

Is it prudent at this site to ask for additional characterization or is the location not very conducive. I.e.,

Possible offsite source?

No Well Survey For site

MW-2 → MW-7 = 125' travel time & distance

historically high conc of MBE  
MW-5 → MW-7 distance ≈ 70'

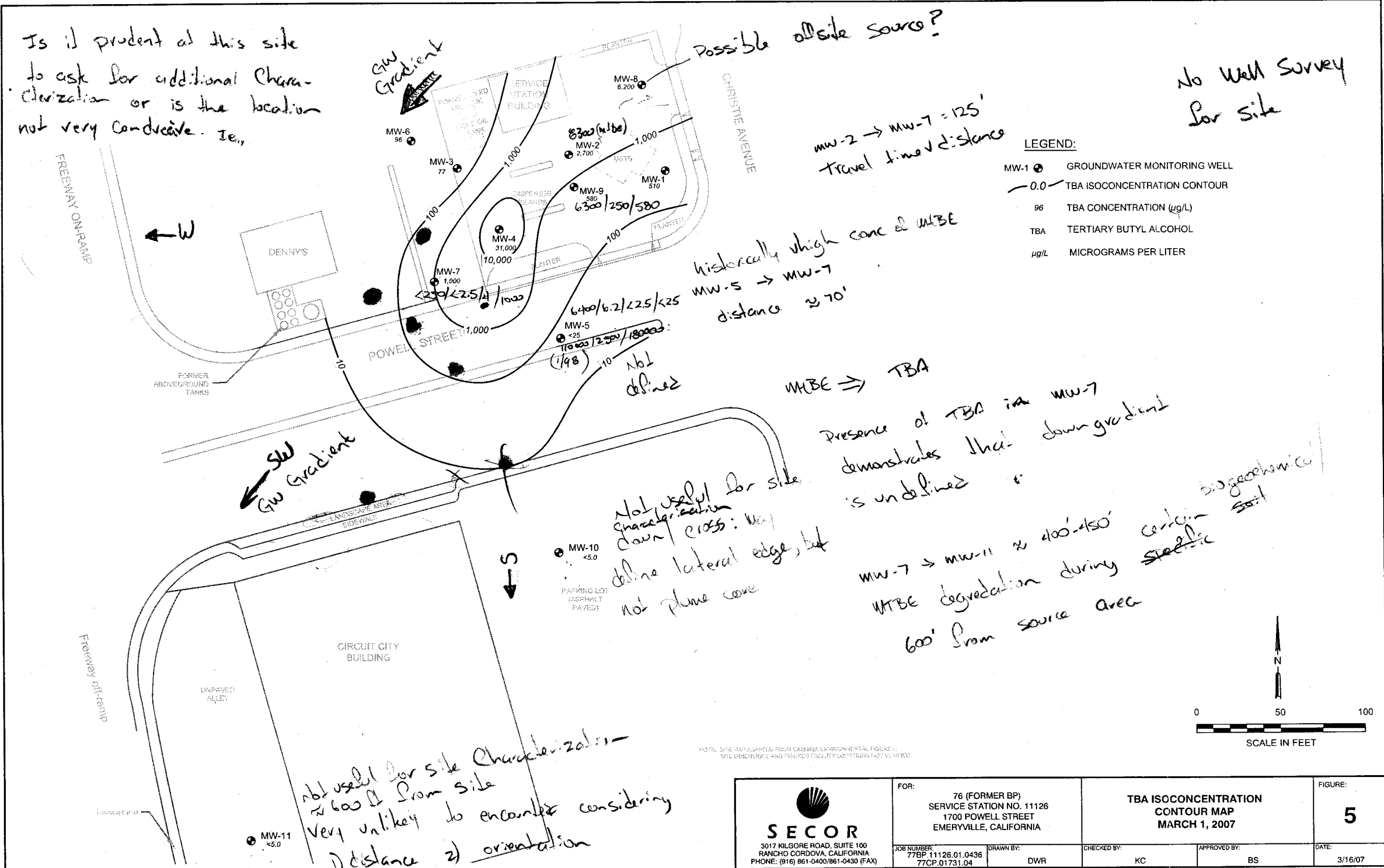
MBE ⇒ TBA

Presence of TBA in MW-7 demonstrates that down gradient is undefined

MW-7 → MW-11 ≈ 400'-450' certain biogeochemical specific 600' from source area

Not useful for site characterization down cross: may define lateral edge, but not plume core

not useful for site characterization - very unlikely to encounter considering distance & orientation



July 11, 2003

Ms. Eva Chu  
Hazardous Materials Specialist  
Alameda County Health Care Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

**Interim Remedial Action and Offsite Assessment Work Plan , Former BP Service Station #11126,  
1700 Powell Street, Emeryville, California, for Group Environmental Management Company**

Dear Ms. Chu:

At the request of Group Environmental Management Company (a BP affiliated company), URS Corporation (URS) is pleased to submit this Interim Remedial Action (IRA) and Offsite Assessment Work Plan for the above referenced site. This Work Plan has been prepared in response to a letter from the Alameda County Health Care Services (ACHCS), dated April 25, 2003. The letter requested BP to outline a proposal to address off-site plume migration and delineate the extent of the plume downgradient of the site. A copy of the ACHCS letter is provided as Attachment A.

**1.0 BACKGROUND**

The site is located on the northwest corner of Powell Street and Christie Avenue in Emeryville, California (Figure 1). The site is currently operating as a retail gasoline service station. Three gasoline underground storage tanks (USTs) and associated product lines and dispensers are present at the site (Alisto, 1994). A total of nine (9) groundwater monitoring wells exist on the site (Figure 2).

The properties in the immediate vicinity of the site are a mixture of industrial and commercial developments (Alisto, 1994). South of the site and across Powell Street is Powell Street Plaza, a retail commercial development with a number of groundwater monitoring wells on site and around its perimeter (Alisto, 1993). Immediately east of Powell Street Plaza and approximately 1,000 feet southeast of the site are monitoring wells installed in the immediate vicinity of Harcros Pigments, located at 4650 Shell Mound Street. The area surrounding the site was historically used for industrial purposes before being developed into a shopping center.

A soil gas survey was conducted on April 10, 1989, by Target Environmental Services, Inc. (EMCON, 1994). The results of the survey indicated that gasoline may have entered the site subsurface at the pump islands, UST complex, or along the product supply lines. Total volatile hydrocarbons were detected in soil vapor in concentrations up to 932,000 ug/L. Laboratory results indicated the presence of gasoline in the subsurface soil at the site. The highest concentrations of total volatile hydrocarbons were detected in the vicinity of the pump islands and east of the USTs.

On April 24, 1989, one 550-gallon waste oil underground tank was removed from the site (Alisto, 1994). Confirmatory soil samples collected from beneath the tank and sidewalks contained up to 340 parts per million (ppm) total oil and grease (TOG), 27 ppm total petroleum hydrocarbons as diesel (TPH-d) and 9.6 ppm total petroleum hydrocarbons as gasoline (TPH-g). A further set of confirmatory soil samples was collected from the new waste oil tank pit, located approximately 20 feet south of the old waste oil tank pit. These samples contained up to 10,000 ppm TOG and 370 ppm TPH-d.

In 1993, BP installed monitoring wells MW-1 through MW-4 as part of a preliminary site investigation (Alisto, 1994). Laboratory analysis detected TPH-g at concentrations of up to 280 ppm and benzene at concentrations of up to 0.94 ppm in the soil samples collected at depths of up to 5.5 feet below grade in the immediate vicinity of the underground fuel storage tanks and dispenser islands. Dissolved phase TPH-g at concentrations of up to 12,000 parts per billion (ppb) and benzene at concentrations of up to 3,900 ppb were detected in groundwater samples collected from all the monitoring wells at the site.

Additional monitoring wells were installed on and off site in September 1993 (Alisto, 1994). MW-5 was installed off site in the center of Powell Street to the south of the station; MW-6 and MW-7 were installed to the west of the site in the adjacent Denny's restaurant parking lot; MW-8 was installed on site to the north of the USTs; and MW-9 was installed west of the USTs near the dispenser islands (Figure 2). MW-5 through MW-8 are 2 inches in diameter, screened from approximately 3.5 to 15 feet bgs, and MW-9 is 4 inches in diameter, screened from 3.5 to 15 feet bgs.

During installation of wells MW-5 through MW-9, groundwater was first encountered at approximately 7 feet bgs, with saturated soil conditions at approximately 6.5 feet bgs. Up to 4,600 milligrams per kilogram (mg/kg) TPH-g and 76 mg/kg benzene were detected in soil samples collected at approximately 4.5 feet bgs. Free product was detected in well MW-9 at an approximate thickness of 0.08 feet. A product recovery canister was installed at well MW-9. Dissolved phase hydrocarbons were detected in six of the eight wells sampled at concentrations of up to 4,500 ppb TPH-g and 3,400 ppb benzene. Analysis of a groundwater sample collected from well MW-3, located near the waste oil tank, detected 2,100 ppb TPH-d. TOG and volatile organic compounds were not detected. Soil and groundwater results from previous consultants are provided in Attachment B.

Alisto's April 1994 *Supplemental Site Investigation Report* also indicated that several potential offsite sources were previously located near to or upgradient of the site (Alisto, 1994). These included former Pabco Products, a paint, roofing and floor coverings manufacturing facility located on and northeast of the site, which stored oil in aboveground tanks at the site; former Auto Freight Depot, located on the southeast corner of Shellmound Road and Powell Street, approximately 450 feet east of the site; Former Truck Repair Shop, approximately 480 feet east-southeast of the site, which stored diesel and gasoline in aboveground tanks; and former Pacific Intermountain Express Truck Terminal, located approximately 440 feet southeast of the site, which included aboveground and underground petroleum storage tanks.

A Baseline Assessment Report for the site was prepared by EMCON in December 1994, at the time Tosco acquired the property from BP (EMCON, 1994). The Baseline Assessment Report reported that an *Underground Storage Tank Unauthorized Release (Leak)/Contamination Site Report* from the Alameda County Environmental Health Department, Hazardous Materials Division, dated May 2, 1989, indicated an unknown quantity of waste oil was released at the site on May 2, 1989, prior to Tosco's purchase.

EMCON performed supplemental site assessment work in October 1994 (EMCON, 1994). Three soil borings (THP-1, TB-2 and THP-3; recorded as TB-1, TB-2 and TB-3 in EMCON's Table A-1) were

advanced on site using cone penetrometer equipment. Soil and groundwater samples were collected from borings THP-1 and THP-3. TPH-g up to 290 ppm and one or more BTEX constituents per sample were detected in soil. TPH-d was also detected in soil at THP-1 (33 ppm), and TOG was detected in soil at THP-3 (1,800 ppm). Both groundwater samples contained TPH-g up to 4,600 ppb and BTEX (up to 800 ppb benzene, 290 ppb toluene, 9.5 ppb ethylbenzene, and 410 ppb xylenes). TOG at 3,300 ppb, trans-1,2-dichloroethane (DCE) at 2.4 ppb, cis-1,2-DCE at 41 ppb and 1,2-dichloroethane (DCA) at 6.4 ppb were also detected in the groundwater sample collected from THP-1.

EMCON personnel checked the fuel dispensers for the presence of spill containment boxes and for indications of leakage on December 5, 1994 (EMCON, 1994). No spill containment boxes were found. Photoionization detector (PID) readings taken from backfill material below the dispensers ranged from 27 ppm to 1,063 ppm, and staining was observed beneath the northeast and southwest dispensers. Grab soil samples were collected from beneath the fuel dispensers (TD-1, TD-2, TD-3 and TD-4). TPH-g was detected up to 1,400 ppm; TPH-d was detected up to 4,600 ppm; low levels of toluene and xylene were detected in one sample.

In April 1999, at the request of Tosco, Environmental Resolutions Inc. (ERI) performed a five-day soil vapor extraction (SVE) test at the subject site (ERI, 1999). Existing on-site UST backfill wells (TP-1 and TP-2) were used for soil vapor extraction and groundwater monitoring wells MW-1, MW-2 and MW-4 were used for observation. Results of analyses of vapor samples collected from well TP1 indicated that the MTBE concentrations decreased from 4,820 micrograms per liter (ug/L) to 300 ug/L during the test, while TPH-g concentrations decreased from 12,800 ug/L to 464 ug/L. ERI estimated that approximately 21.5 pounds (lbs) of TPH-g and 16.7 lbs of MTBE were removed during the five-day test; eight 200-lb carbon vessels were saturated to breakthrough. Flow rates ranged from 88 to 98 standard cubic feet per minute (SCFM) at an applied vacuum of 12 inches of hydrogen (in Hg); however, no effective radius of influence, defined as 0.5 inches water column (in WC) vacuum, was measured in native soil outside the UST backfill.

On April 28 1999, after the SVE test, SECOR observed the removal of one 550-gallon waste oil UST along with a clarifier and two hoists from the former service bays as part of site remodeling activities (SECOR, 1999). The waste oil UST, Hoist No. 2, and the clarifier and Hoist No. 1 were removed from separate excavations (total of three).

Groundwater was encountered at 7.5 feet bgs in the waste oil UST excavation (SECOR, 1999). No holes or cracks were noted in the waste oil UST. A grab groundwater sample was collected from the waste oil UST excavation, and was found to contain 560 ug/L TPH-d, 710 ug/L TPH as motor oil (TPH-mo), 10 ug/L benzene and 2,400 ug/L MTBE. Groundwater was encountered at approximately 6 feet bgs in the hoist and clarifier excavations, but no groundwater samples were collected.

Soil samples collected from the vicinity of the former waste oil UST and service bays revealed impact to the subsurface by petroleum hydrocarbons (SECOR, 1999). Up to 18 mg/kg TPH-g, 0.19 mg/kg benzene, 370 mg/kg TPH-d, and 7,000 mg/kg TPH-mo were detected in confirmatory samples collected from the waste oil UST excavation at approximately 5 feet bgs. No MTBE was detected. Confirmatory soil samples were collected from beneath the former clarifier at 4 feet bgs, the former Hoist No. 1 at 8 feet bgs, and the former Hoist No. 2 at 8 feet bgs on April 28, 1999. TPH-g was detected at concentrations up to 3.0 mg/kg (clarifier); TEPH was detected up to 870 mg/kg (Hoist No. 1); TPH-mo was detected up to 4,200 mg/kg (Hoist No. 1); benzene was detected at up to 0.013 mg/kg (clarifier); lead was detected at up to 22,000 mg/kg (clarifier); and cadmium was detected at up to 2.4 mg/kg (clarifier).

The clarifier and hoist areas were overexcavated based on these results on May 7, 1999. Additional confirmatory soil samples were collected from the clarifier excavation at 5 feet bgs, and the hoist excavations at 5 feet bgs. TPH-g was detected up to 1,200 mg/kg (Hoist No. 1); TEPH was detected up to 1,200 mg/kg (Hoist No. 1); TPH-mo was detected up to 5,000 mg/kg (Hoist No. 1); and lead was detected up to 410 mg/kg (clarifier). BTEX and other metals were not analyzed for in the May 7, 1999 set of confirmatory samples. Stockpiled excavated soil was analyzed and found to contain 720 mg/kg total lead, 15 mg/kg STLC lead and 0.13 mg/L TCLP lead, and 610 mg/kg pyrene.

Removal and replacement of product lines and dispensers was performed by Gettler Ryan Incorporated (GRI) on March 28 and 30, 2001 (SECOR, 2001). Sampling activities were performed by SECOR. During removal of product lines soil in the excavation trench appeared to be stained. Suspected petroleum hydrocarbon odors were also noted. The entire length of the former product line trench was subsequently over-excavated an additional 1.5 feet to 3.5 feet bgs prior to sampling. An additional 150 cubic yards (cy) of soil were removed from the site during trenching and over-excavation activities. Due to insufficient grading, the former trenches were not suitable for re-use. GRI therefore backfilled the former trenches with clean imported backfill and excavated an additional 100 cy of soil installing new product line trenches. A total of 13 confirmatory soil samples were collected from product line, dispenser and trench excavations. TPH-g and TPH-d were detected in all 13 samples at concentrations up to 5,300 mg/kg TPH-g and 630 mg/kg TPH-d in sample PL-4-3.5', collected from a product line trench near MW-9. MTBE was detected in 12 of 13 samples up to 8.4 mg/kg in sample PD-NE-3.5' collected from beneath a product dispenser.

URS is currently coordinating ongoing groundwater monitoring at the site (URS, 2003). The most recent quarterly monitoring data from the second quarter 2003 shows TPH-g in seven of nine wells ranging from 1,000 ug/L (well MW-7) to 120,000 ug/L (well MW-2); benzene in four of nine wells ranging from 9.1 ug/L (well MW-5) to 1,100 ug/L (well MW-2); and MTBE in eight of nine wells ranging from 140 ug/L (well MW-6) to 72,000 ug/L (well MW-2) (Figure 2). The fuel oxygenate tert-amyl methyl ether (TAME) was detected in five of nine wells at concentrations ranging from 16 ug/L in well MW-3 to 1,300 ug/L in well MW-2. Tert-butyl alcohol (TBA) was detected only in MW-4 at 2,500 ug/L. The calculated groundwater gradient was 0.018 feet per foot (ft/ft) to the west-southwest, with an east-southeasterly component at a gradient of 0.041 ft/ft.

The highest dissolved phase hydrocarbon concentrations on site are in MW-2 and MW-9, west of the USTs. Free product was formerly present in MW-9, but has not been detected since 2001. Based on groundwater monitoring results from 1992 to the present, hydrocarbon impact is present off-site, with TPH-g and MTBE concentrations increasing in well MW-7 since 2001, decreasing in well MW-6 since 2001 except for an increase in TPH-g concentrations in the second quarter 2003, and consistently present in well MW-5 since 1993. The extent of hydrocarbon impact in the site vicinity requires further definition to the south and southwest of the site. Groundwater monitoring results through the second quarter 2003 are provided in Tables 1 and 2.

## **2.0 PROPOSED SCOPE OF WORK**

The proposed scope of work responds to the ACHCS request for an IRA and Offsite Assessment Work Plan. The scope of the work plan is designed to: (1) actively address further off-site dissolved-phase plume migration, (2) facilitate mass removal of dissolved-phase hydrocarbons and (3) delineate the downgradient extent of dissolved-phase hydrocarbon contamination.

## 2.1 Proposed Interim Remedial Action

URS proposes bi-weekly groundwater batch extraction from well MW-9. Well MW-9 has consistently shown the highest hydrocarbon and MTBE concentrations at the site, and has historically also contained free product. MW-9, 4 inches in diameter, is the only site well larger than 2 inches in diameter. It is located just downgradient of the USTs, presumed to be the main source of contamination. Groundwater extraction from this well will remove dissolved-phase hydrocarbons from the subsurface and also mitigate offsite migration of the hydrocarbon plume.

Approximately 2,500 gallons of groundwater will be removed by vacuum truck from well MW-9 on a bi-weekly basis for 6 months. The actual volume removed will depend on the productivity of well MW-9. Dedicated PVC stingers will be placed in well MW-9 for reuse at each batch extraction event. Depth to water measurements will be collected from on-site wells, including well MW-9, before and after each batch extraction event to determine the radius of influence. Groundwater at well MW-9 will also be sampled before and after each batch extraction event. Groundwater samples will be analyzed for TPH-g and BTEX by EPA method 8015/8021, and for fuel oxygenates including MTBE and TBA by EPA method 8260. Extracted groundwater will be hauled by a BP-approved waste transporter a BP-approved disposal facility. The estimated amount of water removed from well MW-9 will be indicated on a field sheet. The final volume of water disposed during each extraction event will be recorded on a waste manifest or Bill of Lading.

The results of the batch extraction program will be evaluated in regular quarterly groundwater monitoring reports. Hydrocarbon and MTBE mass removal rates will be calculated using the groundwater analytical results for well MW-9 before and after each batch extraction event and the volume of groundwater extracted. The volume of groundwater extracted and calculated mass removal will be included in a table included in the quarterly monitoring report. Bills of Lading will also be included in the quarterly monitoring reports as an appendix.

## 2.2 Contaminant Plume Definition

To determine the nature and downgradient extent of the dissolved-phase petroleum hydrocarbons in the vicinity of the site, URS proposes the installation of three off-site groundwater monitoring wells (MW-10, MW-11 and MW-12) (Figure 3). Well MW-10 will be located west of the subject site on the north side of Powell Street. MW-11 and MW-12 will be located south and southwest of the subject site, respectively, on the south side of Powell Street. URS proposes to locate the wells on private property adjacent to Powell Street, pending access agreements. If access is not granted, the borings will be located within the Powell Street right-of-way pending encroachment permit approval from the City of Emeryville. Boring and well installation permits will be obtained from ACHCS prior to drilling activities.

Borings will be advanced to a total depth of approximately 15 feet bgs using a hollow stem auger technique. The borings will be sampled at 5-foot intervals to further evaluate the presence of hydrocarbon contamination and site lithology. Soil samples will be logged by a URS geologist according to the Unified Soil Classification System (USCS), and monitored for grain size, color, consistency, staining, and odor using a PID. Soil samples collected for potential chemical analysis will be sealed with Teflon® tape, capped, and placed in an ice-filled cooler for transportation to the laboratory. *- log consistency*

Following boring advancement to the desired depth, monitoring wells will be constructed in the borings. Flush threaded, two-inch diameter schedule 40 PVC slotted well screen with threaded end cap will be placed in the borings with approximately 10 feet of well screen extending from 5 to 15 feet bgs. The wells will be completed to ground surface with two-inch diameter, blank, schedule 40 PVC casing. Monterey #3

sand or equivalent will be placed in the annular space adjacent to the well screen and will be installed to approximately one to two feet above the top of the well screen. One to two feet of bentonite pellets will be placed above the sand, followed by a 5 to 10% bentonite-cement mixture to ground surface.

The wellheads will be completed at ground surface with a locking well cap and traffic-rated bolt-down well vault. The vault will be installed slightly above the surrounding surface grade and finished with a cement apron to provide positive relief away from the wellhead. A California-licensed land surveyor will then survey the elevation of the wellhead within 0.01 feet accuracy with respect to MSL and for lateral position within 0.5 meter accuracy using northing and easting coordinates. The wellhead elevation will be measured from an existing benchmark or calculated using GPS. Survey methods will be in compliance with State Water Resources Control Board GeoTracker requirements, using NAD 83 and NAVD 88 datum. The wellhead elevation will be compared to depth to groundwater measurements to calculate groundwater elevation above MSL as well as a groundwater flow direction and gradient.

After allowing the wellhead and grout to cure for at least 48 hours, URS will measure the total well depth and depth to water at the well using a water level indicator calibrated to within 0.01 foot. URS will also check for the potential presence of separate phase hydrocarbons (free product) in the well using an interface probe capable of detecting free product thickness to 1 millimeter. URS will develop the well by alternately swabbing and surging the well using a hand held surge block. URS will then remove 8 to 10 casing volumes of water from the well by pumping and/or bailing, monitoring the removed water for parameters such as pH, turbidity, temperature, and conductivity.

Following at least 72 hours after well development, URS will gauge the well, remove at least 3 casing volumes of water by bailing, and collect a groundwater sample by lowering a dedicated, disposable bailer into the well, collecting water, and decanting the collected water into laboratory-supplied sample containers. The groundwater sample will be labeled and placed in ice-filled coolers for preservation.

### **2.3 Preliminary Field Activities**

Prior to initiating field activities, URS will obtain necessary permits and access agreements, prepare a site Health and Safety Plan (HASP) for the proposed work, and conduct a subsurface utility clearance. 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 each boring location.

A site-specific HASP will be prepared for use by personnel implementing the work plan. The HASP will address the proposed boring/well installations and groundwater sampling. A copy of the HASP will be available on-site at all times. The subcontractor(s) performing field activities will be provided with a copy of the HASP prior to initiating work.

### **2.4 Sample Analysis**

Selected soil samples and groundwater samples collected during this investigation will be submitted to a California State-certified analytical laboratory for analysis of TPH-g, BTEX and fuel oxygenates including ethanol using EPA Method 8260B.

### **2.5 Waste Disposal**

Investigation derived residuals will be temporarily stored on-site in 55-gallon, DOT-approved 17H drums, pending characterization and disposal. URS will coordinate with BP and Dillard Environmental Services (Dillard, under direct contract to BP) to transport and dispose of the soil at an BP approved facility.

### **3.0 Corrective Action Plan**

Upon completion of field activities and receipt of all laboratory analytical data, URS will finalize and provide the ACHCS with a Corrective Action Plan, which will document the results of this investigation, summarize the results of previous investigations and the extent of hydrocarbons in soil and groundwater, develop a Conceptual Site Model (CSM) and recommend further investigation or remedial action if warranted.

### **4.0 PROPOSED SCHEDULE**

Upon receiving written approval of this Work Plan from the ACHCS, URS will proceed with the proposed work. URS will obtain proper permits and will complete the proposed work upon their receipt. URS anticipates submitting the Corrective Action Plan to ACHCS within 60 days of receipt of all laboratory analytical results from drilling activities.

We appreciate the opportunity to submit this Work Plan to ACHCS and trust that this document meets with your approval. Please notify us of your approval as soon as practical. If you have any questions or concerns, feel free to contact me at (510) 874-1720.

Sincerely,

**URS Corporation**

Leonard P. Niles, RG/CHG  
Project Manager

Attachments:

Figure 1 – Site Location Map

Figure 2 - Groundwater Elevation Contour and Analytical Summary Map, Second Quarter 2003

Figure 3 - Proposed Offsite Wells

Table 1 – Groundwater Elevation and Analytical Data, Second Quarter 2003

Table 2 - Fuel Oxygenate Analytical Data

Attachment A – Alameda County Health Care Services Agency, Environmental Health Services letter, dated April 25, 2003

cc: Mr. Paul Supple, BP GEM, P.O. Box 6549, Moraga, CA 94549



## **REFERENCES**

- Alisto Engineering Group (Alisto), 1993. Preliminary Site Assessment Report, BP Oil Company Service Station No. 11126, 1700 Powell Street, Emeryville, California. January.
- Alisto Engineering Group (Alisto), 1994. Supplemental Site Investigation Report, BP Oil Company Service Station No. 11126, 1700 Powell Street, Emeryville, California. April 8.
- EMCON Northwest, Inc. (EMCON), 1994. Baseline Assessment Report, Site Number 11126, 1700 Powell Street, Emeryville, CA. December 27.
- Environmental Resolutions, Inc. (ERI), 1999. Extended Soil Vapor Extraction Test Report at Tosco BP Service Station 11126, 1700 Powell Street, Emeryville, California. July 20.
- SECOR International Incorporated (SECOR), 1999. Removal of Waste Oil UST, Hoists No. 1 and No. 2 and Clarifier Sump, Tosco Service Station 11126 (BP Branded), 1700 Powell Street, Emeryville, California. June 29.
- SECOR International Incorporated (SECOR), 2001. Removal and Replacement of Product Lines, Dispensers and Canopy, Tosco (Former BP) Service Station #11126, 1700 Powell Street, Emeryville, California. May 4.
- URS Corporation (URS), 2003. Second Quarter 2003 Groundwater Monitoring, Former BP Station #11126, 1700 Powell Street, Emeryville, California. April 14.

**ATTACHMENT A**

**ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY  
ENVIRONMENTAL HEALTH SERVICES LETTER  
DATED APRIL 25, 2003**

5/30/03 Extension to July 13<sup>th</sup>, 2003  
by RAP.

RO0000066 - Site History

Tosco #11126  
1700 Powell Street  
Emeryville, CA 94608

The site is located on the northwest corner of Powell Street and Christie Avenue in Emeryville, CA. The site is currently operating as a retail gasoline service station with three gasoline USTs and dispensers. The site had formerly used by Pabco with above ground storage tanks. Pabco manufactured paints, roofing and floor coverings until 1964.

**UST and Piping/Dispenser Removal** - In April 1989, a 550-gallon used oil UST was removed. Soil sample WO-1 was collected from native soil beneath the tank at 7 feet bgs. Sample WO-2 was collected from the tank pit sidewall at a depth of 9 feet bgs, approximately 6 inches above groundwater. Soil collected contained up to 340ppm TOG, 27ppm TPHd, and 9.6ppm TPHg. The used oil tank pit was enlarged for the installation of a new used oil UST. Soil samples collected in the new tank pit (NWO-1 through NWO-4) contained up to 10,000ppm TOG and 370ppm TPHd. The contaminated sidewall was overexcavated.

April 1999 - The 2<sup>nd</sup> generation used oil tank (550-gallon capacity) was removed along with a clarifier and hoist from the former service bay during site remodeling activities. Soil samples collected from the vicinity of the former waste oil UST and service bays revealed impact to the subsurface by petroleum hydrocarbons. Elevated concentrations of lead were also detected

March 2001 - Product lines and dispensers were removed and replaced. The product line trench appeared to be stained with petroleum hydrocarbons. The entire length of the trench was over-excavated an additional 1.5 to 3.5 feet bgs prior to sampling. Additional over-excavation was not practical due to the very shallow (4 to 6 feet bgs) depth to first encountered groundwater. Four soil samples (PD-NW, 3.5', PD-NE, 3.5', PD-SW, 3.5', and PD-SE, 3.5') were collected beneath each product dispenser, and four soil samples (PL-1, 4', PL-2, 3', PL-3, 3', and PL-4, 3') were collected from beneath the product lines. Additional soils samples (OE-1 through OE-5) were collected from the product line trench as directed by this agency. A maximum of 5,300ppm TPHg, 630ppm TPHd, and 8.4ppm MTBE was identified in the soil samples.

Approximately 400 cy of soil was generated from the product line upgrade activities (and installation of canopy caissons). The soil was disposed at Forward Landfill in Manteca, CA. Lead-impacted soil (a total of approximately 120 cy) was also excavated and disposed in Button Willow, CA. In addition, approximately 15,000 gallons of groundwater was removed during de-watering of the UST cavity and transported to Tosco Refinery in Rodeo, CA for treatment and disposal. Elevated concentrations of lead detected in soil are likely related to facilities located in the Site vicinity's prior to the site's use as a gasoline service station and the presence of fill material beneath the site.

**Groundwater Monitoring Well Installation** - October 1992 - Eight exploratory borings were drilled at the site to depths ranging from 4 to 20 feet bgs. Borings B-1, B-3a, B-3b, and B-5a were abandoned due to auger refusal. Borings B-2, B-3, B-4, and B-5 were converted into groundwater monitoring wells MW-1 through MW-4. Groundwater from well MW-2 contained 12,000ppb TPHg and 3,900ppb benzene.

September 1993 - Five soil borings were converted into groundwater monitoring wells MW-5 through MW-9. Well MW-9 was constructed using 4-inch-diameter casing. The others were constructed using 2-inch-diameter casing.

Groundwater monitoring began in November 1992. A maximum of 290,000ppb TPHg, 24,000ppb benzene, and 123,000ppb MTBE has been detected in groundwater (well MW-9). Presently (Sep 2002), well MW-9 contains up to 47,000ppb TPHg, 10,000ppb benzene, and 31,000ppb MTBE. The most downgradient well contained 1,300ppb TPHg, ND benzene, and 1,800ppb MTBE. The MTBE plume has not been delineated to the west, southwest. There appears to be an increasing MTBE trend in wells MW-4 and MW-7. The plume is not stable and continues to migrate offsite.

**Site Geology and Hydrogeology** - Soil types encountered beneath the site generally consisted of imported fill material of sand, silt, clay, and manmade debris to approximately 13 feet bgs, and underlain by silty clay to 14 feet bgs, the total depth explored. During well drilling, groundwater was encountered and stabilized at approximately 6.5 feet bgs. Depth to water in well MW-1 has ranged from 3.05 to 6.19 feet bgs. Groundwater flows generally to the southwest at a gradient of 0.005 to 0.025 ft/ft.

**Sensitive Receptor Survey** - No water supply wells were identified within 1,000 feet of the site. The SF Bay is within 1,000 feet of the site. Groundwater at the site is designated as a non-potential source of drinking water.

Need ethanol and oxy analysis, need second generation waste oil tank removal report.

Need remedial action plan.

RO0000066 - Site History

Tosco #11126  
1700 Powell Street  
Emeryville, CA 94608

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September 1993 - Five soil borings were converted into groundwater monitoring wells MW-5 through MW-9. Well MW-9 was constructed using 4-inch-diameter casing. The others were constructed using 2-inch-diameter casing.

April 1999 - The 2<sup>nd</sup> generation used oil tank (550-gallon capacity) was removed along with a clarifier and hoist from the former service bay during site remodeling activities. Soil samples collected from the vicinity of the former waste oil UST and service bay revealed impact to the subsurface by petroleum hydrocarbons. Elevated concentrations of lead were also detected.

March 2001 - Product lines and dispensers were removed and replaced. The product line trench appeared to be stained with petroleum hydrocarbons. The entire length of the trench was over-excavated an additional 1.5 to 3.5 feet bgs prior to sampling. Additional over-excavation was not practical due to the very shallow (4 to 6 feet bgs) depth to first encountered groundwater. Four soil samples (PD-NW, 3.5', PD-NE, 3.5', PD-SW, 3.5', and PD-SE, 3.5') were collected beneath each product dispenser, and four soil samples (PL-1, 4', PL-2, 3', PL-3, 3', and PL-4, 3') were collected from beneath the product lines. Additional soils samples (OE-1 through OE-5) were collected from the product line trench as directed by this agency. A maximum of 5,300ppm TPHg, 630ppm TPHd, and 8.4ppm MTBE was identified in the soil samples.

tb

*Need ethical docs  
Med remedial action  
Need W.O. UST removal report*

*Get documents from  
Tosco site history file*

Approximately 400 cy of soil was generated from the product line upgrade activities (and installation of canopy caissons) . The soil was disposed at Forward Landfill in Manteca, CA. Lead-impacted soil (a total of approximately 120 cy) was also excavated and disposed in Button Willow, CA. In addition, approximately 15,000 gallons of groundwater was removed during de-watering of the UST cavity and transported to Tosco Refinery in Rodeo, CA for treatment and disposal. Elevated concentrations of lead detected in soil are likely related to facilities located in the Site vicinity's prior to the site's use as a gasoline service station and the presence of fill material beneath the site.

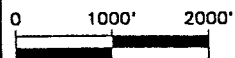
Groundwater monitoring began in November 1992. A maximum of 290,000ppb TPHg, 24,000ppb benzene, and 123,000ppb MTBE has been detected in groundwater (well MW-9). Presently (Sep 2002), well MW-9 contains up to 47,000ppb TPHg, 10,000ppb benzene, and 31,000ppb MTBE.

Need ethanol and oxy analysis, need second generation waste oil tank removal report.

Need remedial action plan.



SOURCE:  
USGS MAP, OAKLAND WEST QUADRANGLE,  
CALIFORNIA, 7.5 MINUTE SERIES, 1959.  
PHOTOREVISED 1980.



## FIGURE 1

### SITE VICINITY MAP

BP OIL SERVICE STATION NO. 11126  
1700 POWELL STREET  
EMERYVILLE, CALIFORNIA  
PROJECT NO. 10-061



**ALISTO ENGINEERING GROUP**  
WALNUT CREEK, CALIFORNIA



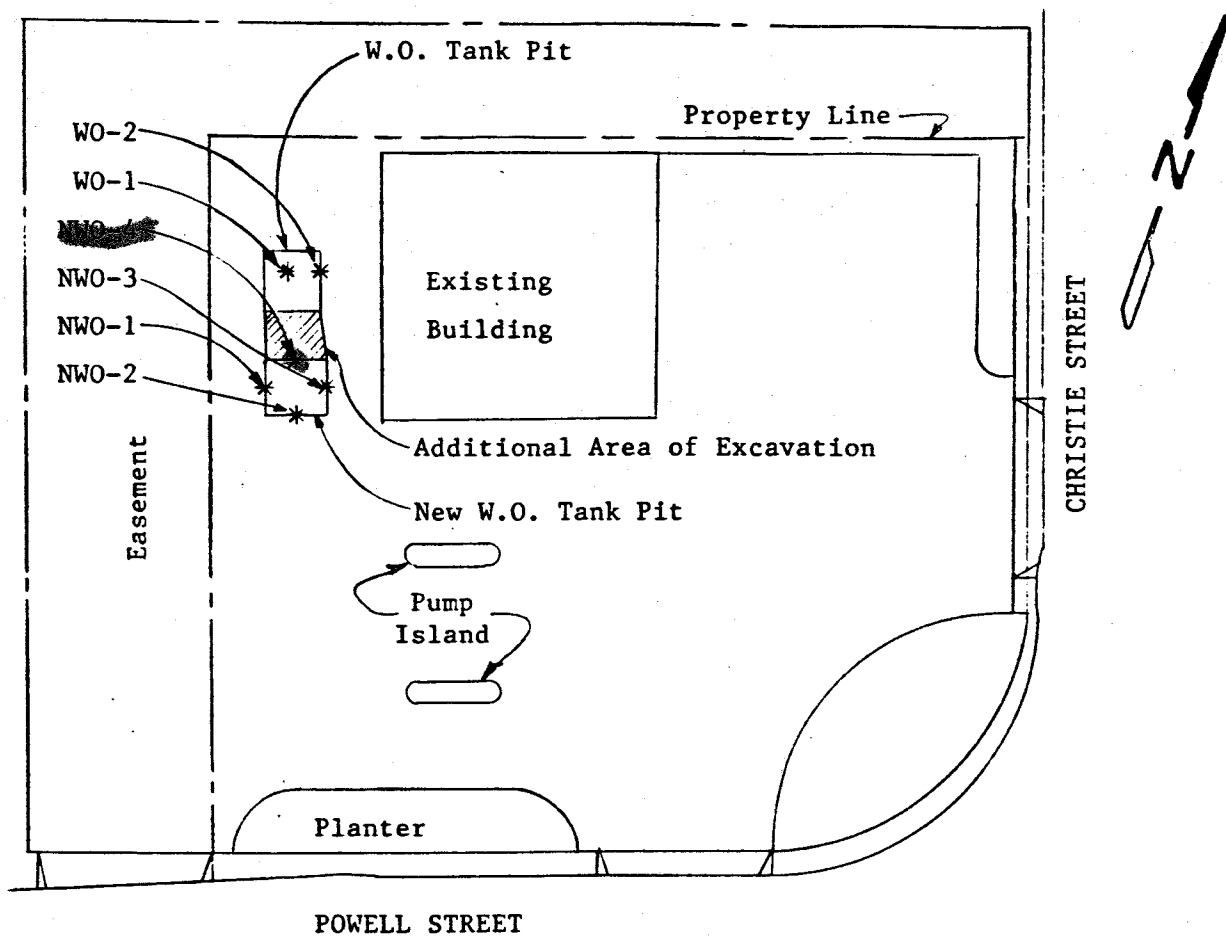
# KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

(415) 676-9100 (707) 746-6915



SITE PLAN

30 0 30 60  
scale feet

\* Soil Sample Location

Mobil Service Station #10-LTV  
1700 Powell Street  
Emeryville, California



KEI-J89-0410.R1  
May 10, 1989

TABLE 1

SUMMARY OF LABORATORY ANALYSES

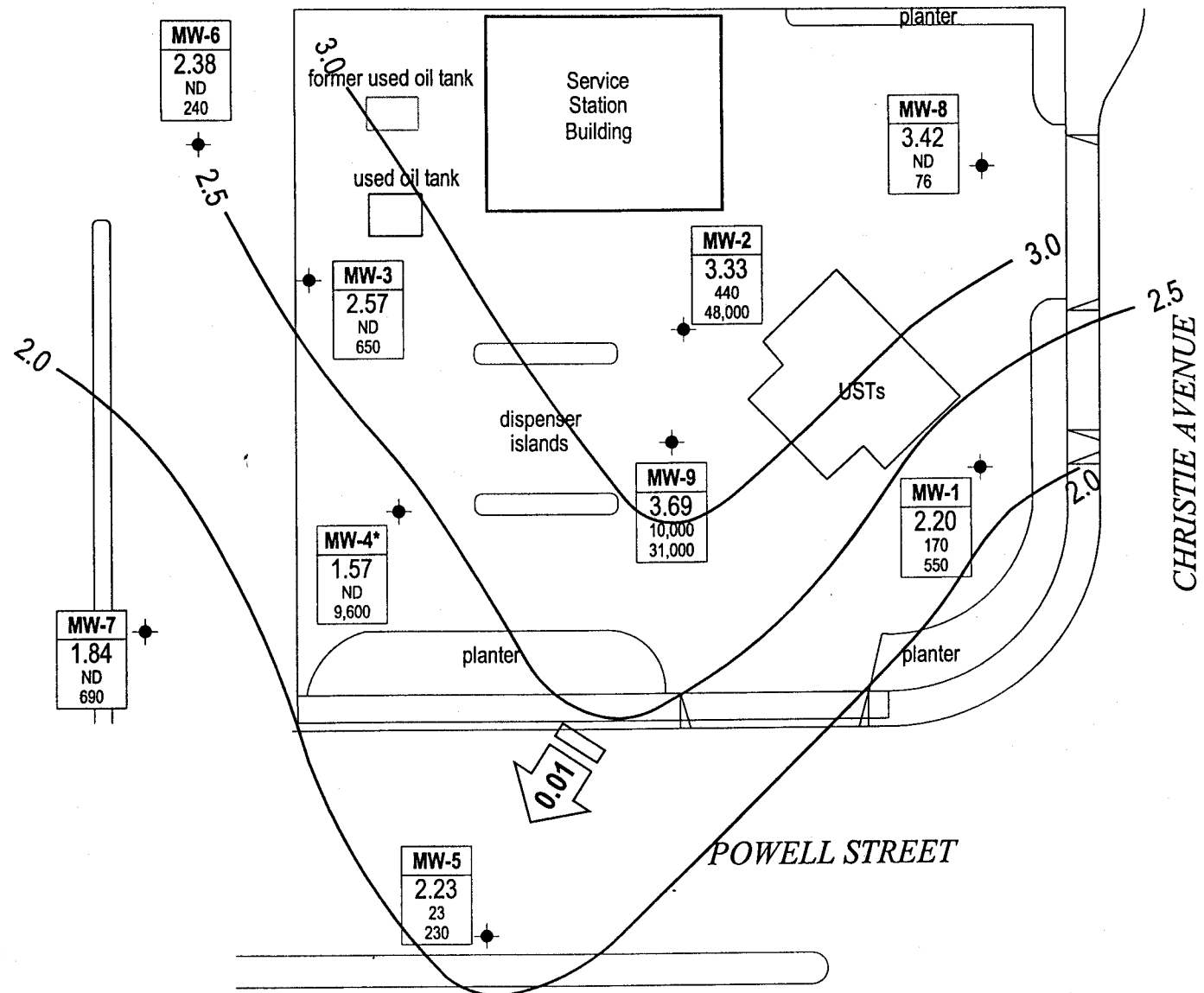
(Results in ppm)  
(Samples collected on April 24, 1989)

<u>Sample</u>	<u>Depth (feet)</u>	<u>TOG</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl- benzene</u>
WO-1*	7	340	27	9.6	ND	ND	ND	ND
WO-2*	9	64	ND	ND	ND	ND	ND	ND
NWO-1	9	ND	ND	---	---	---	---	---
NWO-2	9	ND	ND	---	---	---	---	---
NWO-3	9	ND	ND	---	---	---	---	---
NWO-4	9	ND	ND	---	---	---	---	---
Detection Limits		30.0	1.0	1.0	0.05	0.1	0.1	0.1

\* All 8010 constituents for both samples were non-detectable.

ND = Non-detectable.

X:\envl\_waste\BP\_GEM\Sites\RMH\_Sites\BP\_Heritage\1126\Reports\Monitoring\Contr.3. 2002\1\_GWEC-AS\_9-6.dwg



### EXPLANATION

- MW-1 Monitoring well location
- \* Groundwater data not used in contouring
- 2.5 Groundwater elevation contour (ft/MSL)  
dashed where inferred
- |         |
|---------|
| Well    |
| ELEV    |
| Benzene |
| MTBE    |

 Well designation
- |         |
|---------|
| ELEV    |
| Benzene |
| MTBE    |

 Groundwater elevation (ft/MSL)
- |         |
|---------|
| Benzene |
| MTBE    |

 Benzene and MTBE concentrations are  
in micrograms per liter (µg/L)
- Groundwater flow direction (ft/MSL)

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



**URS**

Project No. 38485985  
Former BP Service Station #11126  
1700 Powell Street  
Emeryville, California

**GROUNDWATER ELEVATION CONTOUR  
AND ANALYTICAL SUMMARY MAP**  
Third Quarter 2002 (September 6, 2002)

FIGURE

1

TABLE 2 - SUMMARY OF RESULTS OF SOIL SAMPLING AND ANALYSIS  
 BP OIL COMPANY SERVICE STATION NO. 11126  
 1700 POWELL STREET, EMERYVILLE, CALIFORNIA

ALISTO PROJECT NO. 10-061

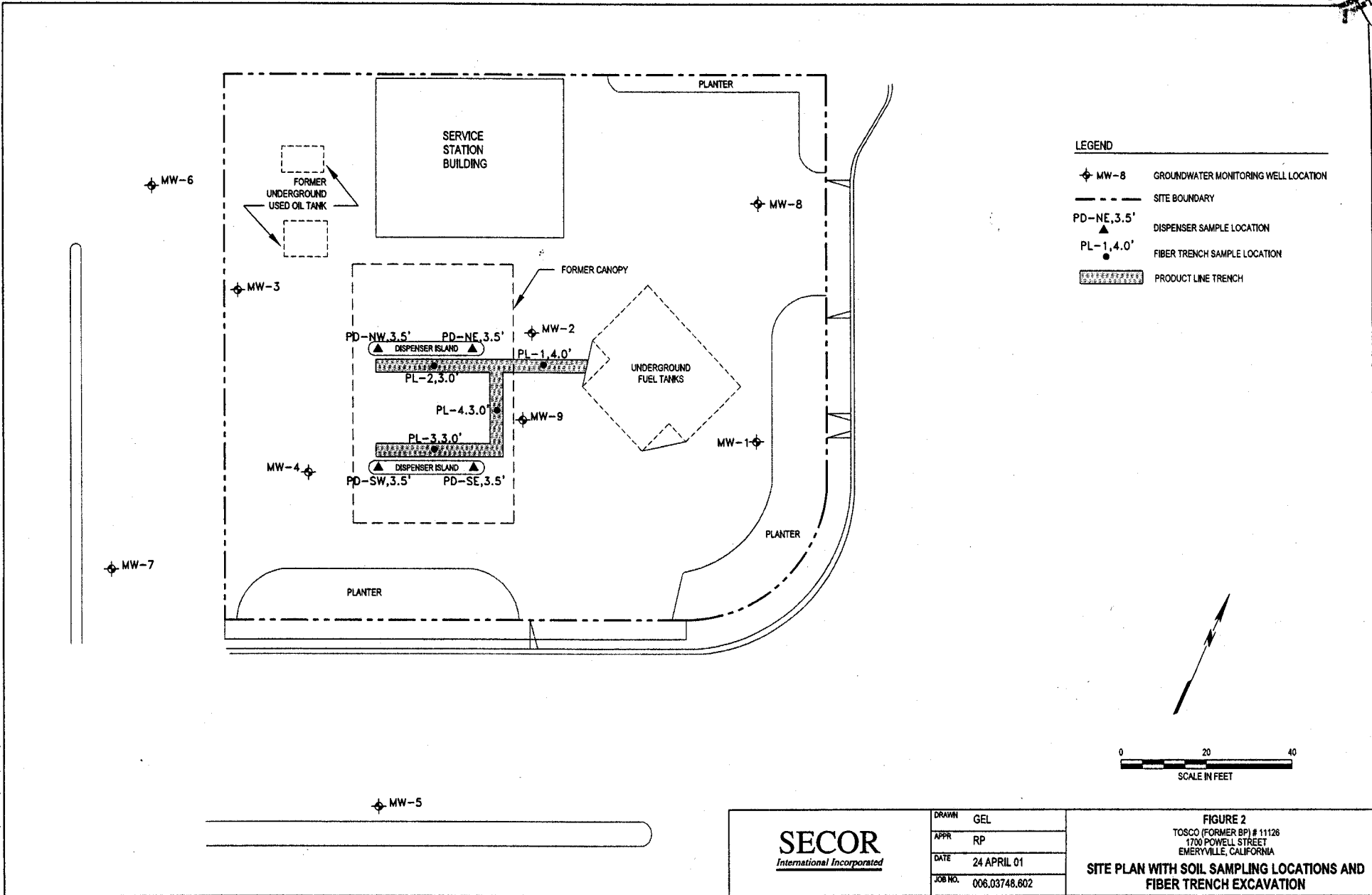
WELL ID	SAMPLE DEPTH (Feet)	DATE OF SAMPLING	TPH-G (ppm)	TPH-D (ppm)	B (ppm)	T (ppm)	E (ppm)	X (ppm)	HVOC (ppm)	TOG (ppm)	LAB
MW-1	4	10/20/92	32	---	0.19	1.8	0.53	2.2	---	---	PACE
MW-2	5	10/20/92	2.6	---	0.019	0.13	0.06	0.3	---	---	PACE
MW-3	7	10/20/92	ND<1.0	ND<5.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND (a)	ND<50	PACE
MW-4	5.5	10/20/92	---	---	0.42	0.58	3.8	1.6	---	---	PACE
MW-5	4.5	09/02/93	2.5	---	0.087	0.0059	0.0067	0.028	---	---	PACE
MW-6	4.5	09/02/93	ND<1.0	---	ND<0.005	ND<0.005	ND<0.005	ND<0.005	---	---	PACE
MW-7	4.5	09/03/93	ND<1.0	---	ND<0.005	ND<0.005	ND<0.005	ND<0.005	---	---	PACE
MW-8	5	09/03/93	ND<1.0	---	ND<0.005	ND<0.005	ND<0.005	ND<0.005	---	---	PACE
MW-9	---	09/03/93	---	---	---	330	130	420	---	---	PACE

ABBREVIATIONS:

TPH-G Total petroleum hydrocarbons as gasoline  
 TPH-D Total petroleum hydrocarbons as diesel  
 B Benzene  
 T Toluene  
 E Ethylbenzene  
 X Total xylenes  
 HVOC Halogenated volatile organic compounds  
 TOG Total oil and grease  
 ppm Parts per million  
 --- Not analyzed  
 PACE Pace, Inc.  
 ND Not detected above reported detection limit

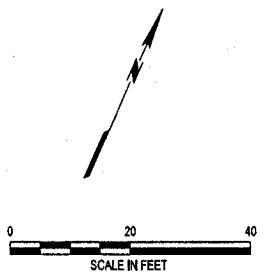
NOTES:

(a) Various detection limits; see laboratory reports.



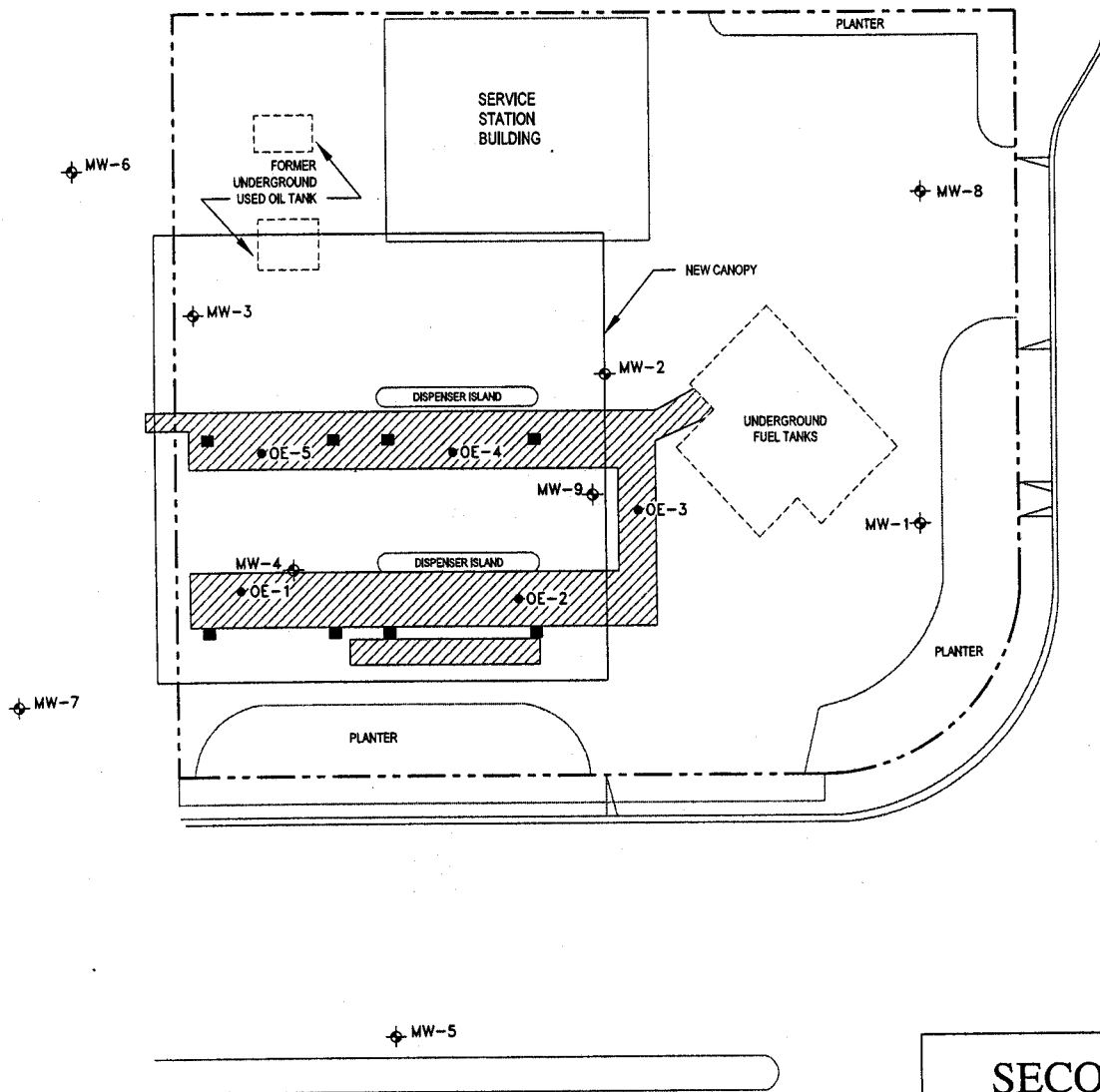
**LEGEND**

	MW-8	GROUNDWATER MONITORING WELL LOCATION
		SITE BOUNDARY
	PD-NE, 3.5'	DISPENSER SAMPLE LOCATION
	PL-1, 4.0'	FIBER TRENCH SAMPLE LOCATION
		PRODUCT LINE TRENCH



<p><b>SECOR</b> <i>International Incorporated</i></p>	DRAWN	GEL	<p><b>FIGURE 2</b> TOSCO (FORMER BP) # 11126 1700 POWELL STREET EMERYVILLE, CALIFORNIA</p> <p><b>SITE PLAN WITH SOIL SAMPLING LOCATIONS AND FIBER TRENCH EXCAVATION</b></p>
	APPR	RP	
	DATE	24 APRIL 01	
	JOB NO.	006.03748.602	

199808.050945 X:\MAG\487\CAAD\TOSCO\TOSCO-1126-006.03748.601-001.DWG 4-24-01



LEGEND

- ◆ MW-8 GROUNDWATER MONITORING WELL LOCATION
- - - SITE BOUNDARY
- OE-3 ● ADDITIONAL EXCAVATION SAMPLE
- NEW CANOPY FOOTINGS
- ▨ NEW PRODUCT LINE TRENCH

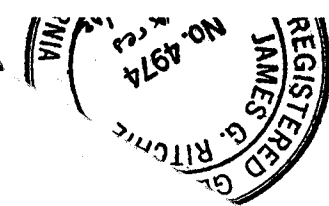
**SECOR**  
International Incorporated

DRAWN	GEL
APPR	RP
DATE	24 APRIL 01
JOB NO.	006.03748.602

**FIGURE 3**  
TOSCO (FORMER BP) # 11126  
1700 POWELL STREET  
EMERYVILLE, CALIFORNIA  
**SITE PLAN WITH SOIL SAMPLING LOCATIONS  
ADDITIONAL EXCAVATION**

Table 1  
**Soil Analytical Data**  
**Product Dispensers, Lines, and Over-excavation Samples**

Tosco (Former BP) Service Station #11126  
 1700 Powell Street  
 Emeryville, California



(650) 691-161

Sample	Name	Sample Depth	Date Sampled	TPH as Gasoline (mg/kg)	TPH as Diesel (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Total Lead (mg/kg)
<b>Product Dispenser Samples</b>															
PD-NW,3.5'		3.5'	03/28/01	130	43	0.65	<0.1	3.7	1.9	0.87	<0.25	<0.1	<0.1	<0.1	83
PD-NE,3.5'		3.5'	03/28/01	96	15	0.38	0.11	0.55	1.3	8.4	<0.25	<0.1	<0.1	1.5	46
PD-SW,3.5'		3.5'	03/28/01	260	6.6	1.1	0.4	3.8	12	1.1	<0.25	<0.1	<0.1	0.13	6.7
PD-SE,3.5'		3.5'	03/28/01	12	8.1	0.15	0.95	0.28	1.8	1	<0.25	<0.1	<0.1	<0.1	6.8
<b>Product Line Samples</b>															
PL-1,4'		4'	03/28/01	1,000	38	1.8	0.2	9.7	25	5.8	<0.25	<0.1	<0.1	0.28	NA
PL-2,3'		3'	03/28/01	180	24	0.14	0.17	2.8	13	0.28	<0.25	<0.1	<0.1	<0.1	NA
PL-3,3'		3'	03/28/01	4,700	630	3.6	57	68	340	3.8	<0.25	<0.1	<0.1	<0.1	NA
PL-4,3'		3'	03/28/01	5,300	570	4.9	96	48	280	7.4	<0.25	<0.1	<0.1	<0.1	NA
<b>Overexcavation Samples</b>															
OE-1		NA	03/30/01	8.6	3.3	0.059	0.065	0.047	0.065	<0.1	<0.25	<0.1	<0.1	<0.1	19
OE-2		NA	03/30/01	63	16	1.7	0.84	5	1.7	2.1	<0.25	<0.1	<0.1	0.15	870
OE-3		NA	03/30/01	22	3.4	0.42	1.5	0.6	3	2.1	<0.25	<0.1	<0.1	<0.1	54
OE-4		NA	03/30/01	14	9.9	0.09	0.1	0.18	0.18	0.15	<0.25	<0.1	<0.1	<0.1	87
OE-5		NA	03/30/01	2.9	1	0.071	0.047	0.061	0.043	0.95	<0.25	<0.1	<0.1	<0.1	27
Sample depth in feet below ground surface															
TPH = Total petroleum hydrocarbons															
MTBE = Methyl tertiary butyl ether															
TBA= Tertiary butyl alcohol															
DIPE= Di-isopropyl ether															
ETBE= Ethyl tertiary butyl ether															
TAME= Tertiary amyl methyl ether															
NA = Not analyzed															
mg/kg = Milligrams per kilogram															

**Table 2**  
**Stockpiled Soil Analytical Data**  
**Petroleum Hydrocarbons and Lead Analyses**  
 Tosco (Former BP) Service Station #11126  
 1700 Powell Street  
 Emeryville, California

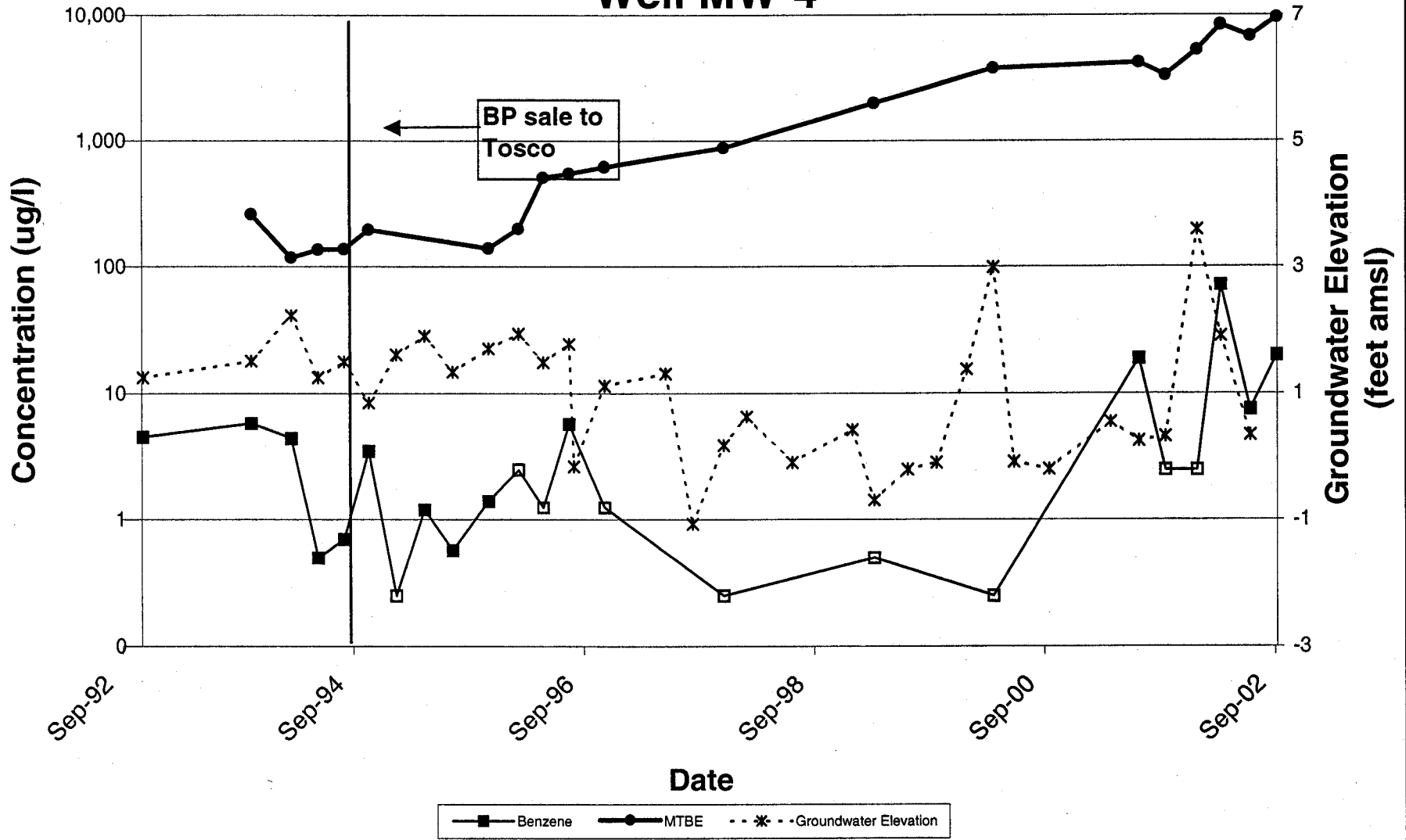
Sample	Name	Sample Depth	Date Sampled	TPH as Gasoline (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Total Lead (mg/kg)	STLC Lead (mg/L)	TCLP Lead (mg/L)
<b>Stockpile Samples</b>											
SP-1, 2, 3, 4			03/02/01	12	0.045	0.11	0.043	0.08	NA	10	<0.5
SP-5,6,7,8			03/07/01	120	<0.62	<0.62	<0.62	<0.62	NA	1	NA
SP-9,10,11,12			03/13/01	320	<1.2	2.1	2.3	3.7	NA	<0.5	NA
SP-13, ABCD			03/28/01	780	1.3	3	7.4	41	160	5.9	NA
TBPG-1, ABCD			03/28/01	1.9	0.02	0.02	0.017	4.2	11	0.5	NA
SP-14, ABCD			04/04/01	5.6	0.075	0.047	0.076	0.18	160	12	NA
SP-14, EFGH			04/04/01	18	0.034	0.047	0.026	0.2	190	3.2	NA
Sample depth in feet below ground surface											
TPH = Total petroleum hydrocarbons											
NA = Not analyzed											
mg/kg = Milligrams per kilogram											
mg/L = Milligrams per liter											
STLC = Soluble Threshold Limit Concentration											
TCLP = Toxicity Characteristic Leaching Procedure											

**Stockpiled Soil Analytical Data -  
CAM 17 Metals Analyses**  
Tosco (Former BP) Service Station #11126  
1700 Powell Street  
Emeryville, California

Sample Name	Date Sampled	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)	Mercury (mg/kg)
<b>Stockpile Samples</b>												
SP-1, 2, 3, 4	03/02/01	4.9	110	0.73	21	6.9	34	69	21	<1.0	99	0.12
SP-5,6,7,8	03/07/01	1.2	99	0.63	20	8.1	18	170	26	20	110	0.1
SP-9,10,11,12	03/13/01	3.5	150	0.82	24	10	25	72	29	29	87	0.11
mg/kg = Milligrams per kilogram												



# Concentration and Water Level Trends Well MW-4



**Table 1**  
**Groundwater Elevation and Analytical Data**  
**BP Service Station #11126**  
**1700 Powell Street, Emeryville, CA**

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TBH-G (ug/L)	TBH-D (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBB (ug/L)	TOG (ug/L)	HVOC (ug/L)	DO (ppm)	LAB
MW-1	11/04/1992	7.76	4.96	---	2.80	5300	---	1100	480	ND<0.5	1500	---	(k)	---	---	PACE
MW-1	10/12/1993	7.76	5.26	---	2.50	3600	---	970	71	100	550	6111	(k)	---	---	PACE
MW-1	02/15/1994	7.76	4.98	---	2.78	17000	---	4200	510	360	1600	5495	(k)	---	3.9	PACE
MW-1	05/11/1994	7.76	4.55	---	3.21	5500	---	2900	37	56	64	705	(k)	---	8.0	PACE
MW-1	08/01/1994	7.76	5.51	---	2.25	15000	---	3600	740	510	2800	9718	(d)(k)	---	2.9	PACE
QC-1 (e)	08/01/1994	---	---	---	---	16000	---	3600	750	510	2800	9800	(d)	---	---	PACE
MW-1	10/18/1994	7.76	5.11	---	2.65	16000	---	1800	61	160	890	15668	(k)	---	2.9	PACE
QC-1 (e)	10/18/1994	---	---	---	---	16000	---	1900	64	170	950	---	---	---	---	PACE
MW-1	01/13/1995	7.76	3.05	---	4.71	220	---	7	ND<0.5	1	23	---	---	---	6.6	ATI
QC-1 (e)	01/13/1995	---	---	---	---	590	---	88	0.7	ND<0.5	55	---	---	---	---	ATI
MW-1	04/13/1995	7.76	3.84	---	3.92	9300	---	4000	300	200	950	---	---	---	7.7	ATI
MW-1	07/11/1995	7.76	3.60	---	4.16	15000	---	2200	84	ND<25	2500	---	---	---	8.8	ATI
MW-1	11/02/1995	7.76	4.58	---	3.18	19000	---	920	ND<100	ND<100	430	52000	---	---	7.3	ATI
MW-1	02/05/1996	7.76	4.43	---	3.33	4600	---	1400	330	54	247	8700	---	---	3.2	SPL
MW-1	04/24/1996	7.76	4.00	---	3.76	2000	---	510	33	61	228	4500	---	---	7.5	SPL
MW-1	07/15/1996	7.76	4.30	---	3.46	---	---	---	---	---	---	---	---	---	---	---
MW-1	07/16/1996	7.76	---	---	---	12000	---	2800	170	390	1630	64000	---	---	7.9	SPL
QC-1 (e)	07/16/1996	---	---	---	---	12000	---	2800	160	390	1610	63000	---	---	---	SPL
MW-1	07/30/1996	7.76	4.64	---	3.12	---	---	---	---	---	---	---	---	---	---	---
MW-1	08/12/1996	7.76	---	---	---	11000	---	2500	160	ND<10	1740	440000	---	---	7.0	SPL
MW-1	11/04/1996	7.76	5.98	---	1.78	---	---	---	---	---	---	---	---	---	---	---
MW-1	11/05/1996	7.76	---	---	---	53000	---	1300	43	100	349	42000/190000	(f)	---	6.6	SPL
MW-1	05/17/1997	7.76	4.65	---	3.11	52000	---	1958	55	305	1216	140198	---	---	5.7	SPL
MW-1	08/11/1997	7.76	4.90	---	2.86	25000	---	540	6.7	ND<5.0	57	360000	---	---	7.9	SPL
MW-1	11/17/1997	7.76	6.12	---	1.64	93000	---	1200	31	180	40	400000	---	---	7.6	SPL
MW-1	01/29/1998	7.76	4.90	---	2.86	4800	---	320	24	52	19.9	ND<50	---	---	6.6	SPL
MW-1	06/22/1998	7.76	4.62	---	3.14	63000	---	180	ND<5.0	15	69	57000	---	---	6.0	---
MW-1	12/30/1998	7.76	5.41	---	2.35	22000	---	2500	24	120	400	15000/13000	(f)	---	---	SPL
MW-1	03/09/1999	7.76	3.40	---	4.36	16000	---	2000	84	290	510	13000	---	---	---	SPL
MW-1	06/23/1999	7.76	4.60	---	3.16	9600	---	4500	21	160	260	24000	---	---	---	SPL
MW-1	09/23/1999	7.76	4.21	---	3.55	3800	---	1600	32	150	240	7100	---	---	---	SPL
MW-1	12/28/1999	7.76	4.10	---	3.66	3400	---	ND<2200	17	53	130	5500	---	---	---	PACE
MW-1	03/22/2000	7.76	5.51	---	2.25	6400	---	1100	45	190	330	4900	---	---	---	PACE

Table 1  
 Groundwater Elevation and Analytical Data  
 BP Service Station #11126  
 1700 Powell Street, Emeryville, CA

WELL ID	DATE OF SAMPLING	MONITORING POINT	GAINING ELEVATION (ft)	DEPTH TO WATER (ft)	PROJECT THICKNESS (ft)	GROUNDWATER ELEVATION (ft)	PTH-G (g/L)	PTH-D (g/L)	H (g/L)	I (µg/L)	B (µg/L)	X (µg/L)	MPHE (µg/L)	TOC (µg/L)	HVOC (µg/L)	NO <sub>2</sub> (µg/L)	LAB
MW-1	05/26/2000		7.76	4.79	---	2.97	110000	---	700	44	140	250	320000	---	---	---	PAGE
MW-1	09/06/2000		7.76	5.19	---	2.57	5600	---	1000	13	57	90	19000	---	---	---	PAGE
MW-1	09/15/2000		7.76	5.73	---	2.03	---	---	---	---	---	---	---	---	---	---	PAGE
MW-1	12/11/2000		7.76	5.82	---	1.94	5500	---	1160	47.1	155	292	3900	---	---	---	PAGE
MW-1 (h)	03/29/2001		7.76	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	06/27/2001		7.76	5.49	---	2.27	6100	---	1200	12.9	17.3	77.9	1780	---	---	---	---
MW-1	09/19/2001		7.76	6.19	---	1.57	1800	---	102	ND<12.5	ND<12.5	ND<37.5	1090	---	---	---	PAGE
MW-1	12/28/2001		7.76	5.27	---	2.49	4000	---	540	11.8	20.4	64.6	1120	---	---	---	PAGE
MW-1	03/12/2002		7.76	5.68	---	2.08	3700	---	491	8.39	12.4	27.3	1020	---	---	---	PAGE
MW-1	6/13/2002*		7.76	5.54	---	2.22	1900	---	255	ND<12.5	ND<12.5	ND<25	6490	---	---	---	PAGE
MW-1	09/06/2002		7.76	5.56	---	2.20	1100	---	170	5.1	2.2	20	550	---	---	---	PAGE
MW-1																	SEQ

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**BP Service Station #11126**  
**1700 Powell Street, Emeryville, CA**

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	TPH-D (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	TOG (ug/L)	HVOC (ug/L)	DO (ppm)	LAB
MW-2	11/04/1992	8.56	5.88	---	2.68	12000	---	3900	1300	ND<0.5	2300	---	(k)	---	---	PACE
QC-1 (e)	11/04/1992	---	---	---	---	12000	---	3200	980	ND<0.5	1900	---	---	---	---	PACE
MW-2	10/12/1993	8.56	6.29	---	2.27	4500	---	3400	180	230	940	442	(k)	---	---	PACE
MW-2	02/15/1994	8.56	5.56	---	3.00	2000	---	430	270	28	390	127	(k)	---	4.0	PACE
QC-1 (e)	02/15/1994	---	---	---	---	1800	---	290	160	14	250	---	---	---	---	PACE
MW-2	05/11/1994	8.56	5.17	---	3.39	14000	---	3900	1200	440	1900	953	(k)	---	8.9	PACE
QC-1 (e)	05/11/1994	---	---	---	---	15000	---	5600	1500	470	2000	740	(d)	---	---	PACE
MW-2	08/01/1994	8.56	5.43	---	3.13	8200	---	3000	420	230	680	1676	(k)	---	2.6	PACE
MW-2	10/18/1994	8.56	5.71	---	2.85	9000	---	2000	140	150	420	2417	(k)	---	7.2	PACE
MW-2	01/13/1995	8.56	4.67	---	3.89	7900	---	2200	42	ND<5	770	---	---	---	6.8	ATI
MW-2	04/13/1995	8.56	4.37	---	4.19	33000	---	8000	2500	1100	6600	---	---	---	7.5	ATI
QC-1 (e)	04/13/1995	---	---	---	---	25000	---	6500	1500	110	5300	---	---	---	---	ATI
MW-2	07/11/1995	8.56	4.51	---	4.05	19000	---	3300	99	7.5	4600	---	---	---	7.8	ATI
QC-1 (e)	07/11/1995	---	---	---	---	28000	---	6800	1000	900	4900	---	---	---	---	ATI
MW-2	11/02/1995	8.56	5.55	---	3.01	20000	---	3800	1200	570	2700	15000	---	---	7.3	ATI
QC-1 (e)	11/02/1995	---	---	---	---	22000	---	4000	1200	600	2700	19000	---	---	---	ATI
MW-2	02/05/1996	8.56	5.10	---	3.46	1200	---	320	220	26	187	99	---	---	2.2	SPL
QC-1 (e)	02/05/1996	---	---	---	---	910	---	290	180	19	137	93	---	---	---	SPL
MW-2	04/24/1996	8.56	4.95	---	3.61	ND<500	---	70	22	ND<10	61	ND<50	---	---	7.0	SPL
QC-1 (e)	04/24/1996	---	---	---	---	ND<500	---	100	30	ND<10	71	ND<100	---	---	---	SPL
MW-2	07/15/1996	8.56	5.40	---	3.16	---	---	---	---	---	---	---	---	---	---	---
MW-2	07/16/1996	8.56	---	---	---	12000	---	3300	1400	250	2610	1400	---	---	7.8	SPL
MW-2	07/30/1996	8.56	5.44	---	3.12	---	---	---	---	---	---	---	---	---	---	---
MW-2	11/04/1996	8.56	7.06	---	1.50	---	---	---	---	---	---	---	---	---	---	---
MW-2	11/05/1996	8.56	---	---	---	7200	---	1400	230	38	2110	1100	---	---	7.4	SPL
QC-1 (e)	11/05/1996	---	---	---	---	9200	---	1300	170	ND<25	2240	1100	---	---	---	SPL
MW-2	05/17/1997	8.56	5.77	---	2.79	570	---	42	ND<5.0	5.0	60	210	---	---	6.9	SPL
MW-2	08/11/1997	8.56	5.71	---	2.85	6300	---	1800	130	86	397	2400	---	---	8.5	SPL
MW-2	11/17/1997	8.56	6.91	---	1.65	2400	---	220	30	33	259	130	---	---	7.9	SPL
MW-2	01/29/1998	8.56	4.61	---	3.95	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	6.2	SPL
MW-2	06/22/1998	8.56	4.80	---	3.76	4200	---	640	150	120	650	560	---	---	5.4	SPL
MW-2	12/30/1998	8.56	5.21	---	3.35	---	---	---	---	---	---	---	---	---	---	---
MW-2	06/23/1999	8.56	5.30	---	3.26	---	---	---	---	---	---	---	---	---	---	---

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**BP Service Station #11126**  
**1700 Powell Street, Emeryville, CA**

WELL ID	DATE OF SAMPLING	DEPTH TO CAPING (feet)	DEPTH TO WATER (feet)	PROJECT THICKNESS (feet)	GROUNDWATER ELEVATION (ft)	TH-6 (µg/L)	TH-10 (µg/L)	H (µg/L)	T (µg/L)	B (µg/L)	X (µg/L)	MTBE (µg/L)	TOG (µg/L)	HVOC (µg/L)	SO <sub>4</sub> (mg/L)	TAH (mg/L)
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MW-2	09/23/1999	8.56	4.75	---	3.81	3800	---	760	19	210	960	910	---	---	---	SPL
MW-2	12/28/1999	8.56	4.51	---	4.05	---	---	---	---	---	---	---	---	---	---	---
MW-2	03/22/2000	8.56	4.21	---	4.35	2500	---	780	17	44	270	2800	---	---	---	PAGE
MW-2	09/06/2000	8.56	4.66	---	3.90	---	---	---	---	---	---	---	---	---	---	---
MW-2	09/15/2000	8.56	4.74	---	3.85	3700	---	1200	5.5	12	170	12000	---	---	---	PAGE
MW-2	12/11/2000	8.56	4.79	---	3.77	---	---	---	---	---	---	---	---	---	---	---
MW-2 (h)	03/29/2001	8.56	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2 (i)	06/27/2001	8.56	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2 (i)	09/19/2001	8.56	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2 (i)	12/28/2001	8.56	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	03/12/2002	8.56	4.25	---	4.31	26000	---	1160	4.39	61.1	171	37300	---	---	---	PAGE
MW-2	6/13/2002*	8.56	4.94	---	3.62	18000	---	578	ND<50	ND<50	ND<100	84600	---	---	---	PAGE
MW-2	09/06/2002	8.56	5.23	---	3.33	26000	---	440	ND<50	ND<50	ND<50	45000	---	---	---	SBO

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**BP Service Station #11126**  
**1700 Powell Street, Emeryville, CA**

WELL ID	DATE OF SAMPLING/MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-O (ug/L)	TPH-D (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	TOG (ug/L)	HVOC (ug/L)	DO (ppm)	LAB	
MW-3	11/04/1992	8.25	6.38	---	1.87	200	690	1.6	ND<0.5	ND<0.5	1.1	---	(k)	ND<5000	ND	---	PACE
MW-3	10/12/1993	8.25	5.84	---	2.41	270	2100	5.0	0.7	ND<0.5	2.6	96.3	(k)	ND<5000	ND	---	PACE
QC-1 (e)	10/12/1993	---	---	---	---	150	---	5.6	0.6	ND<0.5	1.6	---	---	---	---	---	PACE
MW-3	02/15/1994	8.25	6.60	---	1.65	140	2.3	5.7	ND<0.5	ND<0.5	ND<0.5	30.1	(k)	90	ND	3.9	PACE
MW-3	05/11/1994	8.25	5.86	---	2.39	190	2500	2.7	1.9	ND<0.5	1.9	51	(d)(k)	ND<5000	ND	9.2	PACE
MW-3	08/01/1994	8.25	6.13	---	2.12	120	1300	1.3	ND<0.5	0.5	1.1	17.6	(k)	ND<5000	ND	2.9	PACE
MW-3	10/18/1994	8.25	6.39	---	1.86	100	2200	2.3	ND<0.5	ND<0.5	ND<0.5	21	(k)	ND<5000	ND	3.6	PACE
MW-3	01/13/1995	8.25	5.47	---	2.78	ND<50	970	0.8	ND<0.5	ND<0.5	ND<1	---	---	ND	7.7	ATI	
MW-3	04/13/1995	8.25	5.17	---	3.08	530	ND<500	8.7	1.9	ND<0.5	3.9	---	2100	ND	8.4	ATI	
MW-3	07/11/1995	8.25	5.37	---	2.88	78	2100	0.57	ND<0.50	ND<0.50	ND<1.0	---	1900	ND	8.3	ATI	
MW-3	11/02/1995	8.25	6.29	---	1.96	250	2000	0.73	ND<0.50	ND<0.50	1.8	270	1400	ND	8.3	ATI	
MW-3	02/05/1996	8.25	5.80	---	2.45	ND<50	1600	ND<0.5	ND<1	ND<1	2.7	11	9000	ND	3.5	SPL	
MW-3	04/24/1996	8.25	5.69	---	2.56	ND<50	2800	ND<5	ND<10	ND<10	ND<10	150	6000	ND	8.6	SPL	
MW-3	07/15/1996	8.25	6.18	---	2.07	ND<250	3700	ND<2.5	ND<5	ND<5	ND<5	ND<50	1000	ND	7.7	SPL	
MW-3	07/30/1996	8.25	6.04	---	2.21	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	11/04/1996	8.25	7.84	---	0.41	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	11/05/1996	8.25	---	---	---	90	890	ND<0.5	ND<1.0	ND<1.0	ND<1.0	30	2000	ND	6.8	SPL	
MW-3	05/17/1997	8.25	6.49	---	1.76	ND<50	2100	ND<0.5	ND<1.0	ND<1.0	ND<1.0	52	700	ND	6.3	SPL	
MW-3	08/11/1997	8.25	6.15	---	2.10	490	1900	ND<2.5	ND<5.0	ND<5.0	ND<5.0	170	ND<5000	ND	7.4	SPL	
MW-3	11/17/1997	8.25	7.15	---	1.10	120	2500	ND<0.5	ND<1.0	ND<1.0	ND<1.0	46	ND<5000	ND	7.0	SPL	
MW-3	01/29/1998	8.25	5.10	---	3.15	270	1700	0.53	ND<1.0	ND<1.0	ND<1.0	330	2000	ND	6.4	SPL	
MW-3	06/22/1998	8.25	5.50	---	2.75	200	2200	ND<0.5	ND<1.0	ND<1.0	ND<1.0	130	ND<5	ND	5.5	SPL	
MW-3	12/30/1998	8.25	6.68	---	1.57	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	03/09/1999	8.25	5.53	---	2.72	60	840	ND<1.0	ND<1.0	ND<1.0	ND<1.0	19	7600	---	---	SPL	
MW-3	06/23/1999	8.25	6.60	---	1.65	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	09/23/1999	8.25	6.17	---	2.08	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	12/28/1999	8.25	6.00	---	2.25	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	03/22/2000	8.25	4.77	---	3.48	690	ND<58	4.2	3.1	0.81	2.7	2900	13000	---	---	PACE	
MW-3	05/26/2000	8.25	5.28	---	2.97	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	09/15/2000	8.25	5.58	---	2.67	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	12/11/2000	8.25	11.74	---	-3.49	(i)	---	---	---	---	---	---	---	---	---	---	---
MW-3	03/29/2001	8.25	5.04	---	3.21	650	ND<50	ND<2.5	ND<2.5	ND<2.5	ND<7.5	680	6540	---	---	PACE	
MW-3	06/27/2001	8.25	5.62	---	2.63	460	690	ND<2.5	ND<2.5	ND<2.5	ND<7.5	560	ND<5000	---	---	PACE	
MW-3	09/19/2001	8.25	5.80	---	2.45	ND<500	520	ND<5.0	ND<5.0	ND<5.0	ND<15	464	ND<5000	---	---	PACE	
MW-3	12/28/2001	8.25	4.85	---	3.40	180	550	ND<0.5	ND<0.5	ND<0.5	ND<1.0	180	ND<5000	---	---	PACE	
MW-3	03/12/2002	8.25	4.39	---	3.86	410	1300	ND<2.5	ND<2.5	ND<2.5	ND<5.0	443	ND<5000	---	---	PACE	
MW-3	6/13/2002*	8.25	5.38	---	2.87	ND<250	2600	ND<2.5	ND<2.5	ND<2.5	ND<5.0	395	ND<5000	---	---	PACE	
MW-3	09/06/2002	8.25	5.68	---	2.57	ND<200	---	ND<2.0	ND<2.0	ND<2.0	ND<2.0	650	---	---	---	SEQ	

Table 1  
 Groundwater Elevation and Analytical Data  
 BP Service Station #11126  
 1700 Powell Street, Emeryville, CA

WELL ID	DATE OF SAMPLING	CASING ELEVATION (ft)	DEPTH TO WATER (ft)	PRODUCT THICKNESS (ft)	GROUNDWATER ELEVATION (ft)	TH3D	TH3D	H	I	E	N	PTTH	TOC (mg/L)	HYOC (mg/L)	TH
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MW-4	11/04/1992	8.12	6.66	1.46	3.40	ND<0.5	4.5	ND<0.5	4.3	ND<0.5	ND<0.5	ND<0.5	---	---	---
MW-4	10/12/1993	8.12	6.87	1.25	1.60	ND<0.5	5.8	1.4	0.8	2.7	261	(K)	---	---	---
MW-4	02/15/1994	8.12	6.61	1.51	110	ND<0.5	4.4	0.7	0.7	2.5	118	(d)(k)	---	---	---
MW-4	05/11/1994	8.12	5.89	2.23	120	ND<0.5	0.5	0.8	0.8	ND<0.5	137	(d)(k)	---	---	---
MW-4	08/01/1994	8.12	6.87	1.25	140	ND<0.5	0.7	2.0	5.2	15	138	(k)	---	---	---
MW-4	10/18/1994	8.12	6.62	1.50	140	ND<0.5	3.5	ND<0.5	0.5	ND<0.5	197	(k)	---	---	---
MW-4	01/13/1995	8.12	7.27	0.85	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	---	---	---
MW-4	04/13/1995	8.12	6.51	1.61	73	ND<0.5	1.2	1.2	1.2	ND<1	---	---	---	---	---
MW-4	07/11/1995	8.12	6.21	1.91	82	ND<0.5	0.57	ND<0.50	ND<1.0	ND<1	---	---	---	---	---
MW-4	11/02/1995	8.12	6.78	1.34	71	ND<0.5	1.4	0.96	0.99	2.8	140	---	---	---	---
MW-4	02/05/1996	8.12	6.41	1.71	ND<50	ND<0.5	ND<0.5	ND<10	ND<10	ND<10	200	---	---	---	---
MW-4	04/24/1996	8.12	6.18	1.94	ND<50	ND<2.5	ND<5	ND<5	ND<5	ND<5	510	---	---	---	---
MW-4	07/15/1996	8.12	6.63	1.49	ND<50	---	---	---	---	---	550	---	---	---	---
MW-4	07/30/1996	8.12	6.34	1.78	---	---	---	---	---	---	---	---	---	---	---
MW-4	11/04/1996	8.12	8.27	-0.15	---	---	---	---	---	---	---	---	---	---	---
MW-4	11/05/1996	8.12	7.00	1.12	460	ND<2.5	11	---	---	---	620/610	(j)	---	---	---
MW-4	05/17/1997	8.12	6.81	1.31	---	---	---	---	---	---	---	---	---	---	---
MW-4	11/17/1997	8.12	9.19	-1.07	840	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	880	---	---	---	---
MW-4	01/29/1998	8.12	7.94	0.18	---	---	---	---	---	---	---	---	---	---	---
MW-4	06/22/1998	8.12	7.49	0.63	---	---	---	---	---	---	---	---	---	---	---
MW-4	12/30/1998	8.12	8.21	-0.09	---	---	---	---	---	---	---	---	---	---	---
MW-4	03/09/1999	8.12	7.70	0.42	1200	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	2000	---	---	---	---
MW-4	06/23/1999	8.12	8.81	-0.69	---	---	---	---	---	---	---	---	---	---	---
MW-4	09/23/1999	8.12	8.32	-0.20	---	---	---	---	---	---	---	---	---	---	---
MW-4	12/28/1999	8.12	8.21	-0.09	---	---	---	---	---	---	---	---	---	---	---
MW-4	03/22/2000	8.12	6.74	1.38	910	ND<0.5	ND<0.5	---	---	---	3800	---	---	---	---
MW-4	05/26/2000	8.12	5.13	2.99	---	---	---	---	---	---	---	---	---	---	---
MW-4	09/15/2000	8.12	8.20	-0.08	---	---	---	---	---	---	---	---	---	---	---
MW-4	12/11/2000	8.12	8.31	-0.19	---	---	---	---	---	---	---	---	---	---	---
MW-4 (h)	03/29/2001	8.12	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	06/27/2001	8.12	7.57	0.55	2800	ND<2.5	18.9	ND<2.5	ND<2.5	ND<2.5	4220	---	---	---	---
MW-4	09/19/2001	8.12	7.87	0.25	2500	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	3340	---	---	---	---
MW-4	12/28/2001	8.12	7.80	0.32	4400	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	5330	---	---	---	---
MW-4	03/12/2002	8.12	4.53	3.59	6400	ND<5.0	71.5	ND<5.0	ND<5.0	ND<5.0	8440	---	---	---	---
MW-4	6/13/2002*	8.12	6.21	1.91	1800	ND<5.0	7.5	ND<20	ND<20	ND<20	6870	---	---	---	---
MW-4	09/06/2002	8.12	7.78	0.34	ND<2000	---	---	---	---	---	9600	---	---	---	---

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**BP Service Station #11126**  
**1700 Powell Street, Emeryville, CA**

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-O (ug/L)	TPH-D (ug/L)	B (ug/L)	T (ug/L)	H (ug/L)	X (ug/L)	MTBE (ug/L)	TOC (ug/L)	HVOC (ug/L)	DO (ppm)	LAH		
MW-5	10/12/1993	7.69	6.01	---	1.68	---	---	---	---	---	---	---	(k)	---	---	---	PACE	
MW-5	10/13/1993	7.69	---	---	---	2300	---	160	10	ND<0.5	26	---	(k)	---	---	---	PACE	
MW-5	02/15/1994	7.69	5.74	---	1.95	5100	---	710	16	33	35	153	(d)(k)	---	---	4.0	PACE	
MW-5	05/11/1994	7.69	5.28	---	2.41	11000	---	1100	39	110	57	165	(d)(k)	---	---	8.0	PACE	
MW-5	08/01/1994	7.69	5.84	---	1.85	9000	---	730	35	61	41	196	(d)(k)	---	---	2.6	PACE	
MW-5	10/18/1994	7.69	6.01	---	1.68	7800	---	330	30	27	27	559	(k)	---	---	5.6	PACE	
MW-5	01/13/1995	7.69	4.74	---	2.95	ND<500	---	290	6	ND<5	18	---	---	---	---	6.8	ATI	
MW-5	04/13/1995	7.69	5.50	---	2.19	9100	---	400	15	52	27	---	---	---	---	7.4	ATI	
MW-5	07/11/1995	7.69	5.75	---	1.94	7300	---	390	13	28	23	---	---	---	---	7.2	ATI	
MW-5	11/03/1995	7.69	6.65	---	1.04	7200	---	270	15	38	23	200	---	---	---	8.4	ATI	
MW-5	02/05/1996	7.69	4.83	---	2.86	4600	---	370	15	53	28	ND<50	---	---	---	1.9	SPL	
MW-5	04/24/1996	7.69	6.09	---	1.60	3000	---	180	ND<10	32	14	ND<100	---	---	---	8.1	SPL	
MW-5	07/15/1996	7.69	6.57	---	1.12	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	07/16/1996	7.69	---	---	---	ND<50	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	07/30/1996	7.69	5.61	---	2.08	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	08/12/1996	7.69	---	---	---	2000	---	150	12	25	18.2	ND<50	---	---	---	7.6	SPL	
MW-5	11/04/1996	7.69	8.25	---	-0.56	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	11/05/1996	7.69	---	---	---	5200	---	42	5.5	13	ND<5.0	1700	---	---	---	7.4	SPL	
MW-5	05/17/1997	7.69	6.95	---	0.74	80	---	0.56	ND<1.0	ND<1.0	ND<1.0	46	---	---	---	6.7	SPL	
MW-5	08/11/1997	7.69	6.72	---	0.97	2700	---	20	12	6.7	9.7	1900	---	---	---	8.5	SPL	
MW-5	11/17/1997	7.69	9.49	---	-1.80	8400	---	25	12	8.7	5.4	13000	---	---	---	7.9	SPL	
MW-5	01/29/1998	7.69	7.88	---	-0.19	110000	---	2500	110	180	589	180000	---	---	---	6.8	SPL	
MW-5	06/22/1998	7.69	7.40	---	0.29	4400	---	47	10	29	20.5	47	---	---	---	6.6	SPL	
MW-5	12/30/1998	7.69	6.13	---	1.56	6000	---	18	9.1	22	16	63/44	(f)	---	---	---	SPL	
MW-5	03/09/1999	7.69	4.79	---	2.90	4600	---	8.8	5.5	12	11	24	---	---	---	---	SPL	
MW-5	06/23/1999	7.69	5.95	---	1.74	3400	---	1500	8.9	54	87	7500	---	---	---	---	SPL	
MW-5	09/23/1999	7.69	5.43	---	2.26	2600	---	510	14	140	650	580	---	---	---	---	SPL	
MW-5	12/28/1999	7.69	5.30	---	2.39	3500	---	900	18	57	140	4800	---	---	---	---	PACE	
MW-5 (h)	03/22/2000	7.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5 (h)	05/26/2000	7.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5 (h)	09/06/2000	7.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5 (h)	09/15/2000	7.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5 (h)	12/11/2000	7.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5 (h)	03/29/2001	7.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5 (j)	06/27/2001	7.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5 (j)	09/19/2001	7.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	12/28/2001	7.69	4.65	---	3.04	4600	---	19.9	24.6	16.2	57	72.3	---	---	---	---	PACE	
MW-5	03/12/2002	7.69	5.35	---	2.34	5100	---	45.4	13.7	22	38.9	31.6	---	---	---	---	PACE	
MW-5	06/13/2002	7.69	5.34	---	2.35	2900	---	31.8	ND<12.5	ND<12.5	ND<25	616	---	---	---	---	PACE	
MW-5	09/06/2002	7.69	5.46	---	2.23	3400	---	23	5.5	ND<5.0	11	230	---	---	---	---	SEQ	



Table 1  
 Groundwater Elevation and Analytical Data  
 BP Service Station #11126  
 1700 Powell Street, Emeryville, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (ft)	DEPTH TO WATER (ft)	POTENTIAL PROBLEMS	GROUNDWATER ELEVATION (ft)	THD (ug/L)	H (ug/L)	I (ug/L)	X (ug/L)	ANION (ug/L)	TOT HVOIC (ug/L)	NO3 (ug/L)	SO4 (ug/L)	LAB
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MW-6	10/12/1993	8.52	6.59	---	1.93	63	ND<0.5	ND<0.5	ND<0.5	ND<0.5	44.4	(k)	38.1	(d)(k)	3.1	PAGE
MW-6	02/15/1994	8.52	6.31	---	2.21	68	ND<0.5	ND<0.5	ND<0.5	ND<0.5	38.1	(d)(k)	48.5	(d)(k)	8.7	PAGE
MW-6	05/11/1994	8.52	6.15	---	2.37	68	ND<0.5	ND<0.5	ND<0.5	ND<0.5	59.6	(k)	48.5	(d)(k)	2.4	PAGE
MW-6	08/01/1994	8.52	6.46	---	2.06	91	ND<0.5	ND<0.5	ND<0.5	ND<0.5	59.6	(k)	48.5	(d)(k)	6.0	PAGE
MW-6	10/18/1994	8.52	6.72	---	1.80	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	84.6	(k)	48.5	(d)(k)	2.4	PAGE
MW-6	01/13/1995	8.52	5.95	---	2.57	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	84.6	(k)	48.5	(d)(k)	6.0	PAGE
MW-6	04/13/1995	8.52	5.44	---	3.08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	---	---	7.0	ATT
MW-6	07/11/1995	8.52	5.68	---	2.84	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	---	8.4	ATT
MW-6	11/02/1995	8.52	6.57	---	1.95	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	---	---	---	---	8.3	ATT
MW-6	02/05/1996	8.52	6.27	---	2.25	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	35	---	---	---	8.3	ATT
MW-6	04/24/1996	8.52	5.95	---	2.57	ND<250	ND<2.5	ND<5	ND<10	ND<100	62	---	---	---	8.0	SPL
MW-6	07/15/1996	8.52	6.39	---	2.13	ND<250	ND<2.5	ND<5	ND<5	ND<50	---	---	---	---	8.0	SPL
MW-6	11/04/1996	8.52	8.05	---	0.47	---	---	---	---	---	---	---	---	---	---	---
MW-6	11/05/1996	8.52	6.75	---	1.77	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	---	---	---	---	7.3	SPL
MW-6	05/17/1997	8.52	6.75	---	1.77	---	---	---	---	---	---	---	---	---	---	---
MW-6	08/11/1997	8.52	6.48	---	2.04	---	---	---	---	---	---	---	---	---	---	---
MW-6	01/17/1997	8.52	9.27	---	-0.75	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	---	---	---	---	7.7	SPL
MW-6	01/29/1998	8.52	7.98	---	0.54	---	---	---	---	---	---	---	---	---	---	---
MW-6	06/22/1998	8.52	7.68	---	0.84	---	---	---	---	---	---	---	---	---	---	---
MW-6	12/30/1998	8.52	6.98	---	1.54	---	---	---	---	---	---	---	---	---	---	---
MW-6	03/09/1999	8.52	5.90	---	2.62	---	---	---	---	---	---	---	---	---	---	---
MW-6	06/23/1999	8.52	6.93	---	1.59	---	---	---	---	---	---	---	---	---	---	---
MW-6	09/23/1999	8.52	6.45	---	2.07	---	---	---	---	---	---	---	---	---	---	---
MW-6	12/28/1999	8.52	6.33	---	2.19	---	---	---	---	---	---	---	---	---	---	---
MW-6	03/22/2000	8.52	5.15	---	3.37	---	---	---	---	---	---	---	---	---	---	---
MW-6	09/15/2000	8.52	6.02	---	2.50	---	---	---	---	---	---	---	---	---	---	---
MW-6	12/11/2000	8.52	6.20	---	2.32	---	---	---	---	---	---	---	---	---	---	---
MW-6	03/29/2001	8.52	5.34	---	3.18	750	ND<2.5	2.91	ND<2.5	11.8	---	---	---	---	---	---
MW-6	06/27/2001	8.52	6.00	---	2.52	760	ND<2.5	32.9	ND<2.5	ND<7.5	---	---	---	---	---	---
MW-6	09/19/2001	8.52	6.22	---	2.30	ND<500	ND<5.0	ND<5.0	ND<5.0	ND<15	---	---	---	---	---	---
MW-6	12/28/2001	8.52	4.71	---	3.81	---	---	---	---	---	---	---	---	---	---	---
MW-6	03/12/2002	8.52	4.96	---	3.56	ND<500	ND<5.0	ND<5.0	ND<5.0	ND<10	---	---	---	---	---	---
MW-6	6/13/2002*	8.52	5.78	---	2.74	ND<250	ND<2.5	ND<2.5	ND<2.5	ND<5.0	---	---	---	---	---	---
MW-6	09/06/2002	8.52	6.14	---	2.38	130	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**BP Service Station #11126**  
**1700 Powell Street, Emeryville, CA**

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	TPH-D (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MIBH (ug/L)	TOC (ug/L)	HVOC (ug/L)	DO (ppm)	LAB	
MW-7	10/12/1993	7.61	6.14	---	1.47	ND<50	---	ND<0.5	ND<0.5	ND<0.5	0.7	ND<5.0	(k)	---	---	---	PACE
MW-7	02/15/1994	7.61	5.88	---	1.73	78	---	ND<0.5	ND<0.5	ND<0.5	0.6	ND<5.0	(k)	---	---	4.0	PACE
MW-7	05/11/1994	7.61	5.76	---	1.85	70	---	ND<0.5	ND<0.5	ND<0.5	0.9	11.5	(k)	---	---	9.1	PACE
MW-7	08/01/1994	7.61	5.97	---	1.64	77	---	ND<0.5	ND<0.5	ND<0.5	0.5	182	(k)	---	---	2.5	PACE
MW-7	10/18/1994	7.61	6.24	---	1.37	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	51.7	(k)	---	---	6.3	PACE
MW-7	01/13/1995	7.61	5.39	---	2.22	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	---	---	8.2	ATI
MW-7	04/13/1995	7.61	5.17	---	2.44	63	---	ND<0.5	ND<0.5	ND<0.5	1.4	---	---	---	---	8.4	ATI
MW-7	07/11/1995	7.61	5.25	---	2.36	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	---	7.9	ATI
MW-7	11/02/1995	7.61	6.19	---	1.42	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	55	---	---	---	8.0	ATI
MW-7	02/05/1996	7.61	5.69	---	1.92	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	40	---	---	---	1.9	SPL
MW-7	04/24/1996	7.61	5.59	---	2.02	ND<250	---	ND<2.5	ND<5	ND<5	ND<5	53	---	---	---	8.2	SPL
MW-7	07/15/1996	7.61	6.07	---	1.54	ND<250	---	ND<2.5	ND<5	ND<5	ND<5	ND<50	---	---	---	7.8	SPL
MW-7	07/30/1996	7.61	6.04	---	1.57	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	11/04/1996	7.61	7.76	---	-0.15	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	11/05/1996	7.61	---	---	---	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	7.8	SPL
MW-7	05/17/1997	7.61	6.42	---	1.19	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	08/11/1997	7.61	6.06	---	1.55	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	11/17/1997	7.61	9.07	---	-1.46	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	7.1	SPL
MW-7	01/29/1998	7.61	7.44	---	0.17	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	06/22/1998	7.61	7.39	---	0.22	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	12/30/1998	7.61	5.51	---	2.10	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	03/09/1999	7.61	5.57	---	2.04	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	06/23/1999	7.61	6.69	---	0.92	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	09/23/1999	7.61	6.23	---	1.38	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	12/28/1999	7.61	6.08	---	1.53	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	03/22/2000	7.61	4.88	---	2.73	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	05/26/2000	7.61	5.42	---	2.19	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	09/15/2000	7.61	5.79	---	1.82	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	12/11/2000	7.61	5.93	---	1.68	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	03/29/2001	7.61	5.24	---	2.37	600	---	ND<2.5	ND<2.5	ND<2.5	ND<7.5	636	---	---	---	---	PACE
MW-7	06/27/2001	7.61	5.69	---	1.92	590	---	ND<2.5	ND<2.5	ND<2.5	ND<7.5	739	---	---	---	---	PACE
MW-7	09/19/2001	7.61	5.89	---	1.72	560	---	ND<5.0	ND<5.0	ND<5.0	ND<15	1190	---	---	---	---	PACE
MW-7	12/28/2001	7.61	4.53	---	3.08	910	---	22.7	ND<2.5	ND<2.5	ND<5.0	856	---	---	---	---	PACE
MW-7	03/12/2002	7.61	4.71	---	2.90	620	---	ND<2.5	ND<2.5	ND<2.5	ND<5.0	675	---	---	---	---	PACE
MW-7	6/13/2002*	7.61	5.21	---	2.40	860	---	ND<2.5	ND<2.5	ND<2.5	ND<5.0	1470	---	---	---	---	PACE
MW-7	09/06/2002	7.61	5.77	---	1.84	350	---	ND<2.5	ND<2.5	ND<2.5	ND<2.5	690	---	---	---	---	SEQ

Table 1  
Groundwater Elevation and Analytical Data  
BP Service Station #11126  
1700 Powell Street, Emeryville, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (ft)	DEPTH TO WATER (ft)	PRODUCT THICKNESS (ft)	GROUNDWATER ELEVATION (ft)	THG (µg/L)	THD (µg/L)	H (µg/L)	I (µg/L)	H (µg/L)	X (µg/L)	MTHB (µg/L)	TOG (µg/L)	HYOC (µg/L)	NO <sub>3</sub> -N (mg/L)	LAB
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MW-8	10/12/1993	8.60	5.86	---	2.74	ND<0.5	---	---	---	---	---	---	---	---	---	---
MW-8	02/15/1994	8.60	5.50	---	3.10	ND<0.5	---	---	---	---	---	---	---	---	---	---
MW-8	05/11/1994	8.60	5.09	---	3.51	ND<0.5	---	---	---	---	---	---	---	---	---	---
MW-8	08/01/1994	8.60	5.20	---	3.40	ND<0.5	---	---	---	---	---	---	---	---	---	---
MW-8	10/18/1994	8.60	5.70	---	2.90	ND<0.5	---	---	---	---	---	---	---	---	---	---
MW-8	01/13/1995	8.60	4.96	---	3.64	ND<0.5	---	---	---	---	---	---	---	---	---	---
MW-8	04/13/1995	8.60	5.40	---	3.20	ND<0.5	---	---	---	---	---	---	---	---	---	---
MW-8	07/11/1995	8.60	6.01	---	3.20	ND<0.5	---	---	---	---	---	---	---	---	---	---
MW-8	11/02/1995	8.60	6.81	---	1.79	ND<0.50	---	---	---	---	---	---	---	---	---	---
MW-8	02/05/1996	8.60	6.12	---	2.48	ND<0.50	---	---	---	---	---	---	---	---	---	---
MW-8	04/24/1996	8.60	6.23	---	2.37	ND<0.50	---	---	---	---	---	---	---	---	---	---
MW-8	07/15/1996	8.60	6.70	---	1.90	ND<2.50	---	---	---	---	---	---	---	---	---	---
MW-8	07/30/1996	8.60	6.64	---	1.96	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/04/1996	8.60	8.36	---	0.24	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/05/1996	8.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	05/17/1997	8.60	7.03	---	1.57	---	---	---	---	---	---	---	---	---	---	---
MW-8	08/11/1997	8.60	6.05	---	2.55	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/17/1997	8.60	9.14	---	-0.54	---	---	---	---	---	---	---	---	---	---	---
MW-8	01/29/1998	8.60	7.90	---	0.70	---	---	---	---	---	---	---	---	---	---	---
MW-8	06/22/1998	8.60	7.72	---	0.88	---	---	---	---	---	---	---	---	---	---	---
MW-8	12/30/1998	8.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	03/09/1999	8.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	06/23/1999	8.60	4.70	---	3.90	---	---	---	---	---	---	---	---	---	---	---
MW-8	09/23/1999	8.60	4.22	---	4.38	---	---	---	---	---	---	---	---	---	---	---
MW-8	12/28/1999	8.60	4.12	---	4.48	---	---	---	---	---	---	---	---	---	---	---
MW-8	03/22/2000	8.60	4.71	---	3.89	---	---	---	---	---	---	---	---	---	---	---
MW-8	05/26/2000	8.60	4.98	---	3.62	---	---	---	---	---	---	---	---	---	---	---
MW-8	09/15/2000	8.60	4.62	---	3.98	---	---	---	---	---	---	---	---	---	---	---
MW-8	12/11/2000	8.60	4.77	---	3.83	---	---	---	---	---	---	---	---	---	---	---
MW-8	03/29/2001	8.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	09/19/2001	8.60	5.00	---	3.60	---	---	---	---	---	---	---	---	---	---	---
MW-8	12/28/2001	8.60	4.15	---	4.45	---	---	---	---	---	---	---	---	---	---	---
MW-8	03/12/2002	8.60	4.35	---	4.25	---	---	---	---	---	---	---	---	---	---	---
MW-8	6/13/2002*	8.60	5.09	---	3.51	---	---	---	---	---	---	---	---	---	---	---
MW-8	09/06/2002	8.60	5.18	---	3.42	---	---	---	---	---	---	---	---	---	---	---
MW-8	10/12/1993	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	02/15/1994	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	05/11/1994	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	08/01/1994	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	10/18/1994	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	01/13/1995	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	04/13/1995	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	07/11/1995	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/02/1995	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	02/05/1996	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	04/24/1996	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	07/15/1996	ND<100	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	07/30/1996	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/04/1996	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/05/1996	ND<10	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	05/17/1997	ND<10	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	08/11/1997	ND<10	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/17/1997	ND<10	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	01/29/1998	ND<10	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	06/22/1998	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	12/30/1998	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	03/09/1999	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	06/23/1999	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	09/23/1999	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	12/28/1999	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	03/22/2000	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	05/26/2000	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	09/15/2000	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	12/11/2000	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	03/29/2001	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	09/19/2001	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	12/28/2001	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	03/12/2002	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	6/13/2002*	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	09/06/2002	ND<0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**BP Service Station #11126**  
**1700 Powell Street, Emeryville, CA**

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/L)	TPH-D (ug/L)	B (ug/L)	J (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	TOC (ug/L)	HYOC (ug/L)	DO (ppm)	LAB
MW-9	10/12/1993	8.08	5.66	0.08	2.48	---	---	---	---	---	---	---	---	---	---	---
MW-9	02/15/1994	8.08	5.32	0.05	2.80	---	---	---	---	---	---	---	---	---	---	---
MW-9	05/11/1994	8.08	5.57	---	2.51	---	---	---	---	---	---	---	---	---	---	---
MW-9	08/01/1994	8.08	6.25	---	1.83	---	---	---	---	---	---	---	---	---	---	---
MW-9	10/18/1994	8.08	5.59	0.13	2.59	---	---	---	---	---	---	---	---	---	---	---
MW-9	01/13/1995	8.08	4.42	0.14	3.77	---	---	---	---	---	---	---	---	---	---	---
MW-9	04/13/1995	8.08	4.06	0.11	4.10	---	---	---	---	---	---	---	---	---	---	---
MW-9	07/11/1995	8.08	4.21	0.08	3.93	---	---	---	---	---	---	---	---	---	---	---
MW-9	11/02/1995	8.08	5.22	0.05	2.90	---	---	---	---	---	---	---	---	---	---	---
MW-9	02/05/1996	8.08	4.76	0.01	3.33	---	---	---	---	---	---	---	---	---	---	---
MW-9	04/24/1996	8.08	4.62	0.09	3.53	---	---	---	---	---	---	---	---	---	---	---
MW-9	07/15/1996	8.08	5.11	0.04	3.00	---	---	---	---	---	---	---	---	---	---	---
MW-9	07/30/1996	8.08	5.15	---	2.93	---	---	---	---	---	---	---	---	---	---	---
MW-9	11/04/1996	8.08	6.75	0.01	1.34	---	---	---	---	---	---	---	---	---	---	---
MW-9	05/17/1997	8.08	5.42	---	2.66	97000	---	16000	7700	2300	18400	40000	---	---	7.0	SPL
QC-1 (e)	05/17/1997	---	---	---	---	97000	---	16000	8200	2300	17300	39000	---	---	---	SPL
MW-9	08/11/1997	8.08	5.37	---	2.71	71000	---	12000	340	2100	4300	26000	---	---	9.1	SPL
QC-1 (e)	08/11/1997	---	---	---	---	100000	---	14000	360	3200	5790	27000	---	---	---	SPL
MW-9	11/17/1997	8.08	5.62	Sheen	2.46	100000	---	22000	4800	3100	17900	32000	---	---	8.3	SPL
QC-1 (e)	11/17/1997	---	---	---	---	100000	---	24000	5300	3500	19300	35000	---	---	---	SPL
MW-9	01/29/1998	8.08	4.07	Sheen	4.01	250000	---	20000	21000	3100	18500	110000	---	---	6.6	SPL
QC-1 (e)	01/29/1998	---	---	---	---	250000	---	20000	20000	3100	18400	110000	---	---	---	SPL
MW-9	06/22/1998	8.08	4.28	---	3.80	280000	---	21000	18000	3800	21200	110000	---	---	5.8	SPL
QC-1 (e)	06/22/1998	---	---	---	---	290000	---	20000	17000	3800	21200	110000	---	---	---	SPL
MW-9	12/30/1998	8.08	4.95	---	3.13	150000	---	10000	3800	2000	9600	86000/89000 (f)	---	---	---	SPL
MW-9	03/09/1999	8.08	3.95	---	4.13	82000	---	6800	570	1400	4700	100000	---	---	---	SPL
MW-9	06/23/1999	8.08	5.12	---	2.96	41000	---	11000	820	2300	5200	92000	---	---	---	SPL
MW-9	09/23/1999	8.08	4.74	---	3.34	57000	---	12000	5400	1900	9500	89000	---	---	---	SPL
MW-9	12/28/1999	8.08	4.58	---	3.50	46000	---	15000	490	2500	3500	100000	---	---	---	PACE
MW-9	03/22/2000	8.08	3.90	---	4.18	86000	---	18000	1800	2300	6800	120000	---	---	---	PACE
MW-9	05/26/2000	8.08	4.15	---	3.93	82000	---	17000	680	1800	3800	100000	---	---	---	PACE
MW-9	09/06/2000	8.08	4.47	---	3.61	100000	---	19000	280	2400	6400	84000	---	---	---	PACE
MW-9	09/15/2000	8.08	4.34	---	3.74	---	---	---	---	---	---	---	---	---	---	---
MW-9	12/11/2000	8.08	4.41	---	3.67	110000	---	14400	768	2610	6670	123000	---	---	---	PACE
MW-9 (h)	03/29/2001	8.08	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-9 (m)	06/26/2001	8.08	5.03	0.13	3.15	(l)	---	---	---	---	---	---	---	---	---	---
MW-9 (m)	09/19/2001	8.08	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	12/28/2001	8.08	3.73	---	4.35	110000	---	15000	1500	2280	5530	60900	---	---	---	PACE
MW-9	03/12/2002	8.08	4.93	---	3.15	88000	---	12500	2600	2800	8950	44000	---	---	---	PACE
MW-9	6/13/2002*	8.08	4.13	---	3.95	59000	---	9870	161	2560	5560	35600	---	---	---	PACE
MW-9	09/06/2002	8.08	4.39	---	3.69	47000	---	10000	ND<100	2100	4600	31000	---	---	---	SEQ

**Table 1  
Groundwater Elevation and Analytical Data  
BP Service Station #11126  
1700 Powell Street, Emeryville, CA**

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (ft)	DEPTH TO WATER (feet)	PROJECT GROUNDWATER ELEVATION (ft)	TH-6 (ug/L)	TH-13 (ug/L)	H (ug/L)	X (ug/L)	MTHB (ug/L)	TOG (ug/L)	THOC (ug/L)	TO (ug/L)
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QC-2 (E)	11/05/1992	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---
QC-2 (E)	10/12/1993	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---
QC-2 (E)	02/15/1994	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---
QC-2 (E)	05/11/1994	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---
QC-2 (E)	08/01/1994	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---
QC-2 (E)	10/18/1994	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---
QC-2 (E)	01/13/1995	---	---	---	ND<50	ND<0.5	ND<0.5	ND<1	ND<0.5	---	---	---
QC-2 (E)	04/13/1995	---	---	---	ND<50	ND<0.5	ND<0.5	ND<1	ND<0.5	---	---	---
QC-2 (E)	07/11/1995	---	---	---	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	---	---	---
QC-2 (E)	11/02/1995	---	---	---	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	---	---	---
QC-2 (E)	02/05/1996	---	---	---	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	---	---	---
QC-2 (E)	02/05/1996	---	---	---	ND<50	ND<0.5	ND<0.5	ND<1	ND<10	---	---	---
QC-2 (E)	04/24/1996	---	---	---	ND<50	ND<0.5	ND<0.5	ND<1	ND<10	---	---	---
QC-2 (E)	07/16/1996	---	---	---	ND<50	ND<0.5	ND<0.5	ND<1	ND<10	---	---	---

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**BP Service Station #11126**  
**1700 Powell Street, Emeryville, CA**

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	TPH-D (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	TOG (ug/L)	HVOC (ug/L)	DO (ppm)	LAB
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ABBREVIATIONS:

TPH-G Total petroleum hydrocarbons as gasoline  
 TPH-D Total petroleum hydrocarbons as diesel  
 B Benzene  
 T Toluene  
 E Ethylbenzene  
 X Total xylenes  
 MTBE Methyl tert butyl ether  
 TOG Total oil and grease  
 HVOC Halogenated volatile organic compounds  
 DO Dissolved oxygen  
 ug/L Micrograms per liter  
 ppm Parts per million  
 ND Not detected above reported detection limit  
 --- Not analyzed/applicable/measurable  
 PACE Pace, Inc.  
 ATI Analytical Technologies, Inc.  
 SPL Southern Petroleum Laboratories  
 SEQ Sequoia Analytical

NOTES:

- (a) Top of casing elevations surveyed relative to an established benchmark with an elevation of 8.11 feet above mean sea level.
  - (b) Groundwater elevations adjusted assuming a specific gravity of 0.75 for free product.
  - (c) Detection limits vary, see laboratory report.
  - (d) A copy of the documentation for this data is included in Appendix C of Alisto report 10-061-07-004.
  - (e) Blind duplicate.
  - (f) EPA Methods 8020/8260 used.
  - (g) Travel blank.
  - (h) Inaccessible.
  - (i) Depth to water anomalous, groundwater elevation not used in contouring.
  - (j) Well paved over.
  - (k) A copy of the documentation for this data can be found in Blaine Tech Services report 010627-Z-1. MTBE data for the November 4, 1992 sampling event has been destroyed. No chromatograms could be located for MTBE data from well MW-5, sampled on October 12, 1993.
  - (l) Groundwater elevation is an estimate.
  - (m) Not sampled due to nature of SPH.
  - (n) Unable to sample.
- \* During the second quarter of 2002, URS Corporation assumed groundwater monitoring activities for BP.



SEE SITE PLAN

ALISTO PROJECT NO: 10-081

DATE DRILLED: 10/20/92

CLIENT: BP Oil Company

LOCATION: 1700 Powell Street, Emeryville, California

DRILLING METHOD: Hollow-stem Auger (8")

DRILLING COMPANY: Great Sierra Exploration CASING ELEVATION: 7.78' MSL

LOGGED BY: Ted Moise

APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
9	47		3			SW	3" Asphalt. gravelly SAND: brown/green, damp, very loose; medium- to very coarse-grained sand; abundant rounded gravel to 1".
1,1			4			ML	sandy SILT: gray/blue, damp, soft; abundant very fine-grained sand; minor clay.
1,1			5			CL	silty CLAY: dark gray, wet, very soft; abundant silt; very fine- to medium-grained sand; minor rounded gravel to 1".
			10			SM	silty SAND: blue/gray, wet, very loose; very fine- to fine-grained sand; minor clay.
2,3,3			11			CL	silty CLAY: blue/green, wet, medium firm; minor very fine-grained sand.
			15				Groundwater Monitoring Well MW-1 was installed in Soil Boring B-2. Soil Boring B-2 was drilled within 3 feet of Soil Boring B-1. Soil classification/contacts, PID readings, and blow counts presented on this boring log were copied from Soil Boring B-1.
			20				
			25				
			30				



ALISTO ENGINEERING GROUP  
WALNUT CREEK, CALIFORNIA

# LOG OF BORING B-3/MW-2

Page 1 of 1

SEE SITE PLAN

ALISTO PROJECT NO: 10-081

DATE DRILLED: 10/20/92

CLIENT: BP Oil Company

LOCATION: 1700 Powell Street, Emeryville, California

DRILLING METHOD: Hollow-Stem Auger (8")

DRILLING COMPANY: Great Sierra Exploration CASING ELEVATION: 8.58' MSL

LOGGED BY: Ted Moise

APPROVED BY: Al Sevilla

BLOWS/6 IN.	PTD VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		<p>0.010" slotted PVC screen 2" Sch. 40 PVC grout #2/12 Lonestar Sand Bentonite seal</p>					3" Asphalt.
1,3,3	288		5			SW	gravelly SAND: brown, damp, loose; fine- to very coarse-grained sand; gravel to 1"; minor fines.
1,3,3						ML	sandy SILT: black, moist to wet, medium firm; very fine- to medium-grained sand; minor clay.
5,3,4				10		CL	silty CLAY: gray, wet, medium firm; minor very fine- to fine-grained sand; minor angular gravel to 1/2".
4,3,4						SM	silty SAND: gray, wet, loose; very fine- to medium-grained sand; minor clay.
						CL	silty CLAY: blue/green, wet, medium firm; minor silt; rootlets.
			15				
			20				
			25				
			30				





ALISTO ENGINEERING GROUP  
WALNUT CREEK, CALIFORNIA

# LOG OF BORING B-4/MW-3

Page 1 of 1

SEE SITE PLAN

ALISTO PROJECT NO: 10-081

DATE DRILLED: 10/20/92

CLIENT: BP Oil Company

LOCATION: 1700 Powell Street, Emeryville, California

DRILLING METHOD: Hollow-Stem Auger (8")

DRILLING COMPANY: Great Sierra Exploration CASING ELEVATION: 8.25' MSL

LOGGED BY: Ted Moise

APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	
							3" Asphalt.	
50/5"						SW	gravelly SAND: tan, damp, loose; medium- to very coarse-grained sand; gravel to 1".	
4,8,8	0.2			5	☒	SM	Concrete in cuttings. silty SAND: black, wet, loose; very fine- to medium-grained sand; abundant silt; minor gravel to 1/2".	
3,4,5				10				
4,3,4							CL	silty CLAY: blue/green, damp, medium firm; minor silt; rootlets.
			15					
			20					
			25					
			30					



ALISTO ENGINEERING GROUP  
WALNUT CREEK, CALIFORNIA

# LOG OF BORING B-5/MW-4

Page 1 of 1

SEE SITE PLAN

ALISTO PROJECT NO: 10-061

DATE DRILLED: 10/20/92

CLIENT: BP Oil Company

LOCATION: 1700 Powell Street, Emeryville, California

DRILLING METHOD: Hollow-Stem Auger (8")

DRILLING COMPANY: Great Sierra Exploration CASING ELEVATION: 8.12' MSL

LOGGED BY: Ted Moise

APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
3,2,3	3.2		0			SW	gravelly SAND: tan, damp, loose; fine- to very coarse-grained sand; rounded gravel to 3/4".
5,6,8			5			ML	sandy SILT: brown, damp, soft; minor angular gravel to 1"; minor clay.
			5			CL	silty CLAY: gray/brown, damp, soft; minor very fine- to medium-grained sand.
4,4,8			10			SM	silty SAND: gray, wet, loose; very fine- to medium-grained sand; abundant silt; minor clay.
			10			CL	CLAY: blue/green, damp, medium firm; minor silt.
			15				
			20				
			25				
			30				



ALISTO ENGINEERING GROUP  
WALNUT CREEK, CALIFORNIA

# LOG OF BORING MW-5

Page 1 of 1

SEE SITE PLAN

ALISTO PROJECT NO: 10-081-02

DATE DRILLED: 09/02/93

CLIENT: BP Oil Company

LOCATION: 1700 Powell Street, Emeryville, California

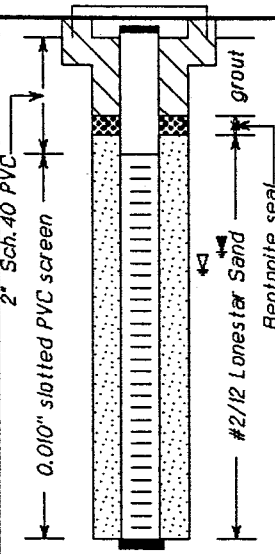
DRILLING METHOD: Hollow-Stem Auger (8")

DRILLING COMPANY: Soils Exploration Srv.

CASING ELEVATION: 7.89' MSL

LOGGED BY: Ted Moise

APPROVED BY: Al Sevilla

BLOWS/6 IN.	PTD VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
							9" Asphalt, 2' Roadbase with red brick.
2,3,4	12	2" Sch. 40 PVC 0.010" slotted PVC screen	5	■		CL	silty CLAY: gray/green, moist, medium firm; minor fine-grained sand; rootlets present.
2,1,3		#2/12 Lonestar Sand	10			SC	clayey SAND: black, wet, very loose; very fine- to fine-grained sand; abundant fines.
1,1,2		Bentonite seal	11			CL	silty CLAY: black, soft.
			12			SC	clayey SAND: black, very loose.
			13			CL	silty CLAY: black/gray, very soft; minor shell fragments.
			15				
			20				
			25				
			30				



ALISTO ENGINEERING GROUP  
WALNUT CREEK, CALIFORNIA

# LOG OF BORING MW-6

Page 1 of 1

SEE SITE PLAN

ALISTO PROJECT NO: 10-081-02

DATE DRILLED: 09/03/93

CLIENT: BP Oil Company

LOCATION: 1700 Powell Street, Emeryville, California

DRILLING METHOD: Hollow-Stem Auger (8")

DRILLING COMPANY: Great Sierra Exploration CASING ELEVATION: 8.52' MSL

LOGGED BY: Ted Moise

APPROVED BY: Al Sevilla

BLOWS/6 IN.	PTD VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
							4" Asphalt.
4,4,7	0		5	■	○	SW	gravelly SAND: brown, damp, loose; very fine- to very coarse-grained sand; abundant rounded and angular gravel to 1" diameter.
5,6,8			10		○		SAND: gray/green, damp, loose; very fine- to coarse-grained sand; minor angular gravel to 1/2".
3,3,8			13		○		Same: black, wet, loose.
			13		○		fine SAND at 13 feet.
			14		▨	CL	silty CLAY: black, medium firm.
			15				
			20				
			25				
			30				



SEE SITE PLAN

ALISTO PROJECT NO: 10-081-02

DATE DRILLED: 09/03/93

CLIENT: BP Oil Company

LOCATION: 1700 Powell Street, Emeryville, California

DRILLING METHOD: Hollow-Stem Auger (8")

DRILLING COMPANY: Great Sierra Exploration CASING ELEVATION: 7.81' MSL

LOGGED BY: Ted Moise

APPROVED BY: Al Sevilla

BLOWS/6 IN	PTD VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
7,7,5	17		5			SP	4" Asphalt.  gravelly SAND: brown, damp, loose; fine- to medium-grained sand; concrete blocks and bricks.  SAND: gray, damp, loose; fine- to medium-grained sand.
8,7,2			10				Same: black, wet.
2,3,7			15				CL



ALISTO ENGINEERING GROUP  
WALNUT CREEK, CALIFORNIA

# LOG OF BORING MW-8

Page 1 of 1

SEE SITE PLAN

ALISTO PROJECT NO: 10-081-02

DATE DRILLED: 09/03/93

CLIENT: BP Oil Company

LOCATION: 1700 Powell Street, Emeryville, California

DRILLING METHOD: Hollow-Stem Auger (8")

DRILLING COMPANY: Soils Exploration Srv.

CASING ELEVATION: 8.80' MSL

LOGGED BY: Ted Moise

APPROVED BY: Al Sevilla

BLOWS/6 IN.	PTD VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	
						SM	2" Asphalt	
3,4,8	0					CL	silty SAND: gray, loose, damp.	
				5			ML	silty CLAY: gray/blue, damp, medium firm.
4,5,5				10				sandy SILT: black, wet, medium firm; very fine-grained sand.
7,7,9				15			CL	silty CLAY: gray/green, stiff; organics present.
			20					
			25					
			30					



ALISTO ENGINEERING GROUP  
WALNUT CREEK, CALIFORNIA

# LOG OF BORING MW-9

Page 1 of 1

SEE SITE PLAN

ALISTO PROJECT NO: 10-081-02

DATE DRILLED: 09/03/93

CLIENT: BP Oil Company

LOCATION: 1700 Powell Street, Emeryville, California

DRILLING METHOD: Hollow-Stem Auger (10")

DRILLING COMPANY: Soils Exploration Srv.

CASING ELEVATION: 8.08' MSL

LOGGED BY: Ted Moise

APPROVED BY: Al Sevilla

BLOWS/6 IN.	PTD VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
4,8,4	188		5			SM	3" Asphalt
3,3,5			5			ML	silty SAND: brown, loose, damp; very fine- to very coarse-grained sand; minor angular gravel to 3/4" diameter.
			10				
			15			CL	clayey SILT: brown/gray, wet, medium firm; minor very fine- to medium-grained sand.
			15				silty CLAY: blue/green, medium firm.
			20				
			25				
			30				

Envision		
File Edit Applications Reports Tools Setup Window Help		
Case Contacts [AC0000127 - R00000066 - BP O... 1126]		
Record ID	AC0000127	Related ID R00000066 ... Contact ID <sup>129</sup> L0000130 ...
Site Information BP Oil Co. #11126 1700 Powell ST Emeryville CA 94608		Agency Information LEAD AGENCY ALAMEDA COUNTY ENVIRONMENTAL HEALTH
Contact Information SCOTT HOOTON BP Oil Company 295 SW 41st St BLDG 13 SUITE N Renton, WA 98055		
Responsible Party Type	UNK	Unknown
Primary	PRI	RP has been named a Primary RP.
Owner Type	UNK	Unknown
Organization	BP Oil Company	
Contact Type	UNK	Unknown
Start Date	/ /	...
End Date	/ /	...



Priority - High  
Need Arme migration control!  
Takes ~ 2 years for MSBP from MW-9 to  
reach MW-7!  
~ 110 feet

CASE CLOSURE SUMMARY  
UNDERGROUND FUEL STORAGE TANK LOCAL OVERSIGHT PROGRAM

## I. AGENCY INFORMATION

Date: ---/---/---

Agency Name: Alameda County Environmental Health	Address: 1131 Harbor Bay Parkway
City/State/Zip: Alameda, CA 94502	Phone: (510) 567-6700
Responsible Staff Person: Eva Chu	Title: Hazardous Materials Specialist

## II. CASE INFORMATION

Site Facility Name: (Former) BP 11126		
Site Facility Address: 1700 Powell St. Emeryville, CA		
RB LUSTIS Case No.: ---	Local Case No.:	LOP Case No.: RO-66
URF Filing Date:	SWEEPS No.: ---	APN:
Responsible Parties	Addresses	Phone Number

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
580 1	550	Waste oil	Removed	4/24/89
2	550	Waste oil	Removed	4/28/99
Piping				

## III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release:	
Tank 1	
Tank 2	
Tank 3	

Site characterization complete? Yes	Date Approved By Oversight Agency:
-------------------------------------	------------------------------------

Monitoring wells installed? Yes No		Number:		
Proper Screened interval? Yes				
Well No.	Screen Interval (depth in feet)	Highest GW Depth (Mo/Yr to Mo/Yr)	Lowest GW Depth	Comment
MW-1				
MW-2				
MW-3				
Flow Direction				
Most Sensitive Current Use:				
Summary of Production wells in Vicinity:				
Are drinking water wells affected?		Aquifer Name:		
Is Surface water affected		Nearest affected SW name		
Off-site beneficial use impacts (addresses/locations):				
Summary of production wells in vicinity				

Reports on file? Yes	Where are reports?
Alameda County Environmental Health 1131 Harbor Bay Parkway Alameda, CA 94502	

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL			
Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank			
Piping			
Free Product			
Soil	390 cu 100 cu	Safety Kleen in Butler Willow CA Forwarded to E in Manteca CA	4/17/01 4/18/01
Groundwater	15,000 gal	Treated at Tosco Refinery in Redwood	4/14-28/01

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS (BEFORE AND AFTER CLEANUP)				
Contaminant	Soil (ppm)		Water (ppb)	
	Before <sup>1</sup>	After <sup>2</sup>	Before <sup>3</sup>	After <sup>4</sup>
TPH (Gas)				
TPH (Diesel)				
Oil & Grease				
Benzene				
Toluene				
Ethyl Benzene				
Xylenes				
MtBE				
Metals				
Other)				

Site History and Description of Corrective Actions:

The site is currently operating as a retail gasoline service station with 3 fuel USTs and associated product lines + dispensers. A total of nine MWs have been installed at the site.

UST Removal - In April 1989 a 500 gal. used oil UST was removed (A new used oil UST was installed ~ 20 feet south of the former UST)  
 A soil sample WO-1 was collected beneath the UST at 7 feet bgs and SS WO-2 was collected from the tank pit sidewall at 9 feet bgs. SS were also collected from the new waste oil tank pit (NW0-1 through NW0-4) ~ 6 inches above groundwater. Soil analytical results of SS from the former w.o. UST contained up to 340 ppm TOG<sup>(WO-1)</sup>, whereas SS from the new w.o. UST pit contained up to 370 ppm TAl and 10,000 ppm TOG. (NW0-4)

In April 1999, the 'new' waste oil UST was removed along with two twists and a clarifier. GW was encountered at ~ 7.5 feet bgs. Two SS (OILT-1 and OILT-2) were collected at 5 to 6 feet bgs and a grab water sample (OILTWS-1) was collected. Soil contained up to 18 ppm TAl, 370 ppm TPHd, and 7000 ppm TPHrup. The grab water sample contained 560 ppb TAl and 710 ppb TPHno, 10 ppb benzene + 2,400 ppb BTSE.

Soil samples were also collected beneath the clarifier (CLR-1) at 4' bgs and the 2 Hoists (HST-1 and HST-2) at 8' bgs. Based on the initial results of lead, TPHg, TPHd, and TPHmo analysis these areas were overexcavated but confirmation soil sample still contained elevated lead and hydrocarbon constituents (up to 410 ppm lead, 1,200 ppm TPHg, 1,200 ppm TPHd, 5000 ppm TPHmo)

In March 2001 removal and replacement of product lines and dispensers were performed. Based on field observations (staining & odors), the product line trenches were overexcavated an additional 1.5 to 3.5 feet in depth. Add'l over-exc was not practical due to the shallow gw at 4 to 6 feet bgs. Soil samples were collected beneath each product dispenser (PD-NW, PD-NE, PD-SW, and PD-SE) and along the product lines (PL-1 through PL-4) and following limit overexcavation, samples OE-1 through OE-5 were collected. Residual gasoline constituents (up to 63 ppm TPHg, 16 ppm TPHd, 1.7 ppm benzene, and 2.1 ppm MTBE) remain in the product line trenches. Approx 15,000 gal of GW was removed during de-watering of the UST cavity. Elevated lead id's in soil is likely related to site vicinity uses in the past (Former Pabco products facility w/ ASTs, former auto freight deposit, and former truck repair facility)

GW Monitor wells - In Oct 1992 wells MW-1 through MW-4 were installed. These wells were screened from approx 9' to 12 feet bgs. Soil at 5.5 feet bgs contained up to 280 ppm TPHg and 0.94 ppm benzene. GW contained up to 12,000 ppb TPHg and 3,900 ppb benzene. In Sep 1993 wells MW-5 through MW-9 were installed. These wells were screened from ~ 3.5 to 14 feet bgs. Soil from 5.5 feet bgs contained up to 4,600 ppm TPHg and 76 ppm benzene (well MW-9). ~~to~~ in 0.08 foot of free product was also noted in MW-9. A product recovery canister was installed in Oct 1993.

GW has been monitored on a quarterly basis since 1993. In Dec 2002 a Sensitive Receptor Survey - maximum of 69,000 ppb TPHg, 11,000 ppb benzene + 28,000 ppb MTBE is detected in GW. The most dry wells contained 1300 ppb TPHg, ND benzene and 1800 ppb MTBE. The MTBE plume has not been delineated to the W, SW. There appears to be an increasing MTBE trend in MW-4 and MW-7. The plume is not stable and continues to migrate off site.

#### IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes No		
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes No		
Does corrective action protect public health for current land use? Alameda County Environmental Health staff does not make specific determinations concerning public health risk. However, it does not appear that the release would present a risk to human health.		
Site Management Requirements:		
Should corrective action be reviewed if land use changes? Yes No		
Monitoring Wells Decommissioned: Yes No	Number Decommissioned:	Number Retained:
List Enforcement Actions Taken:		
List Enforcement Actions Rescinded:		

#### V. ADDITIONAL COMMENTS, DATA, ETC.

Considerations and/or Variances:
Conclusion:

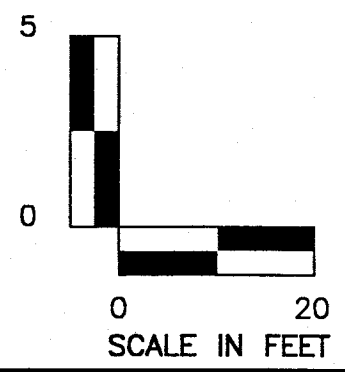
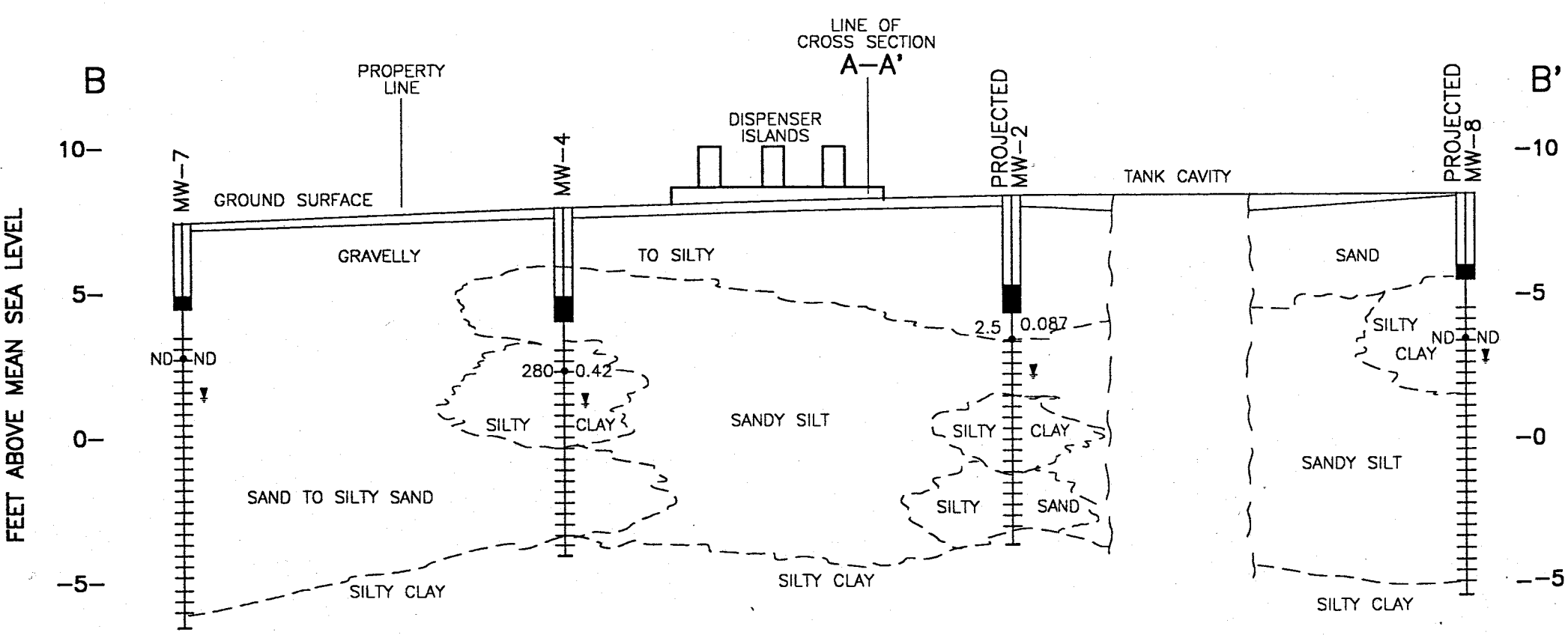
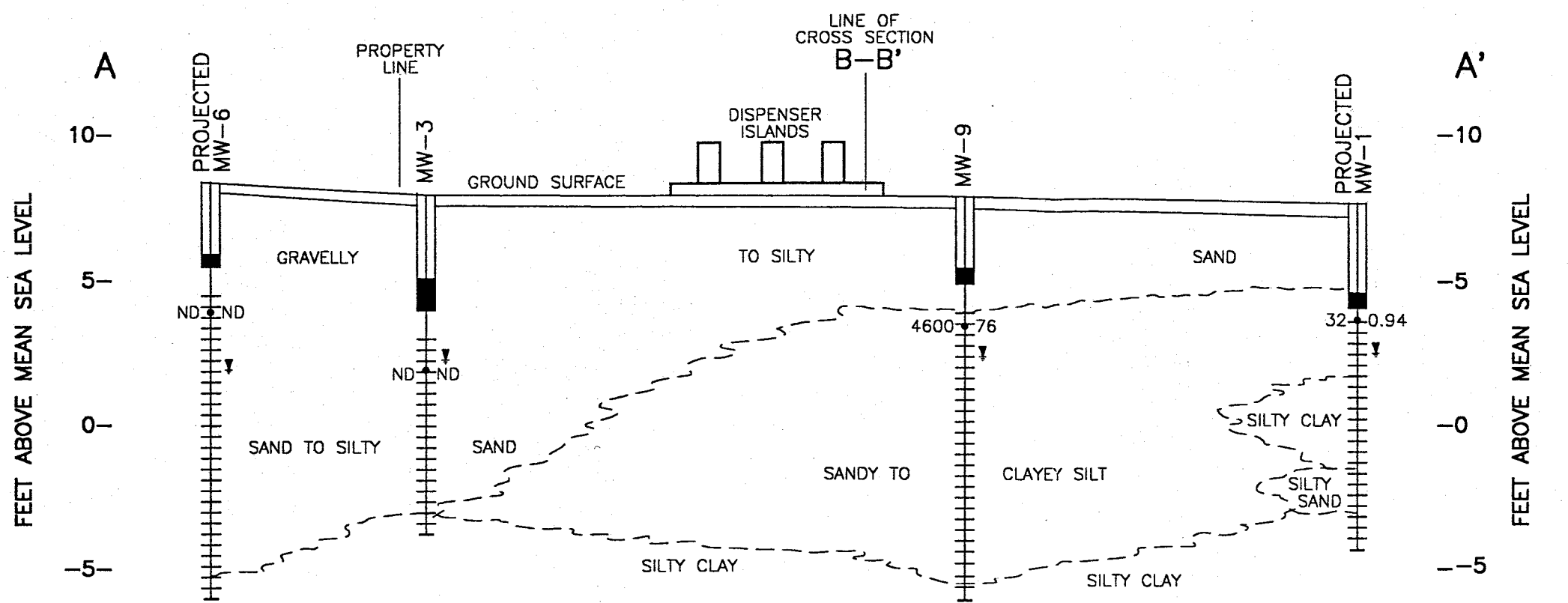
#### VI. LOCAL AGENCY REPRESENTATIVE DATA

Prepared by: Eva Chu	Title: Hazardous Materials Specialist
Signature:	Date:
Reviewed by:	Title: Hazardous Materials Specialist
Signature:	Date:
Approved by: Donna L. Drogos, P.E.	Title: LOP Program Manager
Signature:	Date:

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

Site Geology + Hydrogeology - Soil types encountered beneath the site generally consisted of unsorted fill material of sand, silt, clay, and manmade debris to ~13 feet bgs, and underlain by silty clay to <sup>14 feet bgs</sup> ~~the total~~ 'depths explored'. During well drilling GW was encountered + stabilized at ~6.5 feet bgs. DTW on mw-1 has ranged from 3.05 to 6.19 feet bgs. GW flows generally to the SW at a gradient of 0.005 to 0.025' A/A

Sensitive Receptor Survey - No water supply wells were identified w/in 1000 feet of the site. The SF Bay is w/in 1000 feet at the site. GW at the site is designated as a non-potential source of drinking water.



**LEGEND**

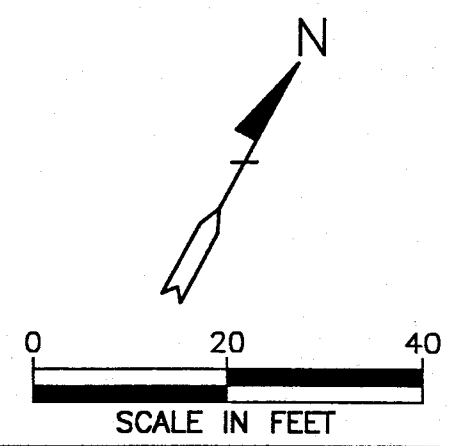
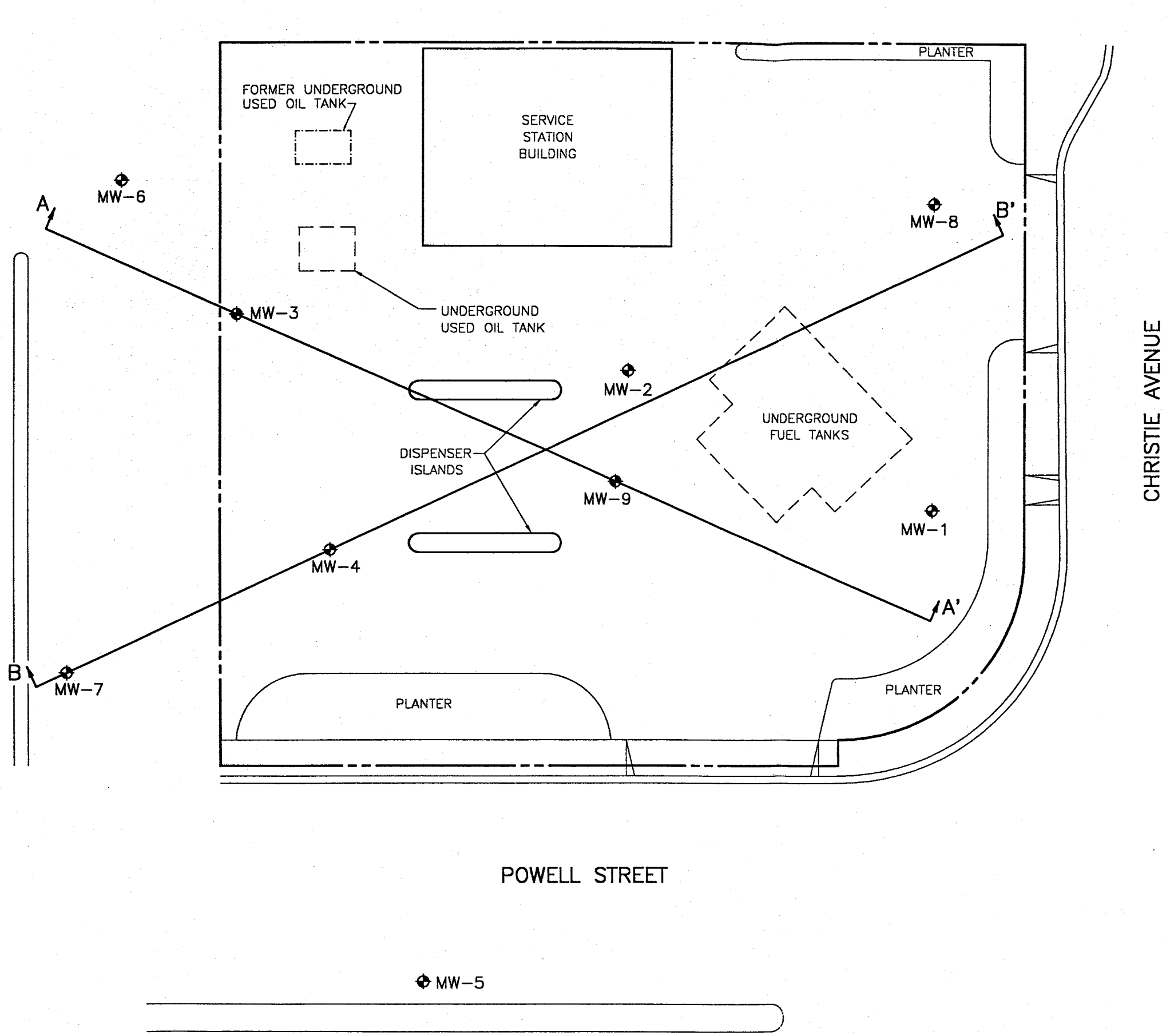
- GROUNDWATER MONITORING WELL SHOWING SEAL, BENTONITE AND SCREENED INTERVAL
- GEOLOGIC CONTACT
- 4600 • SOIL SAMPLE AND TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATION IN PARTS PER MILLION
- 76 SOIL SAMPLE AND BENZENE CONCENTRATION IN PARTS PER MILLION
- ND NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- ▼ GROUNDWATER ELEVATION AS MEASURED ON OCTOBER 12, 1993

**FIGURE 5**  
**HYDROGEOLOGIC CROSS SECTIONS**  
**A-A' AND B-B'**

BP OIL SERVICE STATION NO. 11126  
 1700 POWELL STREET  
 EMERYVILLE, CALIFORNIA  
 PROJECT NO. 10-061



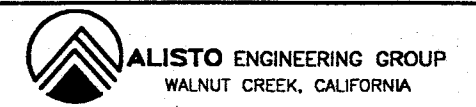
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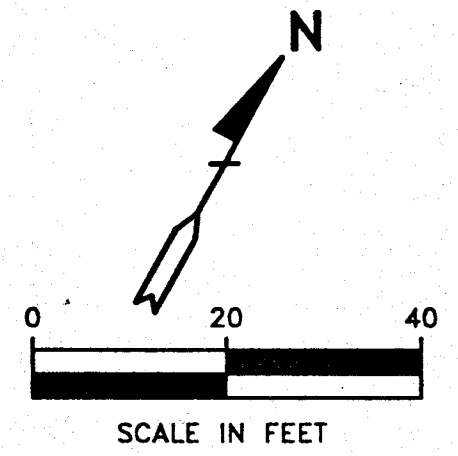
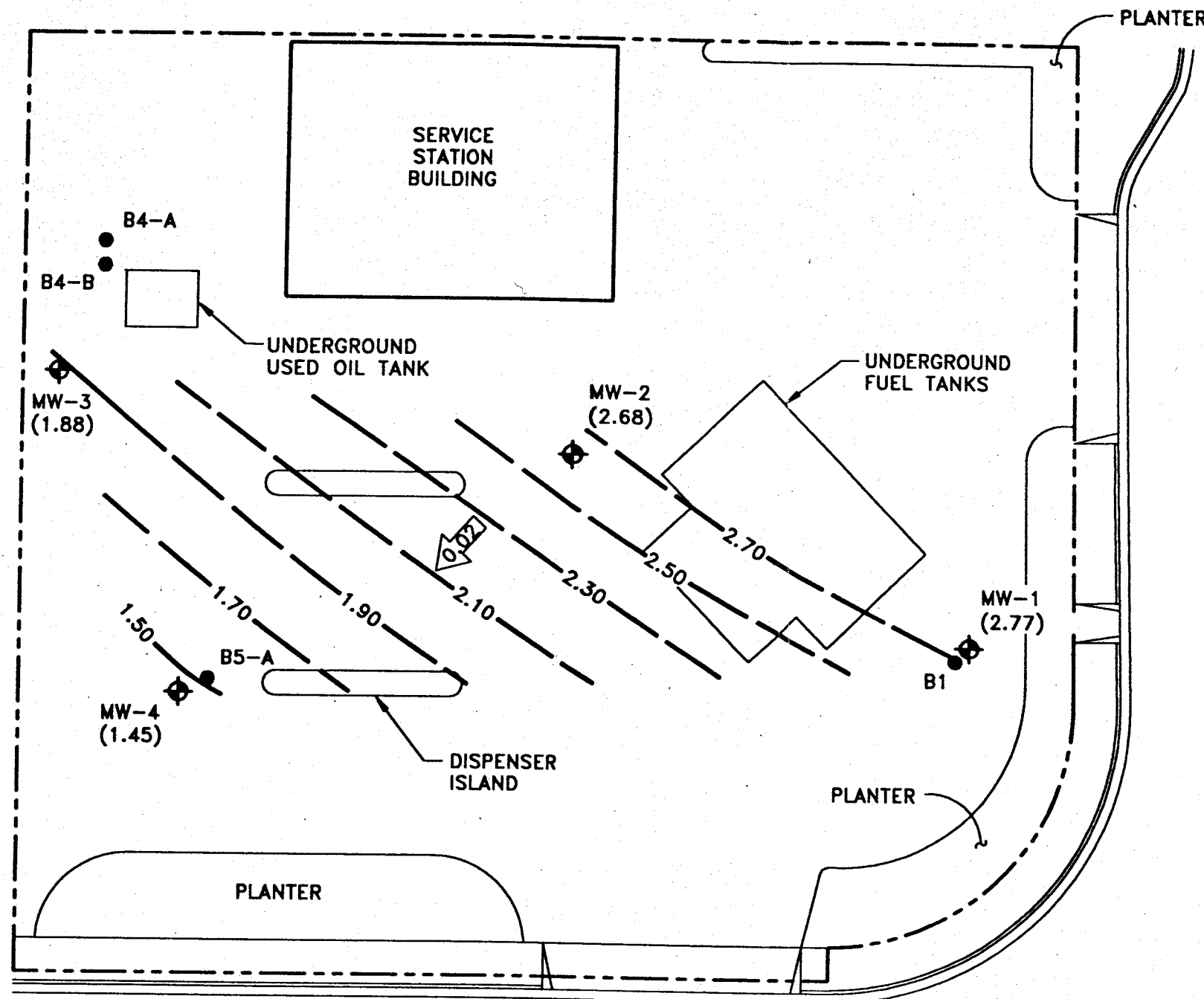
- ◆ GROUNDWATER MONITORING WELL
- A-A' LINE OF HYDROGEOLOGIC CROSS SECTION




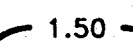
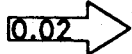
**FIGURE 2**  
**SITE PLAN**  
 BP OIL SERVICE STATION NO. 11126  
 1700 POWELL STREET  
 EMERYVILLE, CALIFORNIA  
 PROJECT NO. 10-061



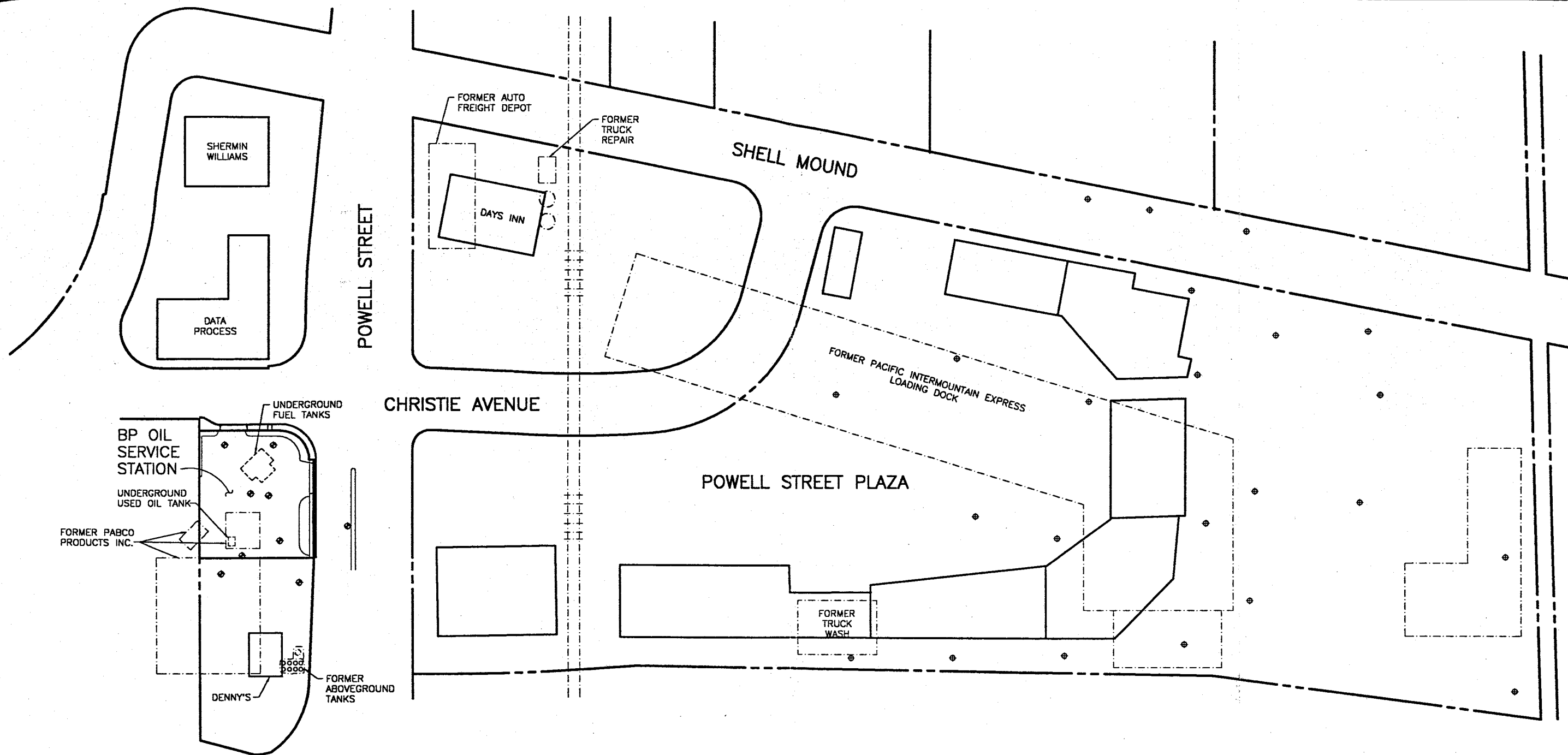
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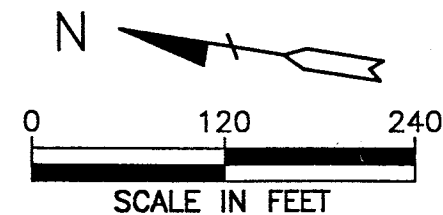
- LEGEND:**
-  GROUNDWATER MONITORING WELL
  -  BORING LOCATION
  -  (1.88) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
  -  1.50 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL - 0.20 FOOT)
  -  0.02 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE

**FIGURE 2**  
**POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP**  
**(NOVEMBER 4, 1992)**



**LEGEND**

- ◆ WELLS INSTALLED DURING INVESTIGATION OF BP OIL SERVICE STATION NO. 11126 1700 POWELL STREET, EMERYVILLE, CA.
- WELLS INSTALLED DURING INVESTIGATION OF PACIFIC INTERMOUNTAIN EXPRESS SITE
- FORMER STRUCTURES



**FIGURE 3**  
**POTENTIAL OFFSITE SOURCES MAP**

BP OIL SERVICE STATION NO. 11126  
1700 POWELL STREET  
EMERYVILLE, CALIFORNIA

PROJECT NO. 10-061

