1.0	<1.0	<1.0	<10	5.8	SPL	--	--	--	--
12/12/1997	--		87.91	12.44	--	75.47	<50	<0.5	<1.0	<1.0	<1.0	<10	5.7	SPL	--	--	--	--
6/18/1998	--		87.91	8.89	--	79.02	50	<0.5	<1.0	<1.0	<1.0	<10	5.3	SPL	--	--	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet msl)	DTW (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet msl)	Concentrations 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.																		
6/18/1998	--	c	87.91	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	SPL	--	--	--	--
3/9/1999	--		87.91	10.20	--	77.71	15,000	<5.0	<5.0	<5.0	<5.0	23,000	--	SPL	--	--	--	--
9/28/1999	--		87.91	11.81	--	76.10	36,000	<5.0	12	7	26	35,000	--	SPL	--	--	--	<5.0
10/14/1999	--		87.91	10.27	--	77.64	--	--	--	--	--	--	--	SPL	--	100	--	--
3/27/2000	--		87.91	9.98	--	77.93	1,300	<0.5	<0.5	0.51	<0.5	5,800	--	PACE	--	--	--	--
9/28/2000	--		87.91	11.40	--	76.51	1,600	1.8	1.7	0.54	2.2	15,000	--	PACE	--	--	--	--
3/8/2001	--		87.91	11.16	--	76.75	20,000	<0.5	<0.5	<0.5	<0.5	29,100	--	PACE	--	--	--	--
9/21/2001	--		87.91	11.65	--	76.26	5,000	<0.5	<0.5	<0.5	<1.5	6,110	--	PACE	--	--	--	--
2/28/2002	--		87.91	9.86	--	78.05	3,200	35.1	<0.5	<0.5	<1.0	4,620	--	PACE	--	--	--	--
9/6/2002	--		87.91	12.32	--	75.59	1,900	<10	<10	<10	<10	15,000	--	SEQ	--	--	--	--
2/19/2003	--	h	87.91	11.63	--	76.28	45,000	<250	<250	<250	<250	32,000	--	SEQ	--	--	--	--
7/14/2003	--		87.91	12.07	--	75.84	9,300	<500	<500	<500	<500	24,000	--	SEQ	--	--	--	--
01/14/2004	P		87.91	11.45	--	76.46	<50,000	<500	<500	<500	<500	21,000	--	SEQM	6.9	--	--	--
04/23/2004	P	l	87.91	11.45	--	76.46	5,100	<250	<250	<250	<250	22,000	--	SEQM	6.8	--	--	--
07/01/2004	P		87.91	12.32	--	75.59	<5,000	<50	<50	<50	<50	5,200	--	SEQM	5.6	--	--	--
10/28/2004	P		87.91	13.02	--	74.89	8,500	<50	<50	<50	<50	6,800	--	SEQM	6.2	--	--	--
01/10/2005	P		87.91	14.38	--	73.53	<25,000	<250	<250	<250	<250	7,100	--	SEQM	7.6	--	--	--
04/13/2005	P		87.91	14.03	--	73.88	<5,000	<50	<50	<50	<50	5,300	--	SEQM	6.6	--	--	--
07/11/2005	P		87.91	11.25	--	76.66	<5,000	<50	<50	<50	<50	5,300	--	SEQM	7.5	--	--	--
10/17/2005	P		87.91	12.48	--	75.43	<5,000	<50	<50	<50	<50	2,500	--	SEQM	8.2	--	--	--
01/17/2006	P		87.91	10.70	--	77.21	<5,000	<50	<50	<50	<50	2,200	--	SEQM	7.0	--	--	--
04/21/2006	--	n	87.91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/26/2006	--	k	87.91	10.47	--	77.44	2,700	<50	<50	<50	<50	2,900	--	TAMC	6.69	--	--	--
10/31/2006	P		87.91	12.02	--	75.89	2,300	<25	<25	<25	<25	2,300	2.02	TAMC	6.71	--	--	--
1/8/2007	P		87.91	11.68	--	76.23	1500	<12	<12	<12	<12	1700	1.37	TAMC	6.54	--	--	--
4/10/2007	P	k	87.91	11.45	--	76.46	1,300	<50	<50	<50	<50	1,500	1.60	TAMC	6.89	--	--	--
7/10/2007	P	k, p	87.91	11.97	--	75.94	2,300	<25	<25	<25	<25	2,600	1.82	TAMC	6.69	120	--	--
10/24/2007	P	k	87.91	12.91	--	75.00	2,800	<25	<25	<25	<25	2,800	1.55	TAMC	6.77	--	--	--
1/22/2008	P		87.91	12.00	--	75.91	<2,500	<25	<25	<25	<25	1,400	2.08	TAMC	6.55	--	--	--
4/15/2008	P		87.91	11.77	--	76.14	73	<2.5	<2.5	<2.5	<2.5	2,400	3.12	CEL	6.72	--	--	--
7/8/2008	P		87.91	12.65	--	75.26	93	<50	<50	<50	<50	2,800	1.78	CEL	7.05	--	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet msl)	DTW (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet msl)	Concentrations 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.																		
11/19/2008	**P**		**87.91**	**13.98**	**--**	**73.93**	**130**	**<50**	**<50**	**<50**	**<50**	**1,900**	**1.75**	**CEL**	**6.72**	**--**	**--**	**--**
MW-3																		
11/4/1989	--		87.02	15.40	--	71.62	<500	<0.3	<0.3	<0.3	<0.3	--	--	SAL	--	--	--	--
11/11/1989	--		87.02	14.10	--	72.92	--	--	--	--	--	--	--	--	--	--	--	--
4/3/1990	--		87.02	13.90	--	73.12	<100	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--
7/30/1990	--		87.02	13.77	--	73.25	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	<5000	--
11/20/1990	--		87.02	14.67	--	72.35	<50	0.3	0.8	0.4	1.5	--	--	SAL	--	--	--	--
3/1/1991	--		87.02	15.22	--	71.80	<100	0.4	<0.3	<0.3	<0.3	--	--	SAL	--	--	--	--
8/19/1991	--		87.02	13.15	--	73.87	<30	<0.3	<0.3	<0.3	<0.3	--	--	SEQ	--	--	--	--
11/13/1991	--		87.02	15.66	--	71.36	<30	<0.3	<0.3	<0.3	<0.3	--	--	SEQ	--	--	--	--
2/24/1992	--		87.02	15.01	--	72.01	<50	0.65	1.4	0.66	4.4	--	--	SEQ	--	--	--	--
5/19/1992	--		87.02	15.52	--	71.50	<50	<0.5	<0.5	<0.5	<0.5	--	--	SEQ	--	--	--	--
7/22/1992	--		87.02	15.63	--	71.39	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	<50	<5000	--
8/14/1992	--		87.02	13.57	--	73.45	--	--	--	--	--	--	--	--	--	--	--	--
11/11/1992	--		87.02	14.13	--	72.89	<50	<0.5	0.7	<0.5	1.3	--	--	ANA	--	--	--	--
6/7/1993	--		87.02	12.13	--	74.89	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
12/2/1993	--		87.02	13.29	--	73.73	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
6/22/1994	--		87.02	12.78	--	74.24	<50	<0.5	<0.5	<0.5	<0.5	--	2.9	PACE	--	--	--	--
1/10/1995	--		87.02	12.01	--	75.01	<50	<0.5	<0.5	<0.5	<1	--	3.8	ATI	--	--	--	--
6/21/1995	--		87.02	11.57	--	75.45	<50	<0.50	<0.50	<0.50	<1.0	--	7.4	ATI	--	--	--	--
12/27/1995	--		87.02	13.47	--	73.55	<50	<0.50	<0.50	<0.50	<1.0	5.7	7.3	ATI	--	--	--	--
6/13/1996	--		87.02	11.22	--	75.80	60	<0.5	<0.5	<0.5	<0.5	<10	6.8	SPL	--	--	--	--
12/4/1996	--		87.02	13.28	--	73.74	<50	<0.5	<1	<1	<1	<10	6.7	SPL	--	--	--	--
6/10/1997	--		87.02	10.22	--	76.80	<50	<0.5	<1.0	<1.0	<1.0	<10	6.1	SPL	--	--	--	--
12/12/1997	--		87.02	12.61	--	74.41	<50	<0.5	<1.0	<1.0	<1.0	<10	5.6	SPL	--	--	--	--
12/12/1997	--	c	87.02	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	SPL	--	--	--	--
6/18/1998	--		87.02	9.07	--	77.95	50	<0.5	<1.0	<1.0	<1.0	<10	5.3	SPL	--	--	--	--
6/18/1998	--		87.02	12.80	--	74.22	--	--	--	--	--	--	--	--	--	--	--	--
9/28/1999	--		87.02	13.76	--	73.26	--	--	--	--	--	--	--	--	--	--	--	--
3/27/2000	--		87.02	13.77	--	73.25	<50	<0.5	<0.5	<0.5	<0.5	1.6	--	PACE	--	--	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet msl)	DTW (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet msl)	Concentrations 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.																		
9/28/2000	--		87.02	11.28	--	75.74	<50	<0.5	7.4	<0.5	1.3	2	--	PACE	--	--	--	--
3/8/2001	--		87.02	11.75	--	75.27	<50	<0.5	<0.5	<0.5	<0.5	60.4	--	PACE	--	--	--	--
9/21/2001	--		87.02	11.33	--	75.69	<50	<0.5	<0.5	<0.5	<1.5	8.18	--	PACE	--	--	--	--
2/28/2002	--		87.02	10.86	--	76.16	<50	<0.5	<0.5	<0.5	<1.0	25.5	--	PACE	--	--	--	--
9/6/2002	--		87.02	12.73	--	74.29	<50	1.2	<0.5	<0.5	1	16	--	SEQ	--	--	--	--
2/19/2003	--	h	87.02	11.72	--	75.30	<500	<5.0	<5.0	<5.0	<5.0	110	--	SEQ	--	--	--	--
7/14/2003	--		87.02	13.76	--	73.26	<50	<0.50	<0.50	<0.50	0.67	28	--	SEQ	--	--	--	--
01/14/2004	P		87.02	14.83	--	72.19	550	<5.0	<5.0	<5.0	<5.0	380	--	SEQM	8.1	--	--	--
04/23/2004	P	l	87.02	13.17	--	73.85	<200	<25	<25	<25	<25	560	--	SEQM	6.8	--	--	--
07/01/2004	P		87.02	15.19	--	71.83	<50	<0.50	<0.50	<0.50	0.50	48	--	SEQM	6.4	--	--	--
10/28/2004	P		87.02	15.50	--	71.52	<500	<5.0	<5.0	<5.0	<5.0	290	--	SEQM	6.3	--	--	--
01/10/2005	P		87.02	15.00	--	72.02	<50	<0.50	<0.50	<0.50	<0.50	18	--	SEQM	7.6	--	--	--
04/13/2005	P		87.02	14.34	--	72.68	<50	<0.50	<0.50	<0.50	<0.50	9.0	--	SEQM	7.1	--	--	--
07/11/2005	P	k	87.02	10.82	--	76.20	130	<1.0	<1.0	<1.0	<1.0	120	--	SEQM	7.8	--	--	--
10/17/2005	P		87.02	11.84	--	75.18	<250	<2.5	<2.5	<2.5	<2.5	260	--	SEQM	8.5	--	--	--
01/17/2006	P		87.02	11.59	--	75.43	800	<5.0	<5.0	<5.0	<5.0	980	--	SEQM	7.2	--	--	--
04/21/2006	P		87.02	10.00	--	77.02	<500	<5.0	<5.0	<5.0	<5.0	48	--	SEQM	6.7	--	--	--
7/17/2006	P	k	87.02	10.80	--	76.22	910	<5.0	<5.0	<5.0	<5.0	1,400	--	TAMC	7.7	--	--	--
7/26/2006	P		87.02	9.67	--	77.35	810	<10	<10	<10	<10	1,300	--	TAMC	6.56	--	--	--
10/31/2006	P		87.02	10.85	--	76.17	1,600	<10	<10	<10	<10	2,300	2.50	TAMC	6.84	--	--	--
1/8/2007	P		87.02	12.73	--	74.29	520	<5.0	<5.0	<5.0	<5.0	760	3.61	TAMC	7.12	--	--	--
4/10/2007	P	k	87.02	11.93	--	75.09	630	<5.0	<5.0	<5.0	<5.0	750	2.31	TAMC	7.15	--	--	--
7/10/2007	P	k, p	87.02	11.30	--	75.72	1,800	<5.0	<5.0	<5.0	<5.0	2,400	1.56	TAMC	6.72	66	--	--
10/24/2007	P	k	87.02	13.77	--	73.25	2,000	<25	<25	<25	<25	3,500	1.62	TAMC	6.41	--	--	--
1/22/2008	P	k	87.02	12.92	--	74.10	1,600	<12	<12	<12	<12	2,800	2.17	TAMC	6.32	--	--	--
4/15/2008	P		87.02	15.25	--	71.77	<50	<2.5	<2.5	<2.5	<2.5	960	3.44	CEL	6.71	--	--	--
7/8/2008	P		87.02	12.27	--	74.75	<50	<50	<50	<50	<50	2,200	1.52	CEL	7.01	--	--	--
11/19/2008	**P**		**87.02**	**15.27**	**--**	**71.75**	**<50**	**<50**	**<50**	**<50**	**<50**	**2,700**	**1.60**	**CEL**	**6.83**	**--**	**--**	**--**
QC-2																		
11/11/1992	--	g	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	ANA	--	--	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet msl)	DTW (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet msl)	Concentrations 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 Cont.																		
6/7/1993	--	g	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
12/2/1993	--	g	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
6/22/1994	--	g	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	--	--	--
1/10/1995	--	g	--	--	--	--	<50	<0.5	<0.5	<0.5	<1	--	--	ATI	--	--	--	--
6/21/1995	--	g	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	ATI	--	--	--	--
12/27/1995	--	g	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	ATI	--	--	--	--
6/13/1996	--	g	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<10	--	SPL	--	--	--	--

ABBREVIATIONS & SYMBOLS:
--/--- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
DO = Dissolved oxygen
DRO = Diesel range organics
DTW = Depth to water in ft bgs
ft bgs = feet below ground surface
ft MSL = feet above mean sea level
GRO = Gasoline range organics, range C4-C12
GWE = Groundwater elevation measured in ft MSL
HVOC = Halogenated volatile organic compounds
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing measured in ft MSL
TOG = Total oil and grease
TPH-d = Total petroleum hydrocarbons as diesel
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
ANA = Anametrix, Inc.
PACE = Pace, Inc.
ATI = Analytical Technologies, Inc.
SAL = Superior Analytical Laboratory
SPL = Southern Petroleum Laboratories
SEQ/SEQM = Sequoia Analytical/Sequoia Analytical - Morgan Hill (Laboratories)
CEL = CalScience Environmental Laboratories, Inc.

FOOTNOTES:
c = Blind duplicate.
d = A copy of the documentation for this data is included in Appendix C of Alisto report 10-076-06-002.
e = Tetrachloroethene
f = trans-1,2-Dichloroethene
g = Travel blank.
h = TPH-g, benzene, toluene, ethylbenzene, and total xylenes (BTEX), and MTBE analyzed by EPA Method 8260B beginning on 1st quarter sampling event (2/19/03).
k = The hydrocarbon result was partly due to individual peaks in the quantification range (GRO).
l = GRO analyzed by EPA Method 8015B.
m = Confirmatory analysis for total xylenes was past holding time.
n = Well inaccessible.
p = Hydrocarbon in req. fuel range, but doesn't resemble req. fuel (DRO).

NOTES:
Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g was changed to GRO. The resulting data may be impacted by the potential of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported.

Beginning in the second quarter 2004, the carbon range for GRO was changed from C6-C10 to C4-C12.

Values for pH and DO were obtained through field measurements.

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.

Note: The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information.

Table 2. Summary of Fuel Additives Analytical Data

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
7/14/2003	<2000	2,700	940	<20	<20	<20	--	--	
01/14/2004	<1,000	2,500	220	<5.0	<5.0	<5.0	<5.0	<5.0	
04/23/2004	<500	2,500	150	<2.5	<2.5	<2.5	<2.5	<2.5	
07/01/2004	<500	2,000	96	<2.5	<2.5	<2.5	<2.5	<2.5	
10/28/2004	<5.0	1,500	43	<0.50	<0.50	0.58	<0.50	<0.50	
01/10/2005	<500	1,900	85	<2.5	<2.5	<2.5	<2.5	<2.5	
04/13/2005	<500	1,400	48	<2.5	<2.5	<2.5	<2.5	<2.5	
07/11/2005	<100	550	36	<0.50	<0.50	<0.50	<0.50	<0.50	
10/17/2005	<100	450	20	<0.50	<0.50	<0.50	<0.50	<0.50	a
01/17/2006	<300	260	38	<0.50	<0.50	0.54	<0.50	<0.50	
04/21/2006	<300	320	17	<0.50	<0.50	<0.50	<0.50	<0.50	
7/17/2006	<300	32	5.5	<0.50	<0.50	<0.50	<0.50	<0.50	
7/26/2006	<300	22	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
10/31/2006	<300	<20	2.8	<0.50	<0.50	<0.50	<0.50	<0.50	a
1/8/2007	<300	110	6.2	<0.50	<0.50	<0.50	<0.50	<0.50	
4/10/2007	<300	210	9.0	<0.50	<0.50	<0.50	<0.50	<0.50	
7/10/2007	<300	110	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
10/24/2007	<300	94	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
1/22/2008	<300	110	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
4/15/2008	<300	84	5.5	<0.50	<0.50	<0.50	<0.50	<0.50	
7/8/2008	<300	64	5.8	<0.50	<0.50	<0.50	<0.50	<0.50	
11/19/2008	**<300**	**110**	**3.4**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-2									
7/14/2003	<100000	<20000	24,000	<1000	<1000	<1000	--	--	
01/14/2004	<100,000	<20,000	21,000	<500	<500	<500	<500	<500	
04/23/2004	<50,000	11,000	22,000	<250	<250	420	<250	<250	
07/01/2004	<10,000	2,900	5,200	<50	<50	110	<50	<50	
10/28/2004	<5.0	6,700	6,800	<50	<50	120	<50	<50	
01/10/2005	<50,000	<10,000	7,100	<250	<250	<250	<250	<250	
04/13/2005	<10,000	5,300	5,300	<50	<50	95	<50	<50	
07/11/2005	<10,000	9,000	5,300	<50	<50	99	<50	<50	

Table 2. Summary of Fuel Additives Analytical Data

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
10/17/2005	<10,000	5,200	2,500	<50	<50	<50	<50	<50	a
01/17/2006	<30,000	8,400	2,200	<50	<50	<50	<50	<50	
04/21/2006	--	--	--	--	--	--	--	--	Well inaccessible
7/26/2006	<30,000	4,500	2,900	<50	<50	<50	<50	<50	
10/31/2006	<15,000	9,300	2,300	<25	<25	41	<25	<25	a
1/8/2007	<7,500	7700	1700	<12	<12	38	<12	<12	
4/10/2007	<30,000	6,400	1,500	<50	<50	<50	<50	<50	
7/10/2007	<15,000	8,700	2,600	<25	<25	42	<25	<25	
10/24/2007	<15,000	9,500	2,800	<25	<25	52	<25	<25	
1/22/2008	<15,000	6,000	1,400	<25	<25	<25	<25	<25	
4/15/2008	<1,500	6,800	2,400	<2.5	<2.5	30	2.8	<2.5	
7/8/2008	<30,000	7,600	2,800	<50	<50	<50	<50	<50	
11/19/2008	**<30,000**	**7,100**	**1,900**	**<50**	**<50**	**<50**	**<50**	**<50**	
MW-3									
7/14/2003	<100	<20	28	<1.0	<1.0	<1.0	--	--	
01/14/2004	<1,000	<200	380	<5.0	<5.0	<5.0	<5.0	<5.0	
04/23/2004	<5,000	<1,000	560	<25	<25	<25	<25	<25	
07/01/2004	<100	<20	48	<0.50	<0.50	0.52	<0.50	<0.50	
10/28/2004	<5.0	<200	290	<5.0	<5.0	<5.0	<5.0	<5.0	
01/10/2005	<100	<20	18	<0.50	<0.50	<0.50	<0.50	<0.50	
04/13/2005	<100	<20	9.0	<0.50	<0.50	<0.50	<0.50	<0.50	
07/11/2005	<200	<40	120	<1.0	<1.0	1.4	<1.0	<1.0	a
10/17/2005	<500	<100	260	<2.5	<2.5	4.2	<2.5	<2.5	a
01/17/2006	<3,000	200	980	<5.0	<5.0	13	<5.0	<5.0	
04/21/2006	<3,000	<200	48	<5.0	<5.0	<5.0	<5.0	<5.0	
7/17/2006	<3,000	<200	1,400	<5.0	<5.0	15	<5.0	<5.0	
7/26/2006	<6,000	<400	1,400	<10	<10	18	<10	<10	
10/31/2006	<6,000	<400	2,300	<10	<10	39	<10	<10	a
1/8/2007	<3000	<200	760	<5.0	<5.0	9.7	<5.0	<5.0	
4/10/2007	<3,000	<200	750	<5.0	<5.0	<5.0	<5.0	<5.0	
7/10/2007	<3,000	<200	2,400	<5.0	<5.0	39	<5.0	--	

Table 2. Summary of Fuel Additives Analytical Data

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-3 Cont.									
10/24/2007	<15,000	<1,000	3,500	<25	<25	58	<25	<25	
1/22/2008	<7,500	<500	2,800	<12	<12	34	<12	<12	
4/15/2008	<1,500	<50	960	<2.5	<2.5	9.2	<2.5	<2.5	
7/8/2008	<30,000	<1,000	2,200	<50	<50	<50	<50	<50	
11/19/2008	**<30,000**	**<1,000**	**2,700**	**<50**	**<50**	**<50**	**<50**	**<50**	

SYMBOLS & ABBREVIATIONS:
-- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
1,2-DCA = 1,2-Dichloroethane
DIPE = Di-isopropyl ether
EDB = 1,2-Dibromoethane
ETBE = Ethyl tert-butyl ether
MTBE = Methyl tert-butyl ether
TAME = tert-Amyl methyl ether
TBA = tert-Butyl alcohol
µg/L = Micrograms per Liter

FOOTNOTES:
a = The calibration verification for ethanol was within the method limits but outside the contract limits.

NOTES:
All volatile organic compounds were analyzed using EPA Method 8260B.

Note: The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information.

Table 3. Historical Ground-Water Flow Direction and Gradient
Station #11102, 100 MacArthur Blvd., Oakland, CA

Date Sampled	Approximate Flow Dirsction	Approximate Hydraulic Gradient
4/3/1990	Southwest	0.068
7/30/1990	Southwest	0.071
11/20/1990	Southwest	0.086
8/19/1991	South	0.06
11/13/1991	South	0.06
2/24/1992	Southwest	0.063
5/19/1992	West-Southwest	0.063
7/22/1992	West-Southwest	0.07
11/11/1992	Southwest	0.06
6/7/1993	Southwest	0.07
12/2/1993	Southwest	0.05
1/10/1995	Southwest	0.05
6/21/1995	West-Southwest	0.06
12/27/1995	West-Southwest	0.06
6/13/1996	West-Southwest	0.06
12/4/1996	West-Southwest	0.05
6/10/1997	West-Southwest	0.05
12/12/1997	West-Southwest	0.05
6/18/1998	West-Southwest	0.05
3/9/1999	West	0.07
9/28/1999	West	0.07
3/27/2000	Weat	0.06
9/28/2000	West	0.03
3/8/2001	West	0.04
9/21/2007	West	0.03
2/28/2002	West	0.038
11/6/2002	West	0.05
3/31/2002	West	0.04
2/16/2004	West-Northwest	0.08
6/4/2004	West	0.05
8/27/2004	West	0.077
12/10/2004	West-Northwest	0.068
2/9/2005	West-Southwest	0.07
5/20/2005	West-Southwest	0.08
8/25/2005	West-Southwest	0.06
12/5/2005	Southwest	0.05
4/12/2006	West	0.04
7/26/2006	Southwest	0.05
10/31/2006	Southwest	0.04
1/8/2007	West	0.06
4/10/2007	West	0.05
7/10/2007	Southwest	0.04
10/24/2007	West-Southwest	0.06
1/22/2008	West	0.05
4/15/2008	West-Southwest	0.09
7/8/2008	West-Southwest	0.05
11/19/2008	West	0.06

Note: The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information.

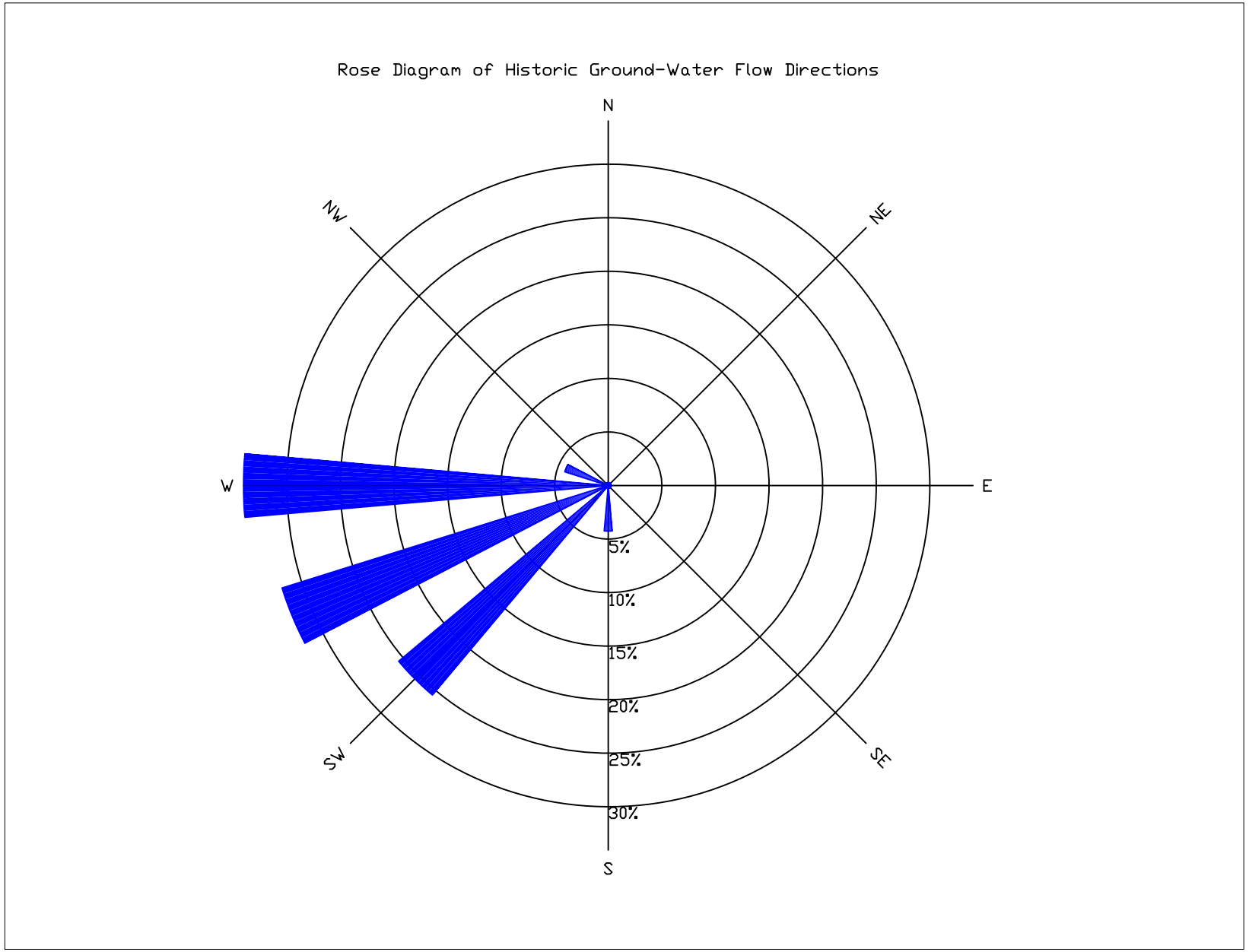

Rose Diagram of Historic Ground-Water Flow Directions
N
NE
E
SE
S
SW
W
NW
5%
10%
15%
20%
25%
30%

Table 4. Bio-Degradation Parameters

Station #11102, 100 MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)			Ferrous Iron (mg/L)	ORP (mV)	DO (mg/L)	Conductivity (µS/cm)	Hydrogen Sulfide (mg/L)	Methane (µg/L)	pH	Comments
	Total Alkalinity	Nitrate NO3	Sulfate SO4								
MW-1											
7/10/2007	--	1,500	21,000	0.11	71.1	2.01	--	<1.0	--	6.60	
10/24/2007	--	--	--	--	--	1.89	639	--	--	6.57	
1/22/2008	--	760	11,000	0.42	108	3.18	811	<1.0	--	6.49	
4/15/2008	--	240	9,900	0.26	--	3.32	758	<0.100	--	6.45	
7/8/2008	--	860	19,000	0.23	--	1.65	628	--	--	6.78	
11/19/2008	--	**540**	**16,000**	**0.5**	--	**1.59**	**853**	--	--	**6.84**	
MW-2											
7/10/2007	--	<500	26,000	0.16	9.7	1.82	--	<1.0	--	6.69	
10/24/2007	--	--	--	--	--	1.55	863	--	--	6.77	
1/22/2008	--	8,500	26,000	0.15	167	2.08	672	<1.0	--	6.55	
4/15/2008	--	<100	28,000	<0.100	--	3.12	799	<0.100	--	6.72	
7/8/2008	--	<440	25,000	0.15	--	1.78	753	--	--	7.05	
11/19/2008	--	**3,300**	**20,000**	**0.0**	--	**1.75**	**581**	--	--	**6.72**	
MW-3											
7/10/2007	--	8,500	19,000	<0.100	182.9	1.56	--	<1.0	--	6.72	
10/24/2007	--	--	--	--	--	1.62	639	--	--	6.41	
1/22/2008	--	5,600	17,000	<0.100	144	2.17	636	<1.0	--	6.32	
4/15/2008	--	1,600	21,000	<0.100	--	3.44	638	<0.100	--	6.71	
7/8/2008	--	6,700	18,000	<0.100	--	1.52	651	--	--	7.01	
11/19/2008	--	**6,100**	**15,000**	**0.5**	--	**1.60**	**651**	--	--	**6.83**	

ABBREVIATIONS AND SYMBOLS:

< = Not detected at or above specified laboratory reporting limit
ORP = Oxygen reduction potential
DO = Dissolved oxygen
CO2 = Carbon dioxide
mV = Millivolts
µg/L = Micrograms per liter
mg/L = Milligrams per liter

Figure 1
GRO Concentrations vs. Time
Former ARCO Station #11102
100 MacArthur Boulevard, Oakland, California

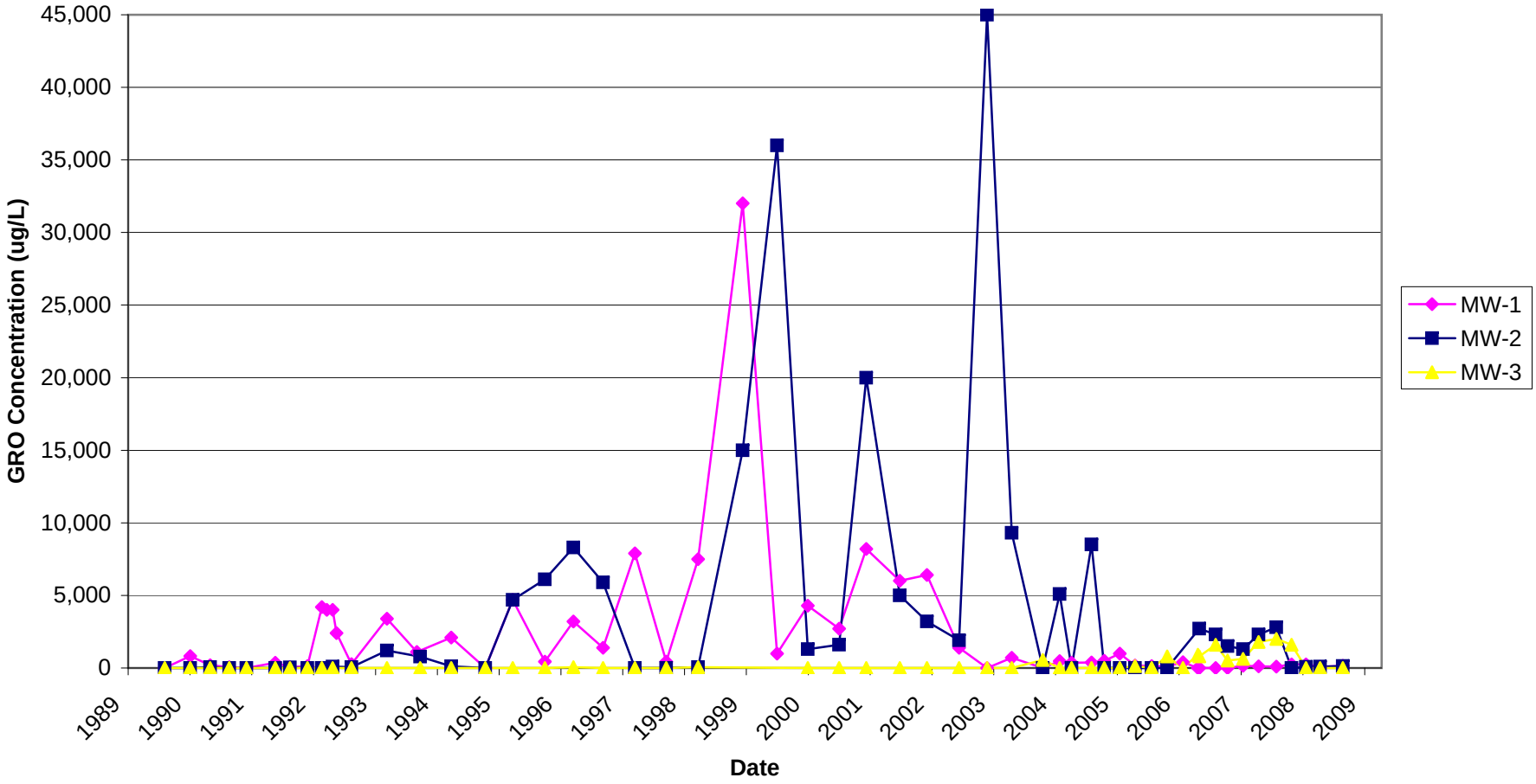


Figure 2
Benzene Concentrations vs. Time
Former ARCO Station #11102
100 MacArthur Boulevard, Oakland, California

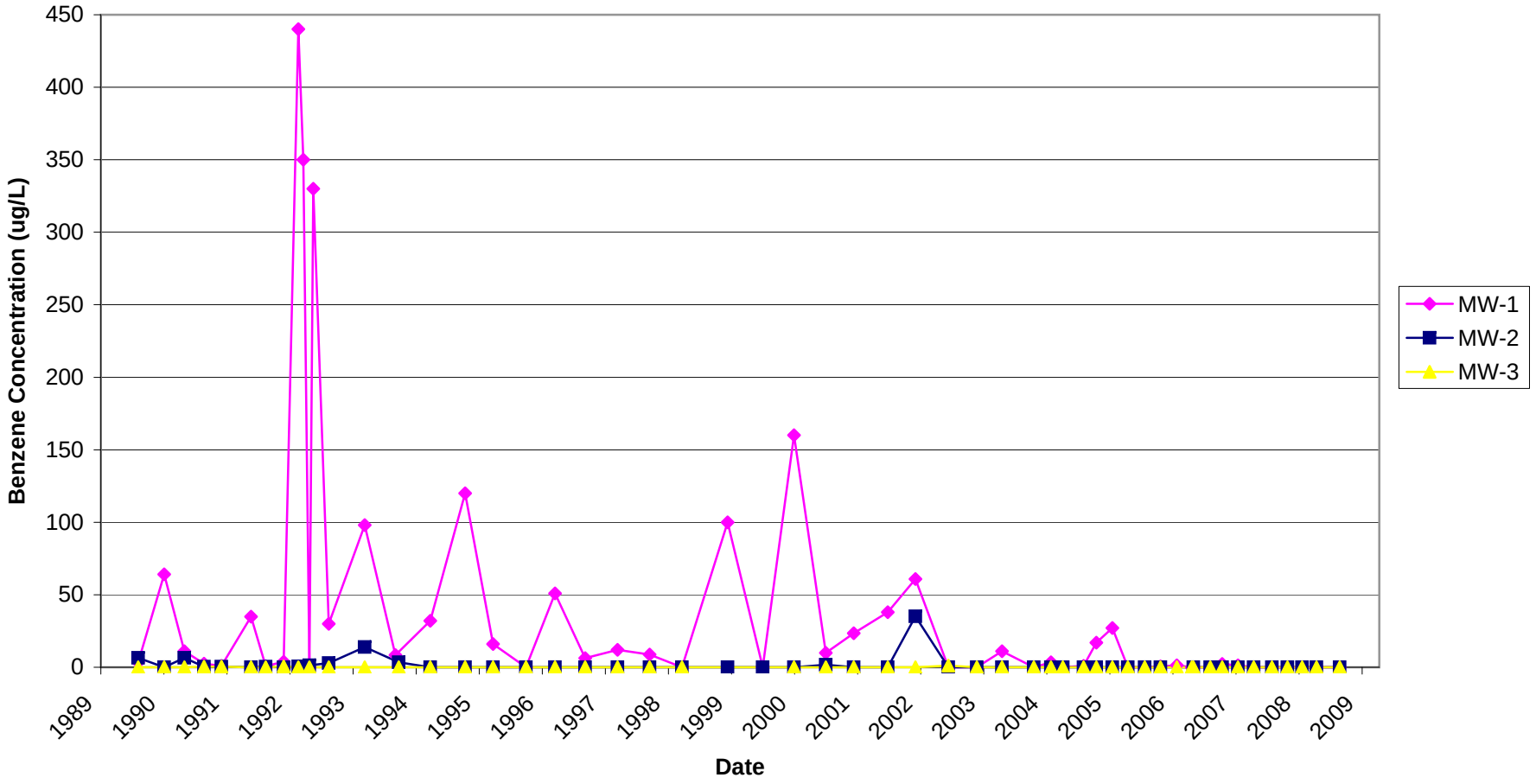
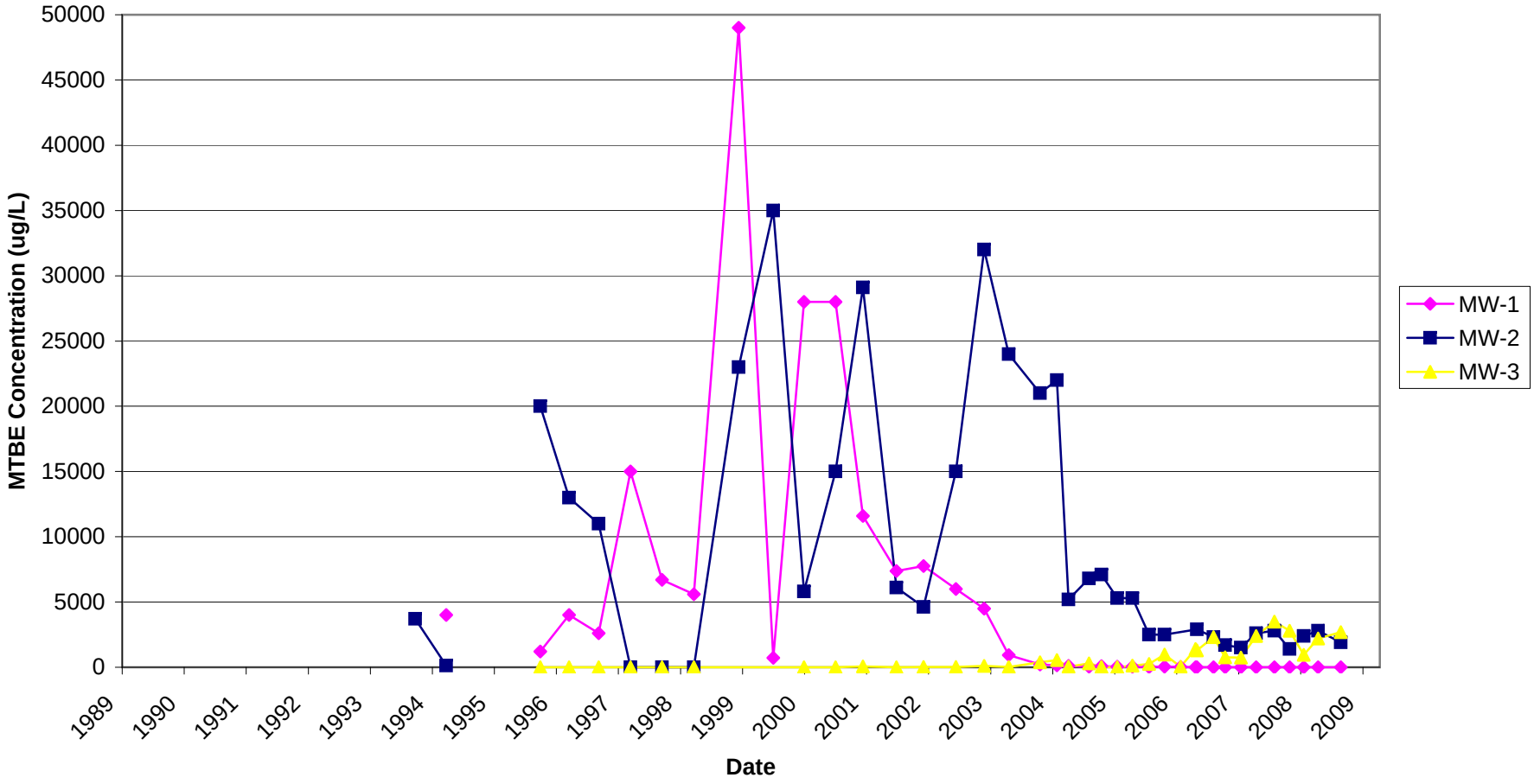


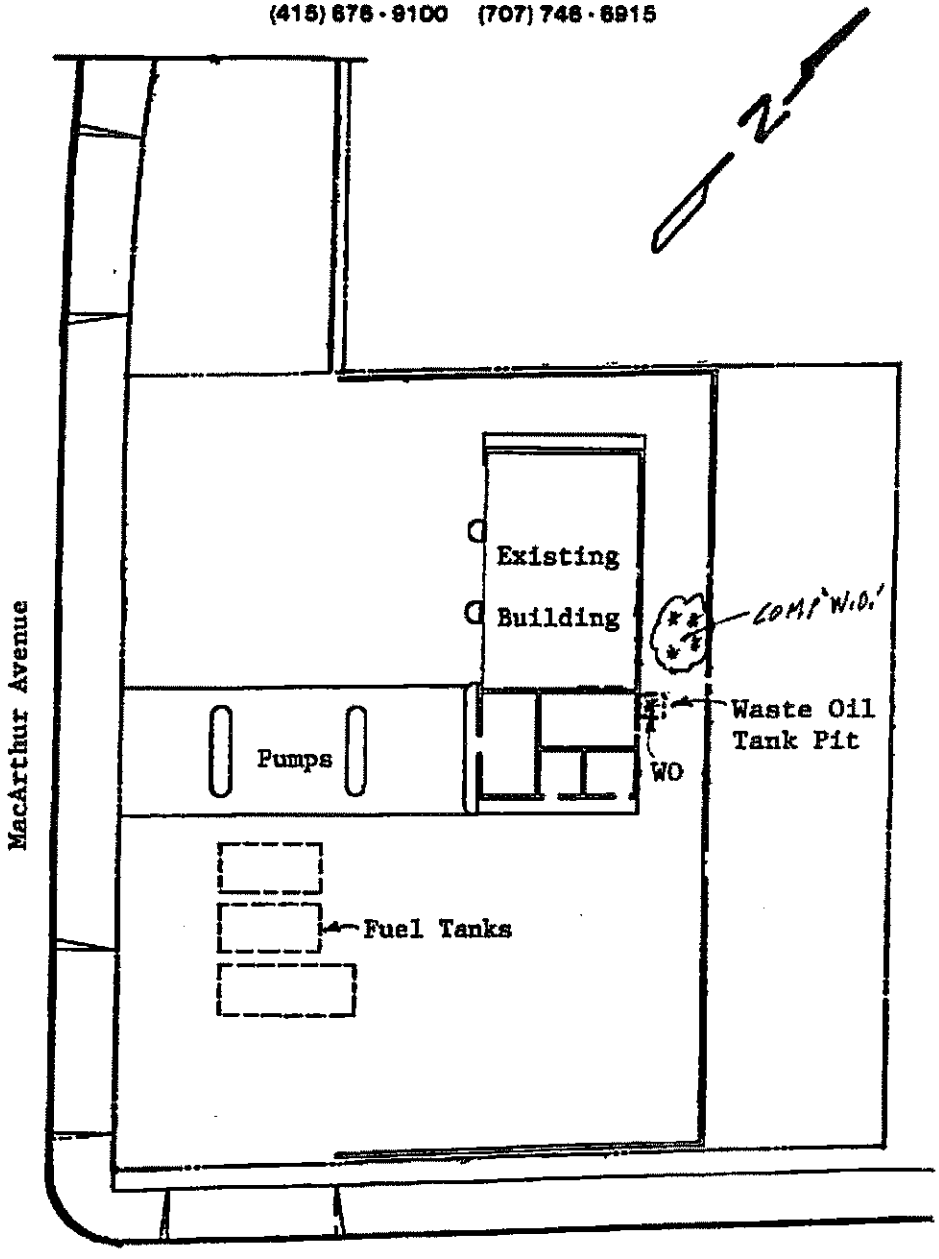
Figure 3
MTBE Concentrations vs. Time
Former ARCO Station #11102
100 MacArthur Boulevard, Oakland, California



APPENDIX A

Historical Soil and Ground-Water Data

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676 - 9100 (707) 746 - 6915



SITE PLAN

soil sample location

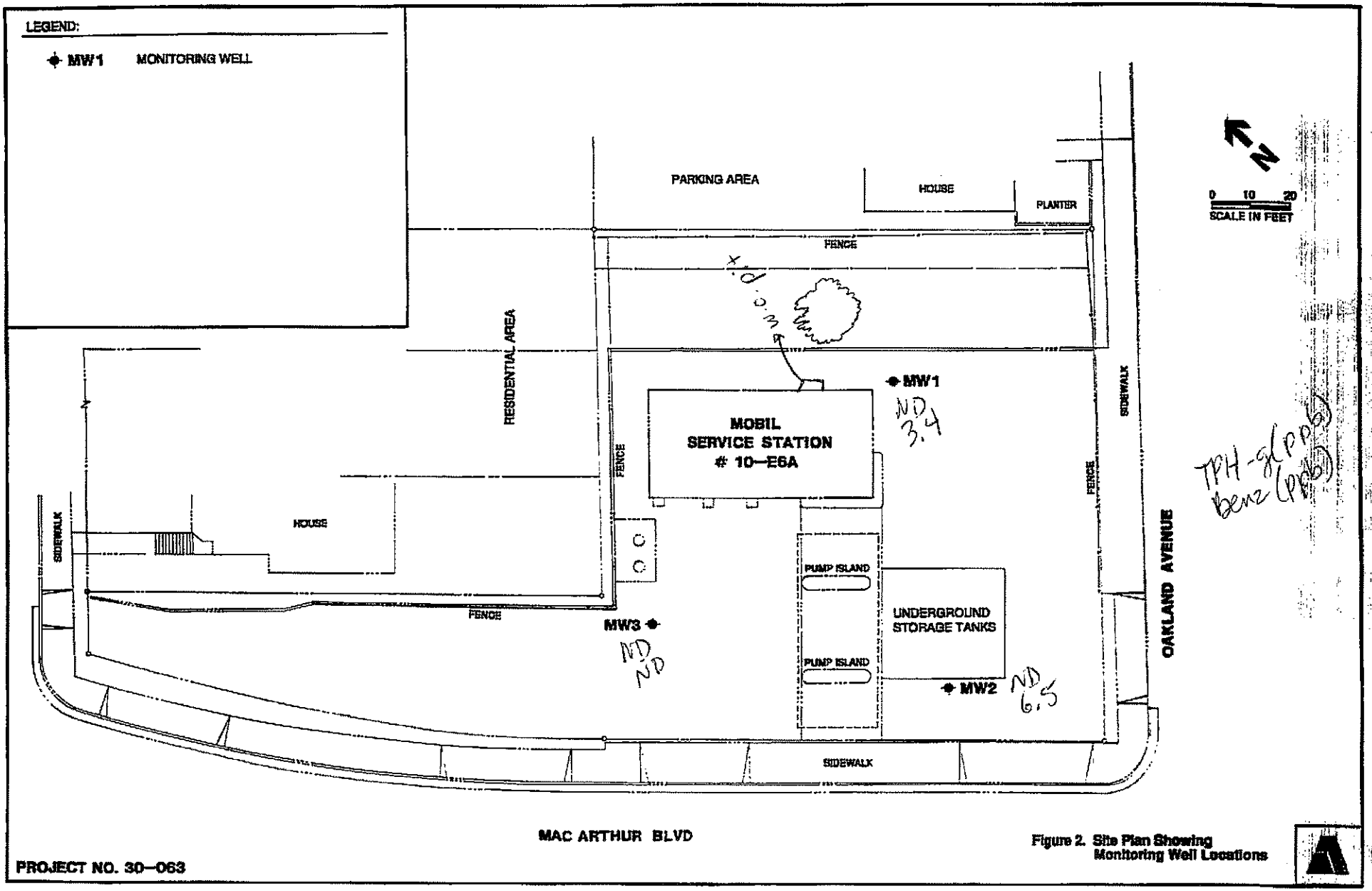
MOBIL SERVICE STATION #10-E6A
100 MacArthur Avenue
Oakland, California

TABLE 1

SUMMARY OF LABORATORY ANALYSES

(all analyses are in parts per million)
(collected September 19, 1988)

Sample #	TPH as Diesel	TOG	EPA 8240
W.O.	2.0	24	<1.0
Comp W.O.	1,700	65,000	--



PROJECT NO. 30—063

Figure 2. Site Plan Showing Monitoring Well Locations

in Table 2. The official Laboratory Reports and Chain of Custody Records are included in Appendix F.

4.2 Water Analysis and Results

Ground water samples collected from Monitoring Wells MW-2 and MW-3 were analyzed for TPH-G and BTEX. Ground water from Monitoring Well MW-1 was analyzed for the same constituents and for halogenated volatile organic compounds (HVOC) and total oil and grease (TOG). The results of the laboratory analyses are presented in Table 3. The official Laboratory Reports and Chain of Custody Record are included in Appendix F.

TABLE 2

RESULTS OF
LABORATORY ANALYSIS OF SOIL SAMPLES

Boring	Depth (Feet)	TOG	TPH-d	B	T	E	X	HVOC
		(Concentrations in parts per billion)						
MW-1	5	ND	ND	ND	ND	ND	ND	ND
	10	ND	ND	ND	ND	ND	ND	ND
	15	ND	ND	ND	ND	ND	ND	ND
MW-2	5	---	ND	6	ND	ND	ND	---
	10	---	ND	8	ND	ND	ND	---
	15	~~ND~~ N/A	ND	ND	ND	ND	ND	---
MW-3	5	---	ND	ND	6	ND	13	---
	10	---	ND	ND	ND	ND	ND	---
	15	---	ND	ND	ND	ND	ND	---

Notes:
TOG = total oil and grease
TPH = total petroleum hydrocarbons
B = benzene
T = toluene
E = ethylbenzene
X = xylenes
HVOC = halogenated volatile organic compounds
ND = not detected; see lab sheets for various detection limits
--- = not analyzed

TABLE 3

RESULTS OF
LABORATORY ANALYSIS OF GROUND WATER SAMPLES

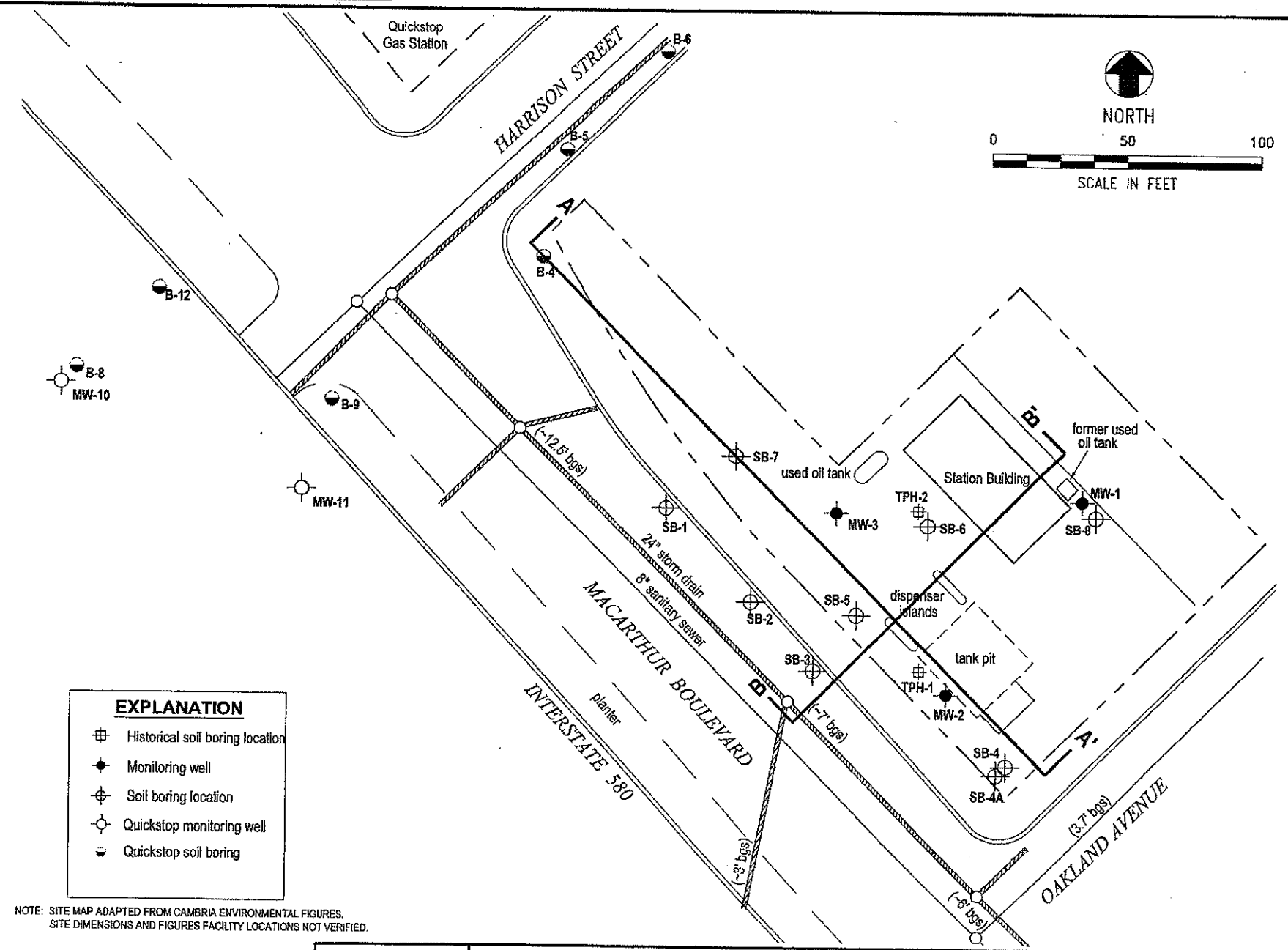
Monitoring Well	TOG	TPH-G	B	T	E	X	HVOC (Concentrations in parts per billion)
MW-1	ND	ND	3.4	0.6	ND	ND	0.9 ~~(DCE)~~ 1,2-DCA
MW-2	---	ND	6.5	ND	ND	ND	---
MW-3	---	ND	ND	ND	ND	ND	---
California Department of Health Services Primary Maximum Contaminant Levels (MCL) or Action Levels for Drinking Water (Concentrations in parts per billion)							
			1.0	100*	680	1,750	1.0 (DCE) *

Notes:
TOG = total oil and grease
HOC = halogenated organic compounds
TPH-G = total petroleum hydrocarbons - gasoline
B = benzene
T = toluene
E = ethylbenzene
X = xylenes
DCE = 1,2-dichloroethane
--- = not analyzed
* = state action level

Sampled 11-10-89

5.0 DISCUSSION OF RESULTS

The results of the laboratory analyses of soil and ground water samples collected during this investigation are discussed below.



NOTE: SITE MAP ADAPTED FROM CAMBRIA ENVIRONMENTAL FIGURES.
SITE DIMENSIONS AND FIGURES FACILITY LOCATIONS NOT VERIFIED.

URS	Project No. 38487349 Former BP Service Station #11102 100 MacArthur Boulevard Oakland, California	SOIL BORING, MONITORING WELL, AND CROSS-SECTION LOCATION MAP	FIGURE 2

Table 1

Soil Analytical Data
Former BP #11102
100 MacArthur Blvd., Oakland, CA

Soil Sample ID	Sample Depth (feet bgs)		Date Sampled	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	TBA (mg/kg)	MTBE (mg/kg)	Lead (mg/kg)
SB-4 (5-5.5')	5	U	07/14/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-4 (9.5-10')	9.5	U	07/14/05	ND<0.50	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.10	**0.37**	NA
SB-4 (14.5-15')	14.5	U	07/14/05	**3.5**	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<5.0	**1.1**	NA
SB-4 (19.5-20')	19.5	U	07/14/05	**3.8**	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<5.0	**2.4**	NA
SB-4 (20-20.5')	20	S	07/14/05	ND<12	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<25	**3.4**	NA
SB-4 (25-25.5')	25	S	07/14/05	ND<25	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<50	**3.5**	NA
SB-4 (29-29.5')	29	S	07/14/05	ND<25	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<50	**3.7**	NA
SB-5 (5-5.5')	5	U	07/14/05	ND<0.099	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-5 (9.5-10')	9.5	U	07/14/05	**0.15**	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-5 (14.5-15')	14.5	U	07/14/05	**0.25**	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-5 (19.5-20')	19.5	U	07/14/05	**61**	ND<0.025	ND<0.025	**0.14**	ND<0.025	ND<5.0	ND<0.025	NA
SB-5 (29-29.5')	29	S	07/14/05	**0.10**	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	**0.053**	**0.65**	NA
SB-6 5-5.5'	5	U	07/13/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-6 8.5-9'	8.5	S	07/13/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-6 9.5-10'	9.5	U	07/13/05	**0.14**	ND<0.0048	ND<0.0048	ND<0.0048	ND<0.0048	ND<0.019	ND<0.0048	**5.2**
SB-6 14.5-15'	14.5	S	07/13/05	ND<0.097	ND<0.0048	ND<0.0048	ND<0.0048	**0.0082**	ND<0.019	ND<0.0048	NA
SB-6 16.5-17'	16.5	S	07/13/05	ND<0.098	ND<0.0049	ND<0.0049	ND<0.0049	**0.0054**	ND<0.020	ND<0.0049	NA
SB-6 19.5-20'	19.5	S	07/13/05	ND<0.50	ND<0.025	ND<0.025	ND<0.025	ND<0.025	**0.13**	**0.15**	NA
SB-6 27.5-28'	27.5	S	07/13/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA

Table 1

Soil Analytical Data
Former BP #11102
100 MacArthur Blvd., Oakland, CA

Soil Sample ID	Sample Depth (feet bgs)		Date Sampled	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	TBA (mg/kg)	MTBE (mg/kg)	Lead (mg/kg)
SB-7 (2-2.5')	2	U	07/14/05	**1,300**	ND<1.0	ND<1.0	**3.0**	**3.0**	ND<100	ND<0.50	NA
SB-7 (5-5.5')	5	U	07/14/05	**730**	ND<1.0	ND<1.0	**2.4**	**3.9**	ND<100	ND<0.50	NA
SB-7 (9.5-10')	9.5	U	07/14/05	**340**	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<250	ND<1.2	NA
SB-7 (14.5-15')	14.5	U	07/14/05	**0.11**	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-7 (19.5-20')	19.5	U	07/14/05	ND<0.099	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-7(25.5-26')	25.5	U	07/14/05	ND<0.099	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-7 (28.5-29')	28.5	S	07/14/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-7 (30.5-31')	30.5	S	07/14/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-8 5-5.5'	5	U	07/13/05	ND<0.099	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-8 7-7.5'	7	S	07/13/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-8 9.5-10'	9.5	U	07/13/05	ND<0.099	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-8 11-11.5'	11	S	07/13/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-8 14.5-15	14.5	S	07/13/05	ND<0.099	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-8 17.5-18'	17.5	S	07/13/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	NA
SB-8 19.5-20'	19.5	S	07/13/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	**0.066**	NA
SB-8 20.5-21'	20.5	S	07/13/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	**0.022**	NA

Notes: All Samples analyzed by EPA Method 8260B. Tertiary amyl methyl ether, di-isopropyl ether, 1,2-dibromoethane, 1,2-dichloroethane, ethyl tertiary butyl ether, and ethanol were not detected at or above their respective laboratory reporting limit.
Total lead analyzed by EPA Method 6000/7000 series for soil disposal purposes.

S = Saturated soil sample
U = Unsaturated soil sample
bgs = below ground surface
GRO = Gasoline range organics
TBA = tert-butyl alcohol
MTBE = Methyl tert-butyl ether
mg/kg = milligrams per kilogram
ND< = Not detected at or above stated laboratory reporting limit
NA = Not analyzed

Table 1

Soil Analytical Data
Former BP #11102
100 MacArthur Blvd., Oakland, CA

Soil Sample ID	Sample Depth (feet bgs)		Date Sampled	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	TBA (mg/kg)	MTBE (mg/kg)	TAME (mg/kg)	Lead (mg/kg)
SB-4 (5-5.5')	5	U	07/14/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	ND<0.0050	ND<0.0050	NA
SB-4 (9.5-10')	9.5	U	07/14/05	ND<0.50	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.10	**0.37**	ND<0.025	NA
SB-4 (14.5-15')	14.5	U	07/14/05	**3.5**	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<5.0	**1.10**	ND<0.050	NA
SB-4 (19.5-20')	19.5	U	07/14/05	**3.8**	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<5.0	**2.4**	ND<0.050	NA
SB-4 (20-20.5')	20	S	07/14/05	ND<12	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<25	**3.4**	ND<0.25	NA
SB-4 (25-25.5')	25	S	07/14/05	ND<25	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<50	**3.5**	ND<0.50	NA
SB-4 (29-29.5')	29	S	07/14/05	ND<25	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<50	**3.7**	ND<0.50	NA
SB-4A-6	6	U	10/07/05	ND<0.25	ND<0.012	ND<0.012	ND<0.012	ND<0.012	ND<0.050	**0.073**	ND<0.012	NA
SB-4A-10	10	U	10/07/05	ND<2.5	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<5.0	**0.20**	ND<0.025	NA
SB-4A@20'	20	U	10/07/05	ND<5.0	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<10	**5.0**	**0.12**	NA
SB-4A-25'	25	s	10/07/05	ND<2.5	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<5.0	**0.84**	ND<0.025	NA
SB-4A-30'	30	s	10/07/05	ND<0.010	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	**0.024**	ND<0.0050	NA
SB-4A@35'	35	s	10/07/05	ND<0.10	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.020	**0.057**	ND<0.0050	NA

Notes: All Samples analyzed by EPA Method 8260B. Di-isopropyl ether, 1,2-dibromoethane, 1,2-dichloroethane, ethyl tertiary butyl ether, and ethanol were not detected at or above their respective laboratory reporting limit.
Total lead analyzed by EPA Method 6000/7000 series for soil disposal purposes.

S = Saturated soil sample
U = Unsaturated soil sample
bgs = below ground surface
GRO = Gasoline range organics
TBA = tert-butyl alcohol
MTBE = Methyl tert-butyl ether
mg/kg = milligrams per kilogram
ND< = Not detected at or above stated laboratory reporting limit
NA = Not analyzed

Table 2

Soil Boring Groundwater Analytical Data
Former BP #11102
100 MacArthur Blvd., Oakland, CA

Hydropunch® Sample ID	Sample Depth (feet bgs)	Date Sampled	GRO ~~(mg/kg)~~ µg/L	Benzene ~~(mg/kg)~~ µg/L	Toluene ~~(mg/kg)~~ µg/L	Ethylbenzene (mg/kg) µg/L	Xylenes ~~(mg/kg)~~ µg/L	TBA ~~(mg/kg)~~ µg/L	MTBE ~~(mg/kg)~~ µg/L	TAME ~~(mg/kg)~~ µg/L	Lead (mg/kg)
SB-4A	24	10/07/05	**3000**	ND<25	ND<25	ND<25	ND<25	**5700**	**4500**	**110**	NA

Notes: All Samples analyzed by EPA Method 8260B. Di-isopropyl ether, 1,2-dibromoethane, 1,2-dichloroethane, ethyl tertiary butyl ether, and ethanol were not detected at or above their respective laboratory reporting limit.
Total lead analyzed by EPA Method 6000/7000 series for soil disposal purposes.

bgs = below ground surface
GRO = Gasoline range organics
TBA = tert-butyl alcohol
MTBE = Methyl tert-butyl ether
mg/kg = milligrams per kilogram
ND< = Not detected at or above stated laboratory reporting limit
NA = Not analyzed

APPENDIX B

Soil Boring and Well Construction Logs

ALTON GEOSCIENCE
BORING LOG

PROJECT: 30-063 BORING DATE: 10-26-89

LOCATION: 100 MacArthur Boulevard, Oakland GEOLOGIST: M. Hopwood

TYPE: 10" HSA BORING NO.: MW-1

DRILLING COMPANY: Bay Area Exploration

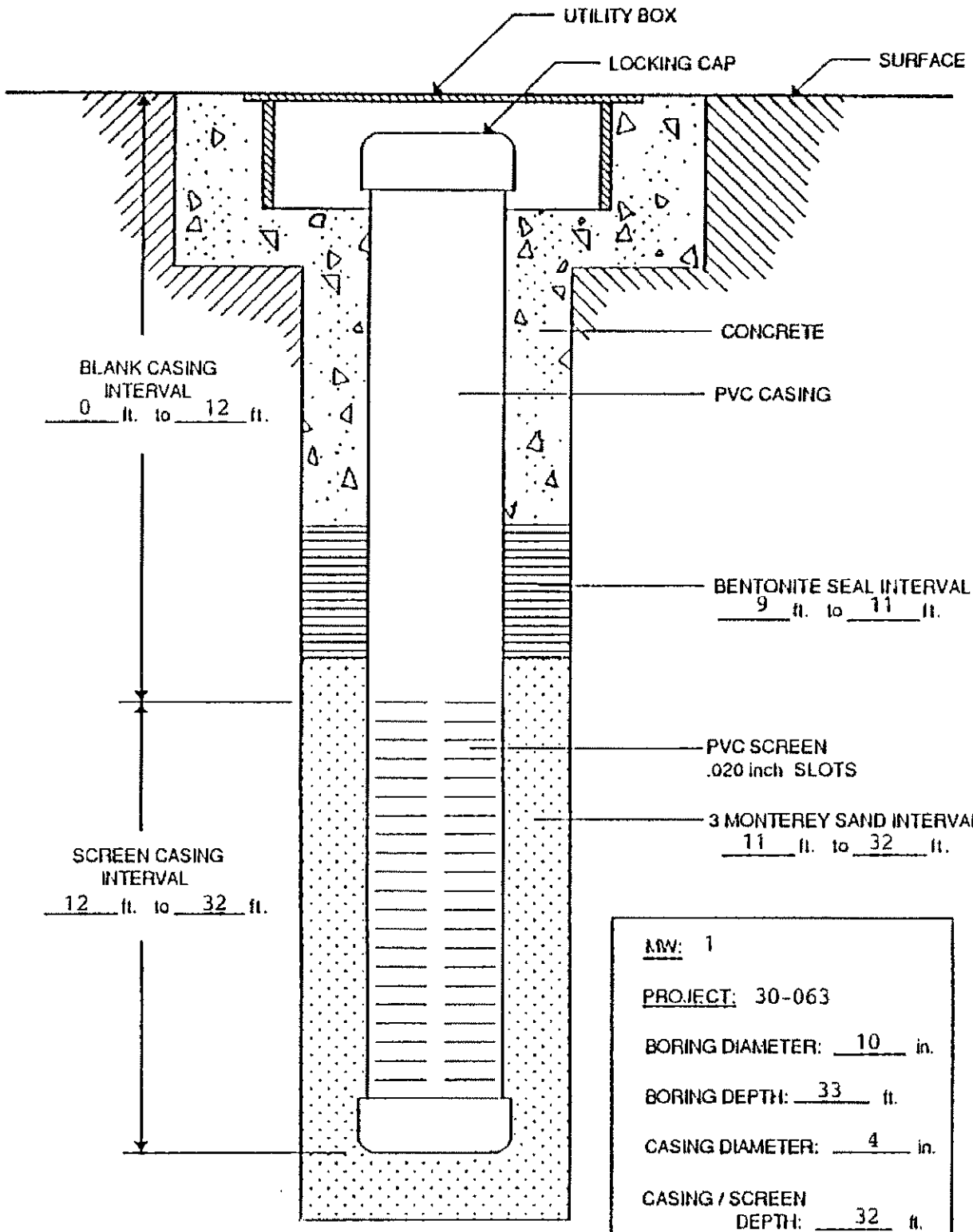
DEPTH (FEET)	I	BLOW CTS	MATERIAL ENCOUNTERED	USCS
			Asphalt Over Road Base Loose, dry, tan to orange, gravelly SAND.	GP
5		5,14,16	Loose, damp, tan to orange, gravelly SAND; wood fragments. CGI = ND.	GP
10		6,10,13	Loose, damp, tan to light brown, clayey SAND; poorly sorted. CGI = ND.	SC
15		8,8,25	Loose, very moist, tan to light brown, clayey SAND; some iron staining.	SC
▽ 20		9,9,12	Loose, saturated, tan to brown, gravelly SAND, with clay. CGI = ND.	GC
25				
30			Medium stiff, moist, tan CLAY.	CL
35			Total Depth = 32 Feet	
40				

TPH = Total Petroleum Hydrocarbons
TRPH = Total Recoverable Petroleum Hydrocarbons
▽ = Ground Water Piezometric Surface
ND = Not Detected
CGI = Combustible Gas Indicator

++ = Sample Analyzed for Hydrocarbon Concentration
I = Sampling Interval
ppm = Parts per Million
LEL = Lower Explosive Limit

B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylene
Total Depth = 32 Feet

MONITORING WELL CONSTRUCTION DETAIL



MW: 1

PROJECT: 30-063

BORING DIAMETER: 10 in.

BORING DEPTH: 33 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

ALTON GEOSCIENCE
BORING LOG

PROJECT: 30-063 BORING DATE: 10-25-89

LOCATION: 100 MacArthur Boulevard, Oakland GEOLOGIST: M. Hopwood

TYPE: 10" HSA BORING NO.: MW-2

DRILLING COMPANY: Bay Area Exploration

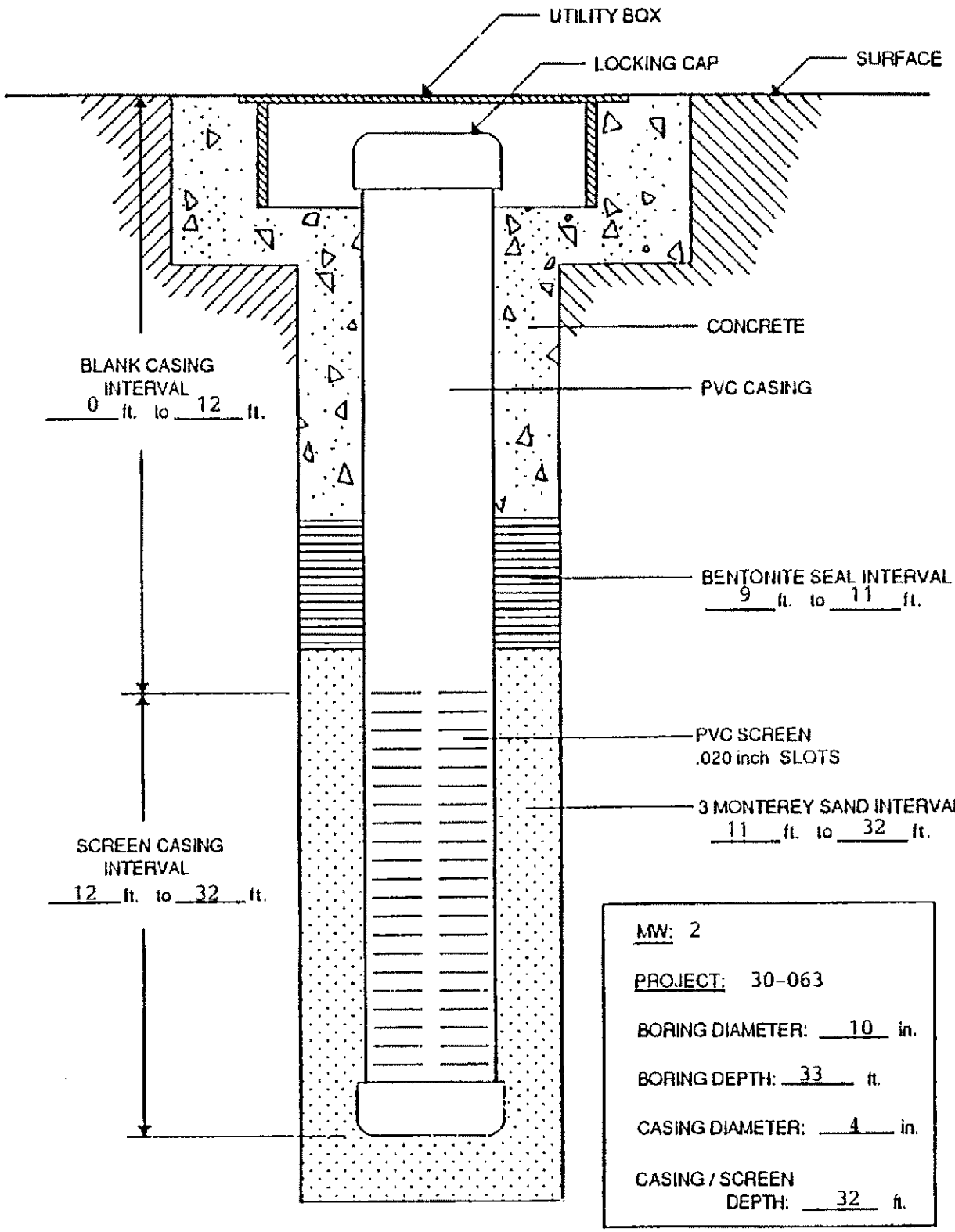
DEPTH (FEET)	I	BLOW CTS	MATERIAL ENCOUNTERED	USCS
0			Asphalt Over Road Base Very loose, damp, dark brown, silty CLAY.	CL
5		3,4,7	Loose, damp, greenish gray, silty CLAY with some coarse sand; very slight odor. CGI = 75 ppm.	
10		2,4,6	Medium stiff, damp, tan, sandy SILTY/CLAY. CGI = ND.	CL
15 ▽		5,7,12	Moderately stiff, damp, tan, clayey SILT.	ML
20				
25			Stiff, damp, gray, silty CLAY; iron stains; calcite stringers.	CL
30				
35			Total Depth - 32 Feet	
40				

TPH = Total Petroleum Hydrocarbons
TRPH = Total Recoverable Petroleum Hydrocarbons
▽ = Ground Water Piezometric Surface
ND = Not Detected
CGI = Combustible Gas Indicator

++ = Sample Analyzed for Hydrocarbon Concentration
I = Sampling Interval
ppm = Parts per Million
LEL = Lower Explosive Limit

B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylene
Total Depth = 32 Feet

MONITORING WELL CONSTRUCTION DETAIL



MW: 2

PROJECT: 30-063

BORING DIAMETER: 10 in.

BORING DEPTH: 33 ft.

CASING DIAMETER: 4 in.

CASING / SCREEN DEPTH: 32 ft.

NOTE: DRAWING IS NOT TO SCALE

ALTON GEOSCIENCE
16510 ASTON ST.
IRVINE, CA 92714

ALTON GEOSCIENCE
BORING LOG

PROJECT: 30-063 BORING DATE: 10-26-89

LOCATION: 100 MacArthur Boulevard, Oakland GEOLOGIST: M. Hopwood

TYPE: 10" HSA BORING NO.: MW-3

DRILLING COMPANY: Bay Area Explored

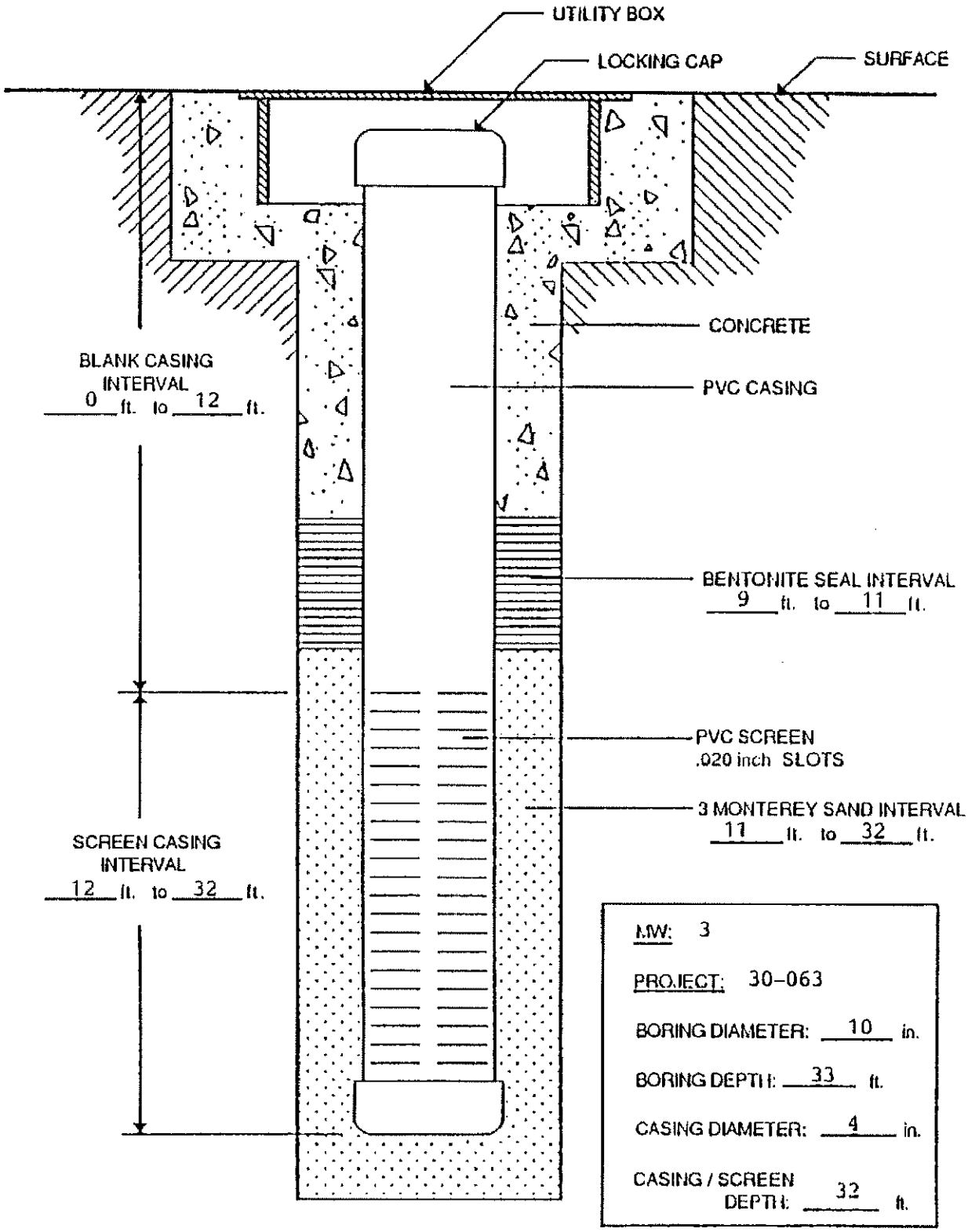
DEPTH (FEET)	I	BLOW CTS	MATERIAL ENCOUNTERED	USCS
0			Asphalt Over Road Base Loose, dry, tan to orange, gravelly SAND.	GP
5		7,11,14	Moderately stiff, damp, tan to gray/green, silty CLAY, with gravel; some iron staining.	CL
10		3,5,6		
			Moderately soft, damp, brown, silty CLAY.	CL
15 ▼		6,8,13		
			Moderately loose, damp, tan to brown, sandy CLAY.	CL
20				
			Soft, moist, tan CLAY. Becomes silty.	CL
25				
30				
			Total Depth - 32 Feet	
35				
40				

TPH = Total Petroleum Hydrocarbons
TRPH = Total Recoverable Petroleum Hydrocarbons
▽ = Ground Water Piezometric Surface
ND = Not Detected
CGI = Combustible Gas Indicator

++ = Sample Analyzed for Hydrocarbon Concentration
I = Sampling Interval
ppm = Parts per Million
LEL = Lower Explosive Limit

B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylene
Total Depth = 32 Feet

MONITORING WELL CONSTRUCTION DETAIL



MW: 3

PROJECT: 30-063

BORING DIAMETER: 10 in.

BORING DEPTH: 33 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

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: SB-4

Total Depth: 32 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP #11102 Soil and Water Investigation	**Drilling Company:** Gregg Drilling & Testing
Site Location: 100 MacArthur Blvd, Oakland, CA	**Driller:** Jesse Pattison
Project Manager: Lynelle Onishi	**Type of Drilling Rig:** Marl M2.5 DP
RG: John McCain	**Drilling Method:** Direct Push
Geologist: John McCain	**Sampling Method:** Continuous Macro-Core with acetate sleeve.
Job Number: 38487349.0A034	**Date(s) Drilled:** 07/14/05

BORING INFORMATION

Groundwater Depth: 20 ft bgs	**Boring Location:** SE corner of site
Air Knife or Hand Auger Depth: 5.0 feet bgs/Hand Auger	**Boring Diameter:** 2-inch
Coordinates: X Y	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample ID	Recovery	Comments
0		AC/Baserock: AC cover (6") with baserock (3") beneath	FILL				
2		SILTY SANDY CLAY w/ GRAVEL: FILL, black (10YR 2/1), 75% clay, 15% sand, 5% silt, 5% gravel, fine to coarse sands, trace angular gravel and brick fragments to 2" diameter, soft, moist, med. plasticity, no petroleum odor			Borehole grouted to grade with neat Portland cement		
4		SILTY SANDY CLAY: dark brown (10YR 3/3), 75% clay, 15% sand, 5% silt, 5% gravel, fine to coarse sands, trace sub-angular gravel to 0.5" diameter, soft, moist, med. plasticity, no petroleum odor	CL	0	SB-4 (5-5.5')		
6		@ 6' - same as above, no gravel, no petroleum odor					
8							
10		@ 10' - Silty Sandy Clay continues, reddish-brown, (5YR 5/4), 70% clay, 10% silt, 10% sand, 5% gravel, fine to coarse sands, trace sub-rounded gravels to 0.25", moist, med. stiff, no petroleum odor		0.2	SB-4 (9.5-10')		
12							
14							
16		@ 15' - Silty Sandy Clay continues, dark reddish gray (2.5YR 4/2), 80% clay, 10% silt, 10% sand, no gravels, fine sands, moist, med. stiff, no petroleum odor		0.2	SB-4 (14.5-15')		
18							
20				1.9	SB-4 (19.5-20')		▽
22		SILTY SAND: brown (7.5YR 5/3), 90% sand, 10% silt, fine sands, loose, wet, no petroleum odor	SM	9.6	SB-4 (20-20.5')		
24		SILTY SANDY CLAY: brown (7.5YR 5/3), 70% clay, 15% silt, 15% sand, fine sands, med. stiff, moist to wet, no petroleum odor, med. plasticity	CL				

URS

LOG OF BORING

Borehole ID: SB-4

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
26		@ 25' - Silty Sandy Clay (CL) continues, light brown (7.5YR 6/3), 70% clay, 15% silt, 15% sand, med. stiff, moist to wet, no petroleum odor @ 26' - Silty Sandy Clay continues, color change to gray (Gley 1 5/10Y) at 26', no petroleum odor		0.5	SB-4 (25-25.5')		
28							
30		SILTY SAND: brown (7.5YR 5/3), 90%sand, 10%silt, fine sands, loose, wet, no petroleum odor	SM	0.5	SB-4 (29-29.5')		
		SILTY SANDY CLAY: gray (Gley 1 5/10Y), 70% clay, 15% silt, 15% sand, fine sands, stiff, moist, no petroleum odor, med. plasticity	CL				
32		SILTY SAND: brown (7.5YR 5/3), 90% sand, 10% silt, fine sands, loose, wet, no petroleum odor	SM				
		SILTY SANDY CLAY: gray (Gley 1 5/10Y), 70% clay, 15% silt, 15% sand, fine sands, stiff, moist, no petroleum odor, med. plasticity	CL				
34		lost sample at 31.5-32' when cutting acetate liner; no sample Bottom of Boring= 32' bgs Depth discrete groundwater samples were attempted within a boring 1 foot laterally from this location and were not successful.					
36							

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: SB-5

Total Depth: 32 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP #11102 Soil and Water Investigation	**Drilling Company:** Gregg Drilling & Testing
Site Location: 100 MacArthur Blvd, Oakland, CA	**Driller:** Jesse Pattison
Project Manager: Lynelle Onishi	**Type of Drilling Rig:** Marl M2.5 DP
RG: John McCain	**Drilling Method:** Direct Push
Geologist: John McCain	**Sampling Method:** Continuous Macro-Core with acetate sleeve.
Job Number: 38487349.0A034	**Date(s) Drilled:** 07/14/05

BORING INFORMATION

Groundwater Depth: 29 ft bgs	**Boring Location:** Southwest of dispenser islands
Air Knife or Hand Auger Depth: 5.0 feet bgs/Hand Auger	**Boring Diameter:** 2-inch
Coordinates: X Y	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample ID	Recovery	Comments
0		AC/Baserock: AC cover (6") with baserock (2") beneath	FILL				
2		SANDY CLAY: FILL, black (Gley 1 2.5/N), 80% clay, 15% sand, 5% gravel, fine to coarse sands, trace angular gravels to 0.25" diameter, soft, moist, low plasticity, no petroleum odor @ 2' - Sandy Clay FILL continues, greenish gray (Gley 1 5/5GY), 85% clay, 15% sand, soft, moist, low plasticity, no petroleum odor			Borehole grouted to grade with neat Portland cement		
4		@ 5' - same as above, gray (Gley 2 4/5BG), angular gravels and concrete fragments to 3" diameter, soft, moist, slight petroleum odor					
6		SILTY SANDY CLAY: brown (7.5YR 5/4), 75% clay, 10% sand, 10% silt, 5% gravel, fine sands, trace sub-rounded gravels to 0.25", med. stiff, moist, med. plasticity, no petroleum odor	CL	0.0	SB-5 (5-5.5')		
8							
10		@ 10' - Silty Sandy Clay continues, brown (7.5YR 5/4), 75% clay, 10%silt, 10% sand, 5% gravel, trace angular gravel to 0.25" diameter, med. stiff, moist, med. plasticity, no petroleum odor		0.1	SB-5 (9.5-10')		
12							
14							
16		@ 15' - Silty Sandy Clay continues, brown (7.5YR 5/3), 75% clay, 10%silt, 10% sand, 5% gravel, trace angular gravel to 0.25" diameter, med. stiff, moist, med. plasticity, no petroleum odor		0.4	SB-5 (14.5-15')		
18							
20		@ 20' - Silty Sandy Clay continues, light olive brown (2.5YR 5/4), 80% clay, 10% silt, 10% sand, med. stiff, moist, med. plasticity, slight petroleum odor		40.9	SB-5 (19.5-20')		
22							
24							

URS

LOG OF BORING

Borehole ID: SB-5

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
26		@ 25' - Silty Sandy Clay (CL) continues, brown (7.5YR 5/3), 78% clay, 10%silt, 10% sand, 2% gravel, trace gravel to 0.25" diameter, med. stiff, moist, med. plasticity, no petroleum odor					
28							
30		SILTY SAND: brown (7.5YR 5/3), 85% sand, 10% silt, 5% clay, fine to coarse sands, loose, wet, no petroleum odor	SM	0.4	SB-5 (29-29.5')		⊠
		SILTY SANDY CLAY: brown (7.5YR 5/3), 85% clay, 10% silt, 5% sand, fine to coarse sands, stiff, moist, med. plasticity, no petroleum odor	CL				
32		Bottom of Boring= 32' bgs					
34		Depth discrete groundwater samples were attempted within a boring 1 foot laterally from this location and were not successful.					

URS 1333 Broadway, Suite 800 Oakland, California 94612

LOG OF BORING

Borehole ID: SB-6

Total Depth: 28 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP #11102 Soil and Water Investigation	**Drilling Company:** Gregg Drilling & Testing
Site Location: 100 MacArthur Blvd, Oakland, CA	**Driller:** Jesse Pattison
Project Manager: Lynelle Onishi	**Type of Drilling Rig:** Marl M2.5 DP
RG: John McCain	**Drilling Method:** Direct Push
Geologist: John McCain	**Sampling Method:** Continuous Macro-Core with acetate sleeve.
Job Number: 38487349.0A034	**Date(s) Drilled:** 07/13/05

BORING INFORMATION

Groundwater Depth: 8.5 ft bgs	**Boring Location:** Between station building and dispensers
Air Knife or Hand Auger Depth: 5.0 feet bgs/Hand Auger	**Boring Diameter:** 2-inch
Coordinates: X Y	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample ID	Recovery	Comments
0		AC/Baserock: AC cover (3") with baserock (4") beneath	FILL				
2		SILTY SAND: FILL, red (2.5YR 5/6), 85% sand, 10% silt, 5% gravel, fine sands, trace angular gravels to 0.25" diameter, loose, moist, no petroleum odor			Borehole grouted to grade with neat Portland cement		
4							
6				0	SB-6 (6-6.5')		
8		@ 7' - Silty Sand continues, same color as above, angular gravels to 0.5" diameter, loose, moist, no petroleum odor @ 8.5' - Silty Sand continues, red (2.5YR 5/6), loose, wet at 8.5', petroleum odor		289	SB-6 (8.5-9')		⊠
10		SILTY SANDY CLAY: dark grayish brown (10YR 4/2), 75% clay, 15% sand, 15% silt, 5%, fine sands, med. stiff, moist, no petroleum odor	CL	0.9	SB-6 (9.5-10')		
12							
14							
16		SILTY CLAYEY SAND: brown (10YR 5/3), 75% sand, 10% silt, 10% clay, 5% gravels, fine to coarse sands, angular gravels to 0.25", loose, wet, no petroleum odor	SM	0.4	SB-6 (14.5-15')		
18		SILTY SANDY CLAY: dark yellowish brown (10YR 4/4), 80% clay, 10% silt, 10% sand, fine to coarse sands, med. stiff, moist, no petroleum odor, med. plasticity	CL	0.6	SB-6 (16.5-17')		
20		@ 20' - Silty Sandy Clay continues, yellowish brown (10YR 5/4), trace angular gravel to 0.25" diameter, med. stiff, moist, no odor		0.0	SB-6 (19.5-20')		
22		no recovery from 20 - 24' push, soil in shoe @ 24'- Silty Sandy Clay continues, yellowish brown (10YR 5/4), fine to coarse sands, med. stiff, med. plasticity, slight petroleum odor					
24							

URS

LOG OF BORING

Borehole ID: SB-6

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
26		Silty Sandy Clay (CL) continues, grayish brown (10YR 5/2), fine sands, stiff, med. plasticity, no petroleum odor		0.0	SB-6 (27.5-28')		
28		Bottom of Boring= 28' bgs Depth discrete groundwater samples were attempted within a boring 1 foot laterally from this location and were not successful.					
30							
32							

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: SB-7

Total Depth: 32 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP #11102 Soil and Water Investigation	**Drilling Company:** Gregg Drilling & Testing
Site Location: 100 MacArthur Blvd, Oakland, CA	**Driller:** Jesse Pattison
Project Manager: Lynelle Onishi	**Type of Drilling Rig:** Merl M2.5 DP
RG: John McCain	**Drilling Method:** Direct Push
Geologist: John McCain	**Sampling Method:** Continuous Macro-Core with acetate sleeve.
Job Number: 38487349.0A034	**Date(s) Drilled:** 07/14/05

BORING INFORMATION	
Groundwater Depth: 28.5 ft bgs	**Boring Location:** Southwest of used oil UST
Air Knife or Hand Auger Depth: 5.0 feet bgs/Hand Auger	**Boring Diameter:** 2-inch
Coordinates: X Y	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample ID	Recovery	Comments
0		AC/Baserock: AC cover (4") with baserock (2") beneath	FILL				
2		SILTY CLAYEY SAND: FILL, very dark gray brown (Gley 1 3/10Y), 80% sand, 7.5% silt, 7.5% clay, 5% gravel, fine sands, trace angular gravels to 0.25" diameter, loose, moist to wet, petroleum odor		688	SB-7 (2-2.5')		
4		SILTY SANDY CLAY: FILL, dark gray brown (Gley 1 3/10Y), 70% clay, 15% sand, 10% silt, 5% gravels, fine sands, soft, moist to wet, med. plasticity, petroleum odor		429	SB-7 (5-5.5')		
6							
8		SILTY SANDY CLAY: light olive brown (2.5Y 5/3), 85% clay, 10% silt, 5% sand, fine sands, stiff, moist, med. plasticity, no petroleum odor	CL				
10		@ 10' - Sandy Silty Clay continues, 80% clay, 10% silt, 10% sand, same color as above, stiff, moist, med. plasticity, no petroleum odor		7.5	SB-7 (9.5-10')		
12							
14		SANDY CLAYEY SILT: olive brown (2.5Y 4/3), 80% silt, 10% clay, 10% sand, fine sands, stiff, moist, low plasticity, no petroleum odor	ML	1.6	SB-7 (14.5-15')		
16					SB-7 (18.5-17')		
18							
20		@ 20' - Sandy Clayey Silt continues, light olive brown (2.5Y 5/4), 80% silt, 10% clay, 10% sand, very stiff, moist, low plasticity, no petroleum odor		0.5	SB-7 (19.5-20')		
22							
24							

URS

LOG OF BORING

Borehole ID: SB-7

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
26		@ 24.5' - Sandy Clayey Silt continues, light olive brown (2.5Y 5/4), 80% silt, 10% clay, 10% sand, very stiff, moist, low plasticity, no petroleum odor					
		SILTY SAND: brown (2.5Y 4/3), 90% sand, 10% silt, fine sands, loose, moist to wet, no petroleum odor	SM	4.2	SB-7 (25.5-26')		
28		SILTY SANDY CLAY: olive brown (2.5Y 4/3), 80% clay, 10% silt, 10% sand, fine sands, med. stiff, moist, med. plasticity, no petroleum odor	CL				
		SILTY SAND: brown (2.5Y 5/4), 90% sand, 10% silt, fine sands, loose, wet, no petroleum odor	SM	0.1	SB-7 (28.5-29')		▽
30		SILTY SANDY CLAY: brown (2.5Y 4/3), 80% clay, 10% silt, 10% sand, fine sands, med. stiff, moist, med. plasticity, no petroleum odor	CL	0.1	SB-7 (30.5-31')		
32		Bottom of Boring= 32' bgs Depth discrete groundwater samples were attempted within a boring 1 foot laterally from this location and were not successful.			Borehole grouted to grade with neat Portland cement		
34							

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: SB-8

Total Depth: 28 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP #11102 Soil and Water Investigation	**Drilling Company:** Gregg Drilling & Testing
Site Location: 100 MacArthur Blvd, Oakland, CA	**Driller:** Jesse Pattison
Project Manager: Lynelle Onishi	**Type of Drilling Rig:** Marl M2.5 DP
RG: John McCain	**Drilling Method:** Direct Push
Geologist: John McCain	**Sampling Method:** Continuous Macro-Core with acetate sleeve.
Job Number: 38487349.0A034	**Date(s) Drilled:** 07/13/05

BORING INFORMATION

Groundwater Depth: 7 ft bgs	**Boring Location:** East of MW-1
Air Knife or Hand Auger Depth: 5.0 feet bgs/Hand Auger	**Boring Diameter:** 2-inch
Coordinates: X Y	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample ID	Recovery	Comments
0		AC/Baserock: AC cover (4") with baserock (2") beneath	FILL				
2		SILTY GRAVELY SAND: FILL, olive (5YR 4/4), 80% sand, 5% silt, 5% clay, 10% gravel, fine to coarse sands, trace sub-angular gravels to 0.25" diameter, loose, moist, no petroleum odor					
4							
6				0.4	SB-8 (5-5.5')		
		@ 7' - Silty Sand seam (3" thick) with gravels, 80% sand, 10% silt, 10% gravels, reddish brown (2.5YR 5/4), angular gravels to 0.25", loose, wet, no petroleum odor		0.0	SB-8 (7-7.5')		
8		SILTY CLAYEY SAND: brown (2.5YR 4/4), 75% sand, 10% silt, 10% clay, 5% gravels, fine sands, dense, moist, no petroleum odor	SM				
10				24.1	SB-8 (9.5-10')		
		@ 11' - Silty Sand seam (3" thick) with gravels, 80% sand, 10% silt, 10% gravels, brown (2.5YR 5/4), angular gravels to 0.25", loose, wet, no petroleum odor		0.0	SB-8 (11-11.5')		
12							
14				0.1	SB-8 (14.5-15')		
16							
18		@ 17.5' - Silty Clayey Sand seam (6" thick), 80% sand, 10% silt, 10% clay, reddish brown (2.5YR 5/4), loose, wet, no petroleum odor		0.0	SB-8 (17.5-18')		
20				0.0	SB-8 (19.5-20')		
				0.0	SB-8 (20.5-21')		
22							
24							

URS

LOG OF BORING

Borehole ID: SB-8

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
26		SILTY CLAY: reddish brown (5YR 5/3), 85% clay, 10% silt, 5% sand, trace fine sands, stiff, moist, med. plasticity, no petroleum odor	CL		Borehole grouted to grade with neat Portland cement		
28		Bottom of Boring= 28' bgs Depth discrete groundwater samples were attempted within a boring 1 foot laterally from this location and were not successful.					
30							
32							

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: SB-1

Total Depth: 19 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Project: Former BP Service Station #11102	**Drilling Company:** Gregg Drilling & Testing
Site Location: 100 MacArthur Boulevard, Oakland, CA	**Driller:** Paul Rogers
Project Manager: Lynelle Onishi	**Type of Drilling Rig:** MARL M10T
PG: Barbara Jakub	**Drilling Method:** Airknife, Hand Auger (HA), and Hydropunch (HP)
Geologist: Jeremy Quick	**Sampling Method:**
Job Number: 38487349.0A022	**Date(s) Drilled:** October 7, 2005
BORING INFORMATION	
Groundwater Depth: Groundwater Not Encountered	**Boring Location:** MacArthur Blvd., approx. 175 ft north of Oakland Ave.
Air Knife or Hand Auger Depth: 12 ft bgs (HA)	**Boring Diameter:** 3.25 " (HA), 2.75 " (HP)
Coordinates: X NA Y NA	**Boring Type:** Exploratory HP Boring

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample ID	Recovery	Comments
0		CONCRETE					Boring grouted with neat Portland Cement. Top 3-6" finished to grade with cement.
		SAND: (FILL) Black (2.5Y 2.5/1), loose, moist, 10% silt, 90% sand.	SP				
2		CLAYEY SILT: Black (2.5Y 2.5/1), very soft to soft, damp to moist, 25% clay, 70% silt, 5% sand, medium to high plasticity.	ML				
4		@ 4.5 ft bgs: Color change to grayish brown (2.5Y 5/2). Decreased clay (20%), increased silt (75%).					
6		GRAVELLY SILT: Grayish brown (2.5Y 5/2), loose, soft, damp, 15% clay, 50% silt, 5% sand, 30% gravel. @ 5.5-6.5 ft bgs: ~5-25 mm subangular chert clasts throughout. @ 6.5-7 ft bgs: ~2 inch subrounded pebble. @ 7-8 ft bgs: Color change to light olive brown (2.5Y 5/3). Increased silt (60%), decreased gravel (20%).	ML				Top 12 feet of boring logged from hand auger cuttings.
8		SILT: Light olive brown (2.5Y 5/3) to light yellowish brown (2.5Y 6/3), soft to medium stiff, damp, 10% clay, 80-85% silt (decreasing with depth), 5-10% sand (increasing with depth), low to no plasticity.	ML				
10		@ 11.8-12 ft bgs: Color change to grayish brown (2.5Y 5/2). No sand. Medium stiff to stiff.					

URS

LOG OF BORING

Borehole ID: SB-1

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
12		HydroPunch driven and exposed from 12 to 14 ft bgs. After 1 hour, no water was available for sampling.					
14		HydroPunch driven and exposed from 14 to 16 ft bgs. After 1 hour, no water was available for sampling.					
16		HydroPunch driven and exposed from 17 to 19 ft bgs. After 1 hour, no water was available for sampling.					
18							Bottom of Boring = 19 ft bgs

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: SB-2

Total Depth: 19 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Project: Former BP Service Station #11102	**Drilling Company:** Gregg Drilling & Testing
Site Location: 100 MacArthur Boulevard, Oakland, CA	**Driller:** Paul Rogers
Project Manager: Lynelle Onishi	**Type of Drilling Rig:** MARL M10T
PG: Barbara Jakub	**Drilling Method:** Airknife, Hand Auger (HA), and Hydropunch (HP)
Geologist: Barbara Jakub / Jeremy Quick	**Sampling Method:**
Job Number: 38487349.0A022	**Date(s) Drilled:** October 7, 2005

BORING INFORMATION

Groundwater Depth: Groundwater Not Encountered	**Boring Location:** MacArthur Blvd., approx. 125 ft north of Oakland Ave.
Air Knife or Hand Auger Depth: 8 ft bgs (HA)	**Boring Diameter:** 3.25 " (HA), 2.75 " (HP)
Coordinates: X NA Y NA	**Boring Type:** Exploratory HP Boring

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample ID	Recovery	Comments
0		CONCRETE					Boring grouted with neat Portland Cement. Top 3-6" finished to grade with cement.
		GRAVELLY SILT: Fill material.	ML				
2		CLAYEY SILT: Black (2.5Y 2.5/1), soft, dry to moist.	ML				
		@ 3 ft bgs: 15% clay, 83% silt, 2% sand, and 3% angular gravel.		4.6			
4							
6		@ 6 ft bgs: Color change to dark gray (2.5Y 4/1). Minor subrounded gravel.					Top 8 feet of boring logged from hand auger cuttings.
		@ 6.5 ft bgs: Oxidation staining is apparent.		14.0			
		@ 7-8 ft bgs: Color change to grayish brown (2.5Y 5/2). Increased clay (20%), decreased silt (80%), no sand or gravel. Dry to damp, medium stiff to stiff, medium plasticity.		0			
8							
10							

URS

LOG OF BORING

Borehole ID: SB-2

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
12		HydroPunch driven and exposed from 12 to 14 ft bgs. After 1 hour, no water was available for sampling.					
14		HydroPunch driven and exposed from 14 to 16 ft bgs. After 1 hour, no water was available for sampling.					
16		HydroPunch driven and exposed from 17 to 19 ft bgs. After 1 hour, no water was available for sampling.					
18							Bottom of Boring = 19 ft bgs

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: SB-3

Total Depth: 19 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Project: Former BP Service Station #11102	**Drilling Company:** Gregg Drilling & Testing
Site Location: 100 MacArthur Boulevard, Oakland, CA	**Driller:** Paul Rogers
Project Manager: Lynelle Onishi	**Type of Drilling Rig:** MARL M10T
PG: Barbara Jakub	**Drilling Method:** Air Knife, Hand Auger (HA), and Hydropunch (HP)
Geologist: Barbara Jakub / Jeremy Quick	**Sampling Method:**
Job Number: 38487349.0A022	**Date(s) Drilled:** October 7, 2005

BORING INFORMATION	
Groundwater Depth: Groundwater Not Encountered	**Boring Location:** MacArthur Blvd., approx. 100 ft north of Oakland Ave.
Air Knife or Hand Auger Depth: 12 ft bgs (HA)	**Boring Diameter:** 3.25 " (HA), 2.75 " (HP)
Coordinates: X NA Y NA	**Boring Type:** Exploratory HP Boring

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample ID	Recovery	Comments
0		CONCRETE					Boring grouted with neat Portland Cement. Top 3-6" finished to grade with cement.
2		GRAVELLY SILT: Fill material. Very dark grayish brown (10YR 3/2), damp, 2% clay, 48% silt, 25% sand, 25% angular gravel, low to medium plasticity.	GM				
		CLAYEY SILT: Very dark grayish brown (10YR 3/2), medium stiff, dry to moist, 20% clay, 78% silt, 2% fine sand, medium plasticity.	ML				
4		@ 4 ft bgs: Color change to dark yellowish brown (10YR 4/4) with strong brown (7.5YR 5/8) and black (10YR 2/1) mottling.					
		SANDY SILT: Yellowish brown (10YR 4/3) with grayish brown (10YR 5/2) mottling, medium stiff, moist to wet, 3% clay, 82% silt, 15% sand, non-plastic.	ML				
6		CLAYEY SILT: Dark grayish brown (2.5Y 4/2) with dark yellowish brown (10YR 4/6) mottling, medium stiff, dry, 15% clay, 83% silt, 2% fine sand, low to medium plasticity, minor hydrocarbon odor.	ML				Top 12 feet of boring logged from hand auger cuttings.
		@ 6.5-8.5 ft bgs: Strong hydrocarbon odor.					
8		SILTY SAND: Brown (10YR 4/3) with grayish brown (2.5Y 5/2) and strong brown (7.5YR 5/8) mottling, medium dense, dry, 15% clay, 25% silt, 45% sand, 15% gravel (angular quartz), low plasticity, hydrocarbon odor.	SM				
		CLAYEY SILT: Brown (10YR 4/3) with grayish brown (2.5Y 5/2) mottling, medium dense, dry, 15% clay, 85% silt, low plasticity, hydrocarbon odor.	ML				
10							

URS

LOG OF BORING

Borehole ID : SB-3

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
12		SILT: Grayish brown (10YR 5/2) to light yellowish brown (2.5Y 6/3), stiff, dry to moist, 3% clay, 97% silt, minor hydrocarbon odor.	ML				
		HydroPunch driven and exposed from 12 to 14 ft bgs. After 1 hour, no water was available for sampling.					
14		HydroPunch driven and exposed from 14 to 16 ft bgs. After 1 hour, no water was available for sampling.					
16		HydroPunch driven and exposed from 17 to 19 ft bgs. After 1 hour, no water was available for sampling.					
18							Bottom of Boring = 19 ft bgs

URS 1333 Broadway, Suite 800 Oakland, California 94612	LOG OF BORING
	Borehole ID: SB-4A
	Total Depth: 36 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Project: Former BP #11102	**Drilling Company:** Gregg Drilling & Testing
Site Location: 100 MacArthur Boulevard, Oakland, CA	**Driller:** Paul Rogers
Project Manager: Lynelle Onishi	**Type of Drilling Rig:** MARL M10T
PG: Barbara Jakub	**Drilling Method:** Airknife and Direct Push Technology (DP)
Geologist: Jeremy Quick	**Sampling Method:** Soil: Acetate by MacroCore; Groundwater: 3 VOAs
Job Number: 38487349.0A022	**Date(s) Drilled:** October 7, 2005
BORING INFORMATION	
Groundwater Depth: 24.5 ft bgs	**Boring Location:** Southwest corner, on-site near former boring SB-4.
Air Knife or Hand Auger Depth: 5.2 ft bgs (HA)	**Boring Diameter:** 2.75 "
Coordinates: X NA Y NA	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample ID	Recovery	Comments
0		ASPHALT					
		CLAYEY SILTY SAND: Yellowish brown (10YR 5/4), medium dense to dense, damp, 10% clay, 30% silt, 60% fine sand, medium plasticity. Notable oxidation staining.	SM				Boring grouted with neat Portland Cement. Top 3-6" finished to grade with cement.
2		CLAYEY SANDY SILT: Dark brown (10YR 3/3), soft to medium stiff, damp, 5% clay, 70% silt, 25% sand, medium plasticity.	ML				Airknife could not penetrate, hand auger used instead.
		SANDY CLAYEY SILT: Grayish brown (10YR 5/2), very soft to soft, damp, 15% clay, 80% silt, 5% sand, minor ~2 mm angular white chert gravel, medium to high plasticity.	ML				
4		@ 4-5.2 ft bgs: Notable oxidation staining.					Top 5.2 feet of boring logged from hand auger cuttings.
		@ 5.2-6 ft bgs: Color change to gray (10YR 5/1), medium stiff, medium plasticity. Notable oxidation staining.					
6		@ 6-9 ft bgs: Color change to brown (10YR 5/3), low to medium plasticity. Weathered granite clasts throughout. Notable oxidation staining.		3.1	SB-4A -6' 09:55		
8							
		SAND: Greenish gray (GLEY 1 5/5GY) with dark grayish brown (10YR 4/2) mottling, loose to medium dense, moist, 2% clay, 8% silt, 90% course sand, non-plastic, hydrocarbon odor. Increasing fines with depth.	SM				
10				8.0	SB-4A -10' 10:13		
		SANDY SILT: Brown (10YR 5/3), damp, 3% clay, 47% silt, 30% sand, 20% gravel, low plasticity.	ML				

URS

LOG OF BORING

Borehole ID : SB-4A

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
12							
		No recovery from 12 to ~15.8 ft bgs. Could not remove acetate liner from Macrocore sampler.					
14							
16		CLAYEY SILT: Pale brown (10YR 6/3), medium stiff to stiff, damp, 5% clay, 95% silt, low plasticity. Logged from sampler shoe.	ML	9.1			
		SAND: Dark yellowish brown (10YR 4/4) with dark grayish brown (10YR 4/2) mottling and very dark gray (10YR 3/1) patches, damp, loose to medium dense, 2% clay, 8% silt, 80% sand, 10% ~2-3 mm gravel, slight hydrocarbon odor. Notable oxidation staining.	SP				
		@ 16.2-17 ft bgs: Grayish brown (10YR 5/2) with gray (10YR 5/1) patches.	ML				
18		CLAYEY SILT: Gray (10YR 5/1) to dark grayish brown (10YR 4/2), medium stiff, damp, 15% clay, 80% silt, 5% sand, trace gravel (likely scrape material), low to medium plasticity, slight hydrocarbon odor.		7.6			
20		@ 20-22 ft bgs: Color change to yellowish brown (10YR 5/4). Soft to medium stiff. Hydrocarbon odor.		21.5	SB-4A -20' 10:23		
22		@ 22-23 ft bgs: Increasing fines, no sand. Hydrocarbon odor.		28.7			
		SILTY GRAVELLY SAND: Light olive brown (2.5Y 5/4), loose to medium dense, damp, 1% (minor) clay, 19% silt, 60% sand, 20% gravel, non-plastic.	SP				
24		CLAYEY SILT: Light olive brown (2.5Y 5/3), soft to medium stiff, damp, 10% clay, 90% silt, low to medium plasticity, slight hydrocarbon odor.	ML		SB-4A 12:05		▽ Boring was initially dry. Groundwater elevation measured after water was allowed to accumulate in the open boring for more than one hour.
				3.2	SB-4A -25' 10:44		
26							
		@ 27.5-30 ft bgs: Color change to grayish brown (2.5Y 5/2) with dark gray (2.5Y 4/1) mottling to 28 ft bgs. Stiff to very stiff, low plasticity.					
28				0.9			

URS

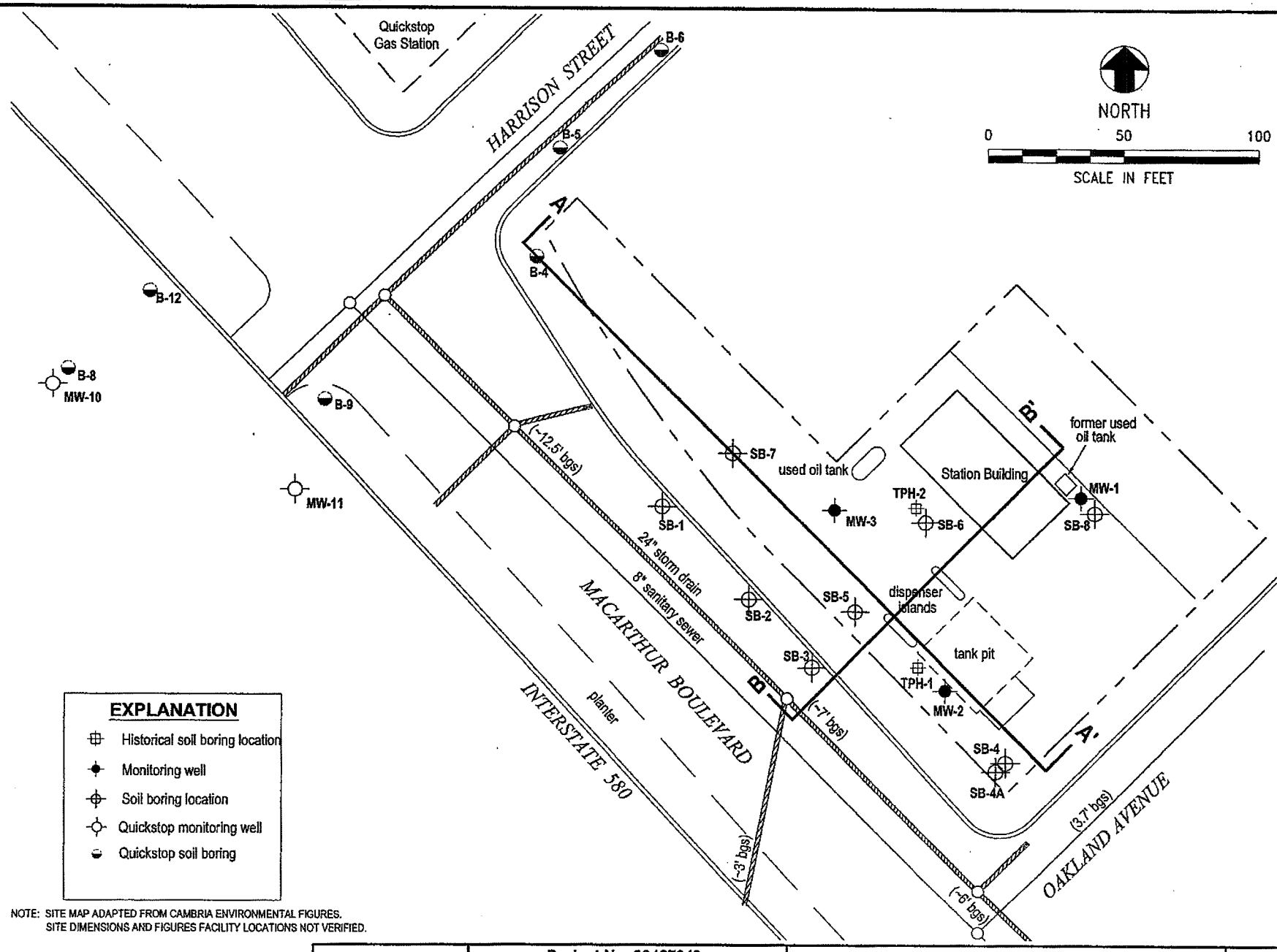
LOG OF BORING

Borehole ID: SB-4A

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Sample I.D.	Recovery	Comments
30		@ 30-36 ft bgs: Color change to dark grayish brown (10YR 4/2). Stiff to very stiff.		5.2	SB-4A -30' 10:49		
32							
34							
36		@ 35-36 ft bgs: Light gray (10YR 7/1) mottling. Very stiff.		0.8	SB-4A -35' 10:58		Bottom of Boring = 36 ft bgs

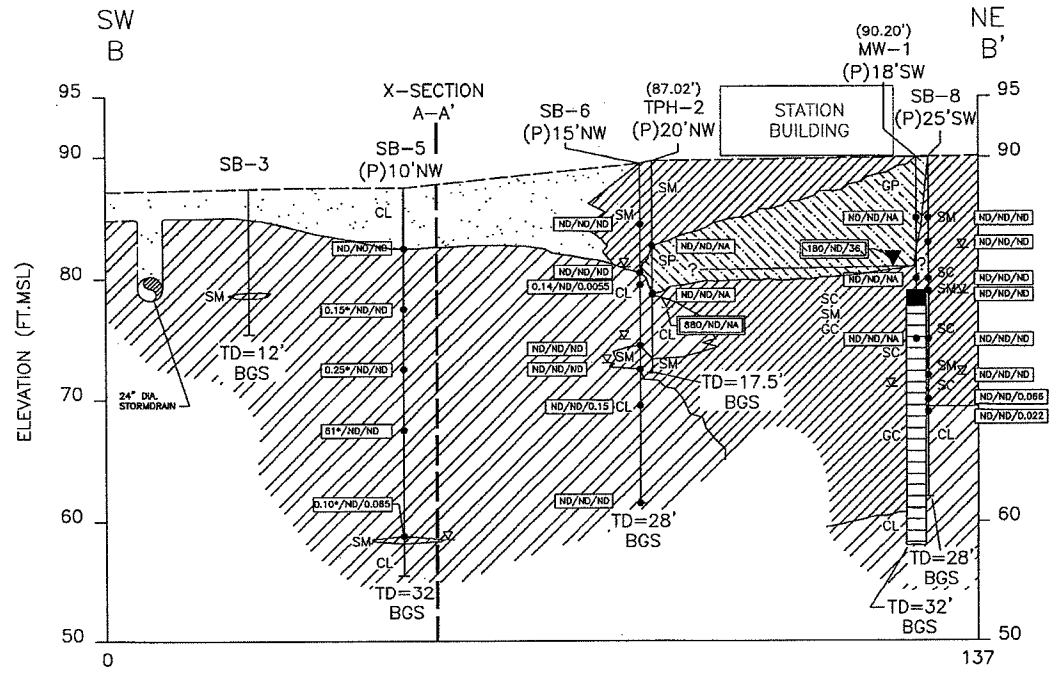
APPENDIX C

Geologic Cross-Sections



NOTE: SITE MAP ADAPTED FROM CAMBRIA ENVIRONMENTAL FIGURES.
SITE DIMENSIONS AND FIGURES FACILITY LOCATIONS NOT VERIFIED.

URS	Project No. 38487349 Former BP Service Station #11102 100 MacArthur Boulevard Oakland, California	SOIL BORING, MONITORING WELL, AND CROSS-SECTION LOCATION MAP	FIGURE 2



LEGEND

(90.20') MW-1 (P)15'N — ELEVATION OF TOP OF CASING (FEET ABOVE MEAN SEA LEVEL)

SOIL BORING/MONITORING WELL (P) = PROJECTED FROM DIRECTION IN FEET FROM C/S

CL / ML — LITHOLOGIC CONTACT

SOIL SAMPLE LOCATION/DEPTH

TOP OF FILTER PACK

WELL SCREEN INTERVAL

ENCOUNTERED GROUNDWATER

BORING TOTAL DEPTH IN FEET (BELOW GROUND SURFACE)

TD=32' BGS

GC & CH FILL- MODERATE TO HIGH PERMEABILITY SOILS

SC,SM,GC,GM - MODERATE PERMEABILITY SOILS

CH,CL,ML - LOW PERMEABILITY SOILS

SP,SW,GP,GW - HIGH PERMEABILITY SOILS

ND — NOT DETECTED AT OR ABOVE THE LABORATORY REPORTING LIMIT

NA — NOT ANALYZED

180/ND/36 — GRO/BENZENE/MTBE WATER CONCENTRATIONS µ/1

0.11/ND/0.24 — TPH/BENZENE/MTBE SOIL CONCENTRATIONS IN mg/kg

0.11*/ND/0.24 — GRO/BENZENE/MTBE SOIL CONCENTRATIONS IN mg/kg

STATIC POTENTIOMETRIC SURFACE MEASURED 7/11/05

SOURCES FOR: MW-1 - ALTON GEOSCIENCE, INC., PRELIMINARY SITE INVESTIGATION REPORT, 12/20/89.
THP-2 - EMCON, BASELINE ASSESSMENT REPORT, 12/27/94.

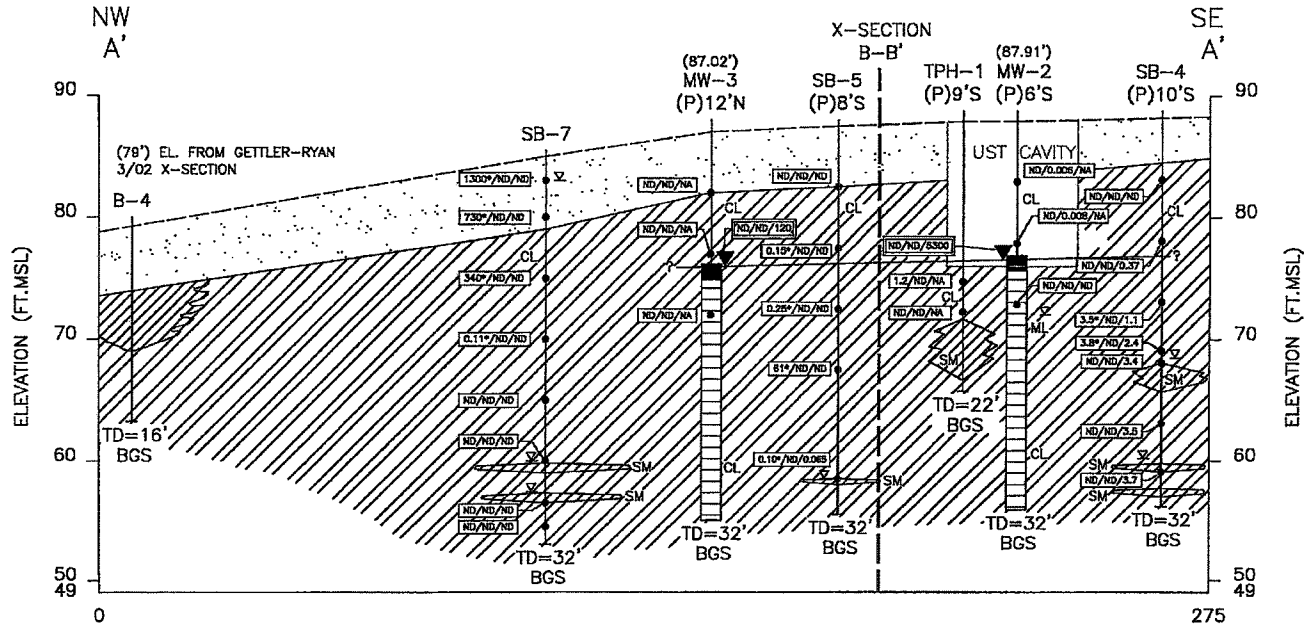
Vertical Scale (ft): 0, 5, 10, 20

Horizontal Scale (ft): 0, 10, 20, 40

- ELEVATION PROJECTED FOR: SB-5, SB-6, TPH-2, SB-8
- ELEVATION FOR MW-1 OBTAINED FROM URS 4TH QUARTER 2004 GROUNDWATER MONITORING REPORT, DECEMBER 10, 2004.

URS	Project No. 38487349 Former BP Service Station #11102 100 MacArthur Blvd. Oakland, California	HYDROGEOLOGIC CROSS-SECTION B-B'	FIGURE 4

Dec 22, 2005 - 3:47pm
X:\x_env_waste\BP GEM\Sites\Alameda Sites\11102\Reports\Sub-offsite wells\Figures\Figure 4.dwg



NOTE: MW-2 AND THP-1 DO NOT PASS THROUGH UST CAVITY. BOTH ARE LOCATED OUTSIDE/SOUTHWEST OF UST CAVITY BOUNDARY. SEE FIGURE 2.

LEGEND

(87.02') MW-2 (P)15'N — ELEVATION OF TOP OF CASING (FEET ABOVE MEAN SEA LEVEL); SOIL BORING/MONITORING WELL (P) = PROJECTED FROM DIRECTION IN FEET FROM C/S

CL / ML — LITHOLOGIC CONTACT

SOIL SAMPLE LOCATION/DEPTH

TOP OF FILTER PACK

WELL SCREEN INTERVAL

ENCOUNTERED GROUNDWATER

BORING TOTAL DEPTH IN FEET (BELOW GROUND SURFACE)

TD=32' BGS

GC & CH FILL- MODERATE TO HIGH PERMEABILITY SOILS

SC,SM,GC,GM - MODERATE PERMEABILITY SOILS

CH,CL,ML - LOW PERMEABILITY SOILS

ND — NOT DETECTED AT OR ABOVE THE LABORATORY REPORTING LIMIT

NA — NOT ANALYZED

ND/ND/5300 — GRO/BENZENE/MTBE WATER CONCENTRATIONS µ/l

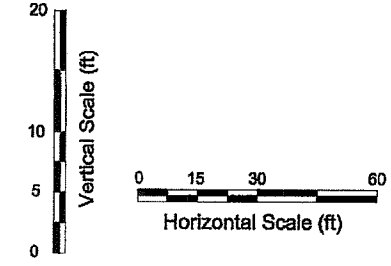
0.11/ND/0.24 — TPH/BENZENE/MTBE SOIL CONCENTRATIONS IN mg/kg

0.11*/ND/0.24 — GRO/BENZENE/MTBE SOIL CONCENTRATIONS IN mg/kg

STATIC POTENTIOMETRIC SURFACE MEASURED 7/11/05

- ELEVATION PROJECTED FOR: SB-7, SB-5, TPH-1, SB-4
- ELEVATION FOR MW-2 AND MW-3 OBTAINED FROM URS 4TH QUARTER 2004 GROUNDWATER MONITORING REPORT, DECEMBER 10, 2004.

SOURCES FOR: MW-2, MW-3 - ALTON GEOSCIENCE, INC., PRELIMINARY SITE ASSESSMENT REPORT, 12/20/89.
-B-4 - GETTLER-RYAN, INC. OFFSITE SUBSURFACE INVESTIGATION REPORT, MAY 16, 2002.
-THP-1 - EMCON, BASELINE ASSESSMENT REPORT, 12/27/94

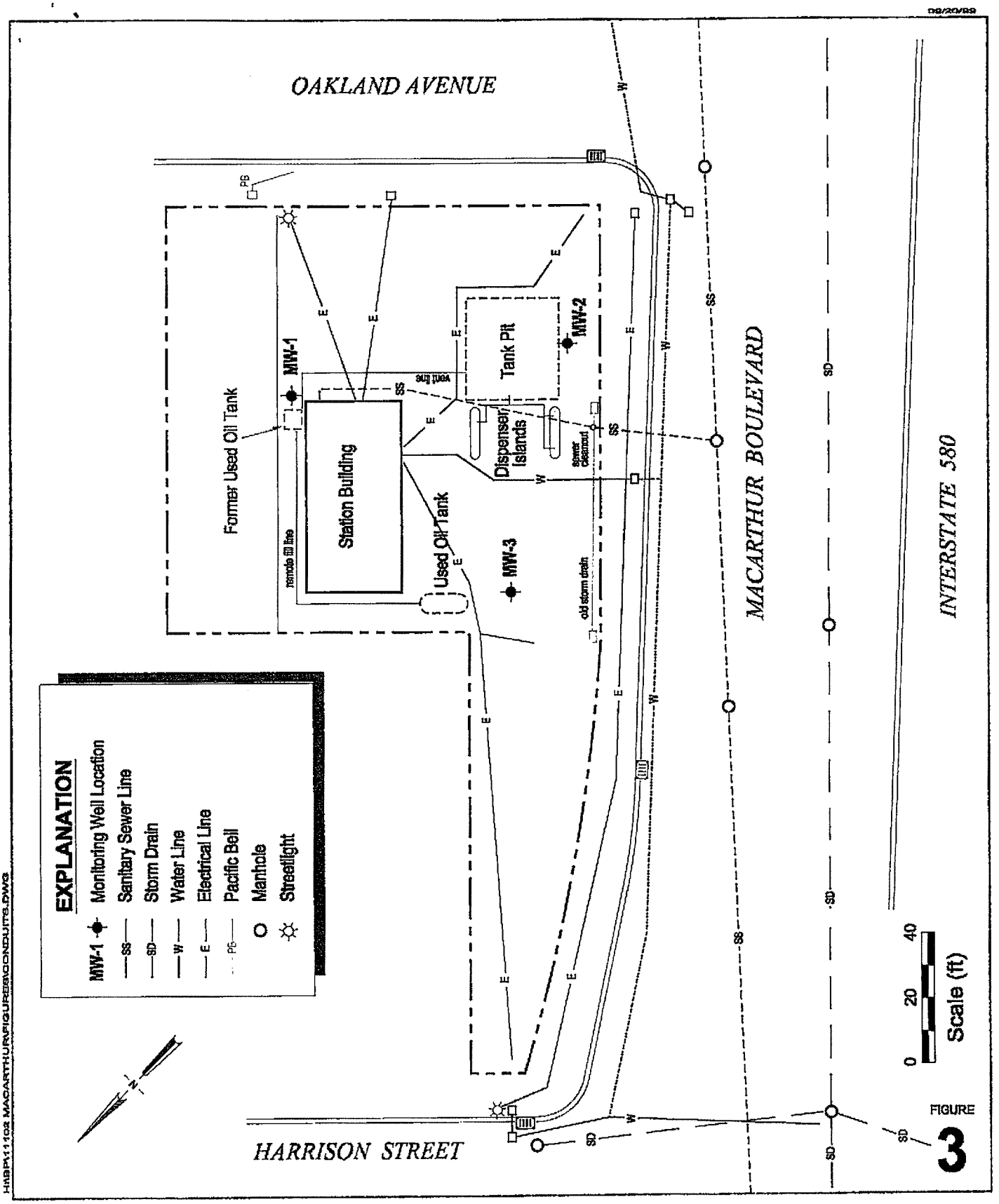


URS	Project No. 38487349 Former BP Service Station #11102 100 MacArthur Blvd. Oakland, California	HYDROGEOLOGIC CROSS-SECTION A-A'	FIGURE 3

Aug 04, 2005 - 3:03pm
X:\x_env_waste\BP GEN\sites\Sites\11102\Reports\Swr-1\Drawings\Figure 3.dwg

APPENDIX D

Utilities Maps and Potential Receptor Survey



H:\BP\11102 MACARTHUR\FIGURES\CONDUITS.DWG

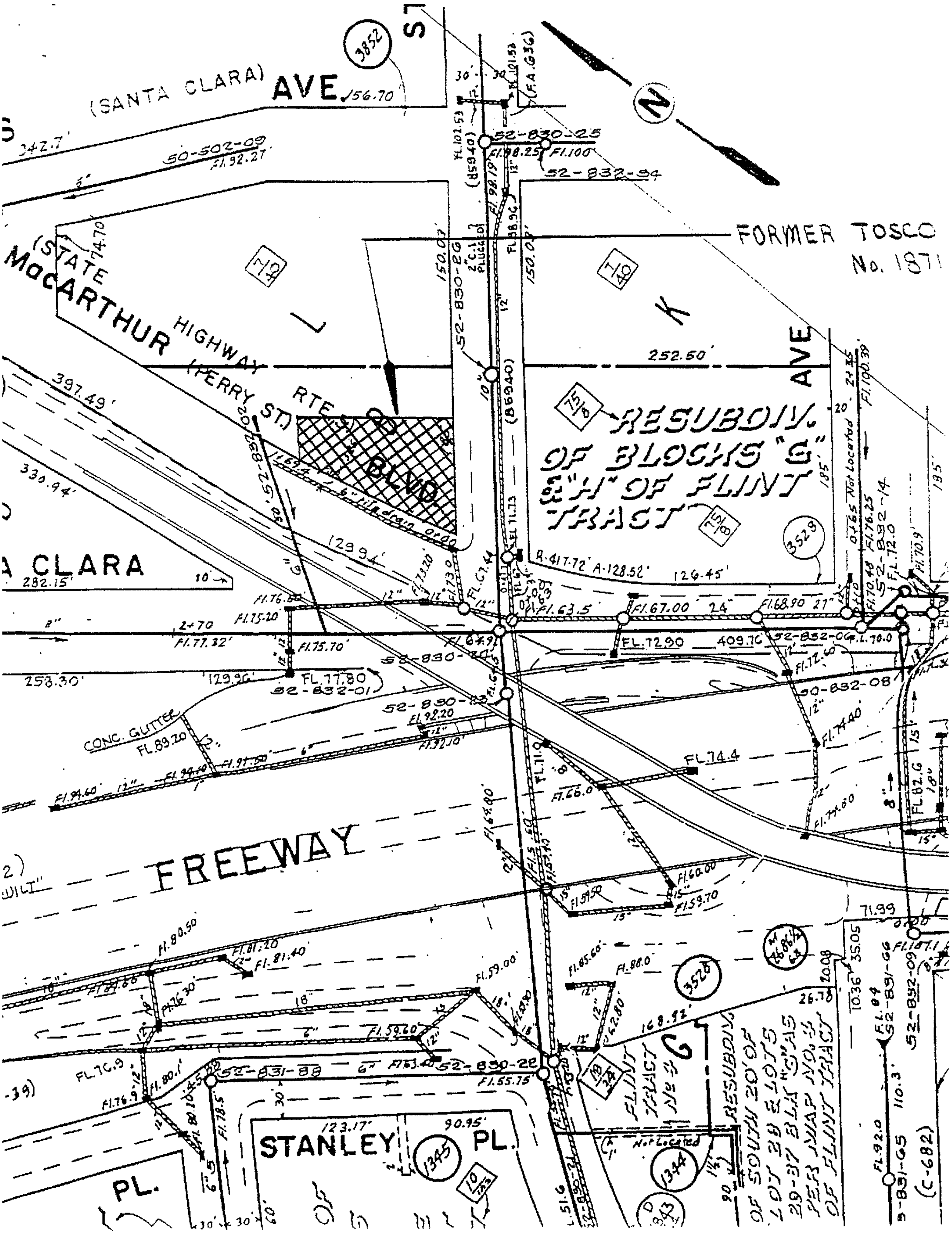
BP Oil Service Station No. 11102

100 MacArthur Boulevard

Oakland, California

CAMBRIA

Conduit Study Map



(SANTA CLARA) AVE
3852
52-830-25
52-832-94
50-502-09
FORMER TOSCO
No. 1871
(STATE MacARTHUR HIGHWAY (PERRY ST) RTE 50 BLVD
L
K
AVE
252.50'
RESUBDIV. OF BLOCKS "G" & "H" OF FLINT TRACT
3529
A CLARA
52-832-01
52-830-80
52-830-83
52-832-06
50-832-08
52-832-14
CONC. GUTTER
FREEWAY
52-831-88
52-830-28
STANLEY PL.
1345
1344
3526
FLINT TRACT No 2 G
RESUBDIV. OF SOUTH 20' OF LOT 28 & LOTS 29-37 BLK "G" AS PER MAP NO 2 OF FLINT TRACT
52-831-66
52-832-09
(C-682)
PL.

EXHIBIT "A" TO THE
ADVERTISING SIGN LOCATION LEASE:

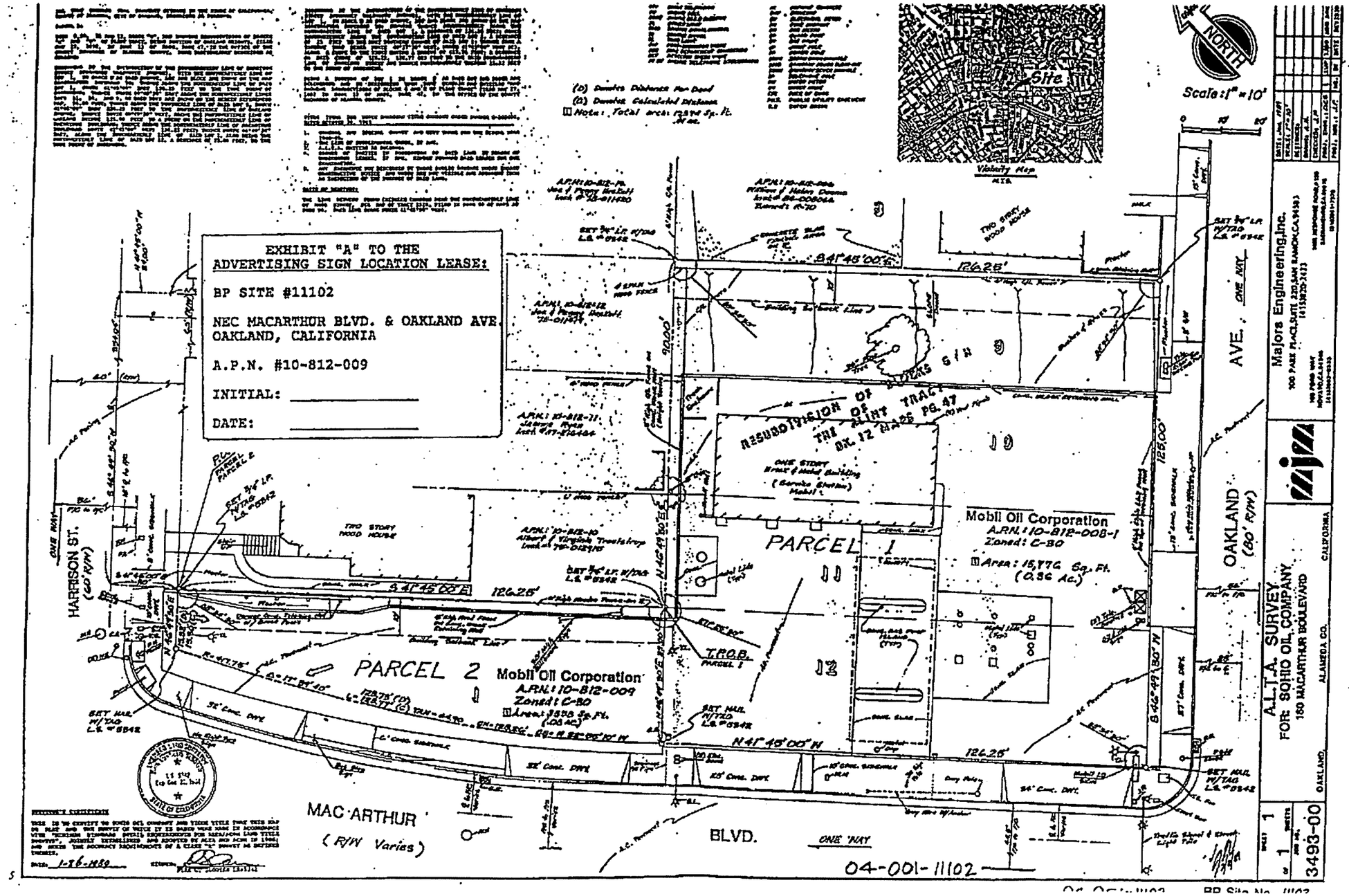
BP SITE #11102

NEC MACARTHUR BLVD. & OAKLAND AVE.
OAKLAND, CALIFORNIA

A.P.N. #10-812-009

INITIAL: _____

DATE: _____



MOSS AVENUE

HARRISON STREET

OAKLAND AVENUE

MACARTHUR BOULEVARD

MACARTHUR FREEWAY (R-4)

10-813-1
10-813-2
10-813-4-1
10-812-3
10-812-18
10-812-15
10-812-4
10-812-14
10-812-5
10-812-13
10-812-6
10-812-12
10-812-8-1
10-812-11
10-812-10
10-812-8
10-818-16
10-812-24
10-812-23
10-812-22
10-812-21
10-812-20
10-812-19-1
10-812-17

FORMER UNDERGROUND USED OIL TANK
MW-1
BP OIL SERVICE STATION BUILDING
UNDERGROUND FUEL TANKS
UNDERGROUND USED OIL TANK
DISPENSER ISLANDS
MW-3
MW-2

N

0 60 120
SCALE IN FEET

LEGEND

- GROUNDWATER MONITORING WELL
- 10-812-8-1 ASSESSOR'S PARCEL NUMBER
- DROP INLET GRATE
- MANHOLE
- POWER POLE

UNDERGROUND UTILITY LINES

- SS — SANITARY SEWER PIPE
- WT — WATER SERVICE PIPE
- GAS — GAS PIPE
- EL — ELECTRICAL LINE
- TEL — TELEPHONE LINE
- UNKNOWN DESTINATION

NOTE:
Location of utilities are approximate and based upon information provided at time of preparation. This map is not be used for any construction or related activities.

REGISTERED PROFESSIONAL ENGINEER
ALBERTO SANCHEZ SEVILLA
26392
Exp. Date 7/31/09
CIVIL
STATE OF CALIFORNIA

BP OIL SERVICE STATION NO. 11102
100 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

PROJECT NO. 10-076

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

SOURCE: Pacific Gas and Electric Company, Pacific Bell, East Bay Municipal Utility District, City of Oakland, Alameda County Assessor's Office

Potential Receptor Survey

Site # 11102

Site # 11102
Address 100 MacArthur
City/State Oakland, CA
County Alameda
Quadrangle Latitude 37° 49' 9"
Longitude 122° 15' 9"

Signature of Preparer: William D. Bi
Company: Alisto Engineering Group
Date: 4/18/00

1. Potential Receptors

Provide information for the following potential receptors	Yes/ No	Field Verify Y/N	Date Verify	Distance Complete as appropriate	Direction	Depth
Is a basement or subsurface foundation within 100 feet of the source or source area?	N	Y	4/18/00	NA	NA	
Is a school within 1000 feet of the source or source area?	N	Y	4/18/00	NA	NA	
Is a storm sewer within 50 feet of the source or source area?	Y	Y	4/18/00	20 FT	S	Unknown
Is a sanitary sewer within 50 feet of the source or source area?	Y	Y	4/18/00	50 FT	S	Unknown
Is a septic system leach field within 50 feet of the source or soruce area?	N	Y	4/18/00	NA	NA	
Is a water line main within 50 feet of source or source area?	Y	Y	4/18/00	20 FT	S	Unknown
Is a natural gas line main within 50 feet of the source or source area?	Y	Y	4/18/00	40 FT	E	Unknown
Is a buried telephone/television cable main within 50 feet of the source or source area?	Y	Y	4/18/00	30 FT	E	Unknown
Is a buried electrical cable main within 50 feet of source or source area?	N	Y	4/18/00	NA	NA	NA
Is a subway within 1000 feet of the source or source area?	N	Y	4/18/00	NA	NA	NA
Is the bedrock area prone to dissolution along joints or fractures within 100 feet of the source or source area?	N	Y	4/18/00			
Is there a fault or known fracture within 100 feet of the source or source area?	N	Y	4/18/00			

Potential Receptor Survey

Site # 11102

Source of information Site Visit, PG&E, Pacific Bell, EBMUD, Geologic Maps of Upper Cenozoic Deposits in Central, California, 1993

Verified By William Bir Date 4/18/00

2. Sensitive Areas

Provide information for the following potential receptors	Yes/ No	Field Verify	Date Verify	If yes, give a brief explanation of classification
		Y/N		Complete as appropriate
Is this property classified as a sensitive area?	N	Y	4/18/00	

Source of information California Department of Fish and Game Website *

Verified By William Bir Date 4/18/00

3. Drinking Water Supply

Provide information for the following potential receptors	Yes/ No	Field Verify	Date Verify	Distance	Direction	Production Rate
		Y/N		Complete as appropriate		
Is a public water supply well within 3 miles of the source or source area?	N	Y	4/18/00	Note: Field verified by Alisto staff visits to each potential water-supply well.		
Is a public water supply intake within 3 miles of the source or source area?	N	Y	4/18/00			
Is a private water supply well within 0.5 miles of the source or source area?	N	Y	4/18/00			

Source of information California Dept. of Water Resources **

Verified By William Bir Date 4/18/00

* California Department of Fish and Game Website; Habitat Conservation Division; Wetlands Inventory and Conservation Unit; View Maps; Wetland and Riparian Classification for Bay Area Region of California (urban areas listed as "other")

**Review of DWR Well Data Sheets from the Sacramento office.

Potential Receptor Survey

Site # 11102

4. Surface Water Body

Provide Information for the following potential receptors	Yes	No	If yes, provide the following information. Complete as appropriate	
	Check one			
Are there surface waters located within 1000 feet of the property?	✓		Name	Glen Echo Creek
			Type	Stream
			Distance from property	1000 FT
			Direction from property	NW
			Name	
			Type	
			Distance from property	
			Direction from property	

Source of information USGS Oakland West Quad

Verified By William Bir Date 4/18/00

5. Describe type of local water supply:

Public ✓ Private _____

Supplier's Name East Bay Municipal Utilities District

Supplier's water supply source Mokelumne River

Water supply source distance and direction from property Approximately 150 Miles East

Intake distance and direction from property NA

Source of information EBMUD

Verified By William Bir Date 4/18/00

6. Aquifer Classification (include a brief explanation for classification)

_____ Class I: Special Ground Waters, Irreplaceable Drinking Water Source or Ecologically Vital

✓ Class II: Current or Potential Drinking Water Source

_____ Class III: Not Potential Source of Drinking Water

Potential Receptor Survey **Site #** 11102

Is this a sole source aquifer? Yes ____ No ✓

Depth to top of aquifer: Unknown

Source of information California Dept. of Water Resources

Verified By William Bir Date 4/18/00

7. Describe monitoring wells, if any:

Number: 3

Free Product: Yes ____ No ✓ Well(s) ____

Source of information Alisto Engineering Group

Verified By William Bir Date 4/18/00

8.0 Relevant Ecological Receptors and Habitats

8.1 Property Characteristics

Size of Property (acres)	→	0.34 Acres
% of property that is wooded	→	0%
Dominant tree type	→	NA
% of property that is scrub/shrub	→	5%
Dominant Vegetation	→	Various Shrubs
% of property that is open land	→	0%
% of property that is grass area	→	10%
% of property that is agricultural crops	→	0%
% of property that is barren	→	0%
% of property that is commercial or industrial use including paved areas	→	85%

Source of information Site Visit

Verified By William Bir Date 4/18/00

Potential Receptor Survey

Site # 11102

8.2 *Fauna*

List any fauna (e.g., mammals, birds, fish, reptiles) that are either observed or evidenced to be on property.	→	None
	→	
	→	
	→	
	→	
	→	
	→	
	→	

Source of information Site Visit

Verified By William Bir Date 4/18/00

8.3 *Water Bodies on the Property*

Identify the type of water body (e.g., river, creek, lake, stream)	→	None
Is water body naturally developed or man made?	→	NA
List the uses of the water body	→	NA
What is the source of the water for the water body	→	NA
What is the nature of the bottom of the water body (e.g., rocky or concrete bottom, drainage ways or impoundments)	→	NA
Describe the observed biota	→	NA

Source of information Site Visit

Verified By William Bir Date 4/18/00

Potential Receptor Survey **Site #** 11102

8.4 *Wetlands*

Are there any wetlands present on the property?	→	No
Describe the type of vegetation present	→	NA
Identify the source of water	→	NA
Is the wetlands influenced by tidal changes?	→	NA
Describe the observed biota	→	NA

Source of information Site Visit

Verified By William Bir Date 4/18/00

APPENDIX E

Former Unocal Station No.1871 Soil Boring/Well Construction Logs
and Historical Analytical Data

EXPLANATION

- Groundwater monitoring well
- Destroyed groundwater monitoring well
- Soil boring
- Geoprobe boring
- A — A' Cross section line

INTERSTATE HIGHWAY 580

SANTA CLARA AVENUE

MACARTHUR BLVD. OVERCROSSING (EASTBOUND ON-RAMP)

MACARTHUR BOULEVARD

Planter

Sidewalk

Driveway

Quik Stop Market Building

Former Waste Oil Tank

Former Property Boundary

Former Dispenser Island

Former Station Building

Underground Storage Tanks

Approximate Property Boundary

Dispensers

Canopy

Former Underground Storage Tanks

Former Dispenser Island

66 MacArthur Blvd. (formerly 96 MacArthur)

HARRISON STREET

Concrete Island

Bridge Abutment

Dirt

Conc. Drainage Ditch

Conc. Bridge Columns (Typ.)

Overhead Freeway Structure

Overhead Ramp

WESTBOUND ON-RAMP

Dirt and Landscaping

Landscaping

MACARTHUR BLVD.

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-7 MW-8 MW-9 MW-10 MW-11

B-4 B-5 B-6 B-7 B-8 B-9 B-10 B-11 B-12

EB-1 EB-2 EB-3

A A' B B' C C'

0 40

Scale In Feet

Source: Figure modified from Gettler-Ryan field observation and well surveys provided by Virgil Chavez Land Surveying (7/9/99, 2/21/02 & 3/5/02)

FIGURE 2

SITE PLAN
Former Tosco (76) Service Station No. 1871
96 MacArthur Boulevard
Oakland, California

REVISED DATE

GETTLER-RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

PROJECT NUMBER 140165.07

REVIEWED BY

DATE 3/02

FILE NAME: P:\ENVIRO\TOSCO\1871\402-1871.DWG | Layout Tab: Well Install 3-02

Gettler-Ryan Inc.

Log of Boring B-4

PROJECT: *Former Tosco 76 Branded Facility No. 1871*	LOCATION: *96 Mac Arthur Blvd., Oakland, CA*
PROJECT NO.: *140165.04-1*	CASING ELEVATION:
DATE STARTED: *06/01/99*	WL (ft. bgs): *10.5* DATE: *06/01/99* TIME: *7:50 am*
DATE FINISHED: *06/01/99*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *2" geoprobe*	TOTAL DEPTH: *16 Feet*
DRILLING COMPANY: *Gregg Drilling*	GEOLOGIST: *Joel Greger*

DEPTH feet	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
							2" turf over 4" of broken concrete.	
						ML	SANDY CLAYEY SILT (ML) – grayish brown (10YR 5/2), slightly moist, stiff, estimated at 30% very fine to fine sand, 15-25% clay: FILL.	
						SC	CLAYEY SAND (SC) – light yellowish brown (10YR 6/4), moist, medium dense, estimated 10-15% clay, 10% silt, predominantly very fine to fine: FILL.	
5						SM	SILTY SAND WITH GRAVEL (SM) – brown (10YR 5/3), very moist, medium dense, estimated at 20% silt, trace clay, 15% subrounded to subangular gravel to 1 1/4" diameter, fine to coarse sand.	
	0		B-4-7.5			GW GM	GRAVEL WITH SAND (GW-GM) – yellowish brown (10YR 5/4), very moist, dense, estimated at 35% very fine to coarse sand, 10% silt & clay, subangular deeply weathered gravel to 3/4" diameter.	
	0		B-4-9					
10						ML	SILT (ML) – light yellowish brown (2.5Y 6/4) to light brownish gray (2.5Y 6/2), wet to saturated at 10.5 feet, very stiff, trace clay & very fine sand.	Water sample B-4-10.5
	0		B-4-11.5					
	0							
15								
	0							
20								
25								

JOB NUMBER: *140165.04-1*

Gettler-Ryan Inc.

Log of Boring B-9

PROJECT: *Former Tosco 76 Branded Facility No. 1871*	LOCATION: *96 Mac Arthur Blvd., Oakland, CA*
PROJECT NO. : *140165.04-1*	CASING ELEVATION:
DATE STARTED: *06/01/99*	WL (ft. bgs): *13.5* DATE: *06/01/99* TIME: *12:45 pm*
DATE FINISHED: *06/01/99*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *2" geoprobe*	TOTAL DEPTH: *14 Feet*
DRILLING COMPANY: *Gregg Drilling*	GEOLOGIST: *Joel Greger*

DEPTH feet	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
						SM	SILTY SAND WITH GRAVEL (SM) – dark yellowish brown (10YR 4/6), moist, dense, estimated 15% silt, very fine to coarse sand, up to 30% subangular gravel to 2" diameter: FILL.	
						ML	CLAYEY SILT WITH GRAVEL (ML) – dark greenish gray (5GY 4/1), moist, firm.	
5								
	0		B-9-7.5				CLAYEY SILT (ML) – dark greenish gray (5GY 4/1) changing to black (2.5YR N2 5/) at 6.5 feet, moist, firm, organic odor.	
							SANDY CLAYEY SILT (ML) – dark gray (N4 /), very moist to wet, firm, estimated 15-20% very fine to fine sand, 10% clay, trace gravel.	
10	0		B-9-11					
	0		B-9-13				▽	Water sample B-9-13.5
	0							
15								
20								
25								

JOB NUMBER: *140165.04-1*

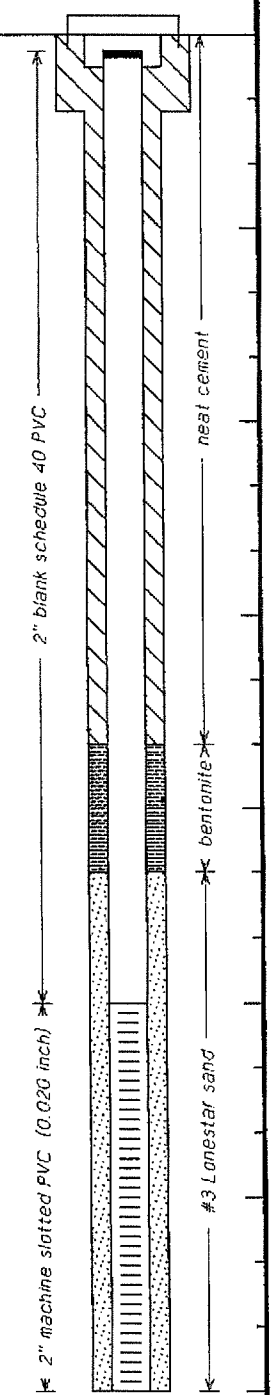
Gettler-Ryan, Inc.

Log of Boring MW-11

PROJECT: *Tosco (76) Service Station No. 1871*	LOCATION: *96 MacArthur Boulevard, Oakland, California*
GR PROJECT NO.: *140165.07*	CASING ELEVATION:
DATE STARTED: *12/27/01*	WL (ft. bgs): *28.3* DATE: *12/27/01* TIME: *15:40*
DATE FINISHED: *12/27/01*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *30 feet*
DRILLING COMPANY: *Gregg Drilling*	GEOLOGIST: *Clyde Galantine*

DEPTH (feet)	PID (ppm)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
3						Clay with Gravel (fill).
6	0					
9					CL	CLAY (CL) – very dark grayish brown (10YR 3/2), moist, stiff, plastic; 60–70% clay, 5–10% fine to coarse sand, trace of fine gravel.
12	0	MW-11-11				
15					ML	SILT (ML) – light olive brown (2.5Y 5/3), moist, hard, non-plastic; 60–80% silt, 15–35% clay, 5% fine sand.
18	0	MW-11-16			SM	SILTY SAND (SM) – olive brown (2.5Y 4/4), moist, dense; 85% subangular to rounded fine sand, 15% silt.
21	0	MW-11-20			ML	

WELL DIAGRAM



JOB NUMBER: *140165.07*

Gettler-Ryan, Inc.

Log of Boring MW-11

PROJECT: *Tosco (76) Service Station No. 1871*

LOCATION: *96 MacArthur Boulevard, Oakland, California*

DEPTH (feet)	PID (ppm)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
24	0	MW-11-24.5			ML	SILT (ML) – dark grayish brown (2.5Y 4/2), moist, hard, non-plastic; 80% silt, 15% clay, 5% fine sand.	cap; 2" machine slotted PVC (0.020 inch); #3 Lonestar sand
27		MW-11-26.5				▽	
30	0	MW-11-30				Color changes to light olive brown (2.5Y 5/3).	
						Bottom of boring at 30 feet bgs.	
33							
36							
39							
42							
45							

TABLE 4 - GRAB GROUND WATER SAMPLE CHEMICAL ANALYTICAL DATA
Tosco 76 Branded Facility No. 1871
96 MacArthur Avenue
Oakland, California

Sample Location and ID	Sample Depth (feet)	Date Collected	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	MTBE by 8020/8260 (ppm)
Boring B-4 B-4 (10.5)	10.5	6/1/99	ND	ND	ND	ND	ND	ND/ND
Boring B-5 B-5 (11.35)	11.35	6/1/99	ND	ND	ND	ND	ND	ND/ND
Boring B-6 B-6 (11.7)	11.7	6/1/99	ND	0.54	ND	ND	ND	ND/ND
Boring B-7 B-7 (10)	10	6/1/99	ND	ND	ND	ND	ND	2,300/3,000
Boring B-8 B-8 (8.5)	8.5	6/1/99	ND	ND	ND	ND	ND	ND/ND
Boring B-9 B-9 (13.5)	13.5	6/1/99	ND	ND	ND	ND	ND	ND/ND
Boring B-10 B-10 (15.2)	15.2	6/3/99	95,000	10,000	14,000	3,900	11,000	220,000/270,000
Boring B-11 B-11 (16.2)	16.2	6/3/99	ND	ND	ND	ND	ND	14,000/15,000
Boring B-12 B-12 (19.5)	19.5	6/4/99	ND	ND	ND	ND	ND	ND/ND

EXPLANATION:
feet = feet below ground surface
ppb = parts per billion
ND = nondetectable, NA = not analyzed

ANALYTICAL METHODS:
TPHg = Total Petroleum Hydrocarbons as gasoline according to EPA Method 8015 Modified.
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes according to EPA Method 8020.
MTBE = Methyl t-Butyl Ether according to EPA Methods 8020/ 8260.

ANALYTICAL LABORATORY:
Sequoia Analytical (ELAP #1210 & #1271)

TABLE 5 - SOIL CHEMICAL ANALYTICAL DATA
Tosco 76 Branded Facility No. 1871
96 MacArthur Avenue
Oakland, California

Sample Location and ID	Sample Depth (feet)	Date Collected	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	MTBE by 8020 (ppm)
Boring B-4								
B-4 (9)	9	6/1/99	ND	ND	ND	ND	ND	ND
Boring B-5								
B-5 (10.5)	10.5	6/1/99	ND	ND	ND	ND	ND	ND
Boring B-6								
B-6 (11.4)	11.4	6/1/99	ND	ND	ND	ND	ND	ND
Boring B-7								
B-7 (9.5)	9.5	6/1/99	ND	ND	ND	ND	ND	ND
Boring B-8								
B-8 (8)	8	6/1/99	ND	0.0066	0.0096	ND	ND	0.053
Boring B-9								
B-9 (13)	13	6/1/99	ND	ND	0.0075	ND	0.011	0.062
Boring B-10								
B-10 (14)	14	6/1/99	170	0.24	1.1	1.9	14	1
Boring B-11								
B-11 (14)	14	6/3/99	ND	0.0058	0.015	ND	0.015	1.1
B-11 (29)	29	6/3/99	ND	0.014	0.046	ND	0.018	0.25
Boring B-12								
B-12 (11.5)	11.5	6/4/99	ND	ND	ND	ND	ND	ND
B-12 (25.5)	25.5	6/4/99	ND	ND	ND	ND	ND	ND
Boring MW-6								
MW-6 (11)	11	6/4/99	210	1.6	7.3	6.4	25	3.3
MW-6 (15.5)	15.5	6/4/99	1.1	0.014	0.048	0.029	0.12	0.31
MW-6 (20.5)	20.5	6/4/99	ND	ND	ND	ND	ND	0.062
MW-6 (24)	24	6/4/99	ND	ND	ND	ND	0.017	0.18

TABLE 5 - SOIL CHEMICAL ANALYTICAL DATA - (Continued)
Tosco 76 Branded Facility No. 1871
96 MacArthur Avenue
Oakland, California

Sample Location and ID	Sample Depth (feet)	Date Collected	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	MTBE by 8020 (ppm)
Boring MW-7								
MW-7 (10.5)	10.5	6/10/99	ND	ND	ND	ND	ND	0.21
Boring MW-8								
MW-8 (10.5)	10.5	6/4/99	ND	ND	ND	ND	ND	0.18
Comp S1*		6/4/99	ND	ND	ND	ND	0.019	0.27

EXPLANATION:
feet = feet below ground surface
ppm = parts per million
ND = nondetectable, NA = not analyzed

ANALYTICAL METHODS:
TPHg = Total Petroleum Hydrocarbons as gasoline according to EPA Method 8015 Modified.
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes according to EPA Method 8020.
MTBE = Methyl t-Butyl Ether according to EPA Methods 8020/ 8260.

* Total lead was detected at a concentration of 7.6 ppm.

ANALYTICAL LABORATORY:
Sequoia Analytical (ELAP #1271)

Table 4 - Soil Sample Analytical Results

Former Tosco (76) Service Station No. 1871
96 MacArthur Boulevard
Oakland, California

Sample Location and ID	Date Sampled	Sample Depth (feet)	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-Benzene (ppm)	Xylenes (ppm)	MTBE (ppm)
Well Boring MW-9								
MW-9-6.5	12/27/01	6.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
MW-9-9	12/27/01	9	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Well Boring MW-11								
MW-11-16	12/27/01	16	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
MW-11-24.5	12/27/01	24.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Soil Stockpile								
Comp 1[1]	12/27/01	--	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

ANALYTICAL LABORATORY:

Sequoia Analytical (ELAP #2374)

ANALYTICAL METHODS:

TPHg = Total Petroleum Hydrocarbons as gasoline by EPA Method 8015 Modified
Benzene, Toluene, Ethylbenzene, and Xylenes by EPA Method 8021
MtBE = Methyl tertiary butyl ether by EPA Method 8021

EXPLANATION:

ppm = parts per million
-- = analysis not requested/not applicable
[1] = Sample was also reported to contain 7.7 ppm of total lead.