

Manmohan S. Chopra

4216 Warbler Loop

FREMONT, CA 94555

February 24, 1995

Alameda County Department of Environmental Health

1131 Harbor Bay Parkway, 2nd Floor

ALAMEDA, CA 94502-6577

ATTN: Mr Scott Seery

SUB: Quarterly Groundwater monitoring and Sampling Report

1401 Grand Ave. SAN LEANDRO, CA

Dear Mr Seery,

Attached, for your review and records, please find a copy of Quarterly Groundwater Monitoring and Sampling Report for the above site. The report was prepared by our consultants, P & D Environmental and is in standard format. However, if you have any questions or comments, please contact me at the above address or call me at 510-790-9252.

Sincerely,



Manmohan S. Chopra

Owner

ENVIRONMENTAL
PROTECTION
95 FEB 28 PM 12:32

P & D ENVIRONMENTAL

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

February 13, 1995
Report 0055.R3

Mr. Manmohan Chopra
4216 Warbler Loop
Fremont, CA 94555

SUBJECT: QUARTERLY GROUNDWATER MONITORING AND SAMPLING 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 results of the quarterly monitoring and sampling of the five wells at the subject site. This work was performed in accordance with P&D's proposal 102794.P1 dated October 27, 1994. All of the wells were monitored and sampled on February 1, 1995. The reporting period is for November, 1994 through January, 1995. A Site Location Map (Figure 1) and Site Plan (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 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. The measured depth to water in the wells is presented in Table 1.

FIELD ACTIVITIES

On February 1, 1995 all five of the wells were monitored and sampled by P&D personnel. The wells were monitored for depth to water and the presence of free product or sheen. Depth to water was measured to the nearest 0.01 foot using an electric water level indicator. The presence of sheen was evaluated using a transparent bailer. No free product or sheen was observed in any of the wells. Depth to water level measurements and monitoring well groundwater surface elevations are presented in Table 1.

Prior to sampling, the wells were purged of a minimum of three casing volumes of water. During purging operations, the field parameters of electrical conductivity, temperature and pH were monitored. Once the field parameters were observed to stabilize, and a minimum of three casing volumes had been purged,

water samples were collected using a clean Teflon bailer. The water samples were transferred to 40-milliliter glass Volatile Organic Analysis (VOA) vials which were sealed with Teflon-lined screw caps. The VOA vials were overturned and tapped to assure that no air bubbles were present.

The VOA vials were then transferred to a cooler with ice, and later were transported to McCampbell Analytical, Inc. in Pacheco, California. McCampbell Analytical, Inc. is a State-certified hazardous waste testing laboratory. Chain of custody documentation accompanied the samples to the laboratory. Records of the field parameters measured during well purging are attached with this report.

HYDROGEOLOGY

The subsurface materials encountered in the borings drilled by Aegis 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. Groundwater has historically been encountered at the site at depths ranging from approximately 40 to 45 feet below grade.

Based upon 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 the regional groundwater flow direction to the west of the site appears 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, 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 February 1, 1995 for wells MW1, MW2, MW3, MW4, and MW5 was 38.46, 37.27, 40.13, 36.96, and 39.94 feet, respectively. Since the previous quarter, groundwater levels have increased in the wells by 3.50 to 3.87 feet. Based on the February 1, 1995 water level measurements, the groundwater flow direction on February 1, 1995 was to the north with a gradient of 0.042. The groundwater flow direction and gradient have remained relatively unchanged since the previous water level measurements were collected on October 12, 1994. The groundwater monitoring data are presented in Table 1. The groundwater flow direction at the site on February 1, 1995 is shown on Figure 2.

LABORATORY RESULTS

All of the groundwater samples collected from the monitoring wells were analyzed for TPH-G using EPA Method 5030 in conjunction with Modified EPA Method 8015 and for BTEX using EPA Method 8020.

The laboratory analytical results for the groundwater samples showed that TPH-G and BTEX were not detected in well MW5. In wells MW1, MW2, MW3 and MW4, TPH-G was detected at concentrations of 4.6, 45, 11 and 1.4 ppm, respectively, and benzene was detected at concentrations of 1.8, 7.0, 4.2, and 0.39 ppm, respectively. TPH-G and BTEX concentrations have increased in all of the wells since the previous quarter except for well MW5, where TPH-G and BTEX have remained unchanged (not detected) since the previous quarter. The sample analytical results are summarized in Table 2. Copies of the laboratory analytical report and chain of custody documentation are attached with this report.

DISCUSSION AND RECOMMENDATIONS

Although regional groundwater flow direction identified by Woodward-Clyde Consultants appears to be to the southwest, water level measurements collected in February, July, and October, 1994 and February 1995 indicate that the groundwater flow direction at the site is to the north.

In a letter from P&D to the Alameda County Department of Environmental Health concerning the subject site, dated May 25, 1994 P&D proposed to collect quarterly groundwater flow direction data through one full hydrologic cycle to determine seasonal fluctuations in groundwater flow direction. Following evaluation of seasonal changes in groundwater flow direction at the site, P&D will provide recommendations for delineation of the extent of groundwater contamination.

Based on the laboratory analytical results of the quarterly groundwater monitoring samples, P&D recommends that the quarterly monitoring and sampling program be continued.

DISTRIBUTION

Copies of this report should be forwarded to Mr. Scott Seery at the Alameda County Department of Environmental Health and to the San Francisco Bay Regional Water Quality Control Board.

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 the 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 pits 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.

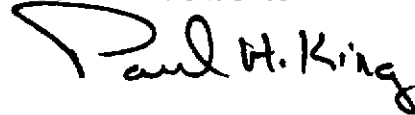
February 13, 1995
Report 0055.R3

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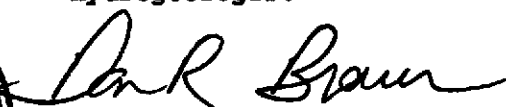
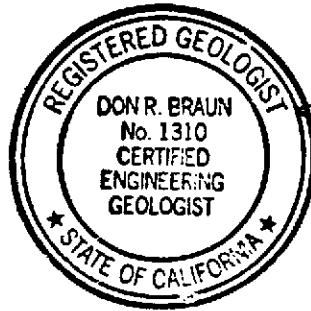
Should you have any questions, please do not hesitate to contact us at
(510) 658-6916.

Sincerely,

P&D Environmental



Paul H. King
Hydrogeologist



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

dlk/PHK
0055.R3

Attachments: Tables 1 & 2
Site Location Map (Figure 1)
Site Plan (Figure 2)
Field Parameter Forms
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	2/01/95	87.96	38.46	49.50
	10/12/94		42.01	45.95
	7/05/94		41.36	46.60
	2/18/94		41.02	46.94
	9/29/92		42.77	45.19
MW2	2/01/95	86.60	37.27	49.33
	10/12/94		40.77	45.83
	7/05/94		40.13	46.47
	2/18/94		39.81	46.79
	9/29/92		41.55	45.05
MW3	2/01/95	87.50	40.13	47.37
	10/12/94		43.92	43.58
	7/05/94		43.32	44.18
	2/18/94		43.09	44.41
	9/29/92		44.60	42.90*
MW4	2/01/95	86.20	36.96	49.24
	10/12/94		40.48	45.72
	7/05/94		39.69	46.51
	2/18/94		39.36	46.84
	9/29/92		44.29	41.91
MW5	2/01/95	89.06	39.94	49.12
	10/12/94		43.81	45.25
	7/05/94		43.08	45.98
	2/18/94		42.88	46.18
	9/29/92		44.53	44.53

NOTES:

The top of casing elevation is identified by Aegis Environmental, Inc. as being relative to either mean sea level or an arbitrary benchmark.

* Indicates groundwater elevation corrected for the presence of free product.

TABLE 2
SUMMARY OF LABORATORY ANALYTICAL RESULTS

Well No.	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes
Samples Collected On October 12, 1994 February 1, 1995					
MW1	4.6	1.8 ¹⁸⁰⁰	0.0099	0.23	0.030
MW2	45	7.0 ⁷⁰⁰⁰	5.1	1.2	6.1
MW3	11	4.2 ⁴²⁰⁰	0.031	0.33	0.29
MW4	1.4	0.39 ³⁹⁰	0.055	0.049	0.18
MW5	ND	ND	ND	ND	ND
Samples Collected On October 12, 1994					
MW1	2.5	0.82	0.0039	0.10	0.020
MW2	24	4.4	2.8	0.73	3.5
MW3	1.7	0.39	0.00090	0.018	0.0057
MW4	0.68	0.14	0.0087	0.014	0.052
MW5	ND	ND	ND	ND	ND
Samples Collected On July 5, 1994					
MW1	3.0	1.3	0.0038	0.035	0.0025
MW2	46.0	9.1	7.0	1.4	7.3
MW3	3.6	1.6	0.0083	0.076	0.047
MW4	2.6	0.47	0.045	0.084	0.25
MW5	ND	ND	ND	ND	0.0010

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline.

ND = Not Detected.

NA = Not Analyzed. A sample was not collected because of the presence of free product.

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

TABLE 2
(Continued)
SUMMARY OF LABORATORY ANALYTICAL RESULTS

Well No.	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes
Samples Collected On September 29, 1992					
MW1	3.1	0.16	ND	ND	0.0060
MW2	20	4.6	3.8	0.26	3.3
MW3	NA	NA	NA	NA	NA
MW4	0.63	0.17	0.06	0.0073	0.65
MW5	0.06	10	0.0071	ND	0.0069

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline.

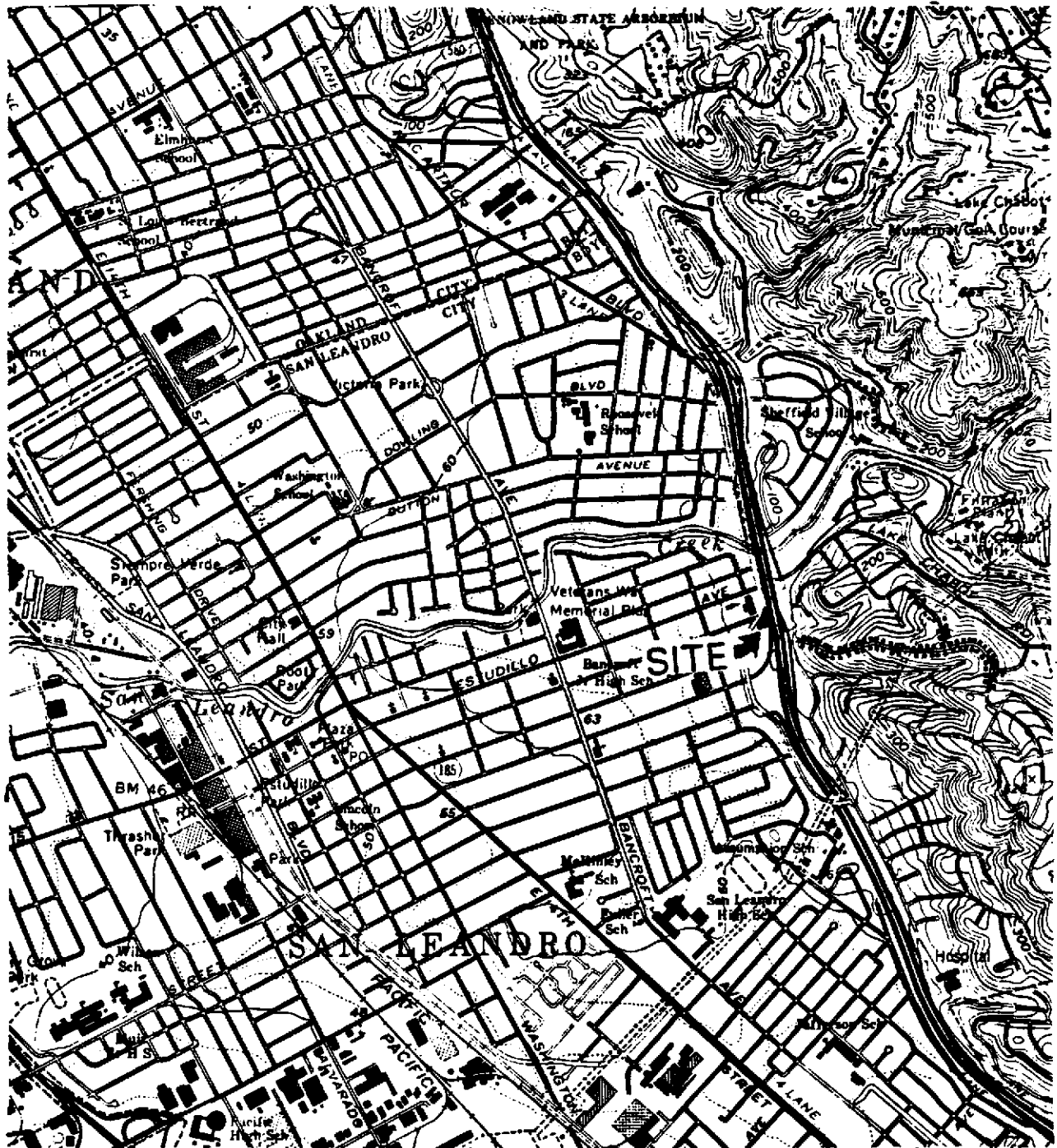
ND = Not Detected.

NA = Not Analyzed. A sample was not collected because of the presence of free product.

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

P & D ENVIRONMENTAL

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



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

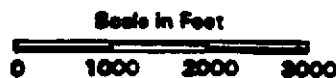
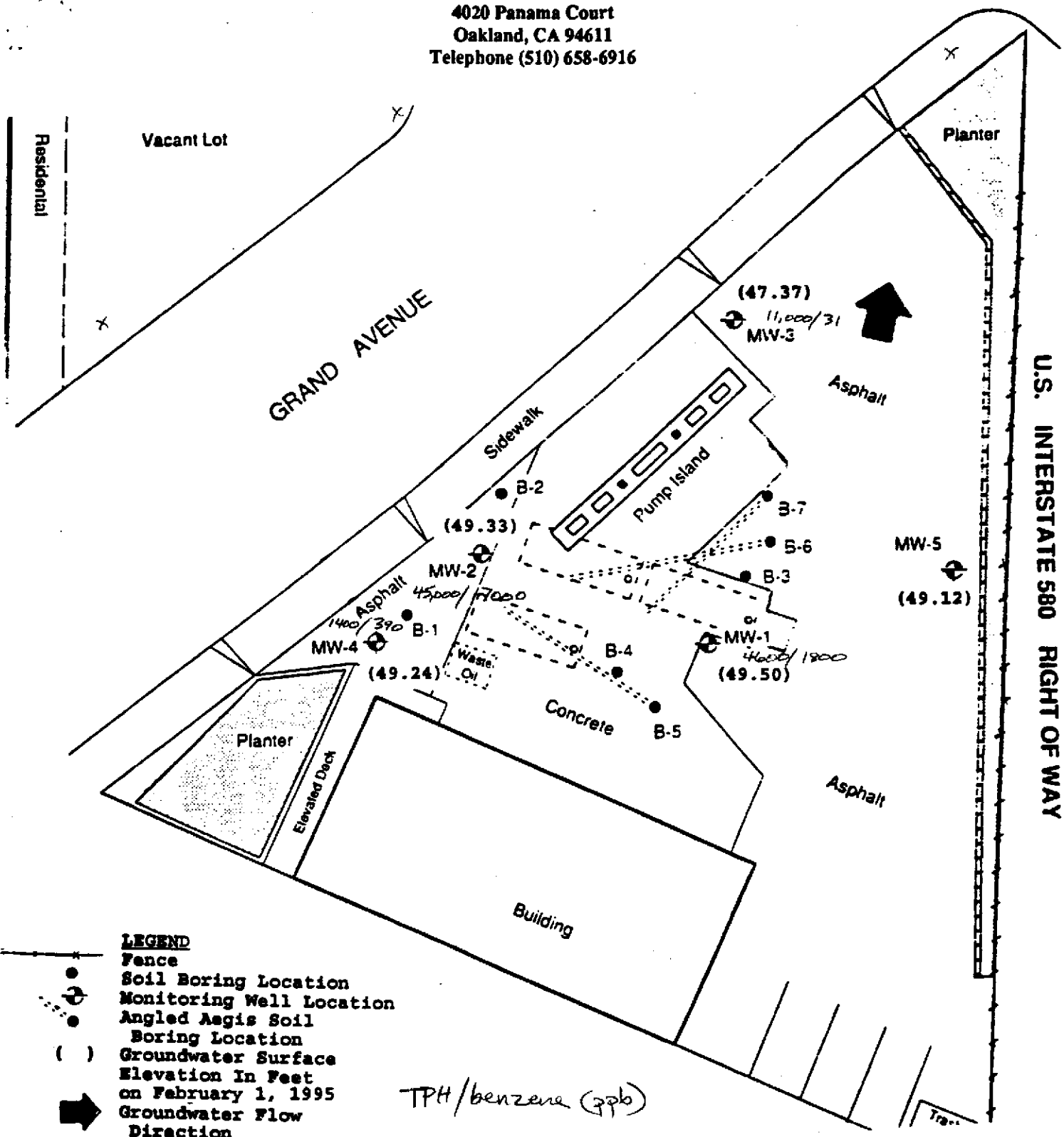


Figure 1
SITE LOCATION MAP
Former ARCO Service Station
1401 Grand Avenue
San Leandro, CA

P & D ENVIRONMENTAL

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

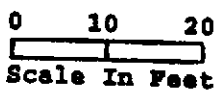


LEGEND

- Fence
- Soil Boring Location
- Monitoring Well Location
- Angled Aegis Soil Boring Location
- Groundwater Surface Elevation In Feet on February 1, 1995
- Groundwater Flow Direction

TPH/benzene (ppb)

(2-1-95)



Base Map From:
Aegis Environmental, Inc.
Problem Assessment Report
dated December 16, 1992

Figure 2
SITE PLAN
Former ARCO Service Station
1401 Grand Avenue
San Leandro, CA

P&D ENVIRONMENTAL
GROUNDWATER MONITORING/WELL PURGING
DATA SHEET

Site Name Farmer Area Well No. MW1
 Job No. 0055 Date 2/1/95
 TOC to Water (ft.) 38.46 12:28 PM Sheen None
 Well Depth (ft.) 52.4 Free Product Thickness ∅
 Well Diameter 4" Sample Collection Method Tyfon Bailer
 Gal./Casing Vol. 9.14

$\epsilon = 27.4$

TIME	GAL. PURGED	pH	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µS/cm)
3:44	1	2.92	66.7	1.73 x 100
3:50	5	2.85	66.1	1.79
4:01	10	2.26	66.1	1.98
4:08	15	2.20	66.1	2.15
4:13	20	2.05	66.0	2.45
4:18	25	2.18	66.1	2.20
4:23	28	<u>Not working</u>	66.1	2.08
4:25	<u>Collect Samples.</u>			

NOTES: PHK - hand bailed - pH meter defective

P&D ENVIRONMENTAL
GROUNDWATER MONITORING/WELL PURGING
DATA SHEET

Site Name Former Arco
Job No. 0055
TOC to Water (ft.) 37.27
Well Depth (ft.) 52.7
Well Diameter 4"
Gal./Casing Vol. 10.12

Well No. MW2
Date 2/1/95
Sheen None
Free Product Thickness ∅
Sample Collection Method Teflon Bailor

12:24 PM

$\Sigma = 30.4$

TIME	GAL. PURGED	pH	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY $\mu S/cm$
4:41	1	7.16	67.1	3.12
4:46	5	6.80	66.6	3.01
4:54	10	Not working	66.2	Not working
4:58	15	" "	66.0	" "
5:03	20	" "	66.1	" "
5:08	25	" "	66.0	" "
5:15	31	" "	66.0	" "
5:20	Collect samples			

NOTES: PHK - hand bailed, only well where water noticeably bailed down

P&D ENVIRONMENTAL
GROUNDWATER MONITORING/WELL PURGING
DATA SHEET

Site Name Former Arco Well No. MW3
 Job No. 0055 Date 2/1/95
 TOC to Water (ft.) 40.13 12:23PM Sheen None
 Well Depth (ft.) 55.3 Free Product Thickness 0
 Well Diameter 4" Sample Collection Method Teflon Bailer
 Gal./Casing Vol. 2.0

$\Sigma = 30$

TIME	GAL. PURGED	pH	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µS/cm)
<u>2:52</u>	<u>1</u>	<u>5.70</u>	<u>67.0</u>	<u>2.59 X 100</u>
<u>2:56</u>	<u>5</u>	<u>3.77</u>	<u>66.5</u>	<u>1.59</u>
<u>3:01</u>	<u>10</u>	<u>3.86</u>	<u>66.3</u>	<u>2.43</u>
<u>3:06</u>	<u>15</u>	<u>2.60</u>	<u>66.0</u>	<u>3.88</u>
<u>3:11</u>	<u>20</u>	<u>2.70</u>	<u>66.2</u>	<u>3.74</u>
<u>3:16</u>	<u>25</u>	<u>2.61</u>	<u>66.0</u>	<u>3.69</u>
<u>3:21</u>	<u>30</u>	<u>2.58</u>	<u>66.1</u>	<u>3.45</u>
<u>3:25</u>	<u>collect</u>	<u>samples</u>		

NOTES: PHK - hand bailed - pH meter fritzing out.

P&D ENVIRONMENTAL
GROUNDWATER MONITORING/WELL PURGING
DATA SHEET

Site Name Former Area Well No. MW4
 Job No. 0055 Date 2/1/95
 TOC to Water (ft.) 36.96 12:26 PM Sheen None
 Well Depth (ft.) 53.3 Free Product Thickness Ø
 Well Diameter 4" Sample Collection Method Teflon Bailers
 Gal./Casing Vol. 10.7

TIME	GAL. PURGED	pH	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µS/cm)
1:44	1	5.95	67.1	10.15 X 100
1:49	5	5.70	66.5	10.37
1:54	10	5.64	66.7	Not working
2:00	15	5.12	66.2	" "
2:05	20	4.33	66.2	" "
2:09	25	4.31	66.4	" "
2:15	30	Not working	66.3	" "
2:19	33	" "	66.4	" "
2:20	Collect Samples.			

NOTES: PHK - hand bailed - only Christy box not full of water.

P&D ENVIRONMENTAL
GROUNDWATER MONITORING/WELL PURGING
DATA SHEET

Site Name Former Arco
Job No. 0055
TOC to Water (ft.) 39.94 12:21
Well Depth (ft.) 54.7
Well Diameter 4"
Gal./Casing Vol. 9.7

Well No. MWS
Date 2/1/95
Sheen None
Free Product Thickness ∅
Sample Collection Method Teflon Bailor

TIME	GAL. PURGED	pH	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY (µS/cm)
12:50	1	7.22	67.7	7.64 x 100
12:56	5	7.32	66.0	6.82
13:02	10	7.46	66.0	6.48
13:08	15	6.29	66.0	6.15
13:15	20	6.26	65.8	5.98
13:19	25	6.06	65.8	6.02
13:24	30	6.03	65.6	6.06
13:25	Collect	Samples		

NOTES: PHK - Hand bailed

P & D Environmental 4020 Panama Ct. Oakland, CA 94611	Client Project ID: # 0055; Former ARCO-San Leandro	Date Sampled: 02/01/95
	Client Contact: Paul King	Date Received: 02/03/95
	Client P.O:	Date Extracted: 02/03-02/04/95
		Date Analyzed: 02/03-02/04/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX* EPA methods 8030, modified 8015, and 8020 or 602, California RWQCB (SF Bay Region) method GCFID(5030)								
Lab ID	Client ID	Matrix	TPH(g) ⁺	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
50085	MW1	W	4600,b,c	1800	9.9	230	30	95
50086	MW2	W	45,000,a	7000	5100	1200	6100	98
50087	MW3	W	11,000,b,c	4200	31	330	290	100
50088	MW4	W	1400,a	390	55	49	180	100
50089	MW5	W	ND	ND	ND	ND	ND	105
Detection Limit unless otherwise stated; ND means Not Detected	W	50 ug/L	0.5	0.5	0.5	0.5	0.5	
	S	1.0 mg/kg	0.005	0.005	0.005	0.005	0.005	

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

cluttered chromatogram; sample peak co-elutes 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 are significant; no recognizable pattern; 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 phase is present.

DHS Certification No. 1644  Edward Hamilton, Lab Director

P & D ENVIRONMENTAL

4020 Panama Court
Oakland, CA 94611
Telephone (510) 658-0916

CHAIN OF CUSTODY RECORD

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PROJECT NUMBER: 0055		PROJECT NAME: Former ARCO - San Leandro				NUMBER OF CONTAINERS	ANALYSIS(ES): TPH-GAS, STEA				PRESERVATIVE	REMARKS
SAMPLED BY: (PRINTED AND SIGNATURE) Paul H. King Paul H. King												
SAMPLE NUMBER	DATE	TIME	TYPE	SAMPLE LOCATION								
MW1	2/1/95		Water			2	X				ICE	Normal Turn
MW2	"		"			2	X				"	"
MW3	"		"			2	X				"	"
MW4	"		"			2	X				"	"
MW5	"		"			2	X				"	"
											50085	
											50086	
											50087	
											50088	
											50089	
KEPT <input checked="" type="checkbox"/> GOOD CONDITION <input checked="" type="checkbox"/> HEAD SPACE ABSENT <input checked="" type="checkbox"/> PRESERVATIVE <input checked="" type="checkbox"/> APPROPRIATE <input checked="" type="checkbox"/> CONTAINERS <input checked="" type="checkbox"/>												
RELINQUISHED BY: (SIGNATURE) Paul H. King		DATE 2/2/95	TIME 4:00 AM	RECEIVED BY: (SIGNATURE) Janis Bell		TOTAL NO. OF SAMPLES (THIS SHEET) 5		LABORATORY: McCampbell Analytical				
RELINQUISHED BY: (SIGNATURE) Janis Bell		DATE 2/2	TIME 5:15	RECEIVED BY: (SIGNATURE) Duc Jui		LABORATORY CONTACT: Ed Hamilton		LABORATORY PHONE NUMBER: (510) 798-1620				
RELINQUISHED BY: (SIGNATURE) Duc Jui		DATE 2/3	TIME 09:05	RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>[Signature]</i>		SAMPLE ANALYSIS REQUEST SHEET ATTACHED: () YES (X) NO						
REMARKS: VAs preserved with HCL												