Manmohan S. Chopra
4216 Warbler Loop
FREMONT, CA 94555

August 23, 1995

Alameda County Department of Enviromental Health
1131 Harbor Bay Parkway, 2nd. Floor
ALAMEDA, CA 94502-6577

ATTN: Mr. Scott Seery

SUB: **Monitoring Well Installation Report**
1401 Grand Ave. SAN LEANDRO, CA

Dear Mr Seery,

Attached, for your review and records, please find a copy of the Installation Report for three additional Monitoring Weels (offsite) installed per your requirements. The work was supervised by P & D Enviromental and the report has been prepared by them also.

Should you have any comments or questions, please contact me at 510-790-9252 or write at the above address.

Sincerely,

Manmohan

Manmohan S. Chopra
Owner

P & D ENVIRONMENTAL
4020 Panama Court
Oakland, CA 94611
Telephone (510) 658-6916

August 23, 1995
Report 0055.R5

Mr. Manmohan Chopra
4216 Warbler Loop
Fremont, CA 94555

SUBJECT: MONITORING WELL INSTALLATION REPORT
Former ARCO Service Station
1401 Grand Avenue
San Leandro, California

Dear Mr. Chopra:

P&D Environmental (P&D) is pleased to present this report documenting the permitting, installation, surveying, development, and sampling of three offsite groundwater monitoring wells in the vicinity of at the subject site. This work was performed in accordance with P&D's proposals 120994.P1 dated December 9, 1994, 031395.P1 dated March 13, 1995, and 060795.P1 dated June 7, 1995; P&D's work plan 0055.W1 dated February 9, 1995 and P&D's work plan addendum 0055.L14 dated March 13, 1995; and a letter dated March 23, 1995 from Mr. Scott Seery of the Alameda County Department of Environmental Health (ACDEH) approving the work plan and work plan addendum. A Site Location Map (Figure 1)and Site Vicinity Map (Figure 2) are attached with this report.

BACKGROUND

The site is presently used as an active gasoline station. It is P&D's understanding that on April 24, 1991 Aegis Environmental, Inc. (Aegis) personnel drilled four soil borings, designated as B-1 through B-4, to a vertical depth of approximately 40 feet at the site. The locations of the borings are shown on Figure 2. A total of nine soil samples collected from the boreholes were analyzed for total petroleum hydrocarbons as gasoline (TPH-G); benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8260; and for total lead by EPA Method 7420. TPH-G concentrations ranged from below detection limit to 66 parts per million (ppm). Benzene concentrations ranged from not detected to 0.94 ppm. Total lead concentrations ranged from not detected to 3 ppm. Documentation of the subsurface investigation and results are presented in a report prepared by Aegis titled, "Soil Boring Results Report," dated June 10, 1991.

It is P&D's understanding that on April 14, 1992 Aegis personnel returned to the site to drill three slant borings, designated as B5 through B7, to a total vertical depth of approximately 49 feet at the site. The borings were drilled at an angle of approximately 26 to 28 degrees to collect samples from beneath the underground storage tanks. The locations of the borings are shown on Figure 2. A total of twenty-two soil samples were analyzed for TPH-G using EPA Method 5030; and for BTEX using EPA Method 8240. In addition, one of the samples was analyzed for total lead using EPA Method 7420, and several of the soil samples were analyzed for soluble lead using the California Waste Extraction Test. TPH-G concentrations ranged from not detected to 4,000 ppm. Benzene, concentrations ranged from not detected to 11 ppm. Total lead was not detected, and soluble lead concentrations ranged from not detected to 0.061 ppm. Documentation of the subsurface investigation and results are presented in a report prepared by Aegis titled, "Initial Subsurface Investigation Results Report," dated June 22, 1992.

It is P&D's understanding that between September 15 and 18, 1992 Aegis personnel returned to the site to install five groundwater monitoring wells, designated as MW1 through MW5. The wells were drilled to total depths of between 50 and 55 feet, and were constructed using four-inch diameter PVC pipe. Wells MW1 and MW2 were constructed with perforated casing between the depths of approximately 15 and 55 feet. Wells MW3, MW4 and MW5 were constructed with perforated casing between the depths of approximately 35 and 55 feet.

Groundwater was reported to have been first encountered at a depth of 42 feet. The locations of the wells are shown in Figure 2.

A total of thirty-one soil samples were analyzed for TPH-G using EPA Method 5030/8015; and for BTEX using EPA Method 8020. In addition, three soil samples containing TPH-G were analyzed for total metals concentrations of cadmium, chromium, lead, and zinc using EPA Method 6010 and 7421. One soil sample was collected from each borehole from below the air-water interface and analyzed for petrophysical properties, including saturated permeability and grain size distribution.

TPH-G concentrations ranged from not detected to 39 ppm. Benzene concentrations ranged from not detected to 0.27 ppm. The total metals concentrations were all less than 10 times their respective STLC values. The subsurface materials encountered in the borings indicate that soil types vary across the site, but generally consist of silty clay, silt, clayey silt and sandy silt from the surface to a depth of between 30 and 35 feet. Below the depth of 30 to 35 feet, layers of sand and sandy silt were reported to have been encountered.

It is P&D's understanding that on September 29, 1992 Aegis personnel collected groundwater samples from wells MW1, MW2, MW4 and MW5 at the site. A sample was not collected from well MW-3 due to the reported presence of 0.02 feet of floating hydrocarbons. The measured depth to water ranged from approximately 41.5 to 44.5 feet. The samples were analyzed for TPH-G using EPA Method 5030/8015; and for BTEX using EPA Method 8020. TPH-G concentrations ranged from 0.06 to 20 ppm, and benzene concentrations ranged from 0.16 to 10 ppm. Based upon the water level measurements in the wells, the groundwater flow direction was reported to be to the northwest. The water level measurements are summarized in Table 1. The analytical results are summarized in Table 2.

It is P&D's understanding that on October 7, 1992 Aegis personnel performed rising head slug tests on wells MW1, MW2, and MW4 to estimate the saturated hydraulic conductivity at the site. In addition, two short-term soil vapor extraction tests were performed on wells MW1 and MW2. Wells MW-3, MW-4, and MW-5 were used as vacuum influence monitoring points. Documentation of the monitoring well groundwater sample collection, slug test and vapor extraction tests are presented in a report prepared by Aegis titled, "Problem Assessment Report," dated December 16, 1992.

On February 18, 1994 P&D personnel monitored the five groundwater monitoring wells at the site for depth to water and the presence of free product or sheen. The depth to water was measured using an electric water level indicator, and the presence of free product and sheen was evaluated using a transparent bailer. The measured depth to water in the wells ranged from approximately 39.8 to 42.9 feet. No evidence of free product or sheen was detected in any of the wells. Based on the measured depth to water in the wells, the groundwater flow direction was calculated to be to the north with a gradient of 0.054.

A quarterly groundwater monitoring and sampling program was initiated for the five groundwater monitoring wells in July, 1994.

FIELD ACTIVITIES

On June 15 and 16, 1995 P&D personnel oversaw the installation of three groundwater monitoring wells, designated as MW6 through MW8 in the vicinity of the subject site. The locations of the monitoring wells are shown on the attached Site Vicinity Map, Figure 2. Prior to performing field work, a work plan and work plan addendum were submitted to the ACDEH for review and approval; a permit was obtained from the Alameda County Zone 7 Water Agency; encroachment

permits were obtained from the city of San Leandro for wells MW6 and MW7; permission was obtained for property access from Ardenbrook for MW8; notification was provided to the ACDEH and the City of San Leandro Department of Public Works of the scheduled drilling dates; Underground Safety Alert was notified for buried utility location; and a site health and safety plan was prepared. Permission for property access was denied by the property owner for the proposed well MW6 location identified in the work plan and work plan addendum. For this reason it was necessary to move the location of well MW6 from the location shown in the work plan and work plan addendum to the present location for well MW6 in Grand Avenue.

Monitoring Well Installation and Soil Sampling

The borings for the monitoring wells were drilled using truck-mounted 8-inch outside diameter hollow stem auger drilling equipment. All of the borings for the monitoring wells were drilled to a total depth of 50 feet. [redacted] was initially encountered during drilling in boreholes MW6, MW7, and MW8 at depths of 40.3, 43.1, and 40.5 feet, respectively.

Soil samples were collected in the boreholes for the monitoring wells at a maximum of ten foot intervals, using a California modified split spoon sampler lined with brass tubes driven by a 140 pound hammer falling 30 inches. Blow counts were recorded every six inches. The soil samples were classified lithologically in the field in accordance with standard geologic field techniques and the Unified Soil Classification System. In addition, the soil samples were evaluated in the field using a portable OVM model 580B photoionization detector (PID). PID readings were recorded on the boring logs.

Soil samples collected from above the water table at depths of 10, 20, 30, and 40 feet in boreholes MW6, MW7 and MW8 were retained in the brass tubes for laboratory analysis. After sample collection, the ends of the brass tubes were sealed with aluminum foil, covered with plastic endcaps, labeled, and placed in ziplock baggies. The capped brass tubes were then placed into a cooler with ice pending delivery to McCampbell Analytical Laboratory in Pacheco, California. McCampbell Analytical Laboratory is a State-certified hazardous waste testing laboratory. Chain of custody procedures were followed for all sample handling. Copies of the boring logs for boreholes MW6 through MW8 are attached with this report.

The groundwater monitoring wells were constructed using two-inch diameter Schedule 40 PVC pipe with 15 feet of screened PVC (0.010-inch factory slot) which was placed in the bottom of the borehole between the depths of 35 and 50 feet. A #2/12 Lonestar sack sand was placed into the annular space surrounding the PVC pipe to a height of one foot above the slotted interval. A one-foot thick layer of bentonite pellets was placed above the sand and hydrated. The remaining annular space was filled with a neat cement grout to approximately two feet below the ground surface.

The top of the PVC wellpipe for each well was secured with a water-tight locking plug and enclosed in a water-tight, locking vault. The vault is traffic rated, and was set slightly above grade to diminish the accumulation of surface water inside the vault. Well Construction Detail diagrams for wells MW6 through MW8 are attached with this report. Well Completion Reports for wells MW6 through MW8 were completed and forwarded to the Alameda County Zone 7 Water Agency, in accordance with permit requirements.

The rim to the vault and the top of the PVC well pipe for each of wells MW1 through MW8 were surveyed vertically to the nearest 0.01 foot relative to a Mean Sea Level (MSL) datum by Kier & Wright of Pleasanton, California. Kier & Wright is a State-licensed surveyor. In addition, all of the wells were surveyed horizontally. A copy of the letter transmitting the surveyed vault rim and well

pipe elevations from Kier & Wright, including a description of the MSL benchmark and a map showing the well locations is attached with this report.

The hollow stem augers were steam cleaned prior to use in each borehole. Water generated during steam cleaning was placed into DOT-approved 55-gallon and stored onsite pending appropriate disposal. Soil cuttings generated36Xdrums during drilling activities were stored onsite in DOT-approved 55-gallon drums pending appropriate disposal.

Monitoring Well Development

Wells MW6 through MW8 were developed on June 21, 1995 by surging and bailing until the water discharged from the wells was relatively clear. Prior to development, the wells were monitored for depth to water using an electric water level indicator, and for the presence of free product and sheen using a transparent bailer. The measured depth to groundwater in Wells MW6, MW7 and MW8 prior to development on June 21, 1995 was 38.11, 40.30 and 38.20 feet, respectively. Depth to water was measured relative to the top of the PVC well casing. No free product, sheen or petroleum hydrocarbon odors were detected in any of the wells. The depth to water level measurements are summarized in Table 1.

A total of approximately 55 gallons was removed from each of the wells during well development. Water removed from the wells during development was placed into DOT-approved 55-gallon drums and stored onsite pending appropriate disposal.

Monitoring Well Purging and Sample Collection

On June 23, 1995 wells MW1 through MW8 were monitored for depth to water and the presence of free product and sheen using methods described above. The measured depth to water in wells MW1 through MW8 on June 23, 1995 was 38.54, 37.40, 40.65, 37.40, 39.87, 38.17, 41.00, and 38.36 feet, respectively. No free product or sheen were observed in any of the wells. The depth to water level measurements are summarized in Table 1.

After all of the wells had been monitored, wells MW6, MW7, and MW8 were purged of a minimum of three casing volumes of water. During purging operations, the field parameters of pH, electrical conductivity and temperature were monitored. Once the field parameters had been observed to stabilize and a minimum of three casing volumes had been purged, groundwater samples were collected from the monitoring wells using a Teflon bailer. The bailer was cleaned using an Alconox solution and clean water rinse prior to each use. Copies of the data sheets used to record the field parameters during well purging are attached with this report.

The water samples were transferred from the Teflon bailer to 40 milliliter Volatile Organic Analysis (VOA) vials with Teflon-lined screw caps. The VOA vials were overturned and tapped to assure that air bubbles were not present. The sample bottles were then labeled and placed into a cooler with ice pending delivery to McCampbell Analytical Laboratory. Chain of custody procedures were observed for all sample handling.

GEOLOGY AND HYDROGEOLOGY

Based on review of regional geologic maps from U.S. Geological Survey Professional Paper 943, "Flatland Deposits - Their Geology and Engineering Properties and Their Importance to Comprehensive Planning," by E.J. Helley and K.R. Lajoie, 1979 the subject site is underlain by Holocene coarse-grained alluvium (Qhac). The alluvium is described as unconsolidated, moderately sorted permeable sand and silt with coarse sand and gravel. The site borders on

subsurface materials identified on the geologic maps as Late Pleistocene alluvium (Qpa). The alluvium is described as typically consisting of weakly consolidated slightly weathered poorly sorted irregularly interbedded clay, silt, sand and gravel and is considered to overlie bedrock on the alluvial plain marginal to San Francisco Bay.

Based on review of the regional geologic map from U.S. Geological Survey Miscellaneous Field Studies Map MF-2196, "Map of Recently Active Traces of the Hayward Fault, Alameda and Contra Costa Counties, California," by J.J. Lienkaemper, 1992 the subject site is located approximately 2,900 feet to the southwest of the active Hayward Fault.

The subsurface materials encountered in boreholes MW6, MW7 and MW8 consist of unconsolidated interlayered clay, silt and sand to the total depth explored of 50 feet. The subsurface materials encountered in these boreholes are similar to the materials described by Aegis as having been encountered in boreholes at the subject site. In general, the subsurface materials in boreholes MW6 and MW7 are coarse grained below the depths of approximately 12.5 and 8 feet, respectively, with the exception of clay layers in MW6 between the depth of approximately 28.5 and 30.0 feet and 37.0 and 43.0 feet, and in MW7 between the depths of approximately 30.0 and 47.0 feet. In borehole MW8, the subsurface materials are coarse grained below a depth of approximately 27.5 feet.

Groundwater was initially encountered in boreholes MW6, MW7 and MW8 at depths of approximately 40.3, 43.7 and 40.5 feet below grade, respectively. The measured depth to groundwater from the top of the PVC well casing in wells MW6, MW7 and MW8 on June 23, 1995 was 38.17, 41.00 and 38.36 feet, respectively.

The regional groundwater flow direction identified by Woodward-Clyde Consultants in a report titled, "Hydrogeology of Central San Leandro and Remedial Investigation of Regional Groundwater Contamination - San Leandro Plume - San Leandro, California - Volume I," prepared for the California Environmental Protection Agency and dated December 29, 1993 identified the regional groundwater flow direction to the west of the site to be to the southwest. However, based upon the measured depth to water at the site on September 29, 1992 Aegis identified a northwesterly groundwater flow direction. Based upon water level measurements collected by P&D on February 18, July 5, and October 12, 1994 and February 1, and May 4, 1995 the groundwater flow direction at the site was calculated to be to the north, towards San Leandro Creek.

The measured depth to water at the site on June 23, 1995 for wells MW1, through MW8 ranged from 37.40 to 41.00. The groundwater monitoring data are presented in Table 1. Since May 4, 1995, groundwater levels have decreased in wells MW1 through MW5 by between 0.86 and 1.07 feet. Based on the June 23, 1995 water level measurements in wells MW1 through MW8, the groundwater flow direction in the vicinity of the site on June 23, 1995 was to the west-northwest with a gradient ranging from 0.042 to 0.070. The groundwater flow direction at the site on June 23, 1995 is shown on Figure 2.

LABORATORY ANALYTICAL RESULTS

The soil samples from boreholes MW6 through MW8 and the groundwater samples from monitoring wells MW6 through MW8 were analyzed for TPH-G using EPA Method 5030 in conjunction with Modified EPA Method 8015, and for BTEX and MTBE using EPA Method 8020. The laboratory analytical results for the soil samples collected from boreholes MW6 through MW8 and for the groundwater samples collected from wells MW6 through MW8 show that TPH-G, BTEX and MTBE, were not detected in any of the samples with the exception of 3.0 ppb of MTBE which was detected in the groundwater sample from well MW6. The laboratory analytical results for the soil samples are summarized in Table 2, and the laboratory analytical results for the groundwater samples are summarized in Table 3.

DISCUSSION AND RECOMMENDATIONS

Based on the absence of soil discoloration, detectable concentrations of organic vapors with the PID and the absence of petroleum hydrocarbon odors in the boreholes during drilling activities to the total depth explored of 50 feet, the soil at the borehole locations does not site appear to have been impacted by petroleum hydrocarbons.

Based on the laboratory analytical results of the groundwater samples collected from monitoring wells MW6 through MW8, the extent of petroleum hydrocarbons in groundwater in the vicinity of the subject site appears to have been defined. Based on the depth to water measurements collected on June 23, 1995 from all of the monitoring wells (MW1 through MW8) after the development of wells MW6 through MW8, the groundwater flow direction appears to be to the west-northhwest.

P&D recommends that the quarterly groundwater monitoring and sampling program be continued for the site. However, P&D recommends that the number of wells monitored be reduced to MW4 through MW8. All eight of the wells should be monitored for depth to water and the presence of free product and sheen on a quarterly basis, and five of the wells (MW4 through MW8) should be purged and sampled on a quarterly basis. P&D recommends that the groundwater samples collected from all of the wells be analyzed for TPH-G, BTEX and MTBE.

P&D also recommends that a Corrective Action Plan be prepared and submitted to the ACDEH in accordance with a request set forth in a letter from Mr. Scott Seery dated March 23, 1995.

DISTRIBUTION

Copies of this report should be distributed to Mr. Scott Seery at the Alameda County Department of Environmental Health, and to Mr. Richard Hiett at the San Francisco Bay Regional Water Quality Control Board. Copies of the report should be accompanied by a transmittal letter signed by Mr. Manmohan Chopra.

LIMITATIONS

This report was prepared solely for the use of Mr. Manmohan Chopra. The content and conclusions provided by P&D in this assessment are based on information collected during our investigation, which may include, but not be limited to, visual site inspections; interviews with site owner, regulatory agencies and other pertinent individuals; review of available public documents; subsurface exploration and our professional judgement based on said information at the time of preparation of this document. Any subsurface sample results and observations presented herein are considered to be representative of the area of investigation; however, geological conditions may vary between borings and may not necessarily apply to the general site as a whole. If future subsurface or other conditions are revealed which vary from these findings, the newly-revealed conditions must be evaluated and may invalidate the findings of this report.

This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information contained herein is brought to the attention of the appropriate regulatory agencies, where required by law. Additionally, it is the sole responsibility of the owner to properly dispose of any hazardous materials or hazardous wastes left onsite, in accordance with existing laws and regulations.

This report has been prepared in accordance with generally accepted practices using standards of care and diligence normally practiced by recognized consulting firms performing services of a similar nature. P&D is not responsible

for the accuracy or completeness of information provided by other individuals or entities which is used in this report. This report presents our professional judgement based upon data and findings identified in this report and interpretation of such data based upon our experience and background, and no warranty, either express or implied, is made. The conclusions presented are based upon the current regulatory climate and may require revision if future regulatory changes occur.

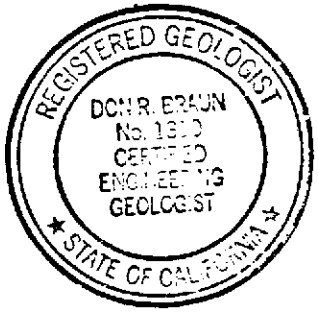
Should you have any questions, please do not hesitate to contact us at (510) 658-6916.

Sincerely,

P&D Environmental

Paul H. King

Paul H. King
Hydrogeologist



Don R Braun

Don R. Braun
Certified Engineering Geologist
Registration No. : 1310
Expires: 6/30/96

PHK
0055.R5

Attachments: Tables 1, 2, 3,
Site Location Map (Figure 1)
Site Vicinity Map (Figure 2)
Boring Logs
Well Construction Details
Report of Surveyed Elevations
Well Sampling Purge Data Sheets
Laboratory Analytical Reports
Chain of Custody Documentation

TABLE 1
WELL MONITORING DATA

Well No.	Date Monitored	Top of Casing Elev. (ft.)	Depth to Water (ft.)	Water Table Elev. (ft.)
MW1	6/23/95	87.98+	38.54	49.44
	5/04/95	87.96++	37.65	50.33
	2/01/95		38.46	49.52
	10/12/94		42.01	45.97
	7/05/94		41.36	46.62
	2/18/94		41.02	46.96
	9/29/92		42.77	45.21
MW2	6/23/95	86.61+	37.40	49.21
	5/04/95	86.60++	36.54	50.07
	2/01/95		37.27	49.34
	10/12/94		40.77	45.84
	7/05/94		40.13	46.48
	2/18/94		39.81	46.80
	9/29/92		41.55	45.06
MW3	6/23/95	87.48+	40.65	46.83
	5/04/95	87.50++	39.61	47.87
	2/01/95		40.13	47.35
	10/12/94		43.92	43.56
	7/05/94		43.32	44.16
	2/18/94		43.09	44.39
	9/29/92		44.60	42.88*
MW4	6/23/95	86.21+	37.40	48.81
	5/04/95	86.20++	36.33	49.88
	2/01/95		36.96	49.25
	10/12/94		40.48	45.73
	7/05/94		39.69	46.52
	2/18/94		39.36	46.85
	9/29/92		44.29	41.92
MW5	6/23/95	89.10+	39.87	49.23
	5/04/95	89.06++	38.94	50.16
	2/01/95		39.94	49.16
	10/12/94		43.81	45.29
	7/05/94		43.08	46.02
	2/18/94		42.88	46.22
	9/29/92		44.53	44.57

NOTES:
Elevations are in feet Mean Sea Level.
ft. = Feet.
+ Indicates survey data provided by Kier & Wright dated June 26, 1995.
++ Indicates survey data provided by Aegis Environmental, Inc.
* Indicates groundwater elevation corrected for the presence of free product.

TABLE 1 (Continued)
WELL MONITORING DATA

Well No.	Date Monitored	Top of Casing Elev. (ft.)	Depth to Water (ft.)	Water Table Elev. (ft.)
MW6	6/23/95	84.02++	38.17	45.85
	6/21/95**		38.11	45.91
MW7	6/23/95	87.11++	41.00	46.11
	6/21/95**		40.30	46.81
MW8	6/23/95	89.70++	38.36	51.34
	6/21/95**		38.20	51.50

NOTES:
Elevations are in feet Mean Sea Level.
ft. = Feet.
++ Indicates survey data provided by Kier & Wright dated June 26, 1995.
** Indicates depth to water measurements prior to groundwater monitoring well development.

TABLE 2
SOIL BORING
LABORATORY ANALYTICAL RESULTS
(Samples Collected on June 15 and 16, 1995)

Sample Location	TPH-G	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes
MW6-10.0	ND	ND	ND	ND	ND	ND
MW6-20.0	ND	ND	ND	ND	ND	ND
MW6-30.0	ND	ND	ND	ND	ND	ND
MW6-40.0	ND	ND	ND	ND	ND	ND
MW7-10.0	ND	ND	ND	ND	ND	ND
MW7-20.0	ND	ND	ND	ND	ND	ND
MW7-30.0	ND	ND	ND	ND	ND	ND
MW7-40.0	ND	ND	ND	ND	ND	ND
MW8-10.0	ND	ND	ND	ND	ND	ND
MW8-20.0	ND	ND	ND	ND	ND	ND
MW8-30.0	ND	ND	ND	ND	ND	ND
MW8-40.0	ND	ND	ND	ND	ND	ND

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline.
MTBE = Methyl Tert Butyl Ether.
ND = Not Detected.

TABLE 3
GROUNDWATER
LABORATORY ANALYTICAL RESULTS
(Samples Collected on June 23, 1995)

Sample Location	TPH-G	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes
MW6	ND	3.0	ND	ND	ND	ND
MW7	ND	ND	ND	ND	ND	ND
MW8	ND	ND	ND	ND	ND	ND

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline.
MTBE = Methyl Tert Butyl Ether.
ND = Not Detected.
Results are in parts per billion (ppb), unless otherwise specified.

P & D ENVIRONMENTAL

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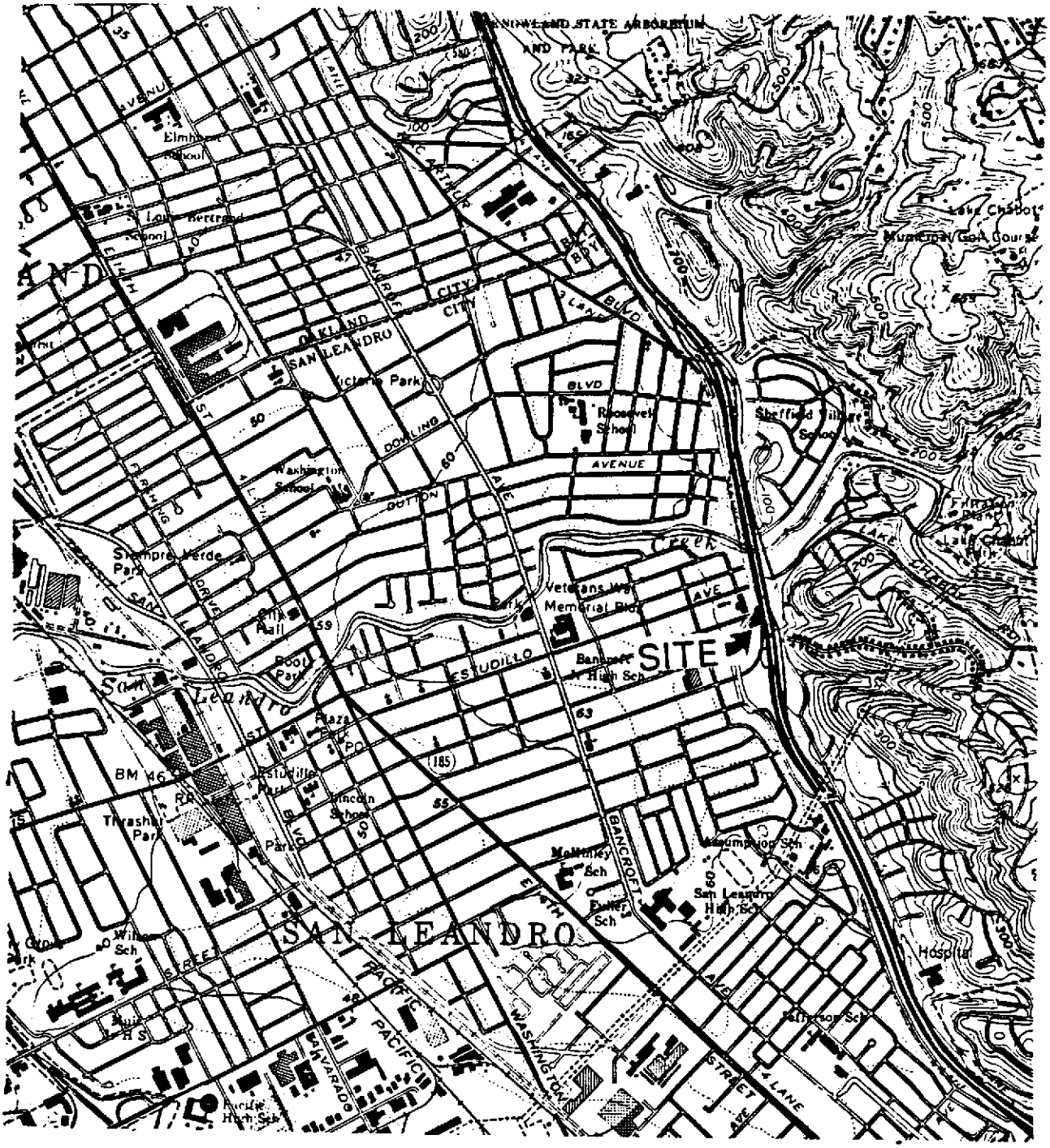
Oakland, CA 94611
Telephone (510) 658-6916

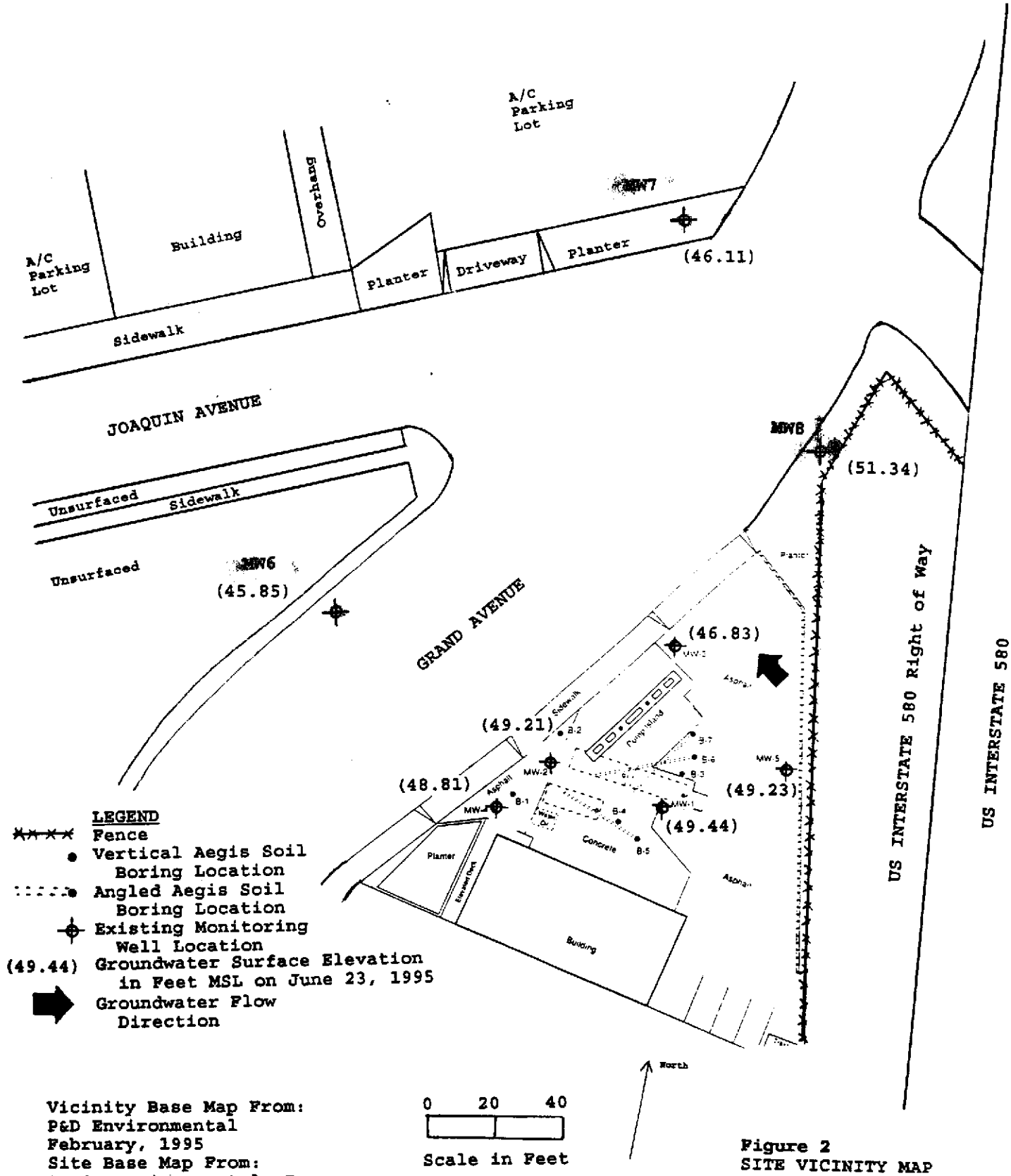


Base Map from:
U.S. Geological Survey
San Leandro, Calif.
7.5 Minute Quadrangle
Photorevised 1980

Figure 1
SITE LOCATION MAP
Former ARCO Service Station
1401 Grand Avenue
San Leandro, CA

P & D ENVIRONMENTAL

4020 Panama Court
Oakland, CA 94611
Telephone (510) 658-6916



Vicinity Base Map From:
P&D Environmental
February, 1995
Site Base Map From:
Aegis Environmental, Inc.
Problem Assessment Report
dated December 16, 1992

Figure 2
SITE VICINITY MAP
Former ARCO Service Station
1401 Grand Avenue
San Leandro, California

P & D ENVIRONMENTAL

BORING NO: MW6	PROJECT NO: 0055	PROJECT NAME: Former ARCO Service Station, San Leandro	
BORING LOCATION: In street, 4 ft from curb face in bus stop across street from site		ELEVATION & DATUM: Top of Well Casing = 84.02 Feet Mean Sea Level	
DRILLING AGENCY: Exploration Geoservices Inc.		DRILLER: John and Mike	DATE & TIME STARTED: 6/15/95
DRILLING EQUIPMENT: Mobile B40 Hollow Stem Auger Rig			DATE & TIME FINISHED: 6/15/95
COMPLETION DEPTH: 50.0 Ft.		BEDROCK DEPTH: None Encountered	LOGGED BY: P.H.King
FIRST WATER DEPTH: 40.3' Ft.		NO. OF SAMPLES: 4 Soil	CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	PID	SAMPLE INTERVAL	BLOW COUNT PER 6"	REMARKS
0	Asphalt		See Attached Well Construction Diagram				Borehole drilled using 8" O.D. hollow stem augers. Samples collected using 2-1/2" O.D. California Modified split spoon sampler lined with brass tubes driven by a 140 lb hammer falling 30".
	BROWN SILTY GRAVEL (baserock)	GM					
		CL					
	BROWN SILTY CLAY (CL); fine to medium sand, black mottling, dry to moist, very stiff. No Petroleum Hydrocarbon (PHC) odor.			0		11 15 15	
5							
	BROWN SILTY CLAY (CL); fine to medium sand, minor black mottling, dry to moist, hard. No PHC odor.			0		15 28 30	
10							
		SW					
	BROWN SAND (SW); fine to coarse sand, gravel 1/4" to 2" diameter, dry to moist, hard. No PHC odor.			0		22 50 / 6"	
15							
	BROWN SAND (SW); fine to coarse sand, gravel 1/4" to 2" diameter, dry to moist, hard. No PHC odor.			0		20 50 / 5"	
20							
	BROWN SAND (SW); fine to coarse sand, gravel 1/4" to 2" diameter, dry to moist, hard. No PHC odor.			0		19 50 / 6"	
25							
	BROWN SILTY CLAY (CL); fine sand, dry, hard. No PHC odor.	CL		0		3 5 7	
30							

P & D ENVIRONMENTAL

BORING NO.: MW6	PROJECT NO.: 0055	PROJECT NAME: Former ARCO Service Station, San Leandro	
BORING LOCATION: In street, 4 ft from curb face in bus stop across street from site		ELEVATION & DATUM: Top of Well Casing = 84.02 Feet Mean Sea Level	
DRILLING AGENCY: Exploration Geoservices Inc.		DRILLER: John and Mike	DATE & TIME STARTED: 6/15/95
DRILLING EQUIPMENT: Mobile B40 Hollow Stem Auger Rig			DATE & TIME FINISHED: 6/15/95
COMPLETION DEPTH: 50.0 ft.		BEDROCK DEPTH: None Encountered	LOGGED BY: P.H.King
FIRST WATER DEPTH: 40.3' ft.		NO. OF SAMPLES: 4 Soil	CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	PID	SAMPLE INTERVAL	BLOW COUNT PER 6"	REMARKS
30	BROWN SILTY CLAY (CL);	CL					
		SC					
	GRAY CLAYEY SAND (SC); fine to coarse sand, gravel 1/4" to 2" diameter,					30	
35	moist to wet, dense. No PHC odor.			0		19 18	
	BROWN SILTY CLAY (CL); fine to medium sand, extensive gray mottling,	CL				22 28	3:29 PM 6/15/95 Groundwater first
40	moist, hard. No PHC odor.	▽		0		30	encountered at 40.3'.
		SW					
	BROWN SAND (SW); fine to coarse sand, minor gravel 1/4" to 1"					20 50 / 6"	
45	diameter, saturated, very dense. No PHC odor.			0			No evidence of sheen or petroleum hydrocarbon odor on water from saturated samples.
	BROWN SAND (SW); fine to coarse sand, minor gravel 1/4" to 1"					50 / 4"	
50	diameter, saturated, very dense. No PHC odor.			0			Borehole cleaned out to 50.0'.
55							
60							

P & D ENVIRONMENTAL

BORING NO: MW7	PROJECT NO: 0055	PROJECT NAME: Former ARCO Service Station, San Leandro	
BORING LOCATION: In Payless Center planter across street from site		ELEVATION & DATUM: Top of Well Casing = 87.11 Feet Mean Sea Level	
DRILLING AGENCY: Exploration Geoservices Inc.		DRILLER: John and Mike	DATE & TIME STARTED: 6/16/95
DRILLING EQUIPMENT: Mobile B40 Hollow Stem Auger Rig			DATE & TIME FINISHED: 6/16/95
COMPLETION DEPTH: 50.0 ~~ft~~.		BEDROCK DEPTH: None Encountered	LOGGED BY: P.H.King
FIRST WATER DEPTH: 43.7 ft.		NO. OF SAMPLES: 4 Soil	CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	PID	SAMPLE INTERVAL	BLOW COUNT PER 6"	REMARKS
0		CL	See attached Well Construction Diagram				Borehole drilled using 8" O.D. hollow stem augers. Samples collected using 2-1/2" O.D. California Modified split spoon sampler lined with brass tubes driven by a 140 lb hammer falling 30".
	BLACK SILTY CLAY (CL); fine sand, trace medium sand, rootlets, moist, hard. No Petroleum Hydrocarbon (PHC) odor.			0		7 15 19	
5							
	BROWN SILTY SAND (SM); fine sand, moist, dense. No PHC odor.	SM		0		11 19 20	
10							
	BROWN SILTY SAND (SM); fine sand, moist, dense. No PHC odor.			0		8 15 19	
15							
	BROWN SILTY SAND (SM); fine sand, moist, dense. No PHC odor.			0		9 14 17	Shoe contents of 20' sample indicated lithology change.
20							
	BROWN SAND (SW); fine to coarse sand, gravel 1/4" to 1-1/2" diameter, moist, dense. No PHC odor.	SW		0		9 20 23	
25							
	BROWN SAND (SP); fine sand, moist, dense. No PHC odor.	SP		0		19 21 26	Shoe contents of 30' sample indicated lithology change.
30							

P & D ENVIRONMENTAL

BORING NO: MW7	PROJECT NO: 0055	PROJECT NAME: Former ARCO Service Station, San Leandro	
BORING LOCATION: In Payless Center planter across street from site		ELEVATION & DATUM: Top of Well Casing = 87.11 Feet Mean Sea Level	
DRILLING AGENCY: Exploration Geoservices Inc.		DRILLER: John and Mike	DATE & TIME STARTED: 6/16/95
DRILLING EQUIPMENT: Mobile B40 Hollow Stem Auger Rig			DATE & TIME FINISHED: 6/16/95
COMPLETION DEPTH: 50.0 ~~ft~~		BEDROCK DEPTH: None Encountered	LOGGED BY: P.H.King
FIRST WATER DEPTH: 43.7 ft.		NO. OF SAMPLES: 4 Soil	CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	PID	SAMPLE INTERVAL	BLOW COUNT PER 6"	REMARKS
30	BROWN SAND (SP);						
		CL					
	BROWN SILTY CLAY (CL); fine to medium sand, moist, hard. No PHC odor.			0		20 31 36	
35							
	BROWN SILTY CLAY (CL); fine to medium sand, some black mottling, moist, hard. No PHC odor.			0		9 17 28	
40							8:55 AM 6/16/95 Groundwater first encountered at 43.7'.
		▽					
	BROWN SILTY CLAY (CL); fine to medium sand, moist, hard. No PHC odor.			0		21 40 50 / 4"	~~9:10 AM 6/16/95 Groundwater measured at 43.1'~~
45							No evidence of sheen or petroleum hydrocarbon odor on water from saturated samples.
	BROWN CLAYEY SAND (SC); fine to coarse sand, abundant gravel 1/4" to 1-1/2" diameter, saturated, dense. No PHC odor.	SC		0		27 50 / 3"	Borehole cleaned out to 50.0'.
50							
55							
60							

P & D ENVIRONMENTAL

BORING NO: [illegible]	PROJECT NO: 0055	PROJECT NAME: Former ARCO Service Station, San Leandro	
BORING LOCATION: In planter adjacent to Grand Ave.		ELEVATION & DATUM: Top of Well Casing = 89.70 Feet Mean Sea Level	
DRILLING AGENCY: Exploration Geoservices Inc.		DRILLER: John and Mike	DATE & TIME STARTED: 6/15/95
DRILLING EQUIPMENT: Mobile B40 Hollow Stem Auger Rig			DATE & TIME FINISHED: 6/15/95
COMPLETION DEPTH: 50.0 Ft.		BEDROCK DEPTH: None Encountered	LOGGED BY: P.H.King
FIRST WATER DEPTH: 40.5 ft.		NO. OF SAMPLES: 4 Soil	CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	PID	SAMPLE INTERVAL	BLOW COUNT PER 6"	REMARKS
0	BROWN GRAVELLY SILT (ML); gravel 1/4" to 1" diameter, dry, hard. No Petroleum Hydrocarbon (PHC) odor.	ML	See Attached Well Construction Diagram				Borehole drilled using 8" O.D. hollow stem augers. Samples collected using 2-1/2" O.D. California Modified split spoon sampler lined with brass tubes driven by a 140 lb hammer falling 30".
5	GRAY BROWN SILTY CLAY (CL); fine to coarse sand, black mottling, moist, stiff. No PHC odor.	CL		0		17 6 7	
10	GRAY BROWN SILTY CLAY (CL); fine to medium sand, moist, very stiff. No PHC odor.			0		11 11 12	
15	BROWN SILTY CLAY (CL); fine to medium sand, extensive gray brown mottling, moist, very stiff. No PHC odor.			0		6 5 11	
20	BROWN SILTY CLAY (CL); fine to medium sand, dry to moist, very stiff. No PHC odor.			0		8 11 12	
25	BROWN SILTY CLAY (CL); fine to medium sand, minor gravel 1/4" to 1/2" diameter, dry to moist, hard. No PHC odor.			0		50 / 4"	
30	DARK BROWN SAND (SM); fine to medium sand, minor coarse sand, minor gravel 1/4" to 1/2" diameter, moist to wet, very dense. No PHC odor	SM		0		50 / 6"	

P & D ENVIRONMENTAL

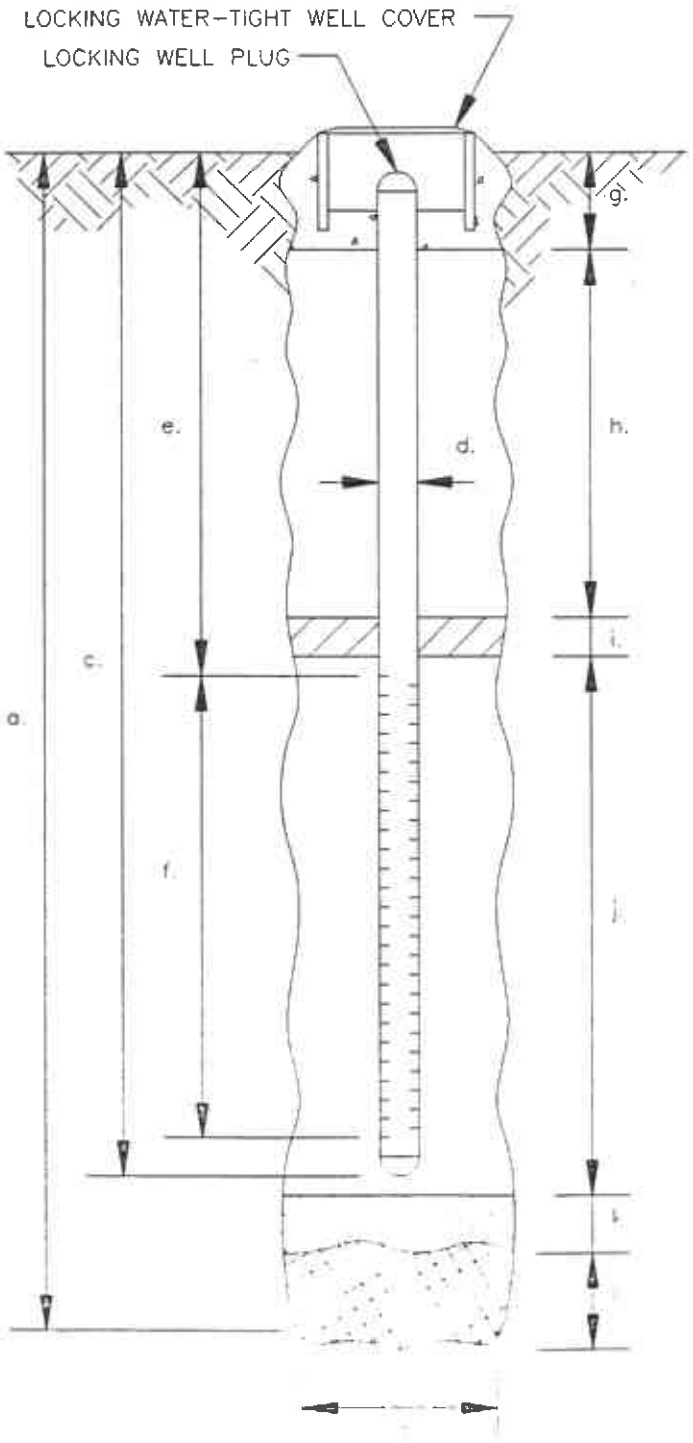
BORING NO: MW8	PROJECT NO: 0055	PROJECT NAME: Former ARCO Service Station, San Leandro	
BORING LOCATION: In planter adjacent to Grand Ave.		ELEVATION & DATUM: Top of Well Casing = 89.70 Feet Mean Sea Level	
DRILLING AGENCY: Exploration Geoservices Inc.		DRILLER: John and Mike	DATE & TIME STARTED: 6/15/95
DRILLING EQUIPMENT: Mobile B40 Hollow Stem Auger Rig			DATE & TIME FINISHED: 6/15/95
COMPLETION DEPTH: 50.0 Ft.		BEDROCK DEPTH: None Encountered	LOGGED BY: P.H.King
FIRST WATER DEPTH: 40.5 ft.		NO. OF SAMPLES: 4 Soil	CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	PID	SAMPLE INTERVAL	BLOW COUNT PER 6"	REMARKS
30	DARK BROWN SAND (SM);	SM					
	BROWN SANDY SILT (ML): fine to coarse sand, gravel 1/4" to 1/2" diameter, dry to moist, hard. No PHC odor.	ML		0		50 / 6"	
35							
40	BROWN SILTY SAND (SM): medium to coarse sand, gravel larger than 2" diameter, saturated, very dense. No PHC odor.	SM		0		50 / 6"	9" recovery. Sampler contents consisted of decomposed granite cobble.
							9:40 AM 6/15/95 Groundwater first encountered at 40.5'. Stopped driving.
45	BROWN SILTY SAND (SM): medium to coarse sand, gravel larger than 2" diameter, saturated, very dense. No PHC odor.			0		50 / 6"	9:58AM 6/15/95 Groundwater measured at 39.4'
	BROWN SILTY SAND (SM): medium to coarse sand, very dense, saturated. No PHC odor.					50 / 2"	No evidence of sheen or petroleum hydrocarbon odor on water from saturated samples.
50				0			Borehole cleaned out to 50.0'.
55							
60							

WELL CONSTRUCTION DETAILS

PROJECT NUMBER 0055
PROJECT NAME Former ARCO Station San Leandro, CA
COUNTY Alameda
WELL PERMIT NO. ~~DATUM~~ 95365

BORING/WELL NO. MW6
TOP OF CASING ELEV. 84.02
GROUND SURFACE ELEV. 84.38
DATUM Feet Above Mean Sea Level



EXPLORATORY BORING

a. Total Depth 50.0 FT.
b. Diameter 8.0 IN.
Drilling Method Hollow Stem Auger

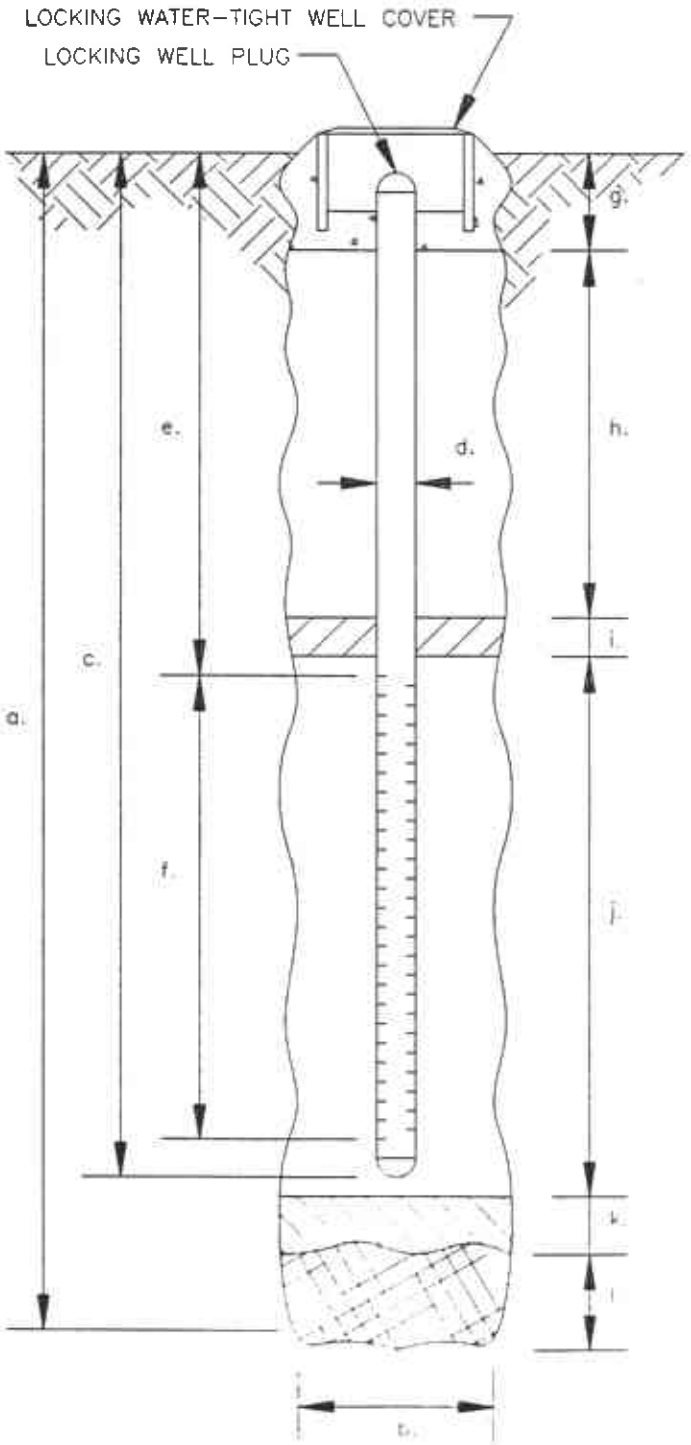
WELL CONSTRUCTION

c. Casing Length 50.0 FT.
Material PVC Schedule 40
d. Diameter 2.0 IN.
e. Depth to Top Perforations 35.0 FT.
f. Perforated Length 15.0 FT.
Perforated Interval from 35.0 to 50.0 FT.
Perforation Type Factory Slot
Perforation Size 0.010"
g. Surface Seal 2.0 FT.
Seal Material Concrete
h. Backfill 31.0 ~~32.0~~ FT.
Backfill Material Neat Cement
i. Seal 1.0 FT.
Seal Material Bentonite Pellet
j. Gravel Pack 16.0 ~~15.0~~ FT.
Pack Material #2-12 Lonestar Sack Sand
k. Bottom Seal FT.
Seal Material
Left in Borehole FT.

WELL CONSTRUCTION DETAILS

PROJECT NUMBER 0055
PROJECT NAME Former ARCO Station San Leandro, CA
COUNTY Alameda
WELL PERMIT NO. ~~DATUM~~ 95365

BORING/WELL NO. MW7
TOP OF CASING ELEV. 87.11
GROUND SURFACE ELEV. 87.75
DATUM Feet Above Mean Sea Level



EXPLORATORY BORING

a. Total Depth 50.0 FT.
b. Diameter 8.0 IN.
Drilling Method Hollow Stem Auger

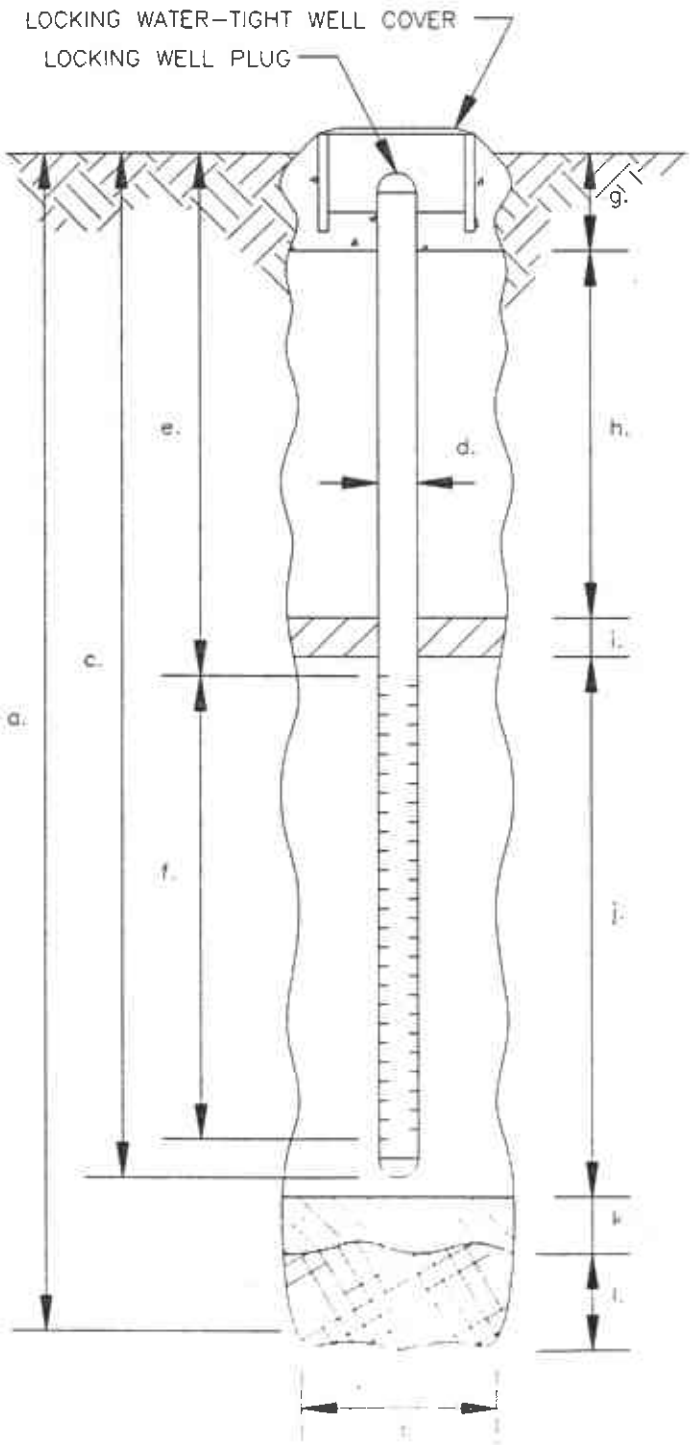
WELL CONSTRUCTION

c. Casing Length 50.0 FT.
Material PVC Schedule 40
d. Diameter 2.0 IN.
e. Depth to Top Perforations 35.0 FT.
f. Perforated Length 15.0 FT.
Perforated Interval from 35.0 to 50.0 FT.
Perforation Type Factory Slot
Perforation Size 0.010"
g. Surface Seal 2.0 FT.
Seal Material Concrete
h. Backfill 31.0 ~~33.0~~ FT.
Backfill Material Neat Cement
i. Seal 1.0 FT.
Seal Material Bentonite Pellet
j. Gravel Pack 16.0 ~~18.0~~ FT.
Pack Material #2/12 Lonestar Sack Sand
k. Bottom Seal 0 FT.
Seal Material N/A
l. Stuff in Bottom of Borehole 0 FT.

WELL CONSTRUCTION DETAILS

PROJECT NUMBER 0055
PROJECT NAME Former ARCO Station San Leandro, CA
COUNTY Alameda
WELL PERMIT NO. ~~DATUM~~ 95365

BORING/WELL NO. MW8
TOP OF CASING ELEV. 89.70
GROUND SURFACE ELEV. 89.98
DATUM Feet Above Mean Sea Level



EXPLORATORY BORING

a. Total Depth 50.0 FT.
b. Diameter 8.0 IN.
Drilling Method Hollow Stem Auger

WELL CONSTRUCTION

c. Casing Length 50.0 FT.
Material PVC Schedule 40
d. Diameter 2.0 IN.
e. Depth to Top Perforations 35.0 FT.
f. Perforated Length 15.0 FT.
Perforated Interval from 35.0 to 50.0 FT.
Perforation Type Factory Slot
Perforation Size 0.010"
g. Surface Seal 2.0 FT.
Seal Material Concrete
h. Backfill 31.0 ~~330~~ FT.
Backfill Material Neat Cement
i. Seal 1.0 FT.
Seal Material Bentonite Pellet
j. Gravel Pack 16.0 ~~350~~ FT.
Pack Material #2/12 Lonestar Sack Sand
k. Bottom Seal 0 FT.
Seal Material N/A
Length of Bottom Screened Interval ~~1~~ FT.

P&D ENVIRONMENTAL
GROUNDWATER MONITORING/WELL PURGING
DATA SHEET

Site Name Former [illegible]

Job No. 1035

TOC to Water (ft.) 32.07

Well Depth (ft.) 49.70

Well Diameter 2

Gal./Casing Vol. 2.0

Well No. MW 6

Date 6/23/95

Sheen None

Free Product Thickness None

Sample Collection Method Teflon Bailer

TIME	GAL. PURGED	pH	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µS/cm)
10:30	1.0	7.20	74.3	2.41 x1000
10:35	2.00	7.09	75.0	1.10
10:40	3.00	7.04	75.1	8.66 x100
10:45	4.00	7.10	75.4	7.95
10:50	5.00	7.05	75.3	7.92
10:55	6.00	7.07	75.5	8.21

Sampled at 11:00 am

NOTES: AOL
Well purged by hand bailing.

PURGE10.92

P&D ENVIRONMENTAL
GROUNDWATER MONITORING/WELL PURGING
DATA SHEET

Site Name Form. ABC [illegible] Well No. MW 7

Job No. 0055 Date 6/23/[illegible]

TOC to Water (ft.) [illegible] Sheen [illegible]

Well Depth (ft.) [illegible] Free Product Thickness None

Well Diameter 4" Sample Collection Method

Gal./Casing Vol. [illegible] Teflon Bailer

TIME	GAL. PURGED	pH	TEMPERATURE (F)	ELECTRICAL CONDUCTIVITY (µmhos)
11.28	0.75	7.23	73.3	2.44 x K
11.32	1.50	7.21	72.1	9.4
11.36	2.25	7.20	72.1	9.54
11.40	3.00	7.15	71.2	9.3
11.42	3.75	7.13	69.7	9.32
11.45	4.50	7.16	69.6	9.27
		Sampled at		11.46

NOTES: KC

Was purged Dry Next Day

PURGE10.92

P&D ENVIRONMENTAL
GROUNDWATER MONITORING/WELL PURGING
DATA SHEET

Site Name [illegible]

Well No. MW-8

Job No. [illegible]

Date [illegible]

TOC to Water (ft.) [illegible]

Sheen None

Well Depth (ft.) [illegible]

Free Product Thickness None

Well Diameter 2"

Sample Collection Method Teflon Bailer

Gal./Casing Vol. [illegible]

TIME	GAL. PURGED	pH	TEMPERATURE	ELECTRICAL CONDUCTIVITY
12:10	0.91	7.20	72.3	9.23
12:13	1.90	7.21	72.1	9.35
12:1[illegible]	2.70	7.35	71.7	9.42
12:20	3.[illegible]	7.27	71.6	9.25
12:23	4.[illegible]	7.39	71.5	9.21
12:27	5.4[illegible]	7.42	71.[illegible]	9.[illegible]

Sampled at 12:45 pm

NOTES: [illegible]

[illegible]

PURGE10.92

KIER & WRIGHT
CIVIL ENGINEERS & SURVEYORS, INC.
5880 West Las Positas Boulevard, Suite 34
Pleasanton, California 94588
(510) 734-8060 • FAX (510) 734-8064

LETTER OF TRANSMITTAL

DATE 6-26-95	JOB NO. 95551
ATTENTION AHMAD	
RE: FORMER ARCO S/S, 1401 GRAND AVE San Leandro	

P & D ENVIRONMENTAL
4020 PANAMA CT
OAKLAND, CALIF. 94611

WE ARE SENDING YOU

- ☐ GRADING PLAN
- ☐ IMPROVEMENT PLANS
- ☐ TENTATIVE MAP
- ☐ TRACT MAP
- ☐ A.L.T.A. SURVEY
- ☐ PARCEL MAP
- ☐ PLAT & DESCRIPTION
- ☐ TOPOGRAPHIC SURVEY
- ☐ PROGRESS PRINTS
- ☐ SPECIFICATIONS
- ☐ CHECK PRINTS
- ☐ _____

COPIES	DATE	DESCRIPTION
1	6/23/95	TABLE OF ELEVATIONS & COORD's
1	"	PLOT 1"=40'

THESE ARE TRANSMITTED (as checked)

- ☐ FOR APPROVAL
- ☒ FOR YOUR USE
- ☒ AS REQUESTED
- ☐ FOR YOUR FILE
- ☐ RETURNED
- ☐ FOR REVIEW AND COMMENT
- ☐ FOR BIDS DUE _____ 19 ____
- ☐ PLEASE RETURN
- ☐ FOR SIGNATURE
- ☐ _____
- ☐ _____
- ☐ RETURNED FOR CORRECTIONS
- ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

COPY TO: _____

SIGNED: Tony McClumb

If enclosures are not as noted, kindly notify us at once.

June 23, 1995
Job No. 95551

Table of Elevations

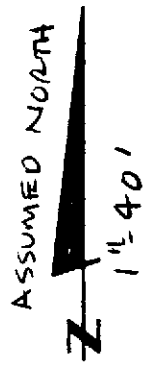
Former Arco Service Station
1401 Grand Avenue
San Leandro, California

Well No.	Northing	Easting	Elevation	
MW-1	4882.49	5045.41	87.98	Cut notch top North side of PVC casing
			88.39	Cut cross, North rim of well cover
MW-2	4902.86	5014.05	86.61	Cut notch top North side of PVC casing
			86.99	Cut cross, North rim of well cover
MW-3	4930.46	5056.22	87.48	Cut notch top North side of PVC casing
			87.86	Cut cross, North rim of well cover
MW-4	4892.67	4996.70	86.21	Cut notch top North side of PVC casing
			86.65	Cut cross, North rim of well cover
MW-5	4887.69	5081.36	89.10	Cut notch top North side of PVC casing
			89.60	Cut cross, North rim of well cover
MW-6	4953.31	4954.54	84.02	Cut notch top North side of PVC casing
			84.38	Cut cross, North rim of well cover
MW-7	5054.04	5083.65	87.11	Cut notch top North side of PVC casing
			87.75	Cut cross, North rim of well cover
MW-8	4978.06	5114.28	89.70	Cut notch top North side of PVC casing
			89.98	Cut cross, North rim of well cover

Benchmark: City of San Leandro Benchmark: Cinch nail in top of curb at midpoint of curb return, southwest corner of Joaquin and Grande Avenues.

Elevation = 85.31 M.S.L.

KIER & WRIGHT CIVIL ENGINEERS & SURVEYORS, INC.
5880 WEST LAS POSITAS BOULEVARD, SUITE 34 ♦ PLEASANTON, CALIFORNIA 94588 ♦ (510) 734-8060 ♦ (510) 734-8064



JOAQUIN AVE.

⊕ 5 MW7

⊕ 6 MW8

⊕ 4 MW6

GRAND AVE

⊕ 7 MW3

⊕ 10 MW2

⊕ 11 MW4

⊕ 9 MW1

⊕ 8 MW5

Job # 95551
P&D ENVIRONMENTAL
FORMER ARCO S/S
1401 GRAND AVE
SAN LEANDRO, CALIF.
6-23-95 1"=40' Acm

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

P & D Environmental 4020 Panama Court Oakland, CA 94611	Client Project ID: # 0055; Former Arco-San Leandro	Date Sampled: 06/15-06/16/95
		Date Received: 06/16/95
	Client Contact: Paul King	Date Extracted: 06/17/95
	Client P.O:	Date Analyzed: 06/17/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
53460	MW6-10.0	S	ND	ND	ND	ND	ND	ND	109
53461	MW6-20.0	S	ND	ND	ND	ND	ND	ND	105
53462	MW6-30.0	S	ND	ND	ND	ND	ND	ND	106
53463	MW6-40.0	S	ND	ND	ND	ND	ND	ND	109
53464	MW7-10.0	S	ND	ND	ND	ND	ND	ND	109
53465	MW7-20.0	S	ND	ND	ND	ND	ND	ND	107
53466	MW7-30.0	S	ND	ND	ND	ND	ND	ND	101
53467	MW7-40.0	S	ND	ND	ND	ND	ND	ND	108
53468	MW8-10.0	S	ND	ND	ND	ND	ND	ND	106
53469	MW8-20.0	S	ND	ND	ND	ND	ND	ND	106
53470	MW8-30.0	S	ND	ND	ND	ND	ND	ND	103
53471	MW8-40.0	S	ND	ND	ND	ND	ND	ND	97
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	2.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.02	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 06/16-06/17/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.928	1.981	2.03	95	98	2.7
Benzene	0.000	0.178	0.184	0.2	89	92	3.3
Toluene	0.000	0.186	0.192	0.2	93	96	3.2
Ethylbenzene	0.000	0.186	0.194	0.2	93	97	4.2
Xylenes	0.000	0.576	0.598	0.6	96	100	3.7
TPH (diesel)TCLP	0	324	323	300	108	108	0.3
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

P & D ENVIRONMENTAL
4020 Panama Court
Oakland, CA 94611
Telephone (510) 658-6916

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: 0055

PROJECT NAME: Former ARCO - San Leandro

SAMPLED BY: (PRINTED AND SIGNATURE) Paul H. King Paul H. King

SAMPLE NUMBER	DATE	TIME	TYPE	SAMPLE LOCATION	NUMBER OF CONTAINERS	ANALYSIS(ES): TPH-Gas BTEX, MTBE	PRESERVATIVE	REMARKS
MW6-10.0	6/15/95		Soil	53460	1	X	ICE	Normal Turn Around
MW6-20.0	"		"	53461	1	X	"	"
MW6-30.0	"		"	[illegible]	1	X	"	"
MW6-40.0	"		"	[illegible]	1	X	"	"
MW7-10.0	6/16/95		"	[illegible]	1	X	"	"
MW7-20.0	"		"	53464	1	X	"	"
MW7-30.0	"		"	53465	1	X	"	"
MW7-40.0	"		"	53466	1	X	"	"
MW8-10.0	6/15/95		"	[illegible]	1	X	"	"
MW8-20.0	"		"	[illegible]	1	X	"	"
MW8-30.0	"		"	53468	1	X	"	"
MW8-40.0	"		"	[illegible]	1	X	"	"
				53470				
				53471				

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)
Paul H. King	6/16/95	5:20	[illegible] Ferro 329
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)
[illegible] Ferro 329	6/16/95	6:00	[illegible]
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)

TOTAL NO. OF SAMPLES (THIS SHIPMENT): 12
TOTAL NO. OF CONTAINERS (THIS SHIPMENT): 12

LABORATORY: McCampbell Analytical

LABORATORY CONTACT: Ted Hamilton

LABORATORY PHONE NUMBER: (510) 798-1620

SAMPLE ANALYSIS REQUEST SHEET ATTACHED: ( )YES (X)NO

REMARKS:
ICE/T° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT
PRESERVATIVE APPROPRIATE ✓
CONTAINERS ✓
VOAS O&G METALS OTHER

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

P & D Environmental	Client Project ID: # 0055; Former Arco-San Leandro	Date Sampled: 06/23/95
4020 Panama Court		Date Received: 06/23/95
Oakland, CA 94611	Client Contact: Paul King	Date Extracted: 06/25-06/29/95
	Client P.O:	Date Analyzed: 06/25-06/29/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with MTBE & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
53580	MW6	W	ND	3.0	ND	ND	ND	ND	105
53581	MW7	W	ND	ND	ND	ND	ND	ND	104
53582	MW8	W	ND	ND	ND	ND	ND	ND	108
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	2.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.2	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 06/25/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	100.8	102.3	100	100.8	102.3	1.4
Benzene	0	10.6	11.2	10	106.0	112.0	5.5
Toluene	0	10.1	11.4	10	101.0	114.0	12.1
Ethyl Benzene	0	10.4	10.3	10	104.0	103.0	1.0
Xylenes	0	32.1	33.9	30	107.0	113.0	5.5
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
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QC REPORT FOR HYDROCARBON ANALYSES

Date: 06/28/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	99.2	99.3	100	99.2	99.3	0.1
Benzene	0	10.4	10.7	10	104.0	107.0	2.8
Toluene	0	10.2	10.4	10	102.0	104.0	1.9
Ethyl Benzene	0	10.2	10.5	10	102.0	105.0	2.9
Xylenes	0	31.9	32.7	30	106.3	109.0	2.5
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	0	21600	21100	23700	91	89	2.3

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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CHAIN OF CUSTODY RECORD

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PROJECT NUMBER:	PROJECT NAME:
0055	Former ARCO - San Leandro

SAMPLED BY: (PRINTED AND SIGNATURE)
Ahmad Ghandour *Ahmad Ghandour*

	SAMPLE NUMBER	DATE	TIME	TYPE	SAMPLE LOCATION	NUMBER OF CONTAINERS	ANALYSIS(ES): TPH-Gas & BTEX, MTBE	PRESERVATIVE	REMARKS
5+	MW6	6/23/95		Water		2	X	ICE	Normal turn around
2+	MW7	"		"		2	X	"	" " "
2+	MW8	"		"		2	X	"	" " "
									53580
									53581
									53582

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓

VOA'S RECEIVED IN THIS COOLER
PRESERVATIVE ✓
APPROPRIATE ✓
CONTAINERS ✓

	DATE	TIME	
RELINQUISHED BY: (SIGNATURE) *Ahmad Ghandour*	6/23/95	3:37 pm	RECEIVED BY: (SIGNATURE) #680
RELINQUISHED BY: (SIGNATURE) #680	6/23/95	5:00 pm	RECEIVED BY: (SIGNATURE) Willie Rivera
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)

TOTAL NO. OF SAMPLES (THIS SHIPMENT)	3
TOTAL NO. OF CONTAINERS (THIS SHIPMENT)	6
LABORATORY:	McCampbell Analytical
LABORATORY CONTACT:	Ed Hamilton
LABORATORY PHONE NUMBER:	(510) 798-1620

SAMPLE ANALYSIS REQUEST SHEET ATTACHED: ( )YES (X)NO

REMARKS: VOA's preserved with HCL