



Atlantic Richfield Company
(a BP affiliated company)

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15 December 2008

Re: Work Plan for Soil & Water Investigation
Former BP Service Station #11266
1541 Park Street
Alameda, California
ACEH Case # RO0000318



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2:42 pm, Dec 23, 2008

Alameda County
Environmental Health

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

Submitted by:

Paul Supple
Environmental Business Manager

Work Plan for Soil & Water Investigation

Former BP Station No. 11266
1541 Park Street, Alameda, California
ACEHS Case No. RO0000318

Prepared for

Mr. Paul Supple
Environmental Business Manager
Atlantic Richfield Company
P.O. Box 1257
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Prepared by



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15 December 2008

Project No. 06-08-658

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

Attn.: Mr. Paul Supple

Re: Work Plan for Soil & Water Investigation, Former BP Station No. 11266,
1541 Park Street, Alameda, California; ACEH Case #RO0000318

Dear Mr. Supple:

Broadbent & Associates, Inc. (BAI) is pleased to submit this *Work Plan for Soil & Water Investigation* for Former BP Station No. 11266 (herein referred to as Station No. 11266) located at 1541 Park Street, Alameda, California (Site). This work plan was prepared in response to a letter request from the Alameda County Environmental Health Services (ACEH) dated 16 October 2008. Specifically, ACEH technical comments within the 16 October 2008 letter requested a proposal to characterize residual hydrocarbon contamination within soils at the source area to evaluate remediation system effectiveness.

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

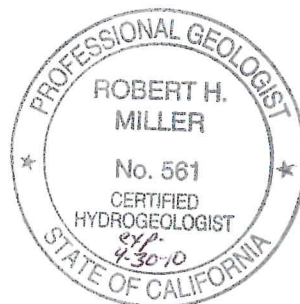
Sincerely,
BROADBENT & ASSOCIATES, INC.



Thomas A. Venus, P.E.
Senior Engineer



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



Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

WORK PLAN FOR SOIL & WATER INVESTIGATION
Former BP Station No. 11266
1541 Park Street, Alameda, California
ACEH Fuel Leak Case No. RO318

TABLE OF CONTENTS

<u>No.</u>	<u>Section</u>	<u>Page</u>
1.0	Introduction.....	1
2.0	Site Background.....	1
3.0	Site Geology and Hydrogeology.....	5
4.0	Proposed Scope of Work	6
	4.1 Soil Boring Activities	6
	4.2 One-Time Ground-Water Monitoring Event	8
5.0	Proposed Schedule	8
6.0	Closure	8
7.0	References.....	9

ATTACHMENTS

- Drawing 1 Site Location Map
- Drawing 2 Site Layout Plan with Soil Boring Locations

APPENDICES

- Appendix A Recent Regulatory Correspondence
- Appendix B Historical Soil and Ground-Water Data
- Appendix C Soil Boring and Well Construction Logs with Geologic Cross-Section

WORK PLAN FOR SOIL & WATER INVESTIGATION
Former BP Station No. 11266
1541 Park Street, Alameda, California
ACEH Fuel Leak Case No. RO318

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company, RM – a BP affiliated company, Broadbent & Associates, Inc. (BAI) has prepared this Work Plan for Soil & Water Investigation for additional source area characterization at the former BP Station No. 11266, located at 1541 Park Street, Alameda, California (Site). This work plan was prepared in response to a letter request from the Alameda County Environmental Health Services (ACEH) dated 16 October 2008. A copy of this letter is provided in Appendix A. Specifically, ACEH technical comments within the 16 October 2008 letter requested a proposal to characterize residual hydrocarbon contamination within soils at the source area as well as to confirm or refute the presence of halogenated volatile organic compounds detected during a short period in 1991. This work plan includes discussions on the site background, previous investigations and remediation efforts, regional and Site geology and hydrogeology, the proposed scope of work, and proposed completion schedule.

2.0 SITE BACKGROUND

The Site is an active 76-brand retail gasoline service station located on the southwestern corner of Park Street and Lincoln Avenue in Alameda, California (Drawing 1 and Drawing 2). The land use in the immediate vicinity of the Site is commercial. The Site consists of a service station building, two pump islands, one 12,000-gallon and two 10,000-gallon double-walled fiberglass gasoline underground storage tanks (USTs) with associated piping and dispensers, and one 1,000-gallon double-walled fiberglass used oil UST. Each of the four USTs at the Site was installed in 1987 after the former USTs were removed as described below. The Site is covered with asphalt or concrete surfacing except for planters along the property boundaries containing shrubs and trees.

UST and Product Line Replacement Activities

On 15 September 1987, Kaprealian Engineering Inc. (KEI) oversaw the removal and replacement of three gasoline USTs and one used oil UST at the Site. Two gasoline USTs (6,000- and 8,000-gallons) were single-walled fiberglass, while the third gasoline UST and used oil UST (5,000- and 250-gallons, respectively) were of steel construction. KEI collected eight sidewall samples from the excavation for the gasoline USTs and one bottom sample from the used oil UST excavation. KEI reported that bottom samples were not collected from the excavation for the gasoline USTs due to the presence of ground water at approximately 12 feet below ground surface (ft bgs). In addition, one grab ground-water sample was collected from the gasoline UST excavation pit.

During UST removal activities, sidewall soil samples collected from the gasoline UST excavation at a depth of 11.5 feet bgs contained Total Petroleum Hydrocarbons in the Gasoline Range (TPH-G) at concentrations ranging from non-detect to 3,200 milligrams per kilogram (mg/kg or parts per million, ppm), Benzene at concentrations ranging from non-detect to 81 mg/kg, Toluene at concentrations ranging from non-detect to 42 mg/kg, and Total Xylenes at concentrations ranging from non-detect to 450 mg/kg. Concentrations of TPH-G, Benzene,

Toluene, and Total Xylenes in the ground-water sample collected from beneath the former gasoline USTs were reported as 530,000 micrograms per liter ($\mu\text{g/L}$ or parts per billion, ppb), 6,300 $\mu\text{g/L}$, 66,000 $\mu\text{g/L}$, and 200,000 $\mu\text{g/L}$, respectively. One soil sample collected from beneath the used oil UST at a depth of 7.5 feet was non-detect for Total Petroleum Hydrocarbons in the Diesel range (TPH-D) and Volatile Organic compounds (VOCs), but contained 150 mg/kg Total Oil & Grease (TOG) (KEI, 12 October 1987).

Hydro-Environmental Technologies, Inc. (HETI) reported that in September 1990, KEI oversaw the renovation of product dispensers and associated underground piping at the Site. According to HETI, KEI did not produce a report or sample location map for these activities. However, as reported previously in an interview with HETI, Katherine Chesie with ACEH claimed several cubic yards of soil were removed and stockpiled on Site. Furthermore it was reported that four soil samples taken from the trenches and stockpile were below laboratory detection limits (HETI, 28 February 1992).

On 6 December 1999, Paradiso Mechanical removed and replaced the product dispensers and the associated underground piping at the Site. SECOR International Incorporated (SECOR) conducted soil sampling activities following excavation operations. SECOR reported that four soil samples, designated PD-1 through PD-4, were collected from the excavation under the product dispensers. Soil sample PL-1 and PL-2 were collected from below the product piping excavations. The highest concentrations of hydrocarbons were observed in sample PD-3 at 2.0 mg/kg TPH-G, 0.009 mg/kg Benzene, 0.051 mg/kg Toluene, 0.013 mg/kg Ethylbenzene, and 0.15 mg/kg Xylenes. The highest concentrations of lead were observed in sample PD-4 at 910 mg/kg Total Lead, 39 milligrams per liter (mg/l) lead following California Waste Extraction Test, and 1.2 mg/l Lead by Toxicity Characteristic Leaching Procedure (SECOR, 20 January 2000). A summary of the analytical data obtained during this investigation along with a map depicting the sampling locations are provided in Appendix B.

Subsurface Investigations

On 9 February 1988, KEI oversaw the drilling of three on-site exploratory soil borings to a depth of 25 ft bgs and subsequent installation of two-inch diameter ground-water monitoring wells (MW-1 through MW-3). One soil sample was collected from each boring at approximately ten ft bgs. On 11 February 1998, the wells were developed, purged, and ground-water samples collected. The soil sample collected from MW-1 had concentrations of TPH-G at 2.4 mg/kg, Benzene at 0.1 mg/kg, Toluene at 0.2 mg/kg and Total Xylenes at 0.7 mg/kg. The ground-water sample collected from MW-1 had concentrations of TPH-G at 95,000 $\mu\text{g/L}$, Benzene at 2,000 $\mu\text{g/L}$, Toluene at 5,900 $\mu\text{g/L}$, Ethylbenzene at 1,100 $\mu\text{g/L}$, and Total Xylenes at 10,000 $\mu\text{g/L}$. Soil and ground-water samples from borings/wells MW-2 and MW-3 were absent reportable concentrations of the above analytes. In addition, the well sample from MW-3 was also absent reportable concentrations of TPH-D, TOG, and VOCs (KEI, 4 March 1988).

On 22 March 1989, KEI oversaw the drilling and installation of three additional two-inch diameter ground-water monitoring wells at the Site to a maximum depth of 25 feet bgs (MW-4 through MW-6). Two soil samples were collected from each boring at approximately five or six and ten ft bgs. The wells were developed and purged on 28 March 1989, and on 29 March 1989 ground-water samples were collected from wells MW-1 through MW-6. Ground-water samples

collected from well MW-1 had reportable concentrations of TPH-G at 25,000 µg/L, Benzene at 930 µg/L, Toluene at 2,600 µg/L, Ethylbenzene at 24 µg/L, and Total Xylenes at 3,100 µg/L. Minor concentrations were reported in the ground-water sample from well MW-2. No hydrocarbons were detected above laboratory reporting limits in the soil or ground-water samples collected from wells MW-3 through MW-6 (KEI, 19 April 1989).

On 15 November 1989, EMCON Associates (EMCON) oversaw Tracer Research Corporation advance three direct-push borings on- and off-site (B-1 through B-3). Ground-water samples were collected from each boring with a soil-gas probe and from wells MW-2 and MW-6. Samples were screened on-site by means of a gas chromatograph for TPH-G and BTEX. Reportedly, an unknown non-fuel VOC was detected but not identified in samples from monitoring well MW-2 and MW-4 (EMCON, 15 March 1990).

Also in November 1989, EMCON performed aquifer testing at the Site. A step-drawdown test and a constant-discharge test were conducted in a two-inch diameter ground-water monitoring well (MW-5). Based on the results of the tests, EMCON estimated that the aquifer underlying the Site had an average specific capacity of approximately 330 gallons per day per foot (gpd/ft) and could sustain a yield of 0.5 gallons per minute (gpm). EMCON described these values as approximate due to well insufficiencies (high hydraulic head losses through the screen and sand pack) (EMCON, 15 March 1990).

On 13 April 1992, HETI oversaw the installation of one, six-inch diameter recovery well (RW-1) on-site. The well placement was based on previous EMCON aquifer testing, which suggested a well placed at this location would provide an area of influence (capture zone) sufficient to capture a 40-ft diameter petroleum hydrocarbon plume when pumping at 0.5 gpm. In the HETI Remedial Action Plan dated 28 February 1992, the recovery well was proposed to be installed to a depth of 25 ft bgs, and screened from five to 25 ft bgs. HETI reported in their Quarterly Monitoring Report dated 4 May 1992 that RW-1 was installed to a depth of 30 feet bgs. An actual screen interval was not provided within the report. Soil samples were not collected during the installation of the recovery well, as reported by HETI. Analytical data and site maps depicting sample and boring locations for subsurface investigations are provided within Appendix B.

Off-Site Well Assessment

Within their Phase II Site Assessment Report, EMCON documented the location and use of 14 wells within a 2,000-ft radius of the Site. Reportedly, the wells consisted of ten irrigation wells, two industrial/municipal wells, one domestic well, and one abandoned well. Four of the irrigations wells were reportedly positioned downgradient from the Site. EMCON concluded that the downgradient wells were beyond the delineated extent of the petroleum hydrocarbon plume (EMCON, 15 March 1990).

Ground-Water Extraction and Treatment

On 21 August 1992, ground-water extraction and treatment (GWET) system installation was completed at the Site by HETI. The ground-water remediation system began operation on 26

August 1992. The GWET system operated from 26 August 1992 to 1 October 1994 as reported by Alisto Engineering Group (AEG), when the system was shut down due to mechanical difficulties. From the records available, BAI was unable to find documentation reporting the total gallons of ground water treated, or the amount of petroleum hydrocarbons removed from the environment.

On-Site Soil Concentrations

Numerous soil samples have been collected on-site during well installations, product line and dispenser island renovations, and UST removals, as previously discussed. The maximum concentrations in on-site soils of TPH-G (3,200 mg/kg), Benzene (81 mg/kg), Toluene (42 mg/kg), and Total Xylenes (450 mg/kg) were observed in sample C-1, collected during the 15 September 1987 UST removal and replacement activities at approximately 11.5 ft bgs along the east sidewall of the gasoline UST excavation pit. Maximum concentrations of TOG (150 mg/kg) were observed in sample W.O.-1, also collected during the 1987 UST removal activities, at approximately 7.5 ft bgs, below the removed waste oil UST. Maximum concentrations of Ethylbenzene (0.013 mg/kg) were observed in sample PD-3 and maximum concentrations of Total Lead (910 mg/kg) were observed in sample PD-4, both collected during the 6 December 1999 product line and dispenser island renovation activities at approximately two ft bgs. PD-3 was collected below the northeastern dispenser and PD-4 was collected below the southeastern dispenser. MTBE analysis was conducted on the soil samples collected during the 1999 product line and dispenser island renovation, each of which returned as non-detect. Soil analytical data and maps depicting sampling locations are provided within Appendix B.

Ground-Water Monitoring

Ground-water monitoring of site monitoring wells began on 10 October 1988. The original ground-water monitoring schedule employed by KEI consisted of three monitoring events and one sampling event per quarter. The ground-water monitoring schedule was discontinued in October 2001 pending review of the case closure request. A one-time sampling event was performed and described in the 25 October 2006 report submitted by BAI. This one-time event was in response to well rehabilitation and redevelopment activities as requested by the ACEH in their 7 July 2006 letter request. Historic water-level elevations (since 1988) have yielded potentiometric ground-water flow directions predominantly to the east and southeast at hydraulic gradients ranging from 0.003 ft/ft to 0.05 ft/ft.

Ground-water monitoring data from 1988 to the most recent sampling event shows that dissolved hydrocarbons are attenuating. TPH-G and BTEX compounds were initially detected in wells MW-1, MW-2, MW-4, and RW-1. Monitoring for MTBE began at the Site in 1993. TPH-G, BTEX and MTBE were subsequently detected in wells MW-3 and MW-6. Constituent concentrations increased in well MW-2 in 1993, in well MW-6 from 1995 to 1997, and in well MW-3 in 1999. Constituent concentrations in these wells subsequently attenuated. The most recent rounds of monitoring detected attenuating concentrations of TPH-G, BTEX and MTBE in the Site wells.

During the most recent monitoring event of August 2006, TPH-G was reported in well MW-1 at 1,900 µg/L, 55 µg/L in well MW-2, and 96 µg/L in well MW-3 (TPH-G was not detected above the reporting limits in samples from wells MW-4, MW-5, or MW-6). During the last monitoring event of August 2006, Benzene was reported in well MW-1 at 6.4 µg/L and 0.57 µg/L in well MW-2, but absent in wells MW-3, MW-4, MW-5, and MW-6. Finally, during the last monitoring event of August 2006, MTBE was reported at 1.2 µg/L in both wells MW-1 and MW-3, and at 47 µg/L in well MW-2. MTBE was not detected above the reporting limits in samples from MW-4, MW-5, or MW-6.

During three quarterly monitoring events between February and August 1991, ground-water samples collected from wells MW-1 through MW-6 were also analyzed for VOCs by EPA Method 8240. Methyl Ethyl Ketone (2-Butanone) was detected once in a sample from well MW-1 at a concentration of 14 µg/L. Tetrachloroethene (PCE) was detected a total of three times: twice in well MW-4 up to 2.8 µg/L and once in well MW-6 at 2.0 µg/L. Chlorobenzene was detected a total of six times: three times in well MW-1 up to 3.0 µg/L, twice in well MW-4 up to 1.9 µg/L, and once in well MW-6 at 2.0 µg/L. In addition, Styrene was detected once, in well MW-1 at a concentration of 1.7 µg/L. No historic documentation was located providing the original reason these analyses were performed, or the reasoning why the analyses were discontinued. Historic ground-water elevation and analytical data are provided in Appendix B.

3.0 SITE GEOLOGY AND HYDROGEOLOGY

According to the *East Bay Plain Ground-water Basin Beneficial Use Evaluation Report* (California Regional Water Quality Control Board – San Francisco Bay Region/SFRWQCB, June 1999), the Site is located along the northeastern edge of the Central Sub-Area of the East Bay Plain of the San Francisco Basin. The Central Sub-Area extends beneath San Francisco Bay. The boundaries of the sub-area are based on the Young Bay Mud. The Young Bay Mud has a sharp “edge” in some areas, and in other areas, the boundary is less well-defined. Alameda and Bay Farm Islands are located along the northeastern edge of the sub-area. Historically, there were artesian wells in the sub-area that produced from gravels below the Yerba Buena Mud, but saltwater intrusion shut down these wells. Single-family residences historically relied on the Merrit Sand for water supply. However, septic systems and some saltwater intrusion resulted in localized contamination. More recently, deep wells (700 to 1,000 feet deep) were drilled at the Alameda City Golf Course. Production rates were lower than expected but this is believed due to drilling problems. Water quality was satisfactory for irrigation.

Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of ground-water flow is from east to west or from the Hayward Fault to the San Francisco Bay. Ground-water flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction. In the southern end of the study area however, near the San Lorenzo Sub-Area, the direction of flow may not be this simple. According to information presented in *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the small set of water level measurements available seemed to show that the ground water in the upper aquifers may be flowing south, with the deeper aquifers, the Alameda Formation, moving north (SFRWQCB, 1999). The nearest natural water body is the Tidal Canal, located approximately 0.4 miles northeast of the Site.

The Site elevation is approximately 29 feet above mean sea level. The water table fluctuates seasonally. According to historic data provided by previous consultants, depth-to-water measurements have ranged from 6.24 to 23.40 feet bgs. The most recently measured ground-water flow direction during the one-time third quarter 2006 monitoring event on 24 August 2006 was to the south at a gradient of 0.01 ft/ft.

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the single-most important ground-water quality parameter directly influencing a beneficial use determination is the Total Dissolved Solids (TDS) concentration. Resolution 89-39, Sources of Drinking Water, exempts the Municipal and Domestic (MUN) Supply Beneficial Use designations for ground waters with TDS concentrations greater than 3,000 mg/l and are not reasonably expected by the SFRWQCB to supply a public water system (note that the United States Environmental Protection Agency uses the 10,000 mg/l TDS value in determining potential drinking water sources). In 1996, SFRWQCB staff reviewed the General Plans for the East Bay Plain Cities of Alameda, Albany, El Cerrito, Berkeley, Emeryville, Hayward, Oakland, Piedmont, Richmond, and San Leandro, along with the Alameda County Resource Conservation District, the Alameda County Flood Control and Water Conservation District, the North Richmond Shoreline, and Alameda County. None of these cities had “any plans to develop local groundwater resources for drinking water purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity.” However, the SFRWQCB’s Basin Plan denotes existing beneficial uses of MUN, industrial process supply (PROC), industrial service supply (IND), and agricultural supply (AGR) for the East Bay Plain ground-water basin (SFRWQCB, 1999).

Previous work conducted by KEI describes the soils underlying the Site as consisting primarily of poorly graded fine- to medium-grained sands from the surface to the total depth explored (25 ft bgs). Copies of the historic boring logs are provided in Appendix C.

4.0 PROPOSED SCOPE OF WORK

4.1 Soil Boring Activities

At the request of ACEH, the purpose of the proposed soil investigation is to characterize residual hydrocarbon contamination within soils at the source area, presumed to be the former gasoline UST complex and waste oil UST pit. Site soil conditions were initially characterized by KEI during UST and waste oil tank removal and replacement activities conducted on 15 September 1987, as described in previous sections. The results from that investigation indicated that the greatest petroleum hydrocarbon contamination in soil was located in the vicinity of sample location C-1. Analytical results and a site map depicting the boring locations for this investigation are provided in Appendix B.

BAI proposes advancing two direct-push technology (DPT) borings to evaluate potential, residual petroleum hydrocarbon impacts to soil. Boring B-1 is proposed in the general vicinity of sample C-1 and well MW-1, approximately five feet south-southwest of well MW-1 and five feet north of the northeast corner of the dispenser islands, near the former UST excavation pit. Boring B-2 is proposed in the general vicinity of sample W.O.-1, approximately five feet

west-northwest of well MW-3, near the former waste oil tank excavation pit. The proposed boring locations are shown in Drawing 2. The actual locations may vary due to the potential presence of underground utility conflicts.

Prior to initiating field activities, Stratus Environmental Inc. (Stratus) will obtain the necessary drilling permits from Alameda County; prepare a site health and safety plan (HASP) for the proposed work; clear the Site for subsurface utilities; and provide 72-hour advance notification to ACEH prior to start of field activities. The utility clearance will include notifying Underground Service Alert (USA) of the pending work a minimum of 48 hours prior to initiating the field investigation, and securing the services of a private utility locating company to confirm the absence of underground utilities at the boring location. The borehole will be physically cleared to five feet bgs using hand auger or air knife methods.

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

A Stratus field geologist will observe a California-licensed drilling company advance the soil borings using a Geoprobe or similar DPT drilling rig to a total approximate depth of nine feet bgs or the current depth of ground water. Depth to ground water will be measured in wells MW-1 (near B-1) and MW-3 (near B-2) prior to drilling activities to establish a baseline depth to water which will assist in determining the approximate total depth of the boring. The most recent ground-water monitoring event (Third Quarter 2006) indicated depth to water measurements of 7.75 feet bgs in well MW-1 and 9.61 feet bgs in well MW-3. Soils will be classified according to the Unified Soil Classification System (USCS), and will be examined using visual and manual methods for parameters including odor, staining, color, grain size, and moisture content. Soil samples will be collected at 1.5-foot intervals, beginning at a depth of five feet following borehole clearance, until ground water is encountered (5.0, 6.5, 8, and possibly 9.5 and 11 ft bgs, depending upon the encountered depth of ground water). The soil samples will be submitted to the laboratory for chemical analysis. Following sample collection, the boring will be grouted to the surface using neat cement, and the surface refinished to match the surrounding area.

The samples will be submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove), a California State-certified environmental laboratory. The soil samples will be analyzed for the following: Gasoline Range Organics (GRO, C6-12) by EPA Method 8015B; Benzene, Toluene, Ethylbenzene, Total Xylenes, tert-Amyl methyl ether (TAME), tert-Butyl alcohol (TBA), Di-isopropyl ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), Ethanol, Ethyl tert-butyl ether (ETBE), MTBE and Halogenated VOCs by EPA Method 8260; and Total Lead by EPA method 200.7.

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

4.2 One-Time Ground-Water Monitoring Event

As noted by ACEH, Volatile Organic Compounds (VOCs) were previously detected in ground-water samples collected in first, second, and third quarter 1991 from site ground-water monitoring wells. Therefore, VOCs analysis appears warranted to confirm or refute the presence of VOCs in ground water at the Site.

BAI proposes the implementation of a one-time ground-water monitoring event to include each of the six monitoring wells at the Site. The samples collected will be submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove), a California State-certified environmental laboratory. The ground-water samples will be analyzed for the following constituents: GRO by EPA Method 8015B; BTEX, TAME, TBA, DIPE, EDB, 1,2-DCA, Ethanol, ETBE, MTBE and Halogenated VOCs by EPA Method 8260; and Total Lead by EPA method 200.7.

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

5.0 PROPOSED SCHEDULE

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

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

6.0 CLOSURE

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

7.0 REFERENCES

Alameda County Environmental Health, 16 October 2008. Fuel Leak Case No. RO0000318 and GeoTracker Global ID T0600100207, BP #11266, 1541 Park Street, Alameda, CA 94501. Directive letter to Atlantic Richfield Company.

Broadbent & Associates, Inc., 25 October 2006. *Third Quarter 2006 Ground-Water Monitoring Report, Former BP Service Station #11266, 1541 Park Street, Alameda, California.*

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

EMCON Associates, 15 March 1990. *Phase II Site Assessment Report, Service Station 11266, 1541 Park Street, Alameda, California.* Letter report of aquifer testing submitted to BP.

Hydro-Environmental Technologies, Inc., 28 February 1992. *Remedial Action Plan For BP Oil Company #11266, 1541 Park Street, Alameda, California.* Report of station renovation activities and proposed remediation system submitted to BP.

Hydro-Environmental Technologies, Inc., 4 May 1992. *Quarterly Monitoring Report, BP Oil Facility No. 11266, 1541 Park Street, Alameda, California.* Report submitted to BP.

Hydro-Environmental Technologies, Inc., 20 August 1992. *Ground Water Discharge Permit, BP Oil Station #11266, 1541 Park Street – Alameda.* Letter submitted to East Bay Municipal Utility District.

Hydro-Environmental Technologies, Inc., 26 August 1992. *System Startup Plan, BP Oil #11266, 9-031/Park Street – Alameda.*

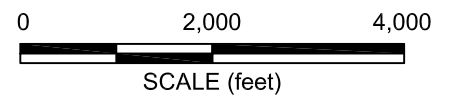
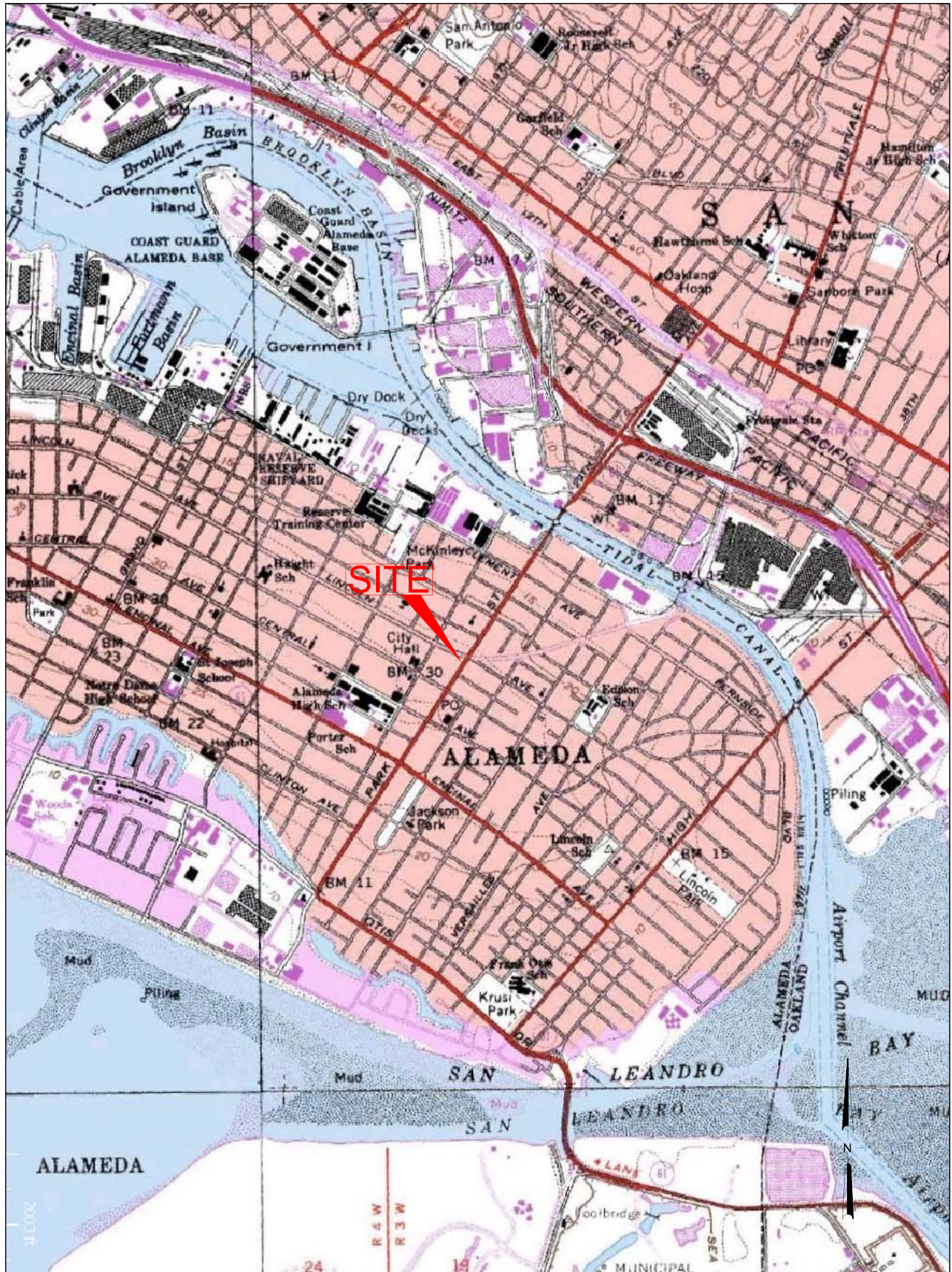
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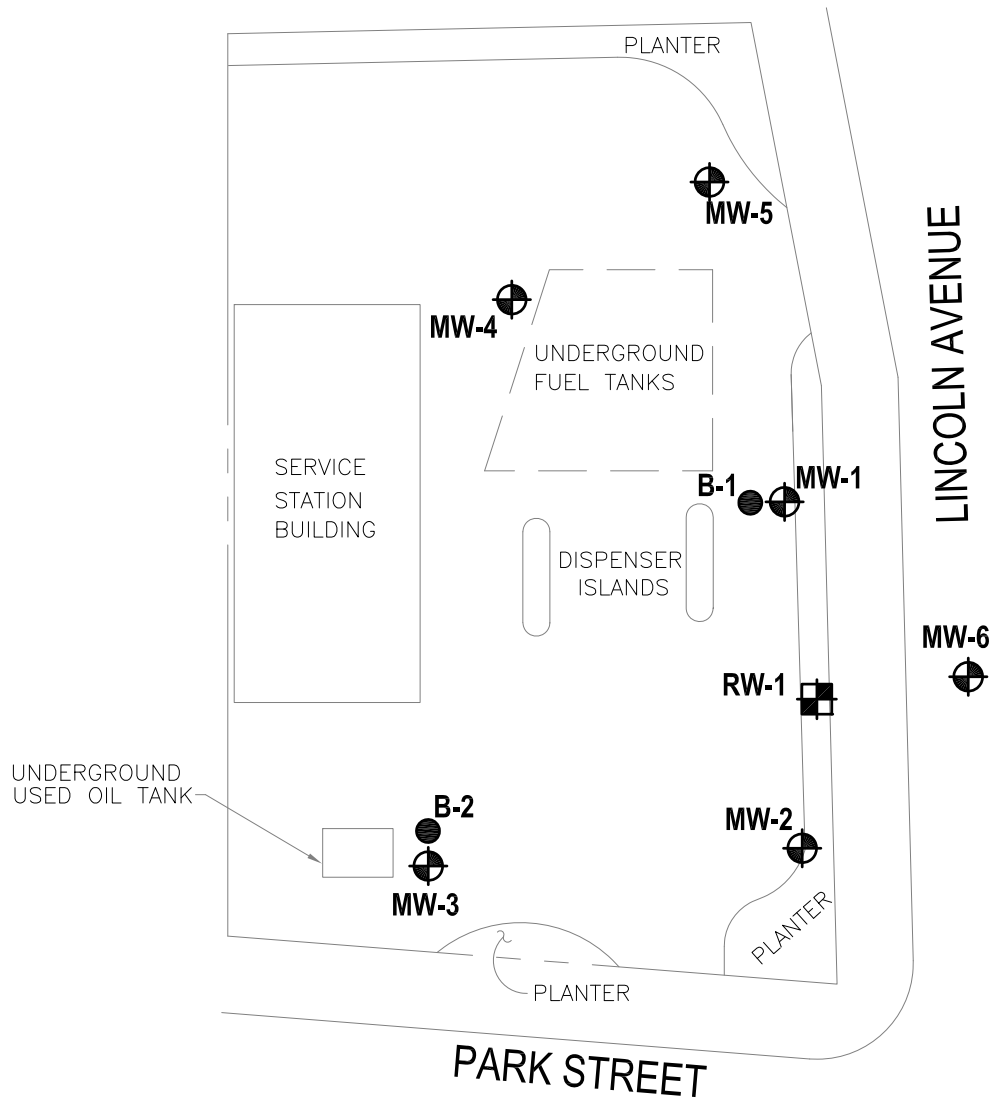
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SECOR International Incorporated, 20 January 2000. *Removal and Replacement of Product Lines and Dispensers, Tosco (BP) Service Station # 11266, 1541 Park Street, Alameda, California.* Letter report submitted to Alameda County Health Care Services Agency.

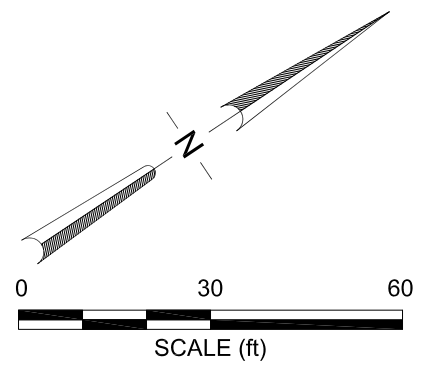
URS Corporation, 21 February 2003. *Request for Site Closure, BP Service Station #11266, 1541 Park Street, Alameda, California.* Request submitted to Alameda County Department of Environmental Health.



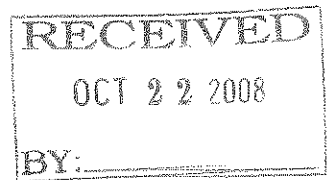


LEGEND

- Proposed Soil Boring Location
- ⊕ Monitoring Well Location
- ⊞ Ground-Water Recovery Well Location



APPENDIX A
RECENT REGULATORY CORRESPONDENCE



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

October 16, 2008

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

Terry Grayson
Conoco Phillips
76 Broadway Street
Sacramento, CA 95818

Raymond Yeung
1541 Park Street
Alameda, CA 94501-2933

Subject: Fuel Leak Case No. RO0000318 and GeoTracker Global ID T0600100207, BP #11266,
1541 Park Street, Alameda, CA 94501

Dear Messrs. Supple, Grayson, and Yeung:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the document entitled, "Third Quarter 2006 Ground-Water Monitoring Report," dated October 26, 2006 and the recently submitted "Second Quarter 2008 Status Report," dated July 18, 2008, which were prepared by Broadbent & Associates, Inc. (BAI) for the subject site. Based on a review of the case file, it appears that four underground storage tanks (USTs) were excavated and removed from the site in September 1987. Soil sample analytical results detected total petroleum hydrocarbons (TPH) as gasoline (g) and benzene at concentrations of 3,200 mg/kg and 81 mg/kg, respectively in soil sample C1 collected at approximately 11.5 feet below the ground surface (bgs). A "grab" groundwater sample collected from the UST pit detected TPH-g and benzene at concentrations of 530,000 µg/L and 6,300 µg/L, respectively. In February 1988, Kaprealian Engineering installed three groundwater monitoring wells at the site. Groundwater sample analytical results detected TPH-g and benzene at concentrations of 95,000 µg/L and 2,000 µg/L, respectively, in a groundwater sample collected from monitoring well MW-1. From 1992 to 1995, Hydro Environmental Technologies installed and operated a groundwater extraction and treatment system at the site.

According to BAI, case closure was requested by BP on February 21, 2003. ACEH responded in our July 7, 2006 correspondence requesting more recent groundwater monitoring data with additional sampling parameters for fuel oxygenates, ethanol, and lead scavengers. According to BAI, concentrations of contaminants detected in groundwater are similar to those previously detected and requests case closure. Although groundwater sample analytical data is consistent with historical sampling results, confirmation soil samples do not appear to have been collected to verify remediation system effectiveness. Since data gaps have been identified, ACEH cannot consider case closure at this time. This decision to deny closure is subject to appeal to the State Water Resources Control Board (SWRCB), pursuant to Section 25299.39.2(b) of the Health and Safety Code (Thompson-Richter Underground Storage Tank Reform Act - Senate Bill 562). Please contact the SWRCB Underground Storage Tank Program at (916) 341-5851 for information regarding the appeal process.

ACEH requests that you address the following technical comments and send us the technical reports requested below.

TECHNICAL COMMENTS

1. **Confirmation Soil Sampling & Contaminant Source Area Characterization** – As mentioned above, significantly elevated concentrations of TPH-g and benzene were detected in soil following the UST removals in 1987. Although a groundwater extraction system operated at the site, depth and screened interval of extraction well, estimated contaminant mass in the subsurface, and total contaminant mass removed were not available in our case file, and confirmation soil sampling to evaluate system effectiveness does not appear to have been conducted since Hydro Environmental Technologies stated “[n]o soil remediation has been undertaken.” Also VOCs were previously detected in groundwater samples collected on August 1, 1991 from site groundwater monitoring wells. Therefore, VOC analysis to confirm or refute the presence of VOCs also appears warranted. Please propose a scope of work to address the above-mentioned concerns and submit a work plan by the date specified below.

REQUEST FOR INFORMATION

ACEH's case file for the subject site contains the following electronic reports as listed on our website (<http://www.acgov.org/aceh/lop/ust.htm>). You are requested to submit copies of all other reports related to environmental investigations for this property (including Remediation System Installation Reports, etc.) by **November 14, 2008**.

TECHNICAL REPORT REQUEST

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

- **December 15, 2008** – Soil and Water Investigation Work Plan

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

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached “Electronic Report Upload Instructions.” Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years,

Dear Messrs. Supple, Grayson, and Yeung
RO0000318
October 16, Page 3

responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml).

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

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

Dear Messrs. Supple, Grayson, and Yeung
RO0000318
October 16, Page 4

Sincerely,



Paresh C. Khatri
Hazardous Materials Specialist



Donna L. Drogos, PE
Supervising Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Tom Venus, Broadbent & Associates, Inc., 1324 Mangrove Ave., Ste 212, Chico, CA 95926
Donna Drogos, ACEH
Paresh Khatri, ACEH
File

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

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

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

Additional Recommendations

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

Submission Instructions

- 1) Obtain User Name and Password:
 - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
 - i) Send an e-mail to dehloptoxic@acgov.org
or
 - ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
 - b) In the subject line of your request, be sure to include "**ftp PASSWORD REQUEST**" and in the body of your request, include the **Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
 - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
 - (i) Note: Netscape and Firefox browsers will not open the FTP site.
 - b) Click on File, then on Login As.
 - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
 - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
 - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
 - a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
 - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
 - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload)

APPENDIX B
HISTORIC SOIL AND GROUND-WATER DATA



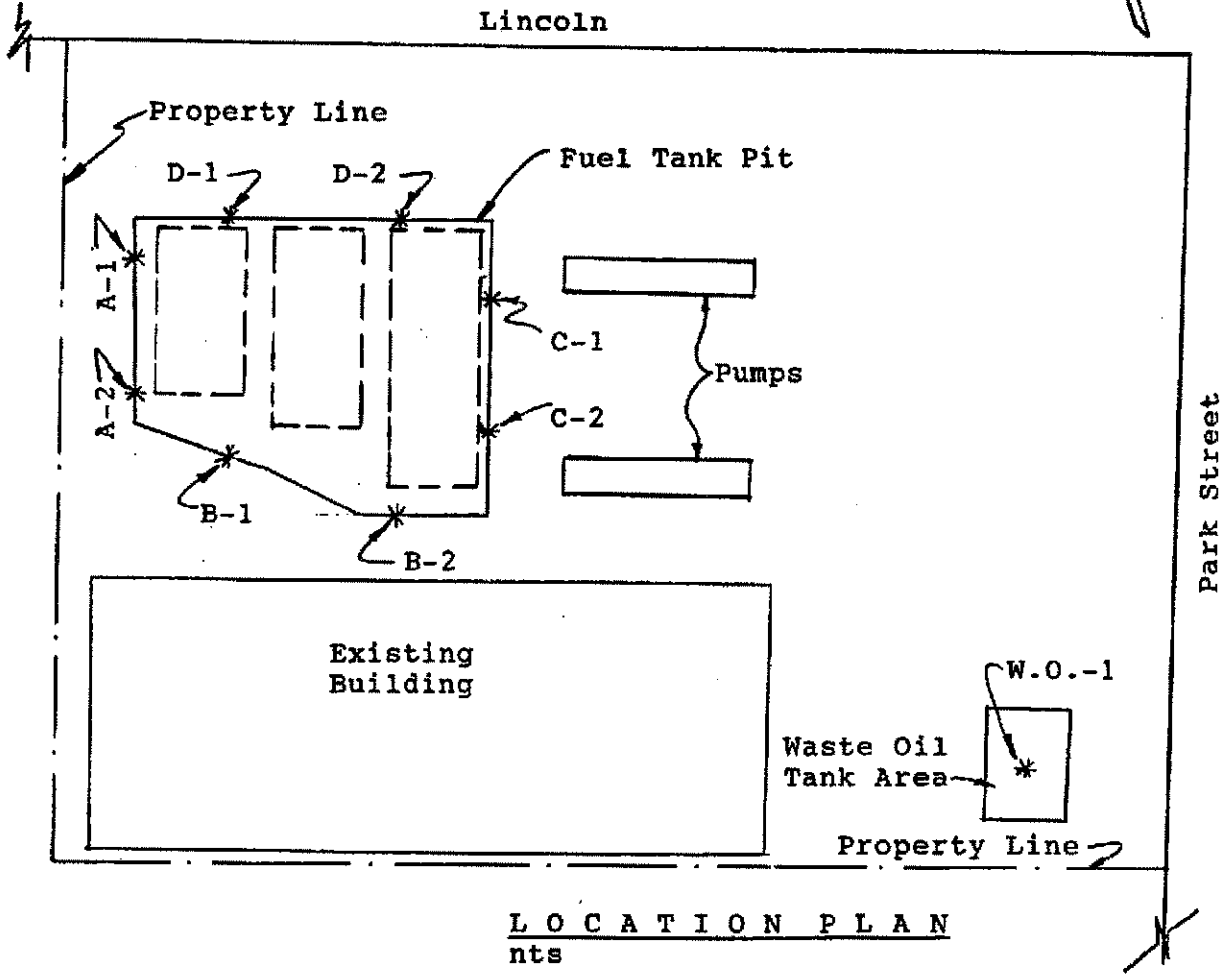
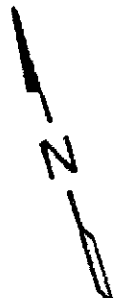
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

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



LOCATION PLAN
nts

* Sample Location

MOBIL Service Station
1541 Park Street
Alameda, California

COPY TO BP

TABLE 1
SUMMARY OF LABORATORY ANALYSES
(all analyses in parts per million)

<u>Sample #</u>	<u>Type</u>	<u>Depth</u>	<u>Total Hydrocarbon</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylene</u>
A1	soil	11.5'	<1.0	<0.1	<0.1	<0.1
A2	Soil	11.5'	<1.0	<0.1	<0.1	<0.1
B1	soil	11.5'	<1.0	<0.1	<0.1	<0.1
B2	soil	11.5'	340	<0.1	<0.1	8.6
C1	soil	11.5'	3200	81	42	450
C2	soil	11.5'	490	2.6	13	180
D1	soil	11.5'	<1.0	<0.1	<0.1	<0.1
D2	soil	11.5'	75	0.3	6.1	40
W.0-1*	soil	7.5'	<10	----	----	----
W-1	water	12'	530	6.3	66	200

* TOG = 150 ppm

COPY TO BP



HAZCAT Mobile Organics Lab

733 Dartmouth Avenue
San Carlos, CA 94070 • (415) 591-5820

Kaprealian Engineering Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 09-15-87
Date Received: 09-16-87
Date Reported: 10-04-87

Sample Number

097036

Sample Description

Mobil Alameda
Park & Lincoln
WO-1

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Benzene.....	<50	trans-1,2-Dichloroethane...	<50
Bromomethane.....	<100	1,2-Dichloropropane.....	<50
Bromodichloromethane.....	<50	1,3-Dichloropropene.....	<50
Bromoform.....	<50	Ethylbenzene.....	<50
Carbon tetrachloride.....	<50	Methylene chloride.....	<50
Chlorobenzene.....	<50	1,1,2,2-Tetrachloroethane..	<50
Chloroethane.....	<100	Tetrachloroethane.....	<50
2-Chloroethylvinyl ether.....	<50	1,1,1-Trichloroethane.....	<50
Chloroform.....	<50	1,1,2-Trichloroethane.....	<50
Chloromethane.....	<100	Trichloroethene.....	<50
Dibromochloromethane.....	<50	Toluene.....	<50
1,1-Dichloroethane.....	<50	Vinyl chloride.....	<100
1,2-Dichloroethane.....	<50	1,2-Dichlorobenzene.....	<100
1,1-Dichloroethene.....	<50	1,3-Dichlorobenzene.....	<100
		1,4-Dichlorobenzene.....	<100

HAZCAT

Ronald G. Evans

Ronald G. Evans
Lab Director

NOTE: Analysis was performed using
methods 8010 and 8020

COPY TO BP



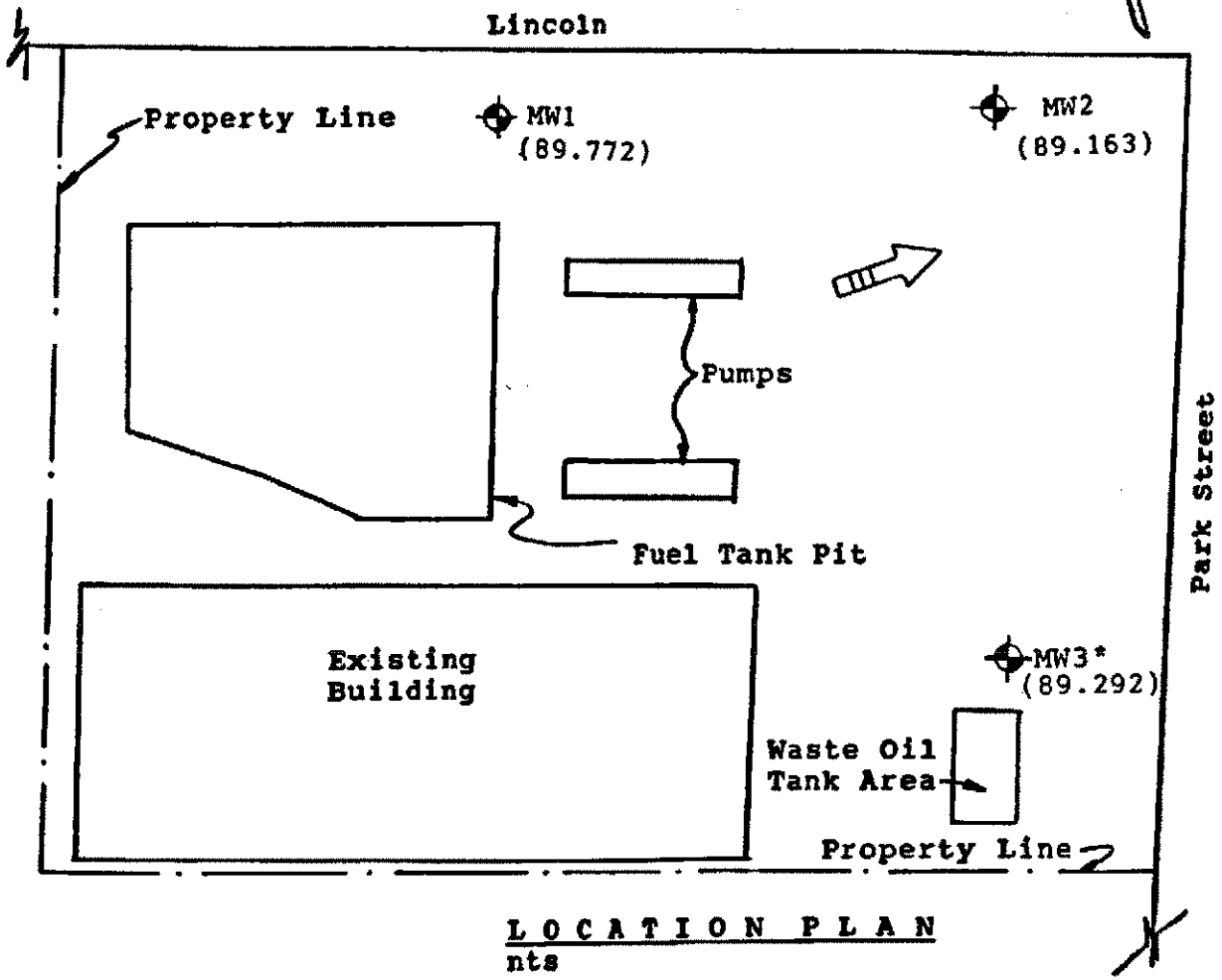
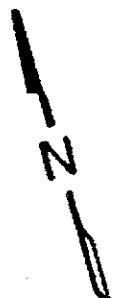
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 813

BENICIA, CA 94510

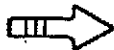
(415) 876-8100 (707) 746-8915



LOCATION PLAN nts



Monitoring Well



Direction of groundwater flow (2-11-88)

() Groundwater elevation (feet)

* Surface elevation at top of MW3 assumed 100' as datum

MOBIL Service Station
1541 Park Street
Alameda, California

TABLE - 1

Results of Soil Analyses - Parts Per Million (ppm)

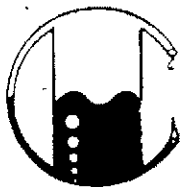
<u>Sample Number</u>	<u>Depth (feet)</u>	<u>TPH</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylene</u>	<u>Ethylbenzene</u>
MW-1	10	2.4	0.1	0.2	0.7	<0.1
MW-2	10	<1.0	<0.1	<0.1	<0.1	<0.1
MW-3	10	<1.0	<0.1	<0.1	<0.1	<0.1

Results of Water Analyses - parts per billion (ppb)

<u>Sample Number</u>	<u>Depth (feet)</u>	<u>TPH</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylene</u>	<u>Ethylbenzene</u>
MW-1	9.50	95,000	2000	5900	10,000	1100
MW-2	10.208	<50	<0.5	<0.5	<0.5	<0.5
MW-3+	10.667	<50	<0.5	<0.5	<0.5	<0.5

* TPH = Total Petroleum Hydrocarbon

+ MW-3 (water) had TPH diesel <50 ppb; TOG <50 ppb; EPA 601 and 602 constituents all non-detectable.



HAZCAT Mobile Organics Lab

733 Dartmouth Avenue
San Carlos, CA 94070 • (415) 591-5820

Kaprealian Engineering Inc.
P.O. BOX 913
Benicia, CA 94010
Attn: Mardo Kaprealian
President

Date Sampled: 02-17-88
Date Received: 02-17-88
Date Reported: 02-28-88

Sample Number

028093

Sample Description

Mobil-Alameda
Park & Lincoln
MW-3 WATER

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Benzene.....	<0.5	trans-1,2-Dichloroethane...	<0.5
Bromomethane.....	<0.5	1,2-Dichloropropane.....	<0.5
Bromodichloromethane.....	<0.5	1,3-Dichloropropene.....	<0.5
Bromoform.....	<0.5	Ethylbenzene.....	<0.5
Carbon tetrachloride.....	<0.5	Methylene chloride.....	<0.5
Chlorobenzene.....	<0.5	1,1,2,2-Tetrachloroethane..	<0.5
Chloroethane.....	<0.5	Tetrachloroethane.....	<0.5
2-Chloroethylvinyl ether..	<0.5	1,1,1-Trichloroethane.....	<0.5
Chloroform.....	<0.5	1,1,2-Trichloroethane.....	<0.5
Chloromethane.....	<0.5	Trichloroethene.....	<0.5
Dibromochloromethane.....	<0.5	Toluene.....	<0.5
1,1-Dichloroethane.....	<0.5	Vinyl chloride.....	<0.5
1,2-Dichloroethane.....	<0.5	1,2-Dichlorobenzene.....	<0.5
1,1-Dichloroethene.....	<0.2	1,3-Dichlorobenzene.....	<0.5
		1,4-Dichlorobenzene.....	<0.5

HAZCAT

Ronald G. Evans
Ronald G. Evans
Lab Director

NOTE: Analysis was performed using EPA
methods 601 and 602



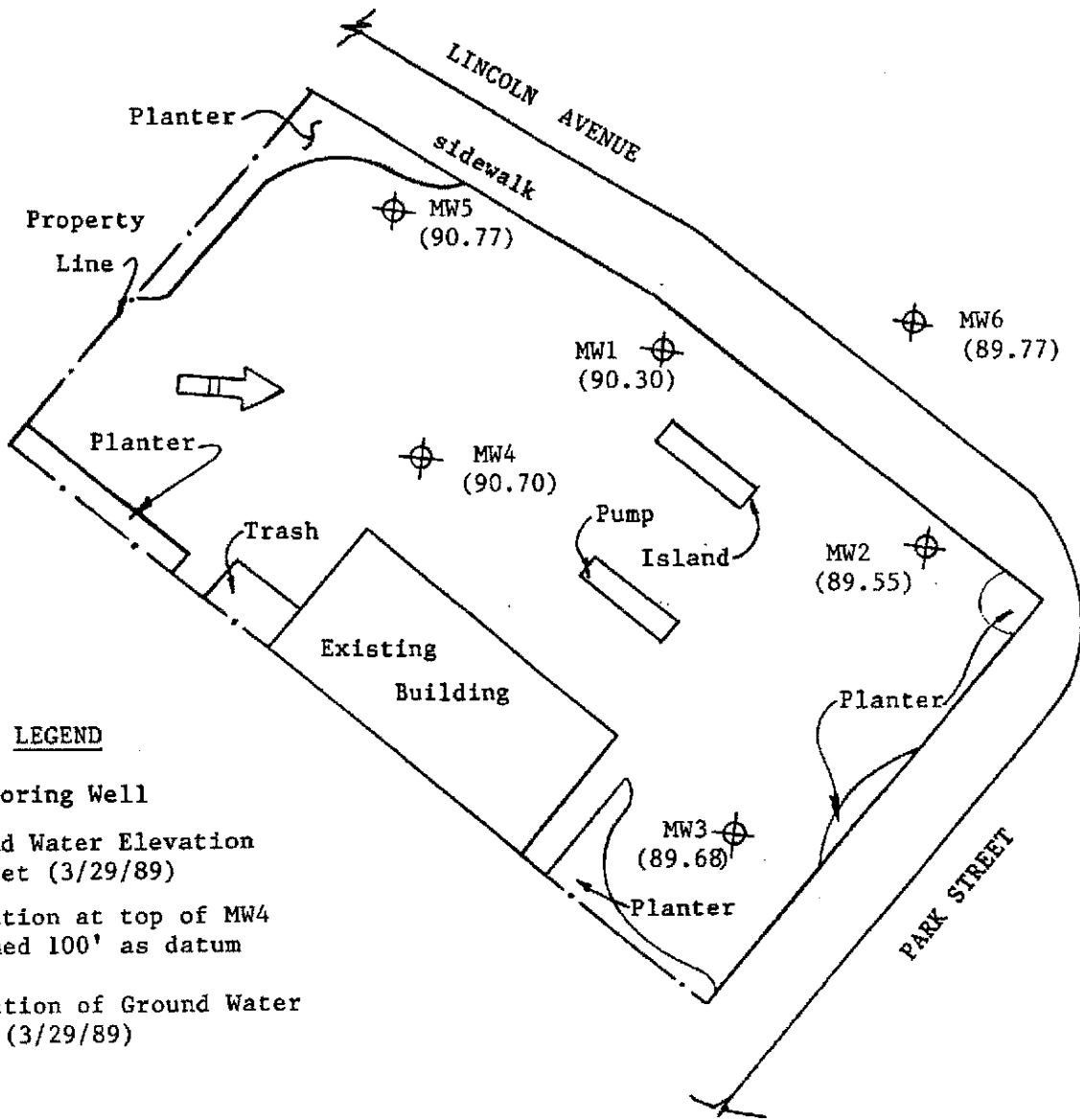
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

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



LEGEND

⊕ Monitoring Well

() Ground Water Elevation in feet (3/29/89)

Elevation at top of MW4 assumed 100' as datum

Direction of Ground Water Flow (3/29/89)

SITE PLAN



Mobil Service Station #10-EYD
1541 Park Street
Alameda, California

KEI-P87-0907.R4
April 19, 1989

TABLE 2

SUMMARY OF LABORATORY ANALYSES
SOIL

(Results in ppm)
(Collected on March 22, 1989)

<u>Sample Number</u>	<u>Depth (feet)</u>	<u>TPH</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
MW4	5	ND	ND	ND	ND	ND
MW4	10	ND	ND	ND	ND	ND
MW5	6	ND	ND	ND	ND	ND
MW5	10	ND	ND	ND	ND	ND
MW6	5	ND	ND	ND	ND	ND
MW6	10	ND	ND	ND	ND	ND
Detection Limits		1.0	0.05	0.1	0.1	0.1

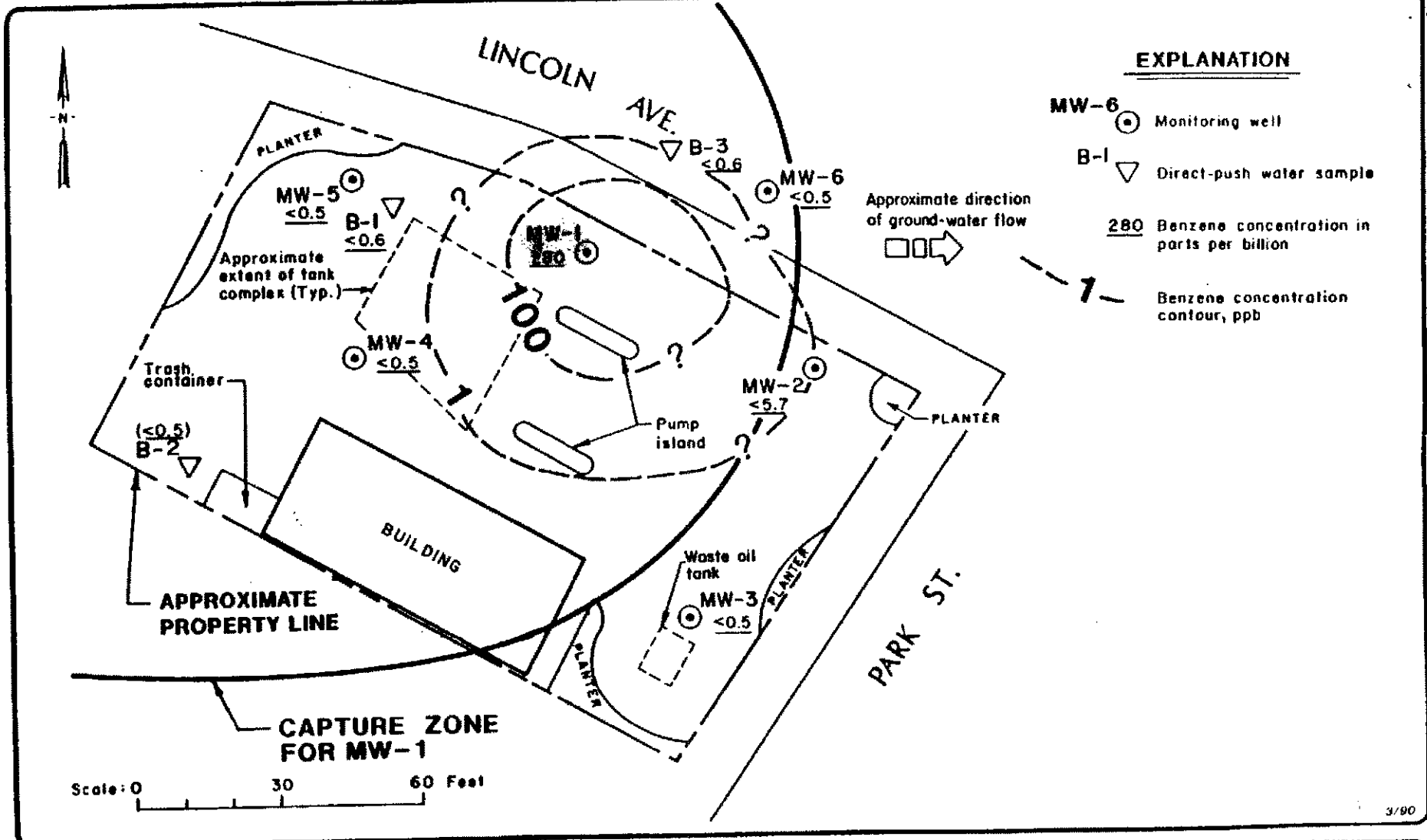
SUMMARY OF LABORATORY ANALYSES
WATER

(Results in ppb)
(Collected on March 29, 1989)

<u>Sample Number</u>	<u>Depth (feet)</u>	<u>TPH</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
MW1	8.93	25,000	930	2,600	3,100	24
MW2	9.77	ND	1.1	0.78	1.7	ND
MW3	10.28	ND	ND	ND	ND	ND
MW4	9.30	ND	ND	ND	ND	ND
MW5	8.33	ND	ND	ND	ND	ND
MW6	9.28	ND	ND	ND	ND	ND
Detection Limits		50.0	0.5	0.5	0.5	0.5

TPH = total petroleum hydrocarbon as gasoline.

ND = Non-detectable.



EXPLANATION

- MW-6 Monitoring well
- B-1 Direct-push water sample
- 280 Benzene concentration in parts per billion
- 7 Benzene concentration contour, ppb

Approximate direction of ground-water flow

Scale: 0 30 60 Feet

3/90



EMCON
Associates

BP OIL CORPORATION
SERVICE STATION No. 11266
SITE ASSESSMENT
ALAMEDA, CALIFORNIA

DISSOLVED BENZENE CONCENTRATION CONTOURS
AND CAPTURE ZONE

FIGURE
6
PROJECT NO.
C90-04-06

Table 1

SUMMARY OF GROUND-WATER ELEVATION AND CHEMISTRY DATA ($\mu\text{g/l}$, ppb)

Well	Sample Date	Depth to Ground Water (ft)	Top-of-Casing Elevation (ft-msl)	Ground-Water Elevation (ft-msl)	TPH Gas	Benzene	Toluene	Xylenes	Ethylbenzene
MW-1	11/28/89	9.77	22.63	12.86	15,000	280	880	1,200	340
MW-2	11/28/89	10.25	22.75	12.50	170 ¹	<5.7 ²	<1	<3	<1
MW-3	11/28/89	10.72	23.45	12.73	<50	<0.5	<1	<3	<1
MW-4	11/28/89	10.41	23.63	13.22	<50 ¹	<0.5	<1	<3	<1
MW-5	11/28/89	9.83	22.87	13.04	<50	<0.5	<1	<3	<1
MW-6	11/28/89	10.30	22.85	12.55	<50	<0.5	<1	<3	<1
B-1*	11/15/89	NM	--	--	3	<0.6	2	<0.8	0.6
B-2*	11/15/89	NM	--	--	3	<0.6	2	<0.8	1
B-3*	11/15/89	NM	--	--	14	<0.6	1	<0.8	13
B-4	11/15/89	NM	--	--	12	<0.6	5	<0.8	<0.6
B-5	11/15/89	NM	--	--	4	<0.6	2	<0.8	<0.6

1. An unknown, discrete, volatile, non-fuel hydrocarbon was observed.

2. Raised detection limit due to unknown volatile component.

* Direct push ground-water samples

NM = Not measured

EMCON ASSOCIATES/BP GAS/ALAMEDA, CALIFORNIA JOB#K-257-89-5G
11/15/89
CONDENSED DATA

SAMPLE	BENZENE ug/l	TOLUENE ug/l	ETHYL BENZENE ug/l	XYLENES ug/l	TPH C1-C7 ug/l	TPH C8-C14 ug/l
Air	0.7	3	<0.3	<0.4	6	<0.3
B1-10.5'	<0.6	2	0.6	<0.8	2	<0.6
B2-13'	<0.6	2	1	<0.8	3	76
B3-12'	<0.6	1	12	<0.8	14	<0.6
B4-10'	<0.6	5	<0.6	<0.8	12	<0.6
B5-10'	<0.6	2	<0.6	<0.8	4	<0.6

Analyzed by: S. Evans

Checked by: G. Santo

Proofed by: *J. Kaylander*



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: EMCON Associates
 SUBMITTED BY: Client
 PROJECT: C90-04.03
 SAMPLE DESCRIPTION: Water

DATE RECEIVED: 11/30/89
 DATE EXTRACTED: N/A
 DATE ANALYZED: 12/07/89
 WORK ORDER #: E89-1667

BTEX Analyses
 DHS LUFT Method
 EPA Method 602/8020
 ug/L(ppb)

Sample Name:		MW-1	MW-2	MW-3
	<u>MRL</u>			
Benzene	0.5	280	<5.7*	<0.5
Toluene	1	880	<1	<1
Ethyl Benzene	1	340	<1	<1
Total Xylenes	3	1200	<3	<3
Gasoline	50	15000	170**	<50

Sample Name:		MW-4	MW-5	MW-6
Benzene		<0.5	<0.5	<0.5
Toluene		<1	<1	<1
Ethyl Benzene		<1	<1	<1
Total Xylenes		<3	<3	<3
Gasoline		<50**	<50	<50

MRL - Method Reporting Limit

* Raised reporting limit due to presence of unknown, volatile component.

**An unknown discrete, volatile, non-fuel hydrocarbon was observed in this sample.

Approved by

Timothy P. Dean

Date

12/19/89

TABLE 1
Cumulative Analytical Results of Soil Samples
BP Oil Facility No. 11266
Alameda, California

TANK EXCAVATION

Date	Sample	Depth	TPH	B	T	X
10/87	A1	11.5	<1.0	<0.1	<0.1	<0.1
	A2	11.5	<1.0	<0.1	<0.1	<0.1
	B1	11.5	<1.0	<0.1	<0.1	<0.1
	B2	11.5	340	<0.1	<0.1	8.6
	C1	11.5	3200	81	42	450
	C2	11.5	490	2.6	13	180
	D1	11.5	<1.0	<0.1	<0.1	<0.1
	D2	11.5	75	0.3	6.1	4.0
	W.0-1	11.5	<10	NA	NA	NA

WELL INSTALLATION

Date	Sample	Depth	TPH	B	T	E	X
3/88	MW-1	10.0	2.1	0.1	0.2	<0.1	0.7
	MW-2	10.0	<0.1	<0.1	<0.1	<0.1	<0.1
	MW-3	10.0	<0.1	<0.1	<0.1	<0.1	<0.1
	MW-4	5.0	ND	ND	ND	ND	ND
	MW-4	10.0	ND	ND	ND	ND	ND
	MW-5	5.0	ND	ND	ND	ND	ND
	MW-5	10.0	ND	ND	ND	ND	ND
	MW-6	5.0	ND	ND	ND	ND	ND
	MW-6	10.0	ND	ND	ND	ND	ND

PIPING REPLACEMENT

Date	Sample	TPH	B	T	E	X
9/90	Composite A	ND	ND	ND	ND	ND
	D1	ND	ND	ND	ND	ND
	D2	ND	ND	ND	ND	ND
	D3	ND	ND	ND	ND	ND
	D4	ND	ND	ND	ND	ND

All results are reported in mg/kg by KEI
 TPH=Total Petroleum Hydrocarbons (no distinction given)
 B=benzene T=toluene E=ethylbenzene X=xylene
 ND=not detected in concentrations exceeding the laboratory detection limit
 NA=not analyzed
 KEI=Kaprealian Engineering, Inc.

TABLE 2
Cumulative Analytical Results of Water Samples
BP Oil Facility No. 11266
Alameda, California

Well No.	Sample Date	Collector	TPHg	B	T	E	X
*	10/87	KEI	530	6.3	66	NA	200
MW-1	3/4/88	KEI	95,000	2,000	5,900	1,100	10,000
	3/29/89	KEI	25,000	930	2,600	24	3,100
	11/28/89	EMCON	15,000	280	880	340	1,200
	2/13/91	EMCON	25,000	680	2,700	1,100	3,200
	1/8/92	HETI	10,000	260	1,100	570	2,000
MW-2	3/4/88	KEI	ND	ND	ND	ND	ND
	3/29/89	KEI	ND	1.1	0.78	ND	1.7
	11/28/89	EMCON	170	ND	ND	ND	ND
	2/13/91	EMCON	150	1.4	ND	ND	0.9
	1/8/92	HETI	ND	1.4	ND	ND	1.1
MW-3**	3/28/88	KEI	ND	ND	ND	ND	ND
	3/29/89	KEI	ND	ND	ND	ND	ND
	11/28/89	EMCON	ND	ND	ND	ND	ND
	2/13/91	EMCON	ND	ND	ND	ND	ND
	1/8/92	HETI	ND	ND	ND	ND	ND
MW-4	3/29/89	KEI	ND	ND	ND	ND	ND
	11/28/89	EMCON	ND	ND	ND	ND	ND
	2/13/91	EMCON	430	6.2	0.6	12	3.3
	1/8/92	HETI	ND	ND	ND	ND	ND
MW-5	3/29/89	KEI	ND	ND	ND	ND	ND
	11/28/89	EMCON	ND	ND	ND	ND	ND
	2/13/91	EMCON	ND	ND	ND	ND	ND
	1/8/92	HETI	ND	ND	ND	ND	ND
MW-6	4/19/89	KEI	ND	ND	ND	ND	ND
	11/28/89	EMCON	ND	ND	ND	ND	ND
	2/13/91	EMCON	ND	ND	ND	ND	ND
	1/8/92	HETI	ND	ND	ND	ND	ND

All concentrations in µg/l (ppb)

TPHg = Total petroleum hydrocarbons as gasoline.

B = Benzene

T = Toluene

E = Ethylbenzene

X = Total Xylenes

ND = Not detected in concentrations exceeding the laboratory method detection limit

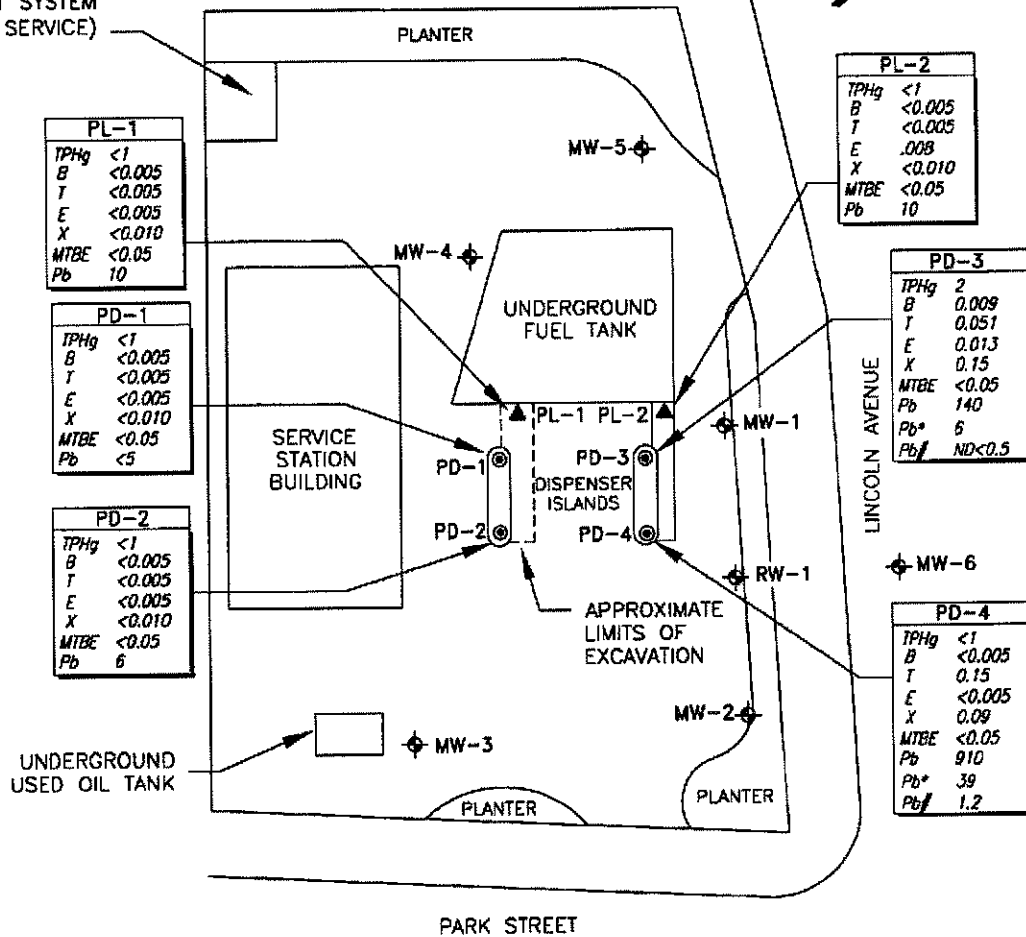
KEI = Kaprealian Engineering, Inc.

EMCON = EMCON Associates

*Sample was obtained from the tank excavation in 1987

**In March of 1988, KEI reported less than 50 ppb as diesel in MW-3

GROUNDWATER TREATMENT SYSTEM (OUT OF SERVICE)



PL-1	
TPHg	<1
B	<0.005
T	<0.005
E	<0.005
X	<0.010
MTBE	<0.05
Pb	10

PD-1	
TPHg	<1
B	<0.005
T	<0.005
E	<0.005
X	<0.010
MTBE	<0.05
Pb	<5

PD-2	
TPHg	<1
B	<0.005
T	<0.005
E	<0.005
X	<0.010
MTBE	<0.05
Pb	6

PL-2	
TPHg	<1
B	<0.005
T	<0.005
E	.008
X	<0.010
MTBE	<0.05
Pb	10

PD-3	
TPHg	2
B	0.009
T	0.051
E	0.013
X	0.15
MTBE	<0.05
Pb	140
Pb*	6
Pb#	ND<0.5

PD-4	
TPHg	<1
B	<0.005
T	0.15
E	<0.005
X	0.09
MTBE	<0.05
Pb	910
Pb*	39
Pb#	1.2

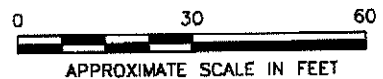
LEGEND

- ⊕ MW-3 MONITORING WELL LOCATION
- ⊙ PD-1 PRODUCT DISPENSER SOIL SAMPLE
- ▲ PL-1 PRODUCT LINE SOIL SAMPLE

TPHg	<1
B	<0.005
T	<0.005
E	<0.005
X	<0.10
MTBE	<0.05
Pb	<5

CONCENTRATION (Mg/Kg)

- ND — NOT DETECTED ABOVE THE STATED DETECTION LIMITS
- TPHg — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B — BENZENE
- T — TOLUENE
- E — ETHYLBENZENE
- X — XYLENES
- MTBE — METHYL TERTIARY BUTYL ETHER
- Pb — TOTAL LEAD
- Pb* — LEAD BY STLC (Mg/L)
- Pb# — LEAD BY TCLP (Mg/L)



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SECOR
International Incorporated

DRAWN	GEL
APPR	RP
DATE	28DEC99
JOB NO.	006.03425.602

FIGURE 2
TOSCO (FORMER BP) SERVICE STATION #11266
1541 PARK STREET
ALAMEDA, CALIFORNIA
SITE PLAN

Table 1
Soil Analytical Data
Product Lines and Dispensers

Tosco (Former BP) Service Station # 11266
 1541 Park Street
 Alameda, California

Sample Name	Sample Depth (feet bgs)	Date Sampled	TPH as Gasoline (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethly-benzene (mg/kg)	Xylenes (mg/kg)	MTBE 8020/8260 (mg/kg)	Total Lead (mg/kg)	Lead By STLC (mg/L)	Lead By TCLP (mg/L)
PD-1	2.0'	12/06/99	ND<1.00	ND<0.005	ND<0.005	ND<0.005	ND<0.010	ND<0.05/NA	ND<5	NA	NA
PD-2	2.0'	12/06/99	ND<1.00	ND<0.005	ND<0.005	ND<0.005	ND<0.010	ND<0.05/NA	6	NA	NA
PD-3	2.0'	12/06/99	2.00	0.009	0.051	0.013	0.15	ND<0.05/NA	140	6	ND<0.5
PD-4	2.0'	12/06/99	ND<1.00	ND<0.005	0.15	ND<0.005	0.09	ND<0.05/NA	910	39	1.2
PL-1	2.0'	12/06/99	ND<1.00	ND<0.005	ND<0.005	ND<0.005	ND<0.010	ND<0.05/NA	10	NA	NA
PL-2	2.0'	12/06/99	ND<1.00	ND<0.005	ND<0.005	0.008	ND<0.010	ND<0.05/NA	10	NA	NA

TPH = Total petroleum hydrocarbons
 MTBE = Methyl tertiary butyl ether
 ND = Not detected above specified laboratory reporting limits
 NA = Not analyzed
 mg/kg = milligrams per kilogram

STLC = Soluble Limit Threshold Concentration
 TCLP = Toxicity Characteristic Leaching Procedure
 mg/L = milligrams per liter

Table 3
 Ground-Water Analyses
 Microgram Per Liter (parts per billion)
 BP Service Station 11266, Alameda, California

Well	Date Sampled	2-Butanone (MEK)	Chlorobenzene (CB)	Tetrachloroethene (PCE)	Styrene
MW-1	11/29/89	-- ¹	--	--	--
	02/13/91	14	2.8	<1	<1
	05/10/91	<10	3.0	<1	1.7
	08/01/91	<10	2	<1	<1
MW-2	11/29/89	-- ¹	--	--	--
	02/13/91	<10	<1	<1	<1
	05/10/91	<10	<1	<1	<1
	08/10/91	<10	<1	<1	<1
MW-3	11/29/89	-- ¹	--	--	--
	02/13/91	<10	<1	<1	<1
	05/10/91	<10	<1	<1	<1
	08/01/91	<10	<1	<1	<1
MW-4	11/29/89	-- ¹	--	--	--
	02/13/91	<10	1.9	2.5	<1
	05/10/91	<10	1.4	2.8	<1
	08/01/91	<10	<1	<1	<1
MW-5	11/29/89	-- ¹	--	--	--
	02/13/91	<10	<1	<1	<1
	05/10/91	<10	<1	<1	<1
	08/01/91	<10	<1	<1	<1
MW-6	11/29/89	-- ¹	--	--	--
	02/13/91	<10	<1	<1	<1
	05/10/91	<10	<1	<1	<1
	08/01/91	<10	2	2	<1

1. Ground-water samples were not analyzed for EPA method 8240 during the November 1989 monitoring event.

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	(a)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	(b)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-1	03/04/88	19.19		—	—		95000	2000	5900	1100	10000	—	—	—
MW-1	03/29/89	19.19		—	—		25000	930	2600	24	3100	—	—	—
MW-1	11/28/89	19.19		—	—		15000	280	880	340	1200	—	—	—
MW-1	02/13/91	19.19		—	—		25000	680	2700	1100	3200	—	—	—
MW-1	01/08/92	19.19		—	—		10000	260	1100	570	2000	—	—	—
MW-1	03/30/92	19.19		8.15	11.04		5800	290	570	500	1100	—	(h)	PACE
MW-1	07/02/92	19.19		9.38	9.81		2500	170	60	310	300	—	—	ANA
MW-1	07/22/92	19.19		9.62	9.57		—	—	—	—	—	—	—	—
MW-1	10/02/92	19.19		9.98	9.21		4000	86	190	270	350	—	—	ANA
QC-1 (c)	10/02/92	—		—	—		3600	89	180	270	340	—	—	ANA
MW-1	12/14/92	19.19		9.90	9.29		6800	75	540	200	670	—	—	ANA
QC-1 (c)	12/14/92	—		—	—		5900	68	480	190	600	—	—	ANA
MW-1	03/24/93	19.19		8.52	10.67		6400	150	310	370	710	1400	(d)	PACE
MW-1	06/17/93	19.19		9.37	9.82		3800	110	160	310	480	220	(d)	PACE
MW-1	09/29/93	19.19		10.80	8.39		1100	22	16	54	110	320	(d)	PACE
MW-1	12/28/93	19.19		9.27	9.92		1800	26	110	77	300	220	(d)	PACE
MW-1	03/29/94	19.19		8.77	10.42		22000	990	560	970	2000	68412	(h)	3.1 PACE
MW-1	07/07/94	19.19		9.18	10.01		18000	67	32	250	140	30000	(d)	— PACE
MW-1	10/18/94	19.19		9.85	9.34		270	1.9	0.6	ND<0.5	3.2	—	(h)	3.6 PACE
MW-1	02/01/95	19.19		7.04	12.15		5400	260	350	1100	980	—	—	6.5 ATI
MW-1	04/12/95	19.19		7.74	11.45		13000	260	620	960	2600	—	—	5.0 ATI
MW-1	09/13/95	19.19		9.58	9.61		5800	110	110	510	830	4300	—	5.2 ATI
QC-1 (c)	09/13/95	—		—	—		5800	110	100	490	800	4500	—	ATI
MW-1	01/11/96	19.19		8.95	10.24		5400	91	130	510	1000	1700	—	5.2 ATI
QC-1 (c)	01/11/96	—		—	—		5100	89	120	490	950	2000	—	ATI
MW-1	04/18/96	19.19		8.40	10.79		12000	190	420	1100	1560	2100	—	4.5 SPL
QC-1 (c)	04/18/96	—		—	—		12000	190	390	1100	1440	2000	—	SPL
MW-1	06/28/96	19.19		9.08	10.11		11000	100	130	670	1180	4600	—	SPL
QC-1 (c)	06/28/96	—		—	—		11000	100	140	690	1290	4600	—	SPL
MW-1	11/05/96	19.19		9.81	9.38		8800	55	28	520	430	5700	—	5.5 SPL
QC-1 (c)	11/05/96	—		—	—		8800	48	ND<25	490	413	5600	—	SPL
MW-1	01/17/97	19.19		7.81	11.38		12000	180	160	1200	1650	3200	—	8.0 SPL
QC-1 (c)	01/17/97	—		—	—		13000	190	160	1200	1770	3200	—	SPL
MW-1	05/01/97	19.19		9.13	10.06		8600	160	49	950	850	3200	—	7.0 SPL
QC-1 (c)	05/01/97	—		—	—		9000	160	39	940	820	3100	—	SPL
MW-1	07/09/97	19.19		9.55	9.64		10000	93	27	720	476	4500	—	6.3 SPL
QC-1 (c)	07/09/97	—		—	—		7600	42	13	340	175	4300	—	SPL
MW-1	10/16/97	19.19		9.77	9.42		2100	71	14	420	194	500	—	6.8 SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	(a)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	(b)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
QC-1 (c)	10/16/97	---		---	---		2600	80	17	500	276	510	---	SPL
MW-1	01/08/98	19.19		8.36	10.83		2500	33	21	180	183	1200	6.1	SPL
QC-1 (c)	01/08/98	---		---	---		2400	32	20	170	154	1300	---	SPL
MW-1	04/17/98	19.19		7.48	11.71		14000	140	410	730	1980	2400	3.7	SPL
QC-1 (c)	04/17/98	---		---	---		14000	140	460	770	2220	2500	---	SPL
MW-1	09/11/98	19.19		9.30	9.89		7700	65	38	580	880	1700	5.6	SPL
QC-1 (c)	09/11/98	---		---	---		10000	81	59	710	1410	1800	---	SPL
MW-1	03/09/99	19.19		6.80	12.39		6300	93	99	510	790	780/700	(f)	SPL
MW-1	09/23/99	19.19		6.31	10.88		8500	93	88	910	1900	640	---	SPL
MW-1	03/27/00	19.19		6.82	12.37		2100	35	6.2	240	120	160	---	PACE
MW-1	09/27/00	19.19		8.58	10.61		810	13	0.62	43	12	46	---	PACE
MW-1	03/21/01	19.19		7.47	11.72		1500	28.2	1.68	107	90.5	15.2	---	PACE
MW-1	09/18/01	19.19		8.95	10.24		990	24	9.57	44.6	62.6	31.2	---	PACE

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-2	03/04/88	19.32	---	---	ND	ND	ND	ND	ND	---	---	---
MW-2	03/29/89	19.32	---	---	ND	1.1	0.78	ND	1.7	---	---	---
MW-2	11/28/89	19.32	---	---	170	ND	ND	ND	ND	---	---	---
MW-2	02/13/91	19.32	---	---	150	1.4	ND	ND	0.9	---	---	---
MW-2	01/08/92	19.32	---	---	ND	1.4	ND	ND	1.1	---	---	---
MW-2	03/30/92	19.32	9.03	10.29	91	0.7	ND	ND	ND	---	(h)	PACE
MW-2	07/02/92	19.32	9.96	9.36	150	3.1	0.6	0.6	1.1	---	---	ANA
MW-2	07/22/92	19.32	10.12	9.20	---	---	---	---	---	---	---	---
MW-2	10/02/92	19.32	10.42	8.90	56	ND<0.5	0.8	0.8	1.2	---	---	ANA
MW-2	12/14/92	19.32	10.77	8.55	210	1.5	ND<0.5	0.9	2.7	---	---	ANA
MW-2	03/24/93	19.32	9.33	9.99	94	0.8	ND<0.5	ND<0.5	0.9	---	---	PACE
QC-1 (c)	03/24/93	---	---	---	150	1.8	0.6	1.3	1.3	---	---	PACE
MW-2	06/17/93	19.32	9.91	9.41	ND<50	ND<0.5	ND<0.5	ND<0.5	0.7	23	(d)	PACE
MW-2	09/29/93	19.32	11.39	7.93	68	ND<0.5	0.9	0.7	1.9	59	(d)	PACE
MW-2	12/28/93	19.32	9.75	9.57	260	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1300	(d)	PACE
QC-1 (c)	12/28/93	---	---	---	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1100	(d)	PACE
MW-2	03/29/94	19.32	9.39	9.93	150	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1622	(d),(h)	PACE
QC-1 (c)	03/29/94	---	---	---	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1600	(d)	PACE
MW-2	07/07/94	19.32	9.68	9.64	1100	0.6	1.7	0.6	3.2	2000	(d)	PACE
MW-2	10/18/94	19.32	10.22	9.10	290	3.1	0.8	ND<0.5	5.1	---	(h)	PACE
MW-2	02/01/95	19.32	8.03	11.29	100	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	ATI
MW-2	04/12/95	19.32	8.71	10.61	1200	ND<1.0	ND<1.0	ND<1.0	ND<2.0	---	---	ATI
MW-2	09/13/95	19.32	10.19	9.13	480	ND<2.5	ND<2.5	ND<2.5	ND<5.0	2300	---	ATI
MW-2	01/11/96	19.32	9.59	9.73	3400	ND<25	ND<25	ND<25	ND<50	11000	---	ATI
MW-2	04/18/96	19.32	9.04	10.28	130	ND<0.5	ND<1	ND<1	ND<1	170	---	SPL
MW-2	06/28/96	19.32	9.72	9.60	300	ND<0.5	ND<1	ND<1	ND<1	430	---	SPL
MW-2	11/05/96	19.32	10.43	8.89	710	ND<2.5	ND<5.0	ND<5.0	ND<5.0	960	---	SPL
MW-2	01/17/97	19.32	8.80	10.52	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	24	---	SPL
MW-2	05/01/97	19.32	10.06	9.26	80	ND<0.5	ND<1.0	ND<1.0	ND<1.0	100	---	SPL
MW-2	07/09/97	19.32	10.50	8.82	150	ND<0.5	ND<1.0	ND<1.0	ND<1.0	170	---	SPL
MW-2	10/16/97	19.32	10.18	9.14	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	260	---	SPL
MW-2	01/08/98	19.32	9.04	10.28	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	18	---	SPL
MW-2	04/17/98	19.32	8.56	10.76	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	SPL
MW-2	09/11/98	19.32	9.79	9.53	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	SPL
MW-2	03/09/99	19.32	7.93	11.39	200	ND<1.0	ND<1.0	ND<1.0	ND<1.0	190	---	SPL
MW-2	09/23/99	19.32	8.52	10.80	<250	ND<5.0	ND<5.0	ND<5.0	ND<5.0	84	---	SPL
MW-2	03/27/00	19.32	7.98	11.34	200	ND<0.5	ND<0.5	ND<0.5	ND<0.5	490	---	PACE
MW-2	09/27/00	19.32	8.84	10.48	180	ND<0.5	ND<0.5	ND<0.5	ND<0.5	730	---	PACE

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-2	03/21/01	19.32	8.34	10.98	270	1.02	ND<0.5	ND<0.5	ND<1.5	341	—	PAGE
MW-2	09/18/01	19.32	9.29	10.03	100	ND<0.5	ND<0.5	ND<0.5	ND<1.5	178	—	PAGE

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	(a) DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (b) (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-3	03/04/88	19.99	---	---	ND	ND	ND	ND	ND	---	---	---
MW-3	03/29/89	19.99	---	---	ND	ND	ND	ND	ND	---	---	---
MW-3	11/28/89	19.99	---	---	ND	ND	ND	ND	ND	---	---	---
MW-3	02/13/91	19.99	---	---	ND	ND	ND	ND	ND	---	---	---
MW-3	01/08/92	19.99	---	---	ND	ND	ND	ND	ND	---	---	---
MW-3	03/30/92	19.99	9.71	10.28	ND	ND	ND	ND	ND	---	(h) ---	PACE
MW-3	07/02/92	19.99	10.52	9.47	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-3	07/22/92	19.99	10.62	9.37	---	---	---	---	---	---	---	---
MW-3	10/02/92	19.99	10.86	9.13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-3	12/14/92	19.99	10.53	9.46	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-3	03/24/93	19.99	9.06	10.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	06/17/93	19.99	10.44	9.55	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	09/29/93	19.99	11.06	8.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	12/28/93	19.99	9.43	10.56	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	03/29/94	19.99	10.01	9.98	---	---	---	---	---	---	---	---
MW-3	07/07/94	19.99	10.14	9.85	ND<50	ND<0.5	0.7	ND<0.5	ND<0.5	---	---	PACE
QC-1 (c)	07/07/94	---	---	---	ND<50	ND<0.5	0.7	ND<0.5	ND<0.5	---	---	PACE
MW-3	10/18/94	19.99	10.56	9.43	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	(h) 3.2	PACE
MW-3	02/01/95	19.99	8.98	11.01	ND<50	ND<0.5	1.0	0.5	1.9	---	5.9	ATI
MW-3	04/12/95	19.99	9.70	10.29	---	---	---	---	---	---	---	---
MW-3	09/13/95	19.99	10.70	9.29	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	5.7	ATI
MW-3	01/11/96	19.99	10.18	9.81	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	5.5	ATI
MW-3	04/18/96	19.99	9.53	10.46	---	---	---	---	---	---	---	---
MW-3	06/28/96	19.99	9.21	10.78	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.3	SPL
MW-3	11/05/96	19.99	9.94	10.05	---	---	---	---	---	---	---	---
MW-3	01/17/97	19.99	9.29	10.70	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.0	SPL
MW-3	05/01/97	19.99	10.53	9.46	---	---	---	---	---	---	---	---
MW-3	07/09/97	19.99	10.92	9.07	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.0	SPL
MW-3	10/16/97	19.99	11.24	8.75	---	---	---	---	---	---	---	---
MW-3	01/08/98	19.99	10.12	9.87	---	---	---	---	---	---	---	---
MW-3	04/17/98	19.99	9.62	10.37	---	---	---	---	---	---	---	---
MW-3	09/11/98	19.99	10.83	9.16	---	---	---	---	---	---	---	---
MW-3	03/09/99	19.99	9.00	10.99	17000	8.2	ND<1.0	ND<1.0	5.90	17000	---	SPL
MW-3	09/23/99	19.99	9.20	10.79	---	---	---	---	---	---	---	---
MW-3	03/27/00	19.99	9.10	10.89	1200	4.5	1.2	3.0	3.1	2800	---	PACE
MW-3	09/27/00	19.99	9.96	10.03	---	---	---	---	---	---	---	---
MW-3	03/21/01	19.99	9.46	10.53	610	2.97	ND<2.5	8.66	7.85	572	---	PACE
MW-3	09/18/01	19.99	10.13	9.86	---	---	---	---	---	---	---	---

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-4	03/04/88	20.17	---	---	ND	ND	ND	ND	ND	---	---	---
MW-4	03/29/89	20.17	---	---	ND	ND	ND	ND	ND	---	---	---
MW-4	11/28/89	20.17	---	---	430	6.2	0.6	12	3.3	---	---	---
MW-4	02/13/91	20.17	---	---	ND	ND	ND	ND	ND	---	---	---
MW-4	01/08/92	20.17	---	---	ND	ND	ND	ND	ND	---	---	---
MW-4	03/30/92	20.17	8.73	11.44	ND	ND	ND	ND	ND	---	(h) ---	PACE
MW-4	07/02/92	20.17	10.04	10.13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-4	07/22/92	20.17	10.26	9.91	---	---	---	---	---	---	---	---
MW-4	10/02/92	20.17	10.63	9.54	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-4	12/14/92	20.17	10.02	10.15	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-4	03/24/93	20.17	9.08	11.09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-4	06/17/93	20.17	10.03	10.14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-4	09/29/93	20.17	10.96	9.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-4	12/28/93	20.17	9.33	10.84	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-4	03/29/94	20.17	9.42	10.75	---	---	---	---	---	---	---	---
MW-4	07/07/94	20.17	9.82	10.35	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-4	10/18/94	20.17	10.36	9.81	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	(h) 3.1	PACE
MW-4	02/01/95	20.17	7.50	12.67	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	---	9.3	ATI
MW-4	04/12/95	20.17	8.21	11.96	---	---	---	---	---	---	---	---
MW-4	09/13/95	20.17	10.20	9.97	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	4.3	ATI
MW-4	01/11/96	20.17	9.57	10.60	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	5.1	ATI
MW-4	04/18/96	20.17	9.03	11.14	---	---	---	---	---	---	---	---
MW-4	06/28/96	20.17	8.73	11.44	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.6	SPL
MW-4	11/05/96	20.17	9.47	10.70	---	---	---	---	---	---	---	---
MW-4	01/17/97	20.17	8.79	11.38	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.4	SPL
MW-4	05/01/97	20.17	10.08	10.09	---	---	---	---	---	---	---	---
MW-4	07/09/97	20.17	10.52	9.65	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.1	SPL
MW-4	10/16/97	20.17	10.85	9.32	---	---	---	---	---	---	---	---
MW-4	01/08/98	20.17	9.60	10.57	---	---	---	---	---	---	---	---
MW-4	04/17/98	20.17	9.11	11.06	---	---	---	---	---	---	---	---
MW-4	09/11/98	20.17	10.32	9.85	---	---	---	---	---	---	---	---
MW-4	03/09/99	20.17	7.30	12.87	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	---	SPL
MW-4	09/23/99	20.17	7.86	12.31	---	---	---	---	---	---	---	---
MW-4	03/27/00	20.17	7.57	12.60	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-4	09/27/00	20.17	9.59	10.58	---	---	---	---	---	---	---	---
MW-4	03/21/01	20.17	8.14	12.03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<0.5	---	PACE
MW-4	09/18/01	20.17	9.74	10.43	---	---	---	---	---	---	---	---

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	(a)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-5	03/04/88	19.41		---	---	ND	ND	ND	ND	ND	---	---	---
MW-5	03/29/89	19.41		---	---	ND	ND	ND	ND	ND	---	---	---
MW-5	11/28/89	19.41		---	---	ND	ND	ND	ND	ND	---	---	---
MW-5	02/13/91	19.41		---	---	ND	ND	ND	ND	ND	---	---	---
MW-5	01/08/92	19.41		---	---	ND	ND	ND	ND	ND	---	---	---
MW-5	03/30/92	19.41		7.85	11.56	ND	ND	ND	ND	ND	---	(h)	PACE
MW-5	07/02/92	19.41		9.27	10.14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-5	07/22/92	19.41		9.55	9.86	---	---	---	---	---	---	---	---
MW-5	10/02/92	19.41		9.97	9.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-5	12/14/92	19.41		9.14	10.27	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-5	03/24/93	19.41		8.17	11.24	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-5	06/17/93	19.41		8.29	11.12	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-1 (c)	06/17/93	---		---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-5	09/29/93	19.41		10.31	9.10	ND<50	ND<0.5	ND<0.5	ND<0.5	0.6	---	---	PACE
MW-5	12/28/93	19.41		8.91	10.50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-5	03/29/94	19.41		8.50	10.91	---	---	---	---	---	---	---	---
MW-5	07/07/94	19.41		8.99	10.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-5	10/18/94	19.41		9.61	9.80	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	(h)	PACE
MW-5	02/01/95	19.41		6.55	12.86	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	---	7.6	ATI
MW-5	04/12/95	19.41		7.27	12.14	---	---	---	---	---	---	---	---
MW-5	09/13/95	19.41		9.49	9.92	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	4.9	ATI
MW-5	01/11/96	19.41		8.82	10.59	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	4.9	ATI
MW-5	04/18/96	19.41		8.30	11.11	---	---	---	---	---	---	---	---
MW-5	06/28/96	19.41		8.96	10.45	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.2	SPL
MW-5	11/05/96	19.41		9.69	9.72	---	---	---	---	---	---	---	---
MW-5	01/17/97	19.41		9.02	10.39	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.2	SPL
MW-5	05/01/97	19.41		10.29	9.12	---	---	---	---	---	---	---	---
MW-5	07/09/97	19.41		10.71	8.70	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.2	SPL
MW-5	10/16/97	19.41		11.03	8.38	---	---	---	---	---	---	---	---
MW-5	01/08/98	19.41		10.00	9.41	---	---	---	---	---	---	---	---
MW-5	04/17/98	19.41		8.73	10.66	---	---	---	---	---	---	---	---
MW-5	09/11/98	19.41		9.91	9.50	---	---	---	---	---	---	---	---
MW-5	03/09/99	19.41		6.24	13.17	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	---	SPL
MW-5	09/23/99	19.41		6.74	12.67	---	---	---	---	---	---	---	---
MW-5	03/27/00	19.41		6.64	12.77	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-5	09/27/00	19.41		8.76	10.65	---	---	---	---	---	---	---	---
MW-5	03/21/01	19.30	(g)	7.15	12.15	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<0.5	---	PACE
MW-5	09/18/01	19.30		8.85	10.45	---	---	---	---	---	---	---	---

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	(a) DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-6	03/04/88	19.40	---	---	ND	ND	ND	ND	ND	---	---	---
MW-6	03/29/89	19.40	---	---	ND	ND	ND	ND	ND	---	---	---
MW-6	11/28/89	19.40	---	---	ND	ND	ND	ND	ND	---	---	---
MW-6	02/13/91	19.40	---	---	ND	ND	ND	ND	ND	---	---	---
MW-6	01/08/92	19.40	---	---	ND	ND	ND	ND	ND	---	---	---
MW-6	03/30/92	19.40	8.86	10.54	ND	ND	ND	ND	ND	---	(h) ---	PACE
MW-6	07/02/92	19.40	9.94	9.46	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-6	07/22/92	19.40	10.10	9.30	---	---	---	---	---	---	---	---
MW-6	10/02/92	19.40	10.48	8.92	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-6	12/14/92	19.40	10.76	8.64	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-6	03/24/93	19.40	9.19	10.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	06/17/93	19.40	9.91	9.49	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	09/29/93	19.40	11.49	7.91	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	12/28/93	19.40	9.88	9.52	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	03/29/94	19.40	9.36	10.04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	66.3	(h) 5.0	PACE
MW-6	07/07/94	19.40	9.75	9.65	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	38	(d) ---	PACE
MW-6	10/18/94	19.40	10.30	9.10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	(h) 3.3	PACE
MW-6	02/01/95	19.40	7.92	11.48	ND<50	ND<0.5	0.9	ND<0.5	1.1	---	5.4	ATI
MW-6	04/12/95	19.40	8.41	10.99	220	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	4.7	ATI
MW-6	09/13/95	19.40	10.05	9.35	180	ND<1.0	ND<1.0	ND<1.0	ND<2.0	770	4.9	ATI
MW-6	01/11/96	19.40	9.52	9.88	670	ND<2.5	ND<2.5	ND<2.5	ND<5.0	2400	4.6	ATI
MW-6	04/18/96	19.40	9.03	10.37	560	ND<0.5	ND<1	ND<1	ND<1	860	5.1	SPL
MW-6	06/28/96	19.40	8.76	10.64	620	ND<0.5	ND<1	ND<1	ND<1	540	4.9	SPL
MW-6	11/05/96	19.40	9.48	9.92	810	ND<5	ND<10	ND<10	ND<10	970	4.8	SPL
MW-6	01/17/97	19.40	8.58	10.82	830	ND<0.5	ND<1.0	ND<1.0	ND<1.0	960	8.9	SPL
MW-6	05/01/97	19.40	9.92	9.48	780	ND<5	ND<10	ND<10	ND<10	970	7.7	SPL
MW-6	07/09/97	19.40	10.33	9.07	990	ND<0.5	ND<1.0	ND<1.0	ND<1.0	1100	6.0	SPL
MW-6	10/16/97	19.40	10.66	8.74	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	750	6.7	SPL
MW-6	01/08/98	19.40	8.92	10.48	120	ND<0.5	ND<1.0	ND<1.0	ND<1.0	120	5.6	SPL
MW-6	04/17/98	19.40	8.12	11.28	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	62	3.9	SPL
MW-6	09/11/98	19.40	9.31	10.09	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	59	5.5	SPL
MW-6	03/09/99	19.40	7.25	12.15	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	2.9/ND<10	(f) ---	SPL
MW-6	09/23/99	19.40	7.79	11.61	ND<250	ND<5.0	ND<5.0	ND<5.0	ND<5.0	20	---	SPL
MW-6	03/27/00	19.40	7.03	12.37	ND<50	ND<0.5	ND<0.5	ND<0.5	2.4	ND<0.5	---	PACE
MW-6	09/27/00	19.40	8.57	10.83	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-6	03/21/01	19.40	7.47	11.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<0.5	---	PACE
MW-6	09/18/01	19.40	9.12	10.28	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<0.5	---	PACE

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
RW-1	07/22/92	---	9.66	---	13000	1000	3400	380	2800	---	---	ANA
RW-1	10/02/92	---	10.28	---	---	---	---	---	---	---	---	---
RW-1	12/14/92	---	23.28	---	---	---	---	---	---	---	---	---
RW-1	03/24/93	---	8.93	---	660	21	25	8.3	100	315	(d)	PACE
RW-1	06/17/93	---	9.66	---	850	13	1.0	15	100	390	(d)	PACE
RW-1	09/29/93	19.27	23.40	-4.13	1200	26	27	11	150	1800	(d)	PACE
QC-1 (c)	09/29/93	---	---	---	1200	26	28	11	160	1900	(d)	PACE
RW-1	12/28/93	19.27	9.76	9.51	3500	300	220	180	480	1900	(d)	PACE
RW-1	03/29/94	19.27	8.93	10.34	12000	640	1700	450	2200	899	(h)	6.3 PACE
RW-1	07/07/94	19.27	9.45	9.82	7600	530	1100	380	1800	410	(d)	PACE
RW-1	10/18/94	19.27	10.11	9.16	5300	47	100	150	280	---	(d),(h)	3.4 PACE
QC-1 (c)	10/18/94	---	---	---	430	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
RW-1	02/01/95	19.27	8.54	10.73	27000	2400	6100	1800	5300	---	4.5	ATI
QC-1 (c)	02/01/95	---	---	---	15000	1300	3300	970	2900	---	---	ATI
RW-1	04/12/95	19.27	8.21	11.06	6200	330	910	350	1500	---	5.2	ATI
QC-1 (c)	04/12/95	---	---	---	7600	400	1100	440	1900	---	---	ATI
RW-1	09/13/95	19.27	9.84	9.43	920	140	60	34	110	1200	5.1	ATI
RW-1	01/11/96	19.27	9.25	10.02	ND<50	0.95	0.61	ND<0.50	2.1	43	5.4	ATI
RW-1	04/18/96	19.27	8.73	10.54	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.7	SPL
RW-1	06/28/96	19.27	9.40	9.87	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.5	SPL
RW-1	11/05/96	19.27	10.12	9.15	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.9	SPL
RW-1	01/17/97	19.27	8.10	11.17	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.8	SPL
RW-1	05/01/97	19.27	9.43	9.84	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.6	SPL
RW-1	07/09/97	19.27	10.83	8.44	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.1	SPL
RW-1	10/16/97	19.27	11.17	8.10	---	---	---	---	---	---	---	---
RW-1	01/08/98	19.27	10.03	9.24	---	---	---	---	---	---	---	---
RW-1	04/17/98	19.27	8.79	10.48	---	---	---	---	---	---	---	---
RW-1	09/11/98	19.27	9.98	9.29	---	---	---	---	---	---	---	---
RW-1	03/09/99	19.27	7.19	12.08	---	---	---	---	---	---	---	---
RW-1	09/23/99	19.27	7.63	11.64	---	---	---	---	---	---	---	---
RW-1	03/27/00	19.27	7.04	12.23	---	---	---	---	---	---	---	---
RW-1	09/27/00	19.27	8.55	10.72	---	---	---	---	---	---	---	---
RW-1	03/21/01	19.27	7.48	11.79	---	---	---	---	---	---	---	---
RW-1	09/18/01	19.27	9.13	10.14	---	---	---	---	---	---	---	---

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
QC-2 (e)	10/02/92	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-2 (e)	12/14/92	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-2 (e)	03/24/93	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	06/17/93	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	09/29/93	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	12/28/93	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	03/29/94	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	07/07/94	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	10/18/94	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	02/01/95	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	ATI
QC-2 (e)	04/12/95	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (e)	09/13/95	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2 (e)	01/11/96	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2 (e)	04/18/96	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL
QC-2 (e)	06/28/96	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING

ADDITIONAL ANALYSES

Well ID	DATE OF SAMPLING/ MONITORING	Dissolved Lead (ug/l)	LAB
RW-1	03/21/01	ND<50	PACE
RW-1	09/18/01	ND<50	PACE

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
MTBE	Methyl tert butyl ether
DO	Dissolved oxygen
ug/l	Micrograms per liter
ppm	Parts per million
—	Not measured/applicable/analyzed
ND	Not detected above reported detection limit
PACE	Pace, Inc.
ANA	Anametrix, Inc.
ATI	Analytical Technologies, Inc.
SPL	Southern Petroleum Laboratories

NOTES:

- (a) Casing elevations surveyed to nearest 0.01 foot above mean sea level, with an assigned elevation of 22.82 feet (City datum).
- (b) Groundwater elevations in feet above mean sea level.
- (c) Blind duplicate.
- (d) A copy of the documentation for this data is included in Appendix C of Alisto report 10-050-07-004.
- (e) Travel blank.
- (f) EPA Methods 8020/8260 used.
- (g) Elevation changed due to well maintenance.
- (h) A copy of the documentation for this data is included in Blaine Tech Services report 010918-R-1. No chromatograms could be located for all samples taken on October 18, 1994. The data for sampling events taken on March 30, 1992 have been destroyed.

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #11266, 1541 Park Street, Alameda, CA**

Well and Sample Date	P/NP	TOC Elevation (feet msl)	Depth to Water (feet bgs)	Water Level Elevation (feet msl)	Concentrations in (µg/L)								DO (mg/L)	Comments
					GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	Lead		
MW-1 8/24/2006	P	19.19	7.75	11.44	1,900	1,000	6.4	1.9	48	41	1.2	<100	-	
MW-2 8/24/2006	P	19.32	8.25	11.07	55	<47	0.57	<0.50	<0.50	1.0	47	<100	-	
MW-3 8/24/2006	P	19.99	9.61	10.38	96	130	<0.50	0.52	<0.50	<0.50	1.2	<100	-	
MW-4 8/24/2006	P	20.17	8.98	11.19	<50	<47	<0.50	<0.50	<0.50	<0.50	<0.50	<100	-	
MW-5 8/24/2006	P	19.41	8.12	11.29	<50	<47	<0.50	<0.50	<0.50	<0.50	<0.50	<100	-	
MW-6 8/24/2006	P	19.40	8.26	11.14	<50	<47	<0.50	<0.50	<0.50	<0.50	<0.50	<100	-	

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

**Table 2. Summary of Fuel Additives Analytical Data
Station #11266, 1541 Park Street, Alameda, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1 8/24/2006	<600	<40	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-2 8/24/2006	<300	<20	47	<0.50	<0.50	2.2	<0.50	<0.50	
MW-3 8/24/2006	<300	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4 8/24/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-5 8/24/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-6 8/24/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

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

APPENDIX C

SOIL BORING AND WELL CONSTRUCTION LOGS
WITH GEOLOGIC CROSS-SECTION

Exploratory Boring Log

Project No. KEI-P87-097A	Boring & Casing Diameter 8 in. 2 in csg.	Logged By JS
Project Name Mobil #10-EYD	Casing Elevation	Date Drilled 2-9-88
Boring No. MW-1	Hollow-stem Flight Auger	Depth to Groundwater 10.5 ft.

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
		0	SW	ASPHALT & BASEROCK FILL
		5		SAND: fine grained, very well sorted, little to no fines, dry
		8	SC	clayey sand at 8', low plasticity
31	▼	10		moderate odor in sample, dark greenish grey 5GY 4/1
		15		
		20		

Exploratory Boring Log

Project No. KEI-P87-097A	Boring & Casing Diameter	Logged By
Project Name Mobil #10-EYD	Casing Elevation	Date Drilled 2-9-88
Boring No. MW-1	Hollow-stem Flight Auger	Depth to Groundwater

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
		20		SAND: as above
		25		TOTAL DEPTH 25 FEET
		30		
		35		
		40		

WELL DETAILS

PROJECT NAME: Mobil S/S #10-EYD 1541 Park Ave.
Alameda, CA

BORING/WELL NO. MW-1

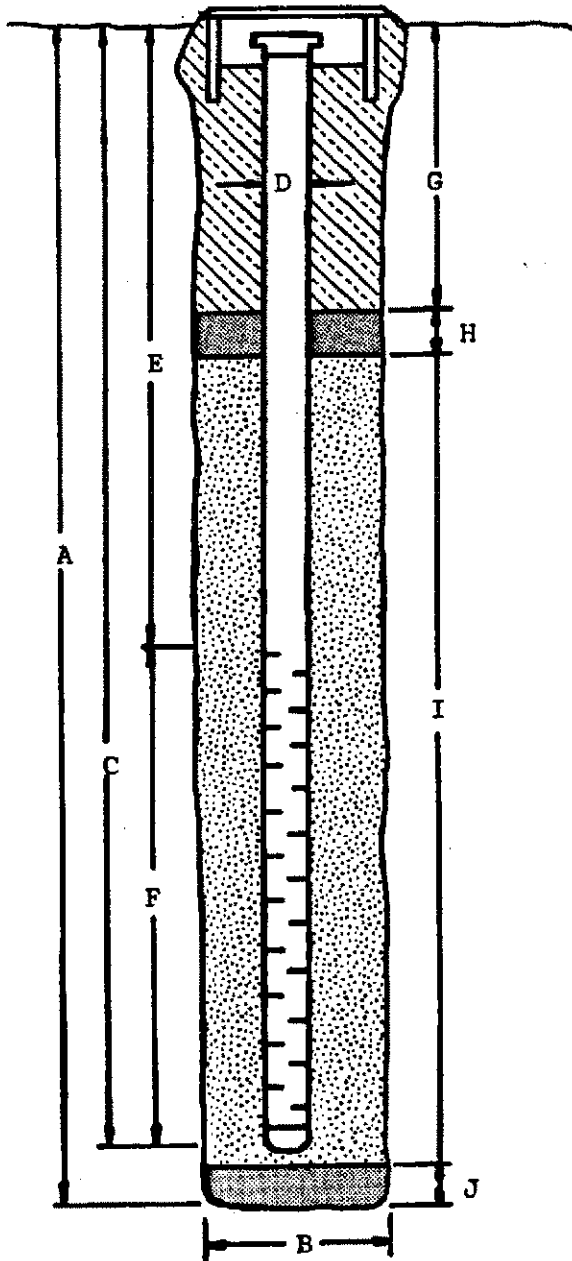
PROJECT NUMBER: KEI-P87-097A

CASING ELEVATION: _____

WELL PERMIT NO.: 88010

SURFACE ELEVATION: _____

G-5 Vault Box



- A. Total Depth: 25'
- B. Boring Diameter: 8"
 Drilling method: Hollow stem
- C. Casing Length: 25'
 Material: Schedule 40 PVC
- D. Casing Diameter: 2 in.
- E. Depth to Perforations: 8 ft.
- F. Perforated Length: 17 ft.
 Perforated Interval: 25 to 8 ft.
 Perforation Type: slot
 Perforation Size: 0.02 in.
- G. Surface Seal: 6 to 0 ft.
 Seal Material: concrete
- H. Seal: 7 to 6 ft.
 Seal Material: bentonite
- I. Gravel Pack: 25 to 7 ft.
 Pack Material: Monterey sand
 Size: No. 3
- J. Bottom Seal: none
 Seal Material: _____

Exploratory Boring Log

Project No. KEI-P87-097A	Boring & Casing Diameter 8 in. 2 in. csg.	Logged By JS
Project Name Mobil #10-EGY	Casing Elevation	Date Drilled 2-9-88
Boring No. MW-2	Hollow-stem Flight Auger	Depth to Groundwater 11 ft.

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
		0	SW	ASPHALT & BASEROCK FILL SAND: brown 10YR 4/3, fine grained, very well sorted, no fines, dry poor sample recovery brown 10YR 5/7
39		5		
		10		
		15		
		20		

Exploratory Boring Log

Project No. KEI-P87-097A	Boring & Casing Diameter	Logged By
Project Name Mobil #10-EGY	Casing Elevation	Date Drilled 2-9-88
Boring No. MW-2	Hollow-stem Flight Auger	Depth to Groundwater

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
		20		SAND : as above
		25		TOTAL DEPTH 25 FEET
		30		
		35		
		40		

WELL DETAILS

PROJECT NAME: MOBIL S/S #10-EGY 1541 Park Ave
Alameda, CA

BORING/WELL NO. MW-2

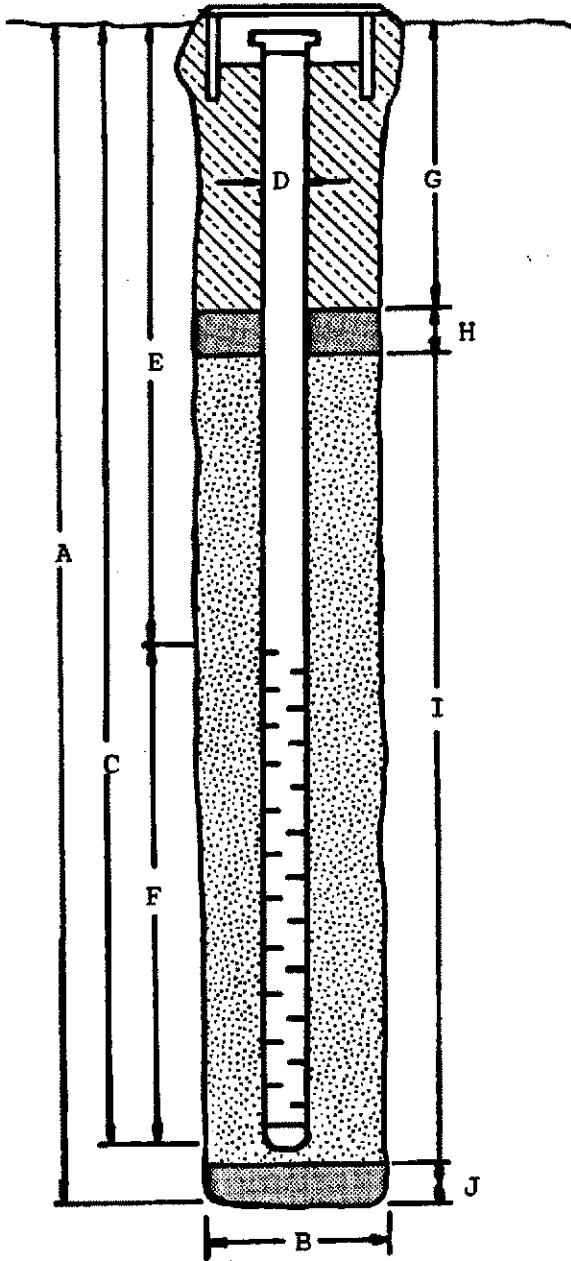
PROJECT NUMBER: KEI-P87-097A

CASING ELEVATION: _____

WELL PERMIT NO.: 88010

SURFACE ELEVATION: _____

G-5 Vault Box



- A. Total Depth: 25 ft.
- B. Boring Diameter: 8 in.
Drilling method: Hollow stem
- C. Casing Length: 25 ft.
Material: Schedule 40 PVC
- D. Casing Diameter: 2 in.
- E. Depth to Perforations: 8 ft.
- F. Perforated Length: 17 ft.
Perforated Interval: 25 to 8 ft.
Perforation Type: slot
Perforation Size: 0.02 in.
- G. Surface Seal: 6 to 0 ft.
Seal Material: concrete
- H. Seal: 7 to 6 ft.
Seal Material: bentonite
- I. Gravel Pack: 25 to 7 ft.
Pack Material: Monterey sand
Size: No. 3
- J. Bottom Seal: none
Seal Material: _____

Exploratory Boring Log

Project No. KEI-P87-097A	Boring & Casing Diameter 8 in. 2 in. csg.	Logged By JS
Project Name Mobil #10-EDG	Casing Elevation	Date Drilled 2-9-88
Boring No. MW-3	Hollow-stem Flight Auger	Depth to Groundwater 13.5

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
		0	ASPHALT & BASEROCK FILL	
		SW	SAND: dark reddish brown 5YR 3/3, fine grained, very well sorted, no fines, dry	
45	▼	10	no odor	
		15		
		20		

Exploratory Boring Log

Project No. KEI-P87-097A		Boring & Casing Diameter 8 in. 2 in. csg.		Logged By JS
Project Name Mobil #10-EGY		Casing Elevation		Date Drilled 2-9-88
Boring No. MW-3		Hollow-stem Flight Auger		Depth to Groundwater
Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
		20		SAND : as above
		25		TOTAL DEPTH 25 FEET
		30		
		35		
		40		

WELL DETAILS

PROJECT NAME: Mobil S/S #10-EGY

BORING/WELL NO. MW-

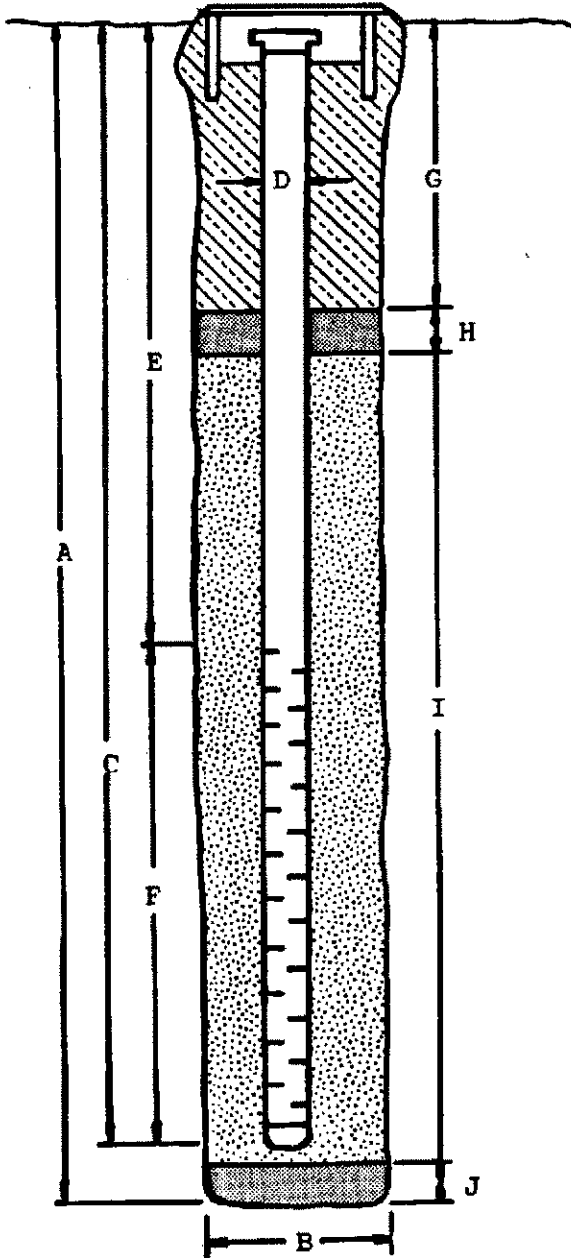
PROJECT NUMBER: KEI-P87-097A

CASING ELEVATION: _____

WELL PERMIT NO.: 88010

SURFACE ELEVATION: _____


G-5 Vault Box



- A. Total Depth: 25 feet
- B. Boring Diameter: 8 in.
Drilling method: Hollow stem
- C. Casing Length: 25 ft.
Material: Schedule 40 PVC
- D. Casing Diameter: 2 in.
- E. Depth to Perforations: 10 ft.
- F. Perforated Length: 15 ft.
Perforated Interval: 25 to 10 ft.
Perforation Type: slot
Perforation Size: 0.02 in.
- G. Surface Seal: 7 to 0 ft.
Seal Material: concrete
- H. Seal: 8 to 7 ft.
Seal Material: bentontie
- I. Gravel Pack: 25 to 8 ft.
Pack Material: Monterey sand
Size: No. 3
- J. Bottom Seal: none
Seal Material: _____

B O R I N G L O G

Project No. KEI-P87-0907	Boring & Casing Diameter 9" 2"	Logged By Gary Johnson
Project Name Mobil - Alameda	Well Head Elevation N/A	Date Drilled 3/22/89
Boring No. MW-4	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
3/3/3		0	SP	Medium to fine grained sand, brown, well sorted As above As above to total depth
		5		
12/18/20		10		
		15		
		20		
		25		
		30		
				TOTAL DEPTH 25'

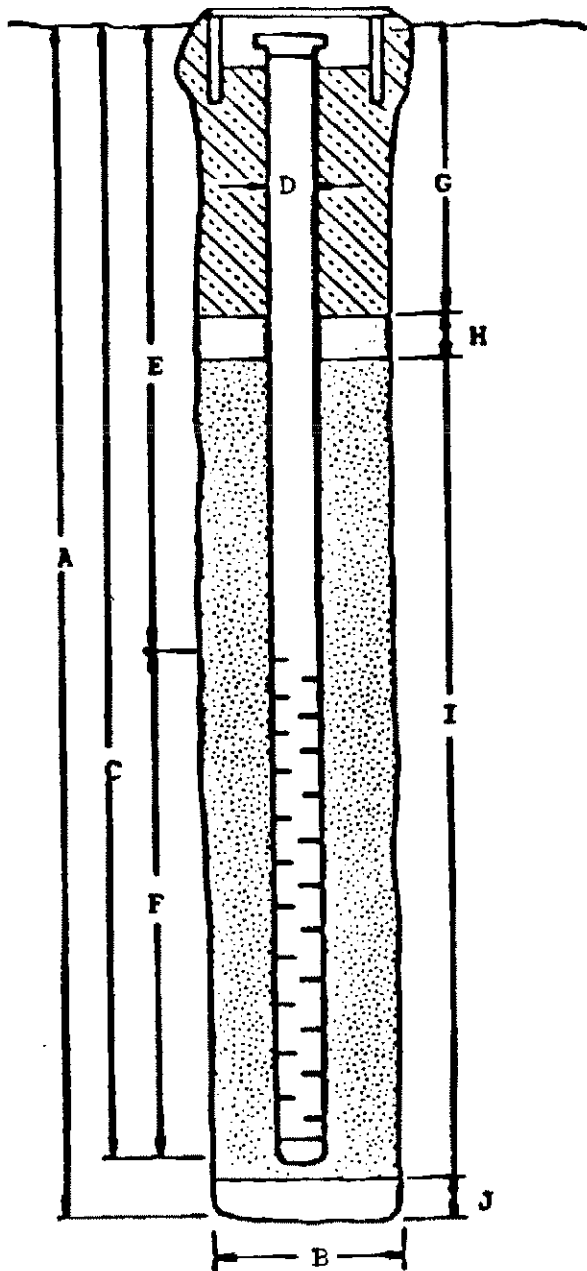
W E L L C O M P L E T I O N D I A G R A M

PROJECT NAME: Mobil - Alameda BORING/WELL NO. MW-4

PROJECT NUMBER: KEI-P87-0907

WELL PERMIT NO.: 89124

Flush-mounted Well Cover



A. Total Depth: 25'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem
Auger

C. Casing Length: 25'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"
ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 20'

Perforated Interval: 5'-25'
Machined
Perforation Type: Slot

Perforation Size: 0.020"

G. Surface Seal: 0'-3'

Seal Material: Concrete

H. Seal: 1'

Seal Material: Bentonite

I. Gravel Pack: 4'-25'

Pack Material: RMC Lonestar
Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

B O R I N G L O G

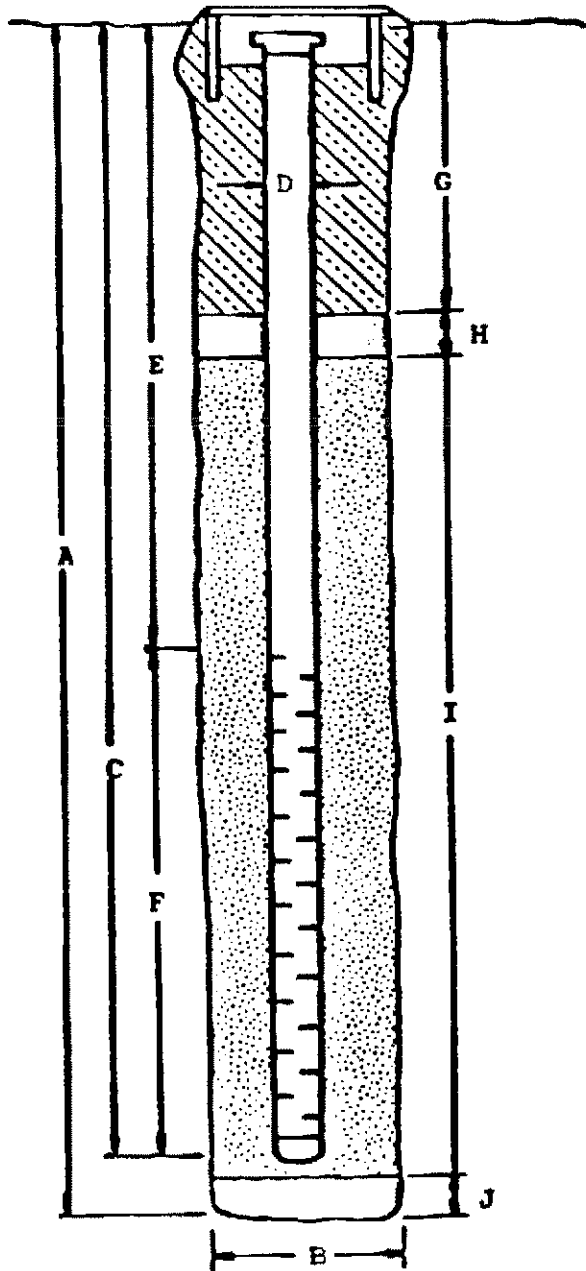
Project No. KEI-P87-0907	Boring & Casing Diameter 9" 2"	Logged By Gary Johnson
Project Name Mobil - Alameda	Well Head Elevation N/A	Date Drilled 3/22/89
Boring No. MW-5	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		0'-5' fill large chunks of concrete
6/10/12		5		Medium to fine sand, brown, well sorted
12/14/16	▼	10	SP	As above to total depth
		15		
		20		
		25		
		30		
				TOTAL DEPTH 25'

W E L L C O M P L E T I O N D I A G R A M

PROJECT NAME: Mobil - Alameda BORING/WELL NO. MW-5
 PROJECT NUMBER: KEI-P87-0907
 WELL PERMIT NO.: 89124


Flush-mounted Well Cover



- A. Total Depth: 25'
- B. Boring Diameter*: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 25'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 20'
 Perforated Interval: 5'-25'
 Machined Perforation Type: Slot
 Perforation Size: 0.020"
- G. Surface Seal: 0'-3'
 Seal Material: Concrete
- H. Seal: 1'
 Seal Material: Bentonite
- I. Gravel Pack: 4'-25'
 Pack Material: RMC Lonestar Sand
 Size: #3
- J. Bottom Seal: None
 Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

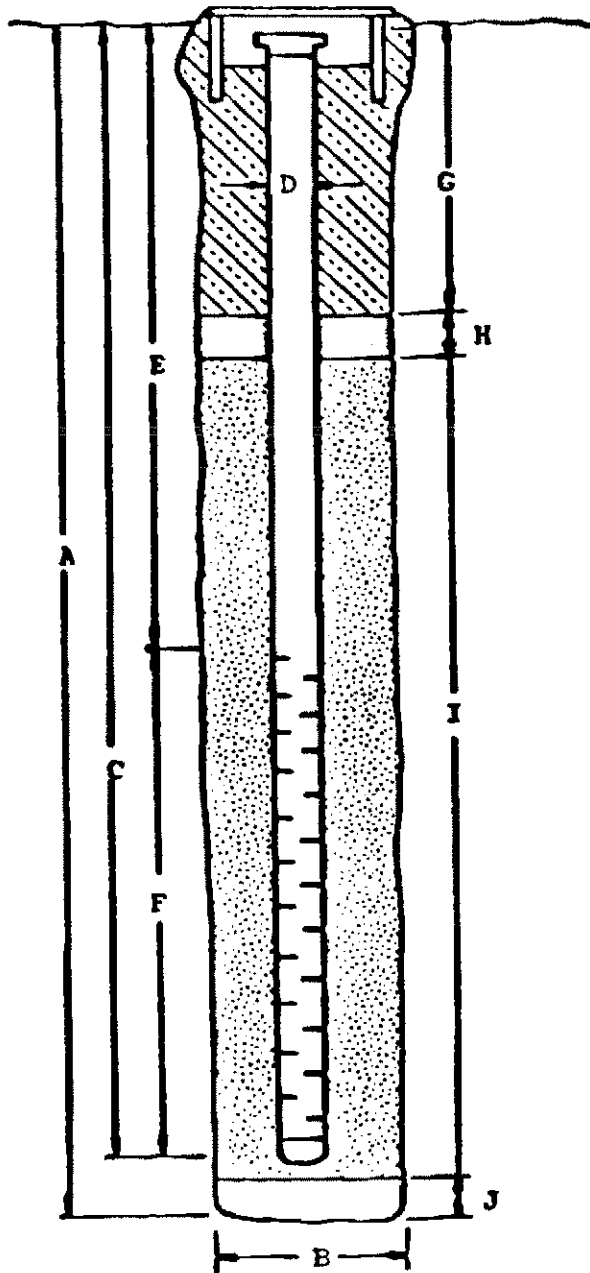
BORING LOG

Project No. KEI-P87-0907		Boring & Casing Diameter 9" 2"		Logged By Gary Johnson	
Project Name Mobil - Alameda		Well Head Elevation N/A		Date Drilled 3/22/89	
Boring No. MW-6		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description	
4/6/7		0	SP	Fine to medium grained sand, brown, well sorted	
6/9/12		5			
		10		As above	
		15		As above to total depth	
		20			
		25			
		30			
				TOTAL DEPTH 25'	

W E L L C O M P L E T I O N D I A G R A M

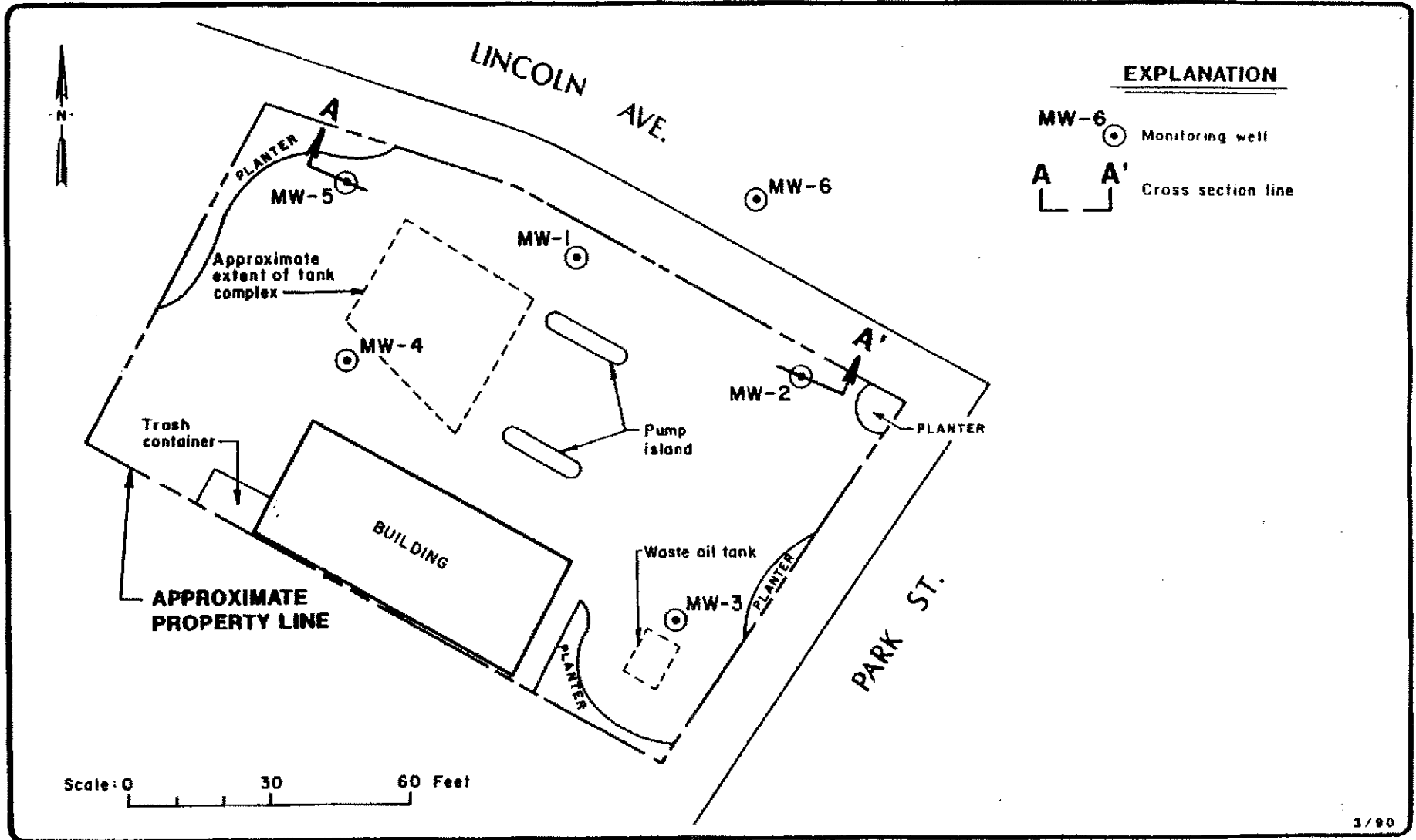
PROJECT NAME: Mobil - Alameda BORING/WELL NO. MW-6
 PROJECT NUMBER: KEI-P87-0907
 WELL PERMIT NO.: EX-89-0032

Flush-mounted Well Cover



- A. Total Depth: 25'
- B. Boring Diameter*: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 25'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 20'
 Perforated Interval: 5'-25'
 Machined Perforation Type: Slot
 Perforation Size: 0.020"
- G. Surface Seal: 0'-3'
 Seal Material: Concrete
- H. Seal: 1'
 Seal Material: Bentonite
- I. Gravel Pack: 4'-25'
 RMC Lonestar Pack Material: Sand
 Size: #3
- J. Bottom Seal: None
 Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.



EMCON
Associates

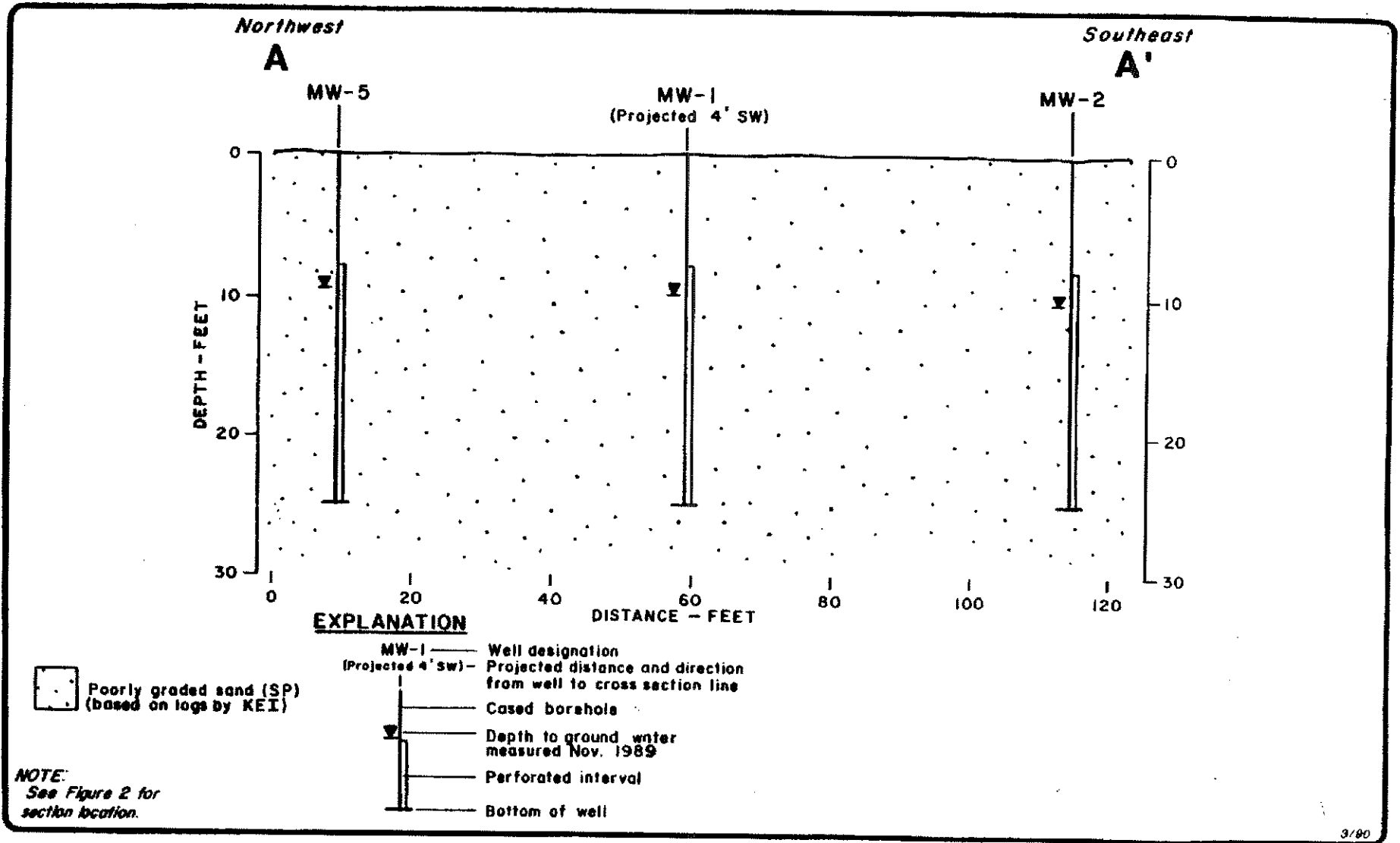
BP OIL CORPORATION
SERVICE STATION No. 11266
SITE ASSESSMENT
ALAMEDA, CALIFORNIA

SITE PLAN

FIGURE

2

PROJECT NO
C90-04 06



BP OIL CORPORATION
SERVICE STATION No. 11266
SITE ASSESSMENT
ALAMEDA, CALIFORNIA

CROSS SECTION A - A'

FIGURE
3
PROJECT NO
C90-04.06