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REPORT
SUPPLEMENTAL SUBSURFACE ENVIRONMENTAL INVESTIGATION
at
Former Beacon Station 546
29705 Mission Boulevard
Hayward, California

AGS Job No. 18008-6 April 1990

Prepared for

Ultramar Inc.
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Hanford, California 93230

by
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April 25, 1990
AGS 18008-6

Mr. Glenn Dembroff
Ultramar Inc.
525 West Third Street
Hanford, California 93230

Subject: Executive Summary of Report on a Supplemental Subsurface Environmental Investigation at Former Beacon Station 546, 29705 Mission Boulevard, Hayward, California.

Mr. Dembroff:

This report describes a limited subsurface environmental investigation conducted by Applied GeoSystems at Beacon Station 546, as requested by Ultramar Inc. The site is located at 29705 Mission Boulevard, Hayward, California, at the southeastern corner of the intersection of Mission Boulevard and Industrial Parkway.

The scope of work included drilling boreholes, installing five wells, reconstructing one existing well (MW-4), collecting soil and ground water samples, and analyzing the samples in the laboratory for specified compounds and physical parameters. In addition, a 26-1/2 hour pumping test was performed to evaluate hydraulic parameters beneath the site.

Previous work has been performed at the site by Kaprealian Engineering, Inc., (KEI) and Applied GeoSystems (AGS). In 1987 KEI drilled five soil borings to a depth of 30 feet around the underground storage tanks (UST) for gasoline and diesel. Hydrocarbons were detected in both soil and ground water. In 1988, AGS observed the removal of the USTs, evaluated the condition of the tanks, and collected soil samples from the tank pit area. Hydrocarbons were detected in most of the samples collected. In 1988, AGS installed three onsite ground-water monitoring wells and collected soil and water samples. The results indicated detectable concentrations of hydrocarbons in both soil and ground-water samples.

In June 1989 and February 1990, AGS installed a total of five offsite wells to the south, southwest, and southeast of the

Beacon site and conducted a pumping test. The findings of this investigation are summarized below:

- A vertically continuous silty clay sequence is found beneath the site.
- Fractures were observed in soil samples collected from the saturated zone.
- Ground water occurs under unconfined conditions beneath the site, ranges from approximately 13 to 14 feet in elevation, generally flows toward the southwest, and may be flowing in part through a fractured system.
- An aquifer test performed in October 1989 suggests the following values for these aquifer parameters:
  - Hydraulic Conductivity = 4.2 to 6.3 X 10^{-3} cm/sec
  - Transmissivity = 1795 to 2678 gpd/ft
  - Storativity = 4.0 to 6.5 X 10^{-3}

  In addition, the specific capacity for MW-1 is estimated to be 1.15 gpm/ft drawdown.
- The compounds TPHg and BTEX were detected in the soil beneath the Beacon site, and relatively low (nondetectable to 150 ppm) levels have also been found in offsite soil near wells MW-4, MW-7, and MW-8. The magnitude and extent of hydrocarbons in soil have yet to be fully delineated.
- The compounds TPHg and BTEX were present in the ground water samples collected from beneath the Beacon site and to the south and southwest at least as far as MW-5 and MW-8. Based on the laboratory data, the vertical and lateral extent of hydrocarbons in ground water has not yet been fully delineated.

The following recommendations are based on the findings of the subject investigation. The recommendations pertain primarily to additional site characterization.

- Resample wells MW-1 through MW-8 to verify chemical concentrations in the ground water.
- A study should be performed to evaluate the fate and transport of chemical compounds in the subsurface environment.
- A program for delineation of organic chemical compounds in the soil and ground water should be implemented.
- Quarterly monitoring of the ground water at the site and vicinity should continue and include subjective evaluation and laboratory analyses of water samples.

We recommend that copies of this report be forwarded to Mr. Hugh Murphy of the Hayward Fire Department, 22300 Foothill Boulevard, Hayward, California 94541; and Mr. Scott Hugenberger of the Regional Water Quality Control Board, 1111 Jackson Street, Room 6040, Oakland, California 94590.

Please call if you have questions regarding this report.

Sincerely,
Applied GeoSystems

Leigh I. Beem
Project Geologist

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REPORT
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at
Former Beacon Station 546
29705 Mission Boulevard
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For Ultramar Inc.

1.0 INTRODUCTION

Beacon Oil Company, now Ultramar Inc. (Ultramar), operated Beacon Station 546, located at 29705 Mission Boulevard in Hayward, California, until the station was closed in early 1988. The former station had four underground storage tanks (USTs) in which gasoline, diesel, and waste oil were stored. The USTs were removed in April 1988 and ground water monitoring wells were installed in three phases; in June and July of 1988, in June 1989, and in February 1990. This report discusses the results of the second and third phase of characterization and evaluation at the former Beacon site and vicinity.

1.1 Purpose

The purpose of this investigation was to assess the concentrations and extent of hydrocarbon compounds in soil and ground water at the site, and to characterize further the subsurface geologic and hydrologic setting. This investigation included:

- assessing the concentrations and extent of hydrocarbons in unsaturated soil and ground water west of the site by installing five offsite monitoring wells in the inferred down gradient ground water flow direction;
- performing a 26-1/2-hour pumping test at the site;

In addition to chemical and hydrogeological characterization listed above, further assessment of the geology at the site was included in the characterization program.

1.2 Scope

The scope of the work included drilling boreholes, installing wells, reconstructing one existing well, collecting soil and ground water samples, analyzing the samples in the laboratory for specified compounds and physical parameters, and performing a pumping test.

Field activities performed during the investigation included:

- Installing three offsite 2-inch-diameter ground water monitoring wells in June 1989;
- Performing a 26-1/2-hour pumping test in October 1989;
- Installing two offsite 4-inch-diameter ground-water monitoring wells and reconstructing one existing well in February 1990;
- Measuring ground water levels in the new and existing wells;
- Sampling ground water from the new and existing wells.

At the request of Ultramar, Applied GeoSystems (AGS) has prepared this report, at the current stage of the investigation, to provide a summary of work completed to date and the results of the latest hydrogeological investigation.

1.3 Site Location and Description

Former Beacon Station 546 is located at the southeast intersection of Industrial Parkway and Mission Boulevard (29705 Mission Boulevard) in Hayward, California (Plate 1). Former site features included one 10,000 and one 8,000 gallon UST for gasoline, one 8,000 gallon UST for diesel, and one 500 gallon UST for waste-oil (Plate 2).

Existing site features include the station building, the service island canopy, and a temporary chain link fence enclosing the site. The topography of the site and surrounding properties slope gently from east to west.

2.0 PREVIOUS ENVIRONMENTAL WORK

When the site was an operating Beacon Station, three USTs for fuel were located east of the station building and one UST for waste-oil was located behind the station building. Kaprealian Engineering, Inc. (KEI) drilled five borings around the USTs for fuel in April 1987. These tanks were removed in April 1988 and three ground water monitoring wells were installed in June and July of 1988 by AGS.

2.1 Exploratory Drilling

Kaprealian drilled five exploratory borings to a depth of 30 feet around the USTs for fuel in April 1987. Three soil samples were retained from four borings and two samples from one boring for chemical analyses. In addition, unpurged ground water samples were collected from four of the five borings. Kaprealian reported encountering ground water at 26 feet in all five borings.

The results indicate that concentrations of total petroleum hydrocarbons (TPH) in soil samples ranged from 7.3 to 1,600 parts per million (ppm). The unpurged ground water samples collected all contained relatively high concentrations of hydrocarbons (2.0 to 1,700 parts per million [ppm] TPH). A location map of the borings and the summary of the laboratory results are included in Appendix C to this report.

2.2 Tank Removal

In 1988, AGS observed the removal of the USTs, inspected the tanks for holes, and collected soil samples from the tank pits for chemical analysis (AGS Report 18008-1, August 4, 1988). Small holes were observed in one of the gasoline tanks and the waste-oil tank. The results of soil samples collected within two feet beneath the areas corresponding to the bottom ends of each tank indicated hydrocarbons ranging from 5 to 184 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg), and nondetectable to 2,750 ppm total petroleum hydrocarbons as diesel (TPHd). A sample from the former waste-oil tank pit indicated nondetectable levels of total petroleum hydrocarbons as waste-oil (TOG) and 0.035 and 0.016 ppm acetone and methylene chloride. The fuel storage tank pit was excavated to approximately 25 feet below grade. Based on the KEI site plan it appears that the KEI boreholes were encompased in the tank excavations. According to the August 1988 AGS report, visual observation indicated that soil impacted by hydrocarbons was excavated from the tank excavations. The results of soil samples collected from the 13 to 15 foot depth zone in the product tank excavation and 9 feet in the waste oil tank pit are summarized in Table 1.

2.3 Well Installation

In June and July 1988, AGS installed three 4-inch-diameter ground water monitoring wells at the site (Applied GeoSystems 18008-3, August 17, 1988). Soil samples were collected from the well

borings at a depth immediately above the ground water (25 feet). The results of the soil samples indicated nondetectable to 59 ppm

TABLE 1
LABORATORY RESULTS OF SOIL SAMPLES
COLLECTED DURING THE TANK REMOVAL IN 1988
Beacon Station 546
29705 Mission Boulevard
Hayward, California

Sample Identifier	TPHg	TPHd	TOG	VOC
S-15-T1N	184	NA	NA	NA
S-13-T1S	112	NA	NA	NA
S-15-T2N	46	NA	NA	NA
S-15-T2S	5	NA	NA	NA
S-15-T3E	NA	2,750	NA	NA
S-15-T3W	NA	<5	NA	NA
S-9-WT	NA	<5	<30	<*

Results reported in parts per million (ppm)
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
TOG = total petroleum hydrocarbons as oil and grease
VOC = volatile organic compounds
< = less than detection limit for method of analysis used
NA = analysis not required
* = less than the respective detection limits for each VOC except for acetone and methylene chloride

Sample description: S-9-T4S
- S = Soil
- 9 = Depth below grade (feet)
- T = Tank number
- 4 = Side of pit sampled (WT = Waste-oil tank)

TPHg (borings MW-1 through MW-3) and 255 ppm TPHd (boring MW-1). The wells were developed, purged, and sampled for laboratory analysis. The concentration of TPHg in water ranged from 2.81 ppm in MW-3 to 17.4 ppm in MW-1. Total petroleum hydrocarbons as

TABLE 2
CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES
FROM BORINGS MW-1 THROUGH MW-6
Beacon Oil Company Station 546
29705 Mission Boulevard
Hayward, California

Sample Number	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes
Sample date: 6/30/88 and 7/1/88						
S-25-MW1	59	255	13.4	58.1	10.3	63.2
S-25-MW2	28	NA	0.30	0.99	0.62	2.85
S-25-MW3	<2	NA	0.28	0.10	0.09	<0.05
Sample date: 6/26/89 and 6/27/89						
S-10-B4	<5	NA	<0.04	<0.04	<0.04	<0.04
S-15-B4	<5	NA	<0.04	<0.04	<0.04	<0.04
S-20-B4	NA	<10	1.27	0.92	0.59	3.02
S-10-B5	<5	NA	<0.04	<0.04	<0.04	<0.04
S-15-B5	<5	NA	<0.04	<0.04	<0.04	<0.04
S-20-B5	NA	<10	<0.04	<0.04	<0.04	<0.04
S-25-B6	<5	NA	<0.04	<0.04	<0.04	<0.04
Sample date: 2/22/90 and 2/23/90						
S-171/2-B7	1.5	NA	<0.1	<0.1	<0.1	<0.1
S-20-B7	9.9	<5	<0.1	<0.1	<0.1	0.1
S-221/2-B7	<1.0	<5	<0.1	<0.1	<0.1	<0.1
S-15-B8	14	NA	0.9	<0.1	<0.1	0.1
S-20-B8	150	<5	1.7	<0.1	2.7	6.6
S-25-B8	2.6	<5	0.3	<0.1	<0.1	0.3

Results are in parts per million (ppm)
B4 = MW4, B5 = MW5, and B6 = MW6
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
< = below the detection limits of the analysis
Sample designation = S-25-B8
- S — Sample Matrix (Water)
- 25 — Sample depth in feet
- B8 — Boring or well number

diesel was detected in the water sample from MW-1 (at 5.4 ppm)and was not analyzed in the other two wells. The laboratory results of the soil samples are summarized in Table 2; results of water samples from MW-1 through MW-3 are summarized in Table 3.

TABLE 3
CUMULATIVE ANALYTICAL RESULTS OF WATER SAMPLES
Beacon Oil Company Station 546
29705 Mission Boulevard
Hayward, California
(Page 1 of 2)

Date	Sample Number	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes
Well MW-1							
7/88	W-25-MW1	17.4	5.4	4.07	2.99	0.33	3.59
2/89	W-25-MW1	20.8	NA	2.45	1.43	0.19	0.89
8/89	W-25-MW1	1.50	NA	0.300	0.280	0.100	0.600
10/89	W-25-MW1	0.079	NA	<0.0005	<0.0005	<0.0005	<0.0005
3/90	W-26-MW1	3.1	<0.050	0.8	0.19	0.0006	0.38
Well MW-2							
7/88	W-23-MW2	7.16	NA	1.266	2.117	0.230	1.563
2/89	W-24-MW2	4.13	NA	0.231	0.102	0.030	0.113
8/89	W-24-MW2	0.950	NA	0.110	0.065	0.067	0.270
10/89	W-24-MW2	0.930	NA	0.240	0.220	0.034	0.074
3/90	W-23-MW2	0.260	<0.050	0.0043	0.0025	<0.0005	0.044
Well MW-3							
7/88	W-27-MW3	2.81	NA	0.094	0.006	0.028	0.029
2/89	W-27-MW3	0.09	NA	0.0026	<0.0005	0.0005	0.0006
8/89	W-26-MW3	0.025	NA	0.0059	0.0057	0.0037	0.0164
10/89	W-26-MW3	<0.050	NA	<0.0005	<0.0005	<0.0005	<0.0005
3/90	W-26-MW3	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
Well MW-4							
7/89	W-22-MW4	0.550	NA	0.144	0.191	0.032	0.1106
8/89	W-23-MW4	2.50	NA	0.280	0.460	0.140	0.980
10/89	W-23-MW4	8.001	NA	1.600	0.780	0.120	0.550
3/90	W-21-MW4	1.3	<0.050	0.280	0.071	0.0006	0.19

See Page 2 of 2 for explanation.

TABLE 3
CUMULATIVE ANALYTICAL RESULTS OF WATER SAMPLES
Beacon Oil Company Station 546
29705 Mission Boulevard
Hayward, California
(Page 2 of 2)

Date	Sample Number	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes
Well MW-5							
7/89	W-24-MW5	5.2	NA	0.970	1.100	0.520	1.250
8/89	W-24-MW5	2.3	NA	0.350	0.430	0.360	1.220
10/89	W-24-MW5	8.8	NA	2.00	0.370	0.230	0.430
3/90	W-23-MW5	27	<0.050	5.4	0.98	1.3	3.4
Well MW-6							
7/89	W-24-MW6	0.350	NA	0.0835	0.587	0.269	0.0799
8/89	W-24-MW6	0.0055	NA	0.00187	0.00196	0.00168	0.00196
10/89	W-24-MW6	<0.050	NA	<0.0005	<0.0005	<0.0005	<0.0005
3/90	W-23-MW6	<0.5	<0.050	0.0013	0.0014	0.0012	0.0017
Well MW-7							
3/90	W-17-MW7	0.27	<0.050	0.022	<0.0005	<0.0005	0.0014
Well MW-8							
3/90	W-16-MW8	1.2	<0.050	0.8	0.19	0.0006	0.380

Results are in parts per million (ppm)
ND = None Detected.
NA = Not analyzed.
< = Below detection limits
TPHg = Total petroleum hydrocarbons as gasoline.
TPHd = Total petroleum hydrocarbons as diesel.
Sample designation = W-16-MW-8
- W-16-MW-8 — Well number
- W-16-MW-8 — Sample depth in feet
- W-16-MW-8 — Sample Matrix (Water)

3.0 PHYSICAL CHARACTERISTICS

The site is bordered on the northwest by Industrial Parkway, and on the northeast by Mission Boulevard. The southern portion of the site is bordered by a retail center and a bowling alley.

The site and surrounding properties slope gently from east to west. From east to west, elevations at the site range between 40 feet to 28 feet above mean sea level.

3.1 Regional Geology

The Beacon Site is located within the flatlands of the San Francisco Bay Region. This region is characterized by northwest-trending mountain ranges, broad basins, and narrow valleys.

The Beacon site is situated on the Bay Plain on the eastern side of the San Francisco Bay depression. The San Francisco Bay depression is characterized by crustal downwarping caused by movement along northwest-trending faults that bound the depression (California Department of Water Resources [DWR], 1963). The Hayward fault forms the eastern boundary of the depression and is located approximately 2000 feet east of the site.

The Bay Plain in the vicinity of the site is composed of fluvial deposits of the San Lorenzo Cone. Deposits of the San Lorenzo Cone consist of interbedded gravel, sand, silt, and clay of Quaternary age. These strata are discontinuous and slope gently westward toward the San Francisco Bay (Maslonkowski, 1984).

3.2 Regional Hydrogeology

Five primary aquifer zones are identified in strata of the San Lorenzo Cone. A shallow zone which consists of interbedded permeable and semi-permeable lenses extends from the ground surface to a depth of approximately 50 feet. The second zone extends from approximately 30 feet to 100 feet below the surface

and is equivalent to the Newark Aquifer of the Niles Cone. Aquifers found between approximately 130 feet to 220 feet below the surface are analogous to the Centerville Aquifer of the Niles Cone. Aquifers found between approximately 250 feet and 400 feet below the surface are identified as the Fremont Aquifer of the Niles Cone. Those found at a depth greater than 400 feet are referred to as deeper aquifers (Maslonkowski, 1984).

The shallow saturated zone beneath the site consists of silty clay that may be fractured. These fractures apparently are of relatively high permeability. The permeable zone generally is recharged by infiltration of precipitation, irrigation, and stream flow. The water level of the saturated zone exhibits minor fluctuation seasonally. Data collected from previous environmental investigations suggest a ground-water flow direction generally toward the southwest (AGS Report 18008-3, August 17, 1990).

3.2 Well Inventory

Alameda County Flood Control and Water Conservation District records indicate approximately 25 sites within a 1/2-mile of the site that have or had wells. Total depth of these wells varies from less than 9 feet to greater than 400 feet below the ground surface. The records indicate some of the wells may have been destroyed. Wells in the vicinity of the site are used for irrigation, industrial, domestic, or monitoring purposes.

Two irrigation wells are located in the vicinity of the intersection of Mission Boulevard and Alquire Road. These wells were operated by Hayward Golf Course, which has been abandoned for some time. To the southeast of the site approximately two

blocks, Arco Station 362 has six monitoring wells between 4 and 41 feet in depth. Table 4 summarizes the well inventory data.

TABLE 4
WELL INVENTORY WITHIN 1/2 MILE OF BEACON SITE
Beacon Oil Company Station 546
29705 Mission Boulevard
Hayward, California

Well Number	Map Number	Total Well Depth	Well Use	Diameter (inches)
3S/2W 35A 1	1	84	DOM	10
3S/2W 35A 2	2	28	DES	60
3S/2W 35B 3	3	65	ABN	6
3S/2W 35C	4	?	DES	?
3S/2W 35C 1	5	90	DOM	?
3S/2W 35C 3	6	32	IRR	8
3S/2W 35E 1	7	142	DOM	?
3S/2W 35F	8	?	DES	?
3S/2W 35F 1	9	68	IRR	8
3S/2W 35F 2	10	63	DOM	8
3S/2W 35F 3	11	31	MON	2
3S/2W 35H 1	12	180	DOM	?
3S/2W 35H 2	13	100	DOM	8
3S/2W 35H 3	14	265	CAT	?
3S/2W 35H 4	15	?	DES	?
3S/2W 35H 5-8	16	16-22	BOR	O
3S/2W 35L	17	55	DES	8
3S/2W 35L 1	18	51	DOM	6
3S/2W 35L 4	19	470	DOM	6
3S/2W 35L 5-13	20	9-20	MON	2
3S/2W 35N 1-3	21	65-72	?-DES	7
3S/2W 35P 3	22	?	?	?
35/2W 35P 4	23	265	CAT	?
3S/2W 35R 1	24	570	IRR	12
3S/2W 36M 5-10	25	4-41	MON	2

Total depth measurements are in feet.
BOR = Boring
CAT = Cathodic protection well
MON = Monitoring well
DOM = Domestic well
DES = Destroyed well
IRR = Irrigation well
5-13 = Nine wells at the site.
65-72 = Depths of the wells vary from 65 to 72 feet.
? = Unknown

The location of the well sites within 1/2-mile of the site are shown on Plate 3.

4.0 FIELD AND LABORATORY INVESTIGATIONS

During this investigation, well installation was completed in two episodes and a site aquifer test was performed. Offsite wells MW-4 through MW-6 were installed in June and July 1989, following which, a pumping test was performed to evaluate the hydraulic characteristics of the saturated zone. Based on data from the pumping test, two additional offsite wells (MW-7 and MW-8) were installed in February 1990. In addition, existing 2-inch-diameter well MW-4 was reconstructed with 4-inch-diameter casing.

Work performed at the site by AGS and its subcontractors was in accordance with AGS Site Safety Plan 18008-4S, dated June 1, 1989. A discussion of the procedures used to conduct various aspects of the investigation is included in Appendix A. Subsurface sediments were described using the Unified Soil Classification System and geologic information collected during drilling is presented on Logs of Borings (Plates B1 through B11) in Appendix B.

4.1 Well Installation

On June 26 and 27, 1989, AGS observed the drilling for and installation of wells MW-4 through MW-6. These wells were located to the southwest, south, and southeast of the Beacon site in the parking lot of the Holiday Bowl.

On February 21 through 23, 1990, AGS observed the drilling for and installation of wells MW-7 and MW-8, and the reconstruction

of existing well MW-4. These wells were located to the southwest of the Beacon site in the parking lot of the Holiday Bowl. Well MW-7 was installed in the sidewalk adjacent to Industrial Parkway to evaluate extent of hydrocarbons to the west. Well MW-8 was installed in the Holiday Bowl parking lot in the inferred hydraulic downgradient direction to evaluate the extent of hydrocarbons to the southwest. Well MW-4 was reconstructed from a 2-inch-diameter to 4-inch-diameter well to increase its capacity as a possible recovery well.

4.1.1 Drilling, Construction, Development, and Sampling of the Wells

In general, the sediments encountered in borings MW-4 through MW-6 from ground surface to between 35 and 40 feet are silty clays with minor amounts of sand and gravel. Three soil samples from MW-4 and MW-5 and one from MW-6 were retained for chemical analysis. Wells MW-4 and MW-6 were completed at a depth of 40 feet and MW-5 was completed at a depth of 35 feet. The wells were screened from total depth to 15 feet (MW-5) and 20 feet (MW-4 and MW-6) below grade. Ground water samples were collected from MW-4 through MW-6 after each well was developed using a combination of surging and pumping. The wells were surveyed by a licensed land surveyor on July 3, 1989. A site ground water elevation map is constructed using the data shown in Table 5, and indicates a hydraulic gradient to the southwest (Plate 4). The graphical representation of the construction of wells MW-4 through MW-6 are shown on Plates B2 through B6 in Appendix B.

TABLE 5
GROUND-WATER SURFACE ELEVATION DATA
Beacon Oil Company Station 546
29705 Mission Boulevard
Hayward, California
(July 3, 1989)

Well No.	Casing Elevation (X)	Depth to Ground Water (Y)	Ground-Water Elevation (X - Y)
MW-1	37.46	24.25	13.21
MW-2	35.95	22.87	13.08
MW-3	40.28	26.81	13.47
MW-4	34.88	22.04	12.84
MW-5	36.37	23.35	13.02
MW-6	37.43	23.95	13.48

Measurements are in feet.
Casing surveyed by Ron Archer, Civil Engineer, Inc., License No. 23721 of Pleasanton, California, on July 5, 1989.
Benchmark: The top of a brass disk set in concrete in a monument casing at the intersection of Mission Boulevard and Industrial Parkway on the west side of centerline of Mission Boulevard. Elevation taken as 36.547 mean sea level, City of Hayward datum.

In general, the sediments encountered in the well borings of MW-7 and MW-8 from ground surface to between 33 and 40 feet are silty clays with minor amounts of sand and gravel. This is consistent with material logged in previous well borings. Ground water was encountered at depths of approximately 22 feet (MW-7) and 23 feet (MW-8).

Three soil samples from MW-7 and MW-8 were retained for chemical analysis. Wells MW-7 and MW-8 were completed at a depth of 33 and 40 feet. Wells were screened from total depth to 18 feet (MW-7) and 20 feet (MW-8) below grade. The graphical

construction of MW-7 and MW-8 are shown on Plates B8 and B10 in Appendix B. Wells MW-7 and MW-8 were allowed to set for 72 hours and then were developed using a combination of surging and pumping. The wells were purged and sampled 72 hours after development.

4.1.2 Analytical Results of Soil Samples

Soil samples collected at depths of 10, 15, and 20 feet from MW-4 and MW-5, and 25 feet from MW-6, were analyzed for TPHg using modified Environmental Protection Agency (EPA) method 8015, and for the gasoline constituents benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) using EPA Method 8020. In addition, two soil samples collected from 20 feet below grade from MW-4 and MW-5 were analyzed for TPHd by EPA Method 8015. The results indicate no TPHg, TPHd, or BTEX were detected except in the sample collected from 20 feet below grade in boring B-4 which contained low levels of BTEX. The results of these analyses are summarized in Table 2.

Soil samples collected at depths of 17-1/2, 20, and 22-1/2 feet from MW-7 and 15, 20, and 25 feet from MW-8, were analyzed for TPHg using modified EPA method 8015, and for BTEX using EPA Method 8020. In addition, the samples collected from 20 and 22-1/2 feet below grade from MW-7 and 20 and 25 feet below grade from MW-8 were analyzed for TPHd by EPA Method 8015. Total petroleum hydrocarbons as diesel was not detected in samples from MW-7 and MW-8.

The results for MW-7 indicate 1.5 ppm TPHg at 17-1/2 feet below grade, 9.9 ppm TPHg and 0.1 ppm xylenes at 20 feet below grade, and no detectable TPHg or BTEX at 22-1/2 feet. Similarly, the results for MW-8 indicate, 14 ppm TPHg, 0.9 ppm benzene, and 0.1

ppm xylenes at 15 feet below grade; 150 ppm TPHg, 1.7 ppm benzene, 2.7 ppm ethylbenzene, and 6.6 ppm xylenes at 20 feet below grade; and 2.6 ppm TPHg, 0.3 ppm benzene, and 0.3 ppm xylenes at 25 feet below grade.

The results of analytical soil analysis for wells MW-7 and MW-8 are shown in Table 2. The laboratory reports are included in Appendix C to this report.

4.2 July 1989 Analytical Results of Water Samples

The water samples collected from wells MW-4 through MW-6 were analyzed in the laboratory for TPHg using Department of Health Services Leaking Underground Fuel Tank (DHS-LUFT) Method and for BTEX by EPA Method 503.1. Detectable levels of TPHg and BTEX were found in MW-4 through MW-6 with MW-5 being the highest at 5.2 ppm TPHg, 0.970 ppm benzene, 1.10 ppm toluene, 0.520 ppm ethylbenzene, and 1.25 ppm total xylenes. The results of these and previous analyses are summarized in Table 3. The laboratory reports are included in Appendix C to this report.

4.3 Ground Water Sampling Prior to Pumping Test, August 1989

Ground water from wells MW-1 through MW-6 was sampled in August 1989 to evaluate hydrocarbon concentrations prior to a pumping test. Wells MW-1 through MW-6 were purged and sampled on August 10, 1989, and analyzed for organic chemicals consisting of benzene, toluene, ethylbenzene, 1,4-dichlorobenzene, monochlorobenzene and total xylenes by EPA Method 503.1.

The compounds BTEX were detected in all six wells at varying concentrations. Wells MW-1 and MW-5 had the highest

concentration of these constituents compared to the other wells. The results of these analyses are summarized in Table 3. The laboratory reports are included in Appendix C to this report.

4.4 Pumping Test

On October 16 and 17, 1989, a pumping test was conducted at the site for a period of 26-1/2 hours. The purpose of the test was to evaluate the hydraulic conductivity, transmissivity, storativity, radius of influence, and heterogeneity of the aquifer. The values for the aformentioned parameters are typically used in the design of ground water treatment systems.

Ground water was pumped from MW-1 at a discharge rate of 6-1/2 gallons per minute (gpm) and drawdown was recorded in the pumping well and five observation wells. The distance to the observation wells ranged from 42 to 112 feet from MW-1. Drawdown was recorded in all of the observation wells and ranged from 0.38 (MW-3) to 0.84 (MW-5) feet. The drawdown in the pumping well was 4.58 feet. The amount of drawdown recorded in each well and the distance of the wells from the pumping well is summarized in Table 6.

During the ground water recovery period of the test, a magnitude 7.1 earthquake (Loma Prieta Earthquake) struck the San Francisco Bay Area disrupting the natural recovery of the ground water. It was noted that water levels in the observation wells fluctuated up to 1 foot during the first 20 minutes after the first shock. Because of this, only the drawdown data was used to evaluate the aquifer test data. The interpretation of the data and the approximate values for pertinent hydraulic characteristics are presented in Section 5.0.

TABLE 6
DISTANCE DRAWDOWN DATA
Beacon Oil Company Station 546
29705 Mission Boulevard
Hayward, California

Well Number	Total Drawdown	Distance from Pumped Well
MW-1	4.58	0
MW-2	0.40	112
MW-3	0.38	98
MW-4	0.61	68
MW-5	0.84	42
MW-6	0.40	95

Measurements are in feet after pumping MW-1 at 6-1/2 gpm for 26-1/2 hours.

4.4.1 Ground Water Sampling Following Pumping Test

Following the pumping test, the observation wells (MW-2 through MW-6) were purged, and ground water samples were collected from all six wells. The ground water samples were analyzed for TPHg by DHS LUFT Method and BTEX by EPA Methods 5030 and 602. The data indicate that there was a significant decrease in BTEX concentrations in MW-1 (pumping well), and notable decreases in BTEX in wells MW-3 and MW-6 following the pumping test. Benzene increased in MW-5 while toluene, ethylbenzene, and xylenes decreased. In well MW-2, the concentration of BTEX remained within the same general magnitude. The concentration of BTEX increased in MW-4, which is in the inferred downgradient direction of the former tank pit area on the Beacon site.

4.5 Reconstruction of MW-4

Well MW-4 was reamed with 10-inch-diameter augers and reconstructed with 4-inch-diameter casing to its original depth of 40-1/2 feet. The procedures for reconstruction are described in Appendix A, the graphical construction of the well is shown on Plate B2 and B3 in Appendix B.

4.6 Purging and Sampling of All Wells

Following the installation and development of MW-7 and MW-8, wells MW-1 through MW-8 were purged on March 5 and 6, 1990, and analyzed for TPHg by EPA Method 5030, for TPHd by EPA Method 3550, and for BTEX by EPA Method 602. No TPHd was detected in any of the water samples from the wells. The results indicate that:

- TPHg and BTEX remained nondetectable in MW-3;
- TPHg and BTEX had decreased in MW-2 and MW-4;
- TPHg and BTEX had increased in MW-1 and MW-5;
- TPHg remained nondetectable, but BTEX increased to slightly above detection limits in MW-6;
- 0.270 ppm TPHg, 0.022 ppm benzene, and 0.0014 ppm xylenes were detected in MW-7;
- 1.2 ppm TPHg, 0.800 ppm benzene, 0.190 ppm toluene, 0.0006 ppm ethylbenzene, and 0.380 ppm xylenes were detected in MW-8.

The cumulative results of ground water samples collected at the study site are summarized in Table 3. The laboratory reports for the March 1990 samples are included in Appendix C to this report.

4.7 Evaluation of Ground Water and Hydraulic Gradient

Periodically, the wells have been subjectively evaluated for floating product or sheen and the depth to water in each well measured. No floating product or sheen have been recorded in any of the wells, however, slight to moderate product odor has been reported in all the wells except for MW-2, MW-3, and MW-6. The cumulative results of ground water subjective evaluations to date is presented in Table 7.

TABLE 7
CUMULATIVE RESULTS OF GROUND WATER EVALUATIONS
Beacon Oil Company Station 546
29705 Mission Boulevard
Hayward, California
(page 1 of 2)

Well	Date	Depth to Water	Floating Product	Sheen	Notes
MW-1	7/7/88	24.45	None	None	Slight odor
	2/24/89	24.42	None	None	No odor
	7/7/89	24.25	None	None	No odor
	8/9/89	24.58	None	None	Slight odor
	10/16/89	25.06	None	None	Moderate
	3/5/90	23.71	None	None	Strong
MW-2	7/7/89	23.07	None	None	No odor
	2/24/89	23.00	None	None	No odor
	7/3/89	22.87	None	None	No odor
	8/9/89	23.19	None	None	No odor
	10/16/89	23.65	None	None	No odor
	3/5/90	22.28	None	None	Slight
MW-3	7/7/88	26.98	None	None	No odor
	2/24/89	26.97	None	None	No odor
	7/3/89	26.81	None	None	No odor
	8/9/89	27.10	None	None	No odor

Depth to water is in feet below the top of casing.

TABLE 7
CUMULATIVE RESULTS OF GROUND WATER EVALUATIONS
Beacon Oil Company Station 546
29705 Mission Boulevard
Hayward, California
(page 2 of 2)

Well	Date	Depth to Water	Floating Product	Sheen	Notes
MW-3	10/16/89	27.60	None	None	No odor
	3/5/90	26.25	None	None	No odor
MW-4	6/30/89	21.97	None	None	No odor
	7/3/89	22.04	None	None	No odor
	8/9/89	22.21	None	None	No odor
	10/16/89	22.75	None	None	No odor
	3/5/90	21.45	None	None	Slight
MW-5	6/30/89	23.33	None	None	Slight odor
	7/3/89	23.35	None	None	No odor
	8/9/89	23.66	None	None	No odor
	10/16/89	24.15	None	None	No odor
	3/5/90	22.74	None	None	No odor
MW-6	6/30/89	23.94	None	None	No odor
	7/3/89	23.95	None	None	No odor
	8/9/89	24.29	None	None	No odor
	10/16/89	24.82	None	None	No odor
	3/5/90	23.45	None	None	No odor
MW-7	3/5/90	17.29	None	None	Slight
MW-8	3/5/90	15.57	None	None	Slight

Depth to water is in feet below the top of casing.

Wells MW-4, MW-7, and MW-8 were surveyed by a licensed land surveyor and tied into existing data on February 27, 1990. Water level data (shown in Table 8) from March 5, 1990 was used to construct the site ground water elevation map shown on Plate 5. The data suggests a ground water flow direction to the southwest which is consistent with the July 3, 1989 inferred flow direction. A copy of the surveyors report is in Appendix D.

TABLE 8
GROUND-WATER SURFACE ELEVATION DATA
Beacon Oil Company Station 546
29705 Mission Boulevard
Hayward, California
(March 5, 1990)

Well No.	Casing Elevation (X)	Depth to Ground Water (Y)	Ground-Water Elevation (X - Y)
MW-1	37.46	23.71	13.75
MW-2	35.95	22.28	13.67
MW-3	40.28	26.81	14.03
MW-4	34.94	21.45	13.49
MW-5	36.37	22.74	13.63
MW-6	37.43	23.45	13.98
MW-7	30.50	17.29	13.21
MW-8	28.48	15.57	12.91

Measurements are in feet.
Casing surveyed by Ron Archer, Civil Engineer, Inc., License No. 23721 of Pleasanton, California, on July 5, 1989.
Wells MW-4, MW-7, and MW-8 were surveyed on February 27, 1990.

5.0 SITE GEOLOGY AND HYDROLOGY

Physical characteristics of the shallow subsurface material encountered beneath the study site are discussed in the following section. The soil type, local stratigraphy, and soil characteristics are presented in section 5.1. Hydogeological properties, including pumping test data and interpretation are outlined in section 5.2.

5.1 Site Stratigraphy

The site is underlain by silty clays with varying amounts of sand and gravel. Occasionally, minor lenses of clayey silt (MW-7) or clayey and sandy gravel (MW-2) are encountered. In some instances, fractures in the silty clay have been noted in the saturated zone. A sieve analysis was performed on a sample collected from the saturated zone in MW-5. The test results indicate that the sample is a silty clay with approximately 90 percent of the material of silt or clay size (passing No. 200 sieve). The laboratory report is included in Appendix D to this report. Two geologic cross sections were constructed using data from the Logs of Borings and are presented on Plates 6 and 7. The analytical results of soil samples are shown on the cross sections.

5.2 Site Hydrogeology

Data collected during the previous and the present investigations indicate that the ground water beneath the site is unconfined. Ground water flow beneath the site may be locally accentuated due to a fractured zone in the silty clay.

5.2.1 Hydraulic Characteristics

Data from the pumping test is summarized and the hydrogeologic characteristics are presented in this section. The hydraulic parameters consisting of hydraulic conductivity (K), transmissivity (T), storativity (S), well maximum yield, and radius of influence were evaluated using the procedures described in Appendix A.

The cone produced from pumping MW-1 began influencing the closest observation well located 42 feet away (MW-5) after 17 minutes, and began influencing the farthest observation well located 112 feet away (MW-2) after 100 minutes. The data indicates that no significant flow boundaries exist beneath the site. A schematic diagram illustrating the cone is shown on Plate 8.

Ground water flow beneath the site may be influenced in part by the presence of fractures in the silty clay. These fractures were most evident in the borings of wells MW-7 and MW-8. In addition, because MW-1 can be pumped continuously at 6-1/2 gpm, and the sieve analysis indicates a silty clay in the saturated zone, suggests fracture flow may be the dominant mode of ground water flow.

The results of the aquifer test suggest the following values for K, T, and S using curve matching techniques developed after Theis (1935) and an Analytical Method developed by Theim (1906). These values are:

Curve Matching

- K = 4.2 X 10^{-3} centimeters per second (cm/sec)

oT = 1795 gpd/ft

oS = 4.0×10^{-3}

Analytical Method

oK = 6.3×10^{-3} cm/sec

oT = 2678 gpd/ft

oS = 6.5×10^{-3}

As shown, the values obtained from the two separate methods agree fairly well.

Well MW-1 can be expected to yield approximately 11-1/2 gpm at 10 feet of drawdown. Typically, 14 feet of water is recorded in MW-1. The 4.58 feet of drawdown produced by a discharge of 6-1/2 gpm in the well during the aquifer test is 32 percent of the total possible drawdown (14 feet). Using a curve produced by Fletcher (1986, p. 217), the 32 percent is analogous to 52 percent of the obtainable maximum yield. Thus, 6-1/2 gpm is 52 percent of the maximum yield of the well. Using similar calculations, the specific capacity of well MW-1 is estimated to be 1.15 gpm/ft drawdown.

6.0 CHEMICALS IN SOIL AND GROUND WATER

As previously discussed, TPHg and BTEX have been found in some of the soil and ground water samples collected from the site area. The impact of these chemical compounds on the soil and ground water at the site is discussed in this section.

6.1 Distribution of Organic Compounds in Soil

Kaprealian drilled five exploratory borings to a depth of 30 feet around the USTs for fuel in April 1987. Concentrations of total TPH in soil samples ranged from 7.3 to 1,600 ppm. During the UST removal in 1988, soil samples collected from below the tanks were found to contain between 5 and 184 ppm TPHg, in addition, one sample contained 2,759 TPHd. In 1988, soil samples collected slightly above the ground water from well borings MW-1 and MW-2 contained 59 and 28 ppm TPHg. The samples from MW-1 also contained 255 ppm TPHd and 13.4 ppm benzene, 10.3 ppm ethylbenzene, 58.1 ppm toluene, and 63.2 ppm total xylenes. Based on the KEI site plan it appears that the KEI boreholes were encompased in the excavations for the removal of the tanks.

In 1989, soil samples collected from well borings MW-4 through MW-6 did not contain detectable concentrations of TPHg and BTEX except for one sample from MW-4. No TPHd was detected in soil from MW-4 and MW-5. Soil collected from MW-4 at a depth of 20 feet contained low levels of TPHg and BTEX.

Hydrocarbons were found in the soil near wells MW-7 and MW-8 at depths from approximately 15 to 25 feet, the highest concentration of TPHg occuring at 20 feet. In 1990, three soil samples per boring were analyzed from well MW-7 and MW-8. In

boring MW-7, the TPHg concentration was 1.5 ppm at 17-1/2 feet, 9.9 ppm at 20 feet, and <1.0 ppm at 22-1/2 feet below grade. Similarly, TPHg concentrations in soil from MW-8 was 14 ppm at 15 feet, 150 ppm at 20 feet, and 2.6 ppm at 25 feet below grade. Two soil samples from each of these well borings were analyzed for TPHd but none was detected.

6.2 Distribution of Organic Compounds in Ground Water

Water samples collected from the wells have contained detectable concentrations of TPHg and BTEX. Presently, the highest concentrations of these compounds are found near MW-5. The concentrations of these compounds have fluctuated with time and in response to the pumping test in October 1989. However, concentrations of TPHg and BTEX have continued to increase over time in MW-5.

Dissolved hydrocarbons appear to be migrating south and southwest. As previously discussed, the inferred ground water flow direction is southwest which is consistent with the concentration maps of TPHg and benzene shown on Plates 9 and 10. In addition, the hydrocarbons appear to be migrating south toward MW-5, which may be due to lateral migration along preferred fractures in the silty clay.

7.0 FINDINGS AND RECOMMENDATIONS

The principal findings of the investigation and the resulting recommendations are outlined in this section. The findings are summarized in Section 7.1 and the recommendations are presented in Section 7.2.

7.1 Findings

This investigation was intended to complement previous interim investigations, to further characterize the subsurface conditions at the site and vicinity, and included the sampling and analyses of soil and ground water. The following section summarizes the nature of the subsurface geologic materials, nature and extent of the chemicals in the different media, and provides principal findings related to the distribution of chemical compounds at the site.

- A vertically continuous silty clay sequence is found beneath the site to a depth of approximately 40 feet.
- Fractures were observed in soil samples collected from the saturated zone.
- Ground water occurs under unconfined conditions beneath the site, ranges from approximately 13 to 14 feet in elevation (25 to 26 feet below grade), generally flows toward the southwest, and may be flowing in part through a fractured system.
- An aquifer test performed in October 1989 suggests the following values for these aquifer parameters:
  - Hydraulic Conductivity = 4.2 to 6.3 X 10^{-3} cm/sec
  - Transmissivity = 1795 to 2678 gpd/ft
  - Storativity = 4.0 to 6.5 X 10^{-3}

In addition, the specific capacity for MW-1 is estimated to be 1.15 gpm/ft drawdown.

- The radius of influence produced by pumping MW-1 at 6-1/2 gpm is at least 112 feet.
- The compounds TPHg, TPHd, and BTEX were detected in the soil beneath the Beacon site, and relatively low (nondetectable to less than 150 ppm) TPHg and BTEX have also been found in offsite soil near wells MW-4, MW-7, and MW-8. The magnitude and extent of hydrocarbons in soil have yet to be fully delineated.
- The compounds TPHg and BTEX were present in the ground water samples collected from beneath the Beacon site and to the south and southwest at least as far as MW-5 and MW-8. Based on the laboratory data, the vertical and lateral extent of hydrocarbons in ground water has not yet been fully delineated.

7.2 Recommendations

The following recommendations are based on the findings of the subject investigation. The recommendations pertain primarily to additional site characterization.

- Resample wells MW-1 through MW-8 to verify chemical concentrations in the ground water.
- A study should be performed to evaluate the fate and transport of chemical compounds in the subsurface environment.
- A program for delineation of organic chemical compounds in the soil and ground water should be implemented.
- Quarterly monitoring of the ground water at the site and vicinity should continue and include subjective evaluation and laboratory analyses of water samples.

LIMITATIONS

This report was prepared in accordance with standards of environmental geological practice generally accepted in California at the time this investigation was performed. This investigation was conducted solely for the purpose of evaluating environmental conditions of the soil and first ground water with respect to hydrocarbons in the vicinity of the Beacon site. No soil engineering or geotechnical recommendations are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. Additional work, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of investigation.

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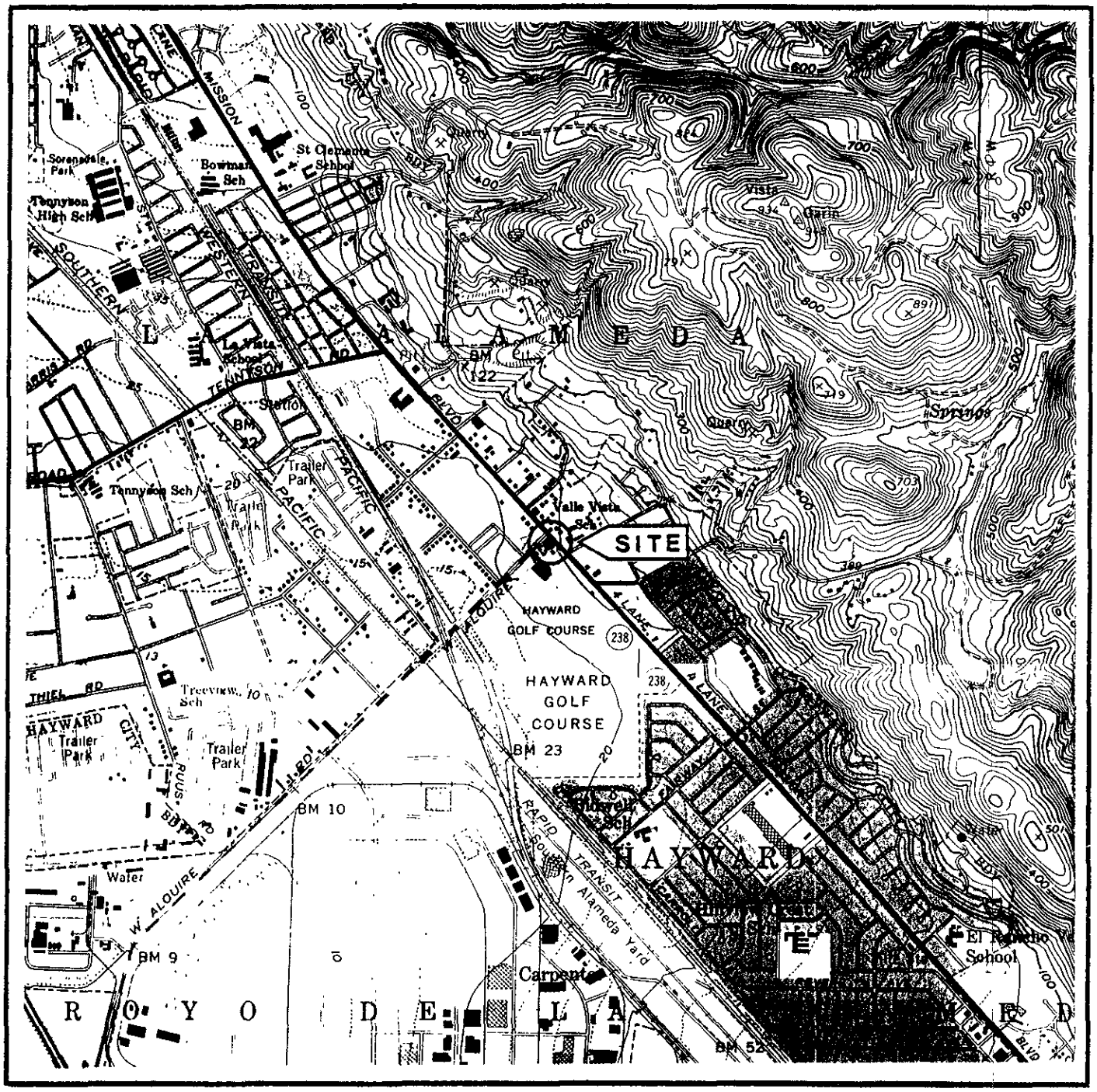


Source: U.S. Geological Survey
7.5-Minute Quadrangle
Hayward, California
Newark, California
Photorevised 1980

N

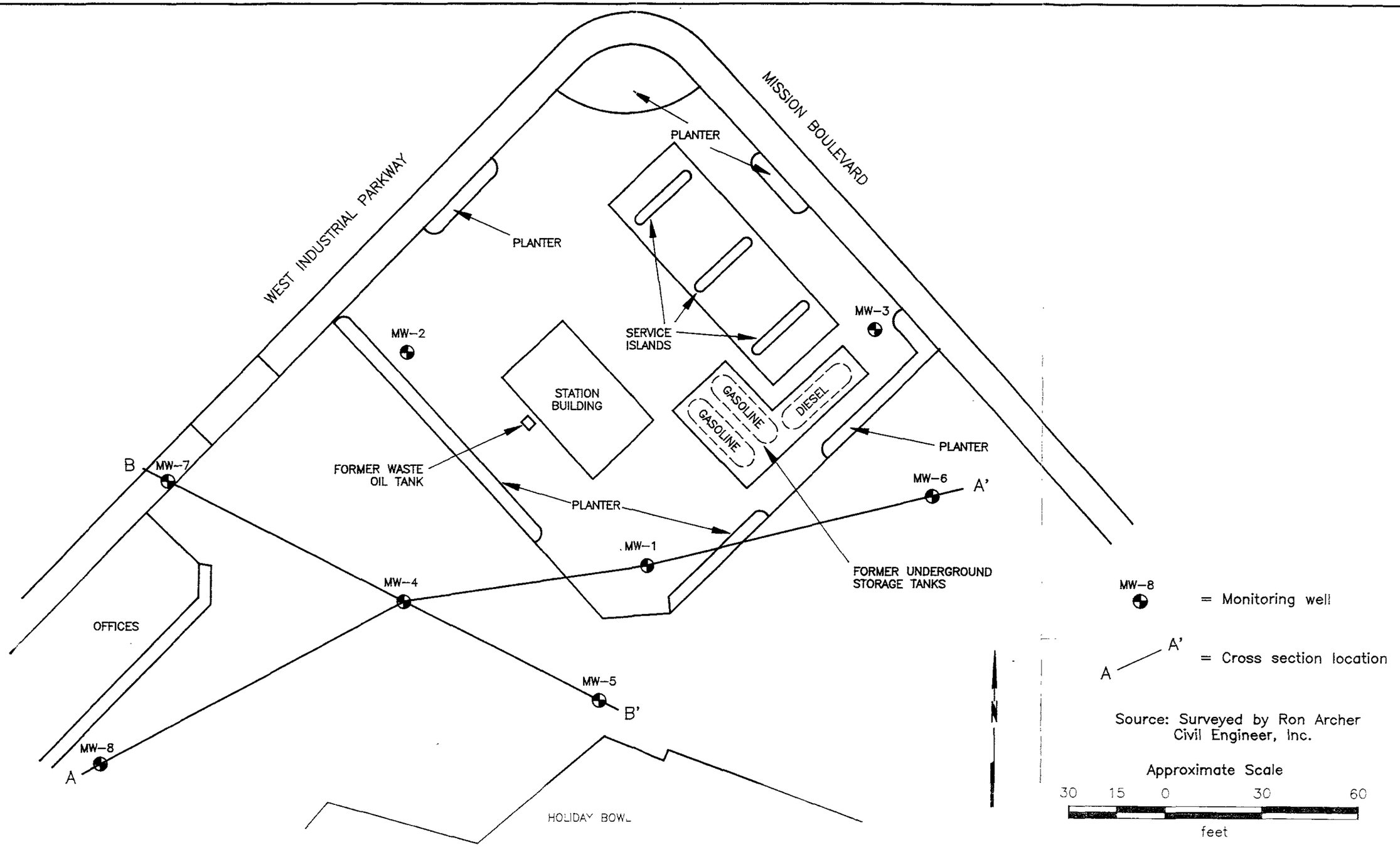
Approximate Scale
2000 1000 0 2000 4000
feet

Applied GeoSystems

PROJECT NO. 18008-6

SITE VICINITY MAP
Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE
1



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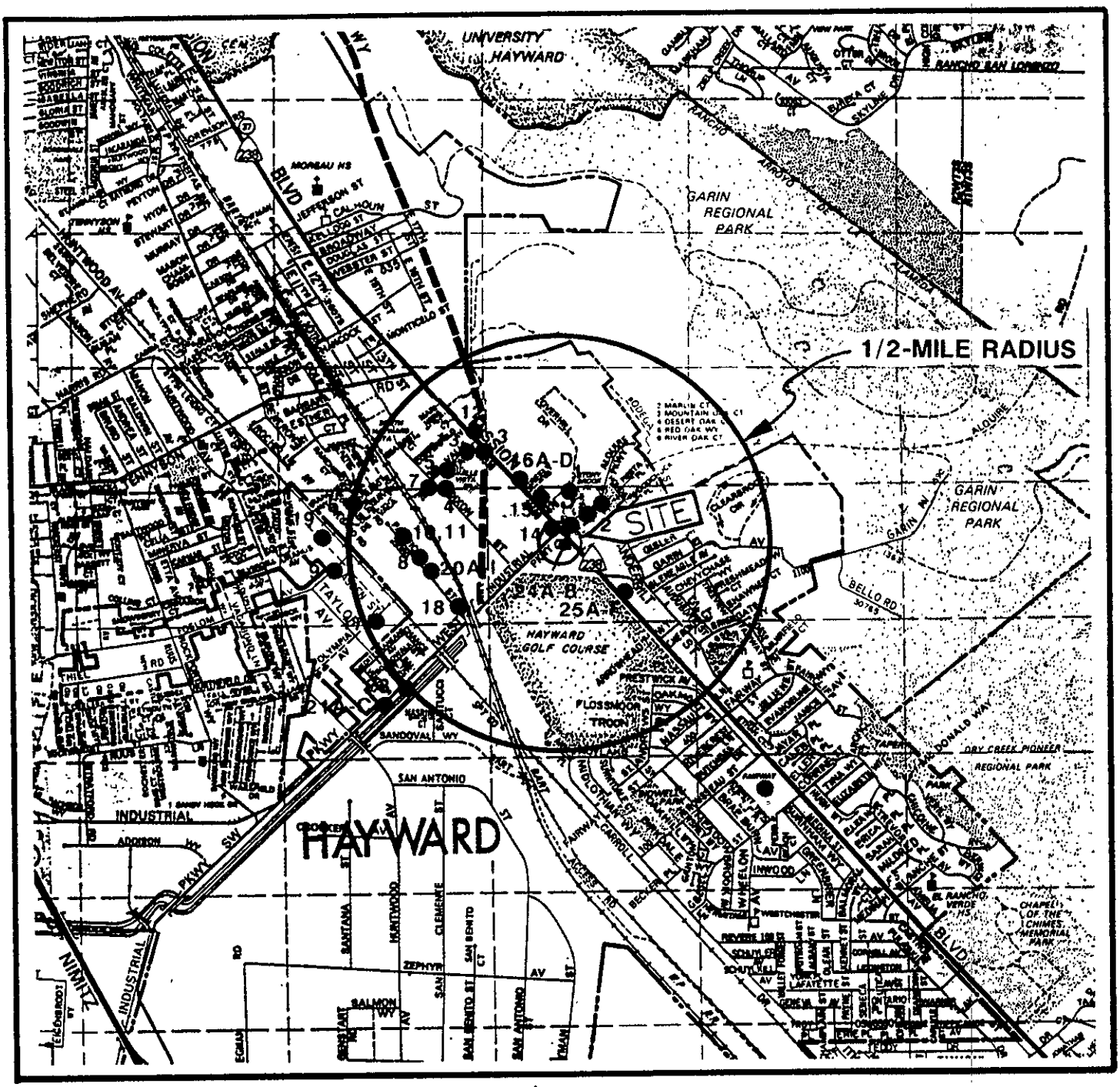
PROJECT NO. 18008-6

GENERALIZED SITE PLAN
Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE
2



Source: Thomas Bros. Maps
Alameda County

● 25A-F= Well location

N

Approximate Scale

2000 1000 0 2000 4000

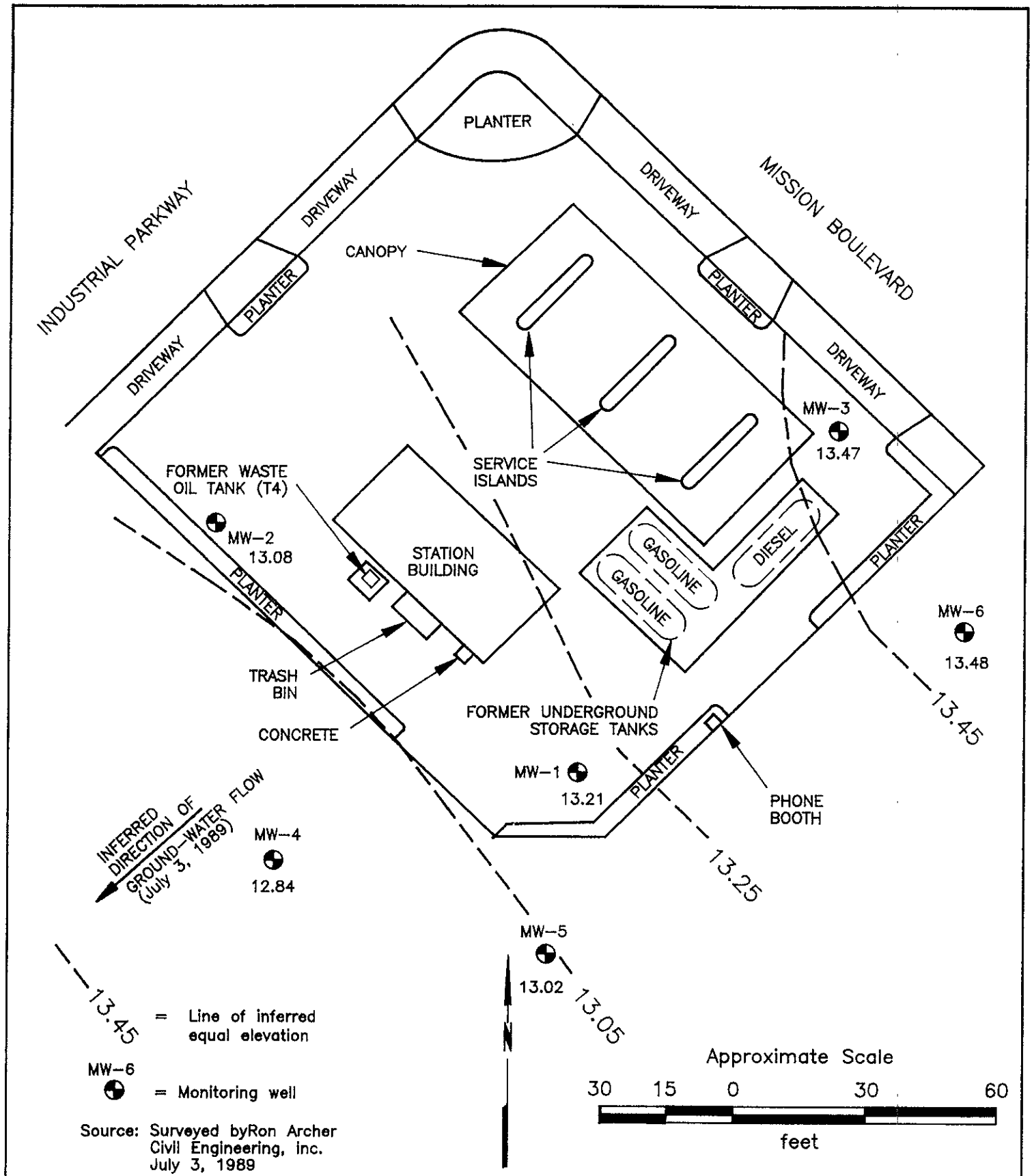
feet

Applied GeoSystems

PROJECT NO. 18008-6

WELL LOCATION MAP
Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE 3



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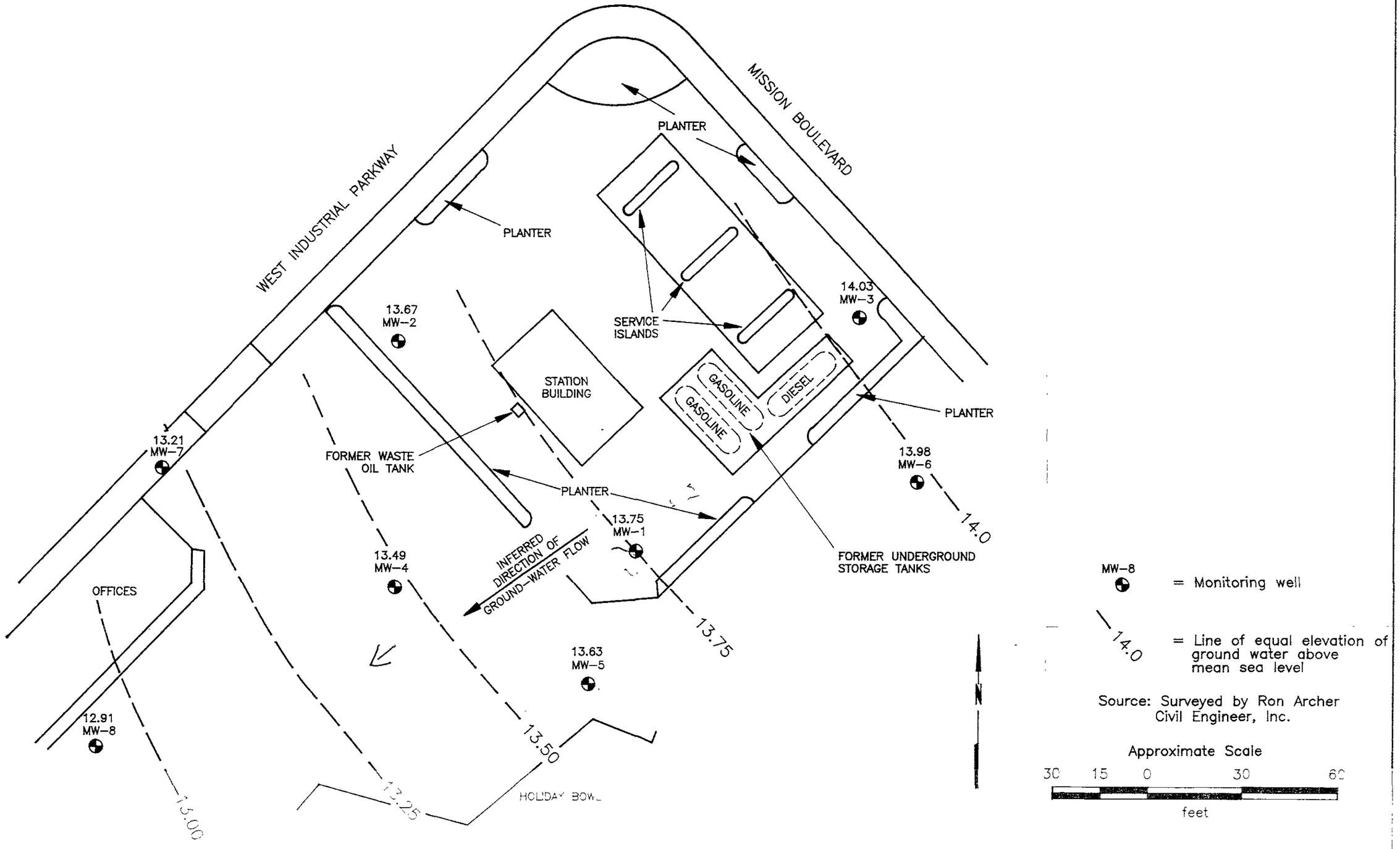
GROUND-WATER ELEVATION MAP
July 3, 1989
Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE

4



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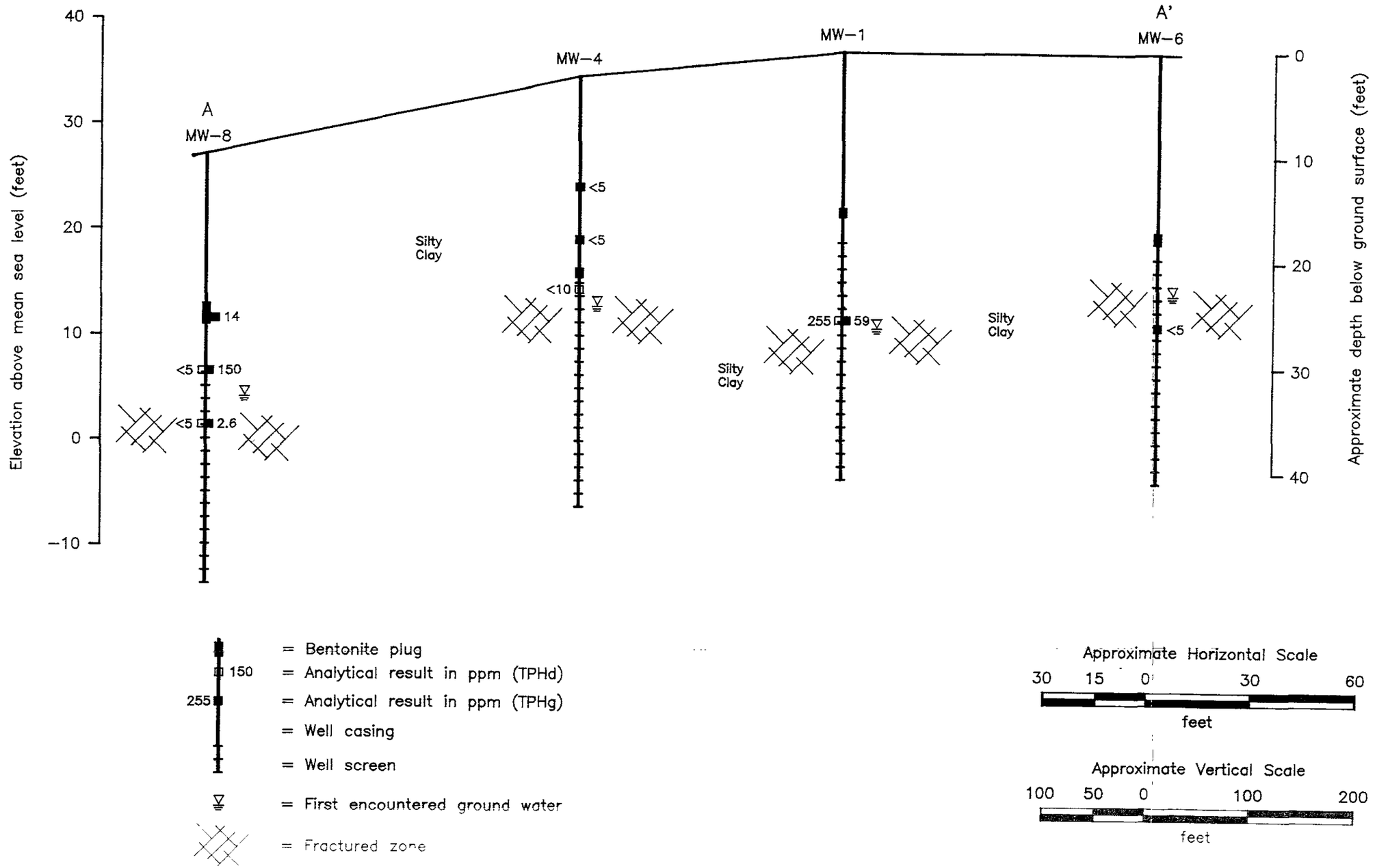
GROUND-WATER ELEVATION MAP
March 5, 1990
Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE
5



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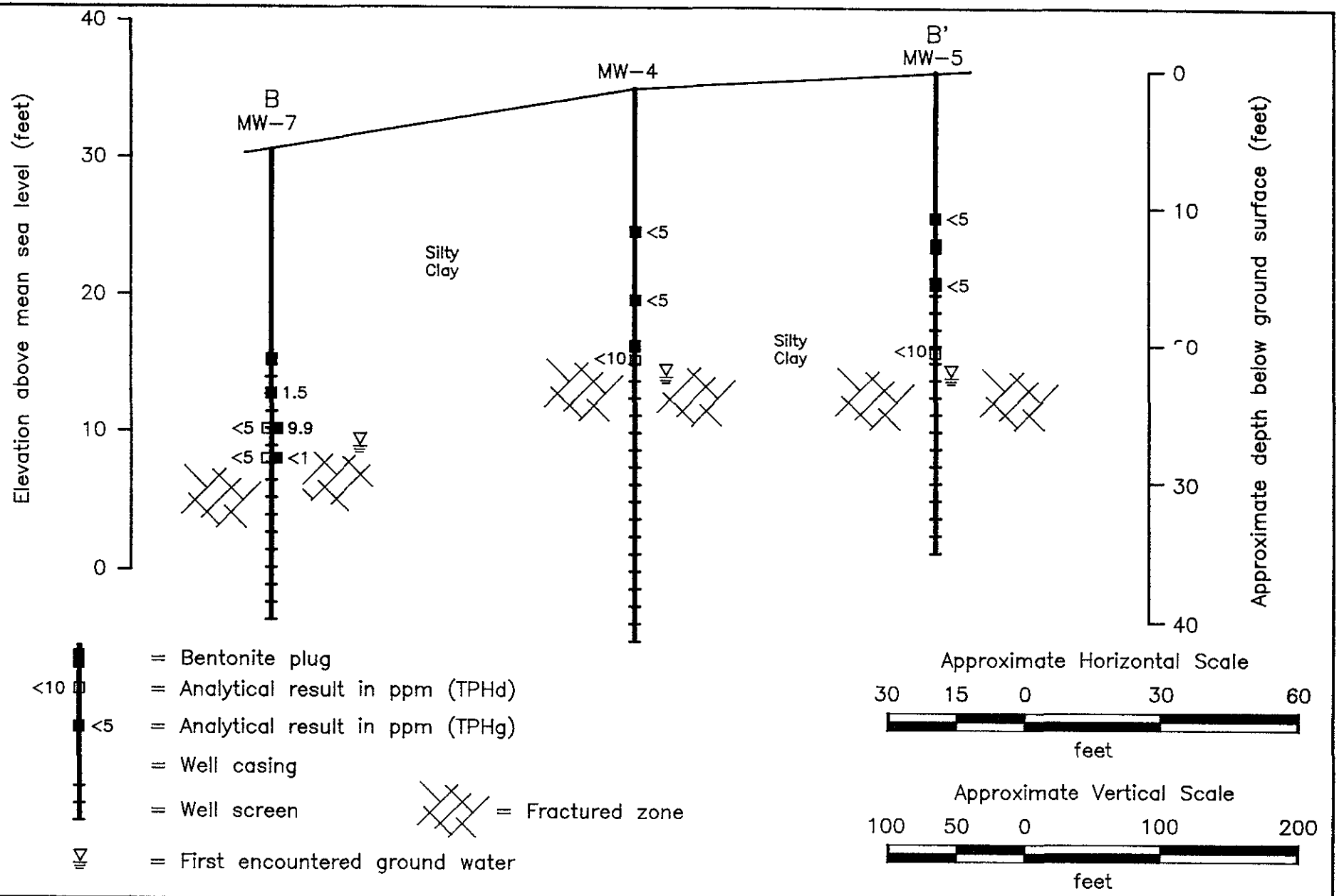
PROJECT NO. 18008-6

GEOLOGIC CROSS SECTION A-A'
Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE
6



PLATE

7

GEOLOGIC CROSS SECTION B-B'
Beacon Station 546
29705 Mission Boulevard
Hayward, California

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PROJECT NO. 18008-6

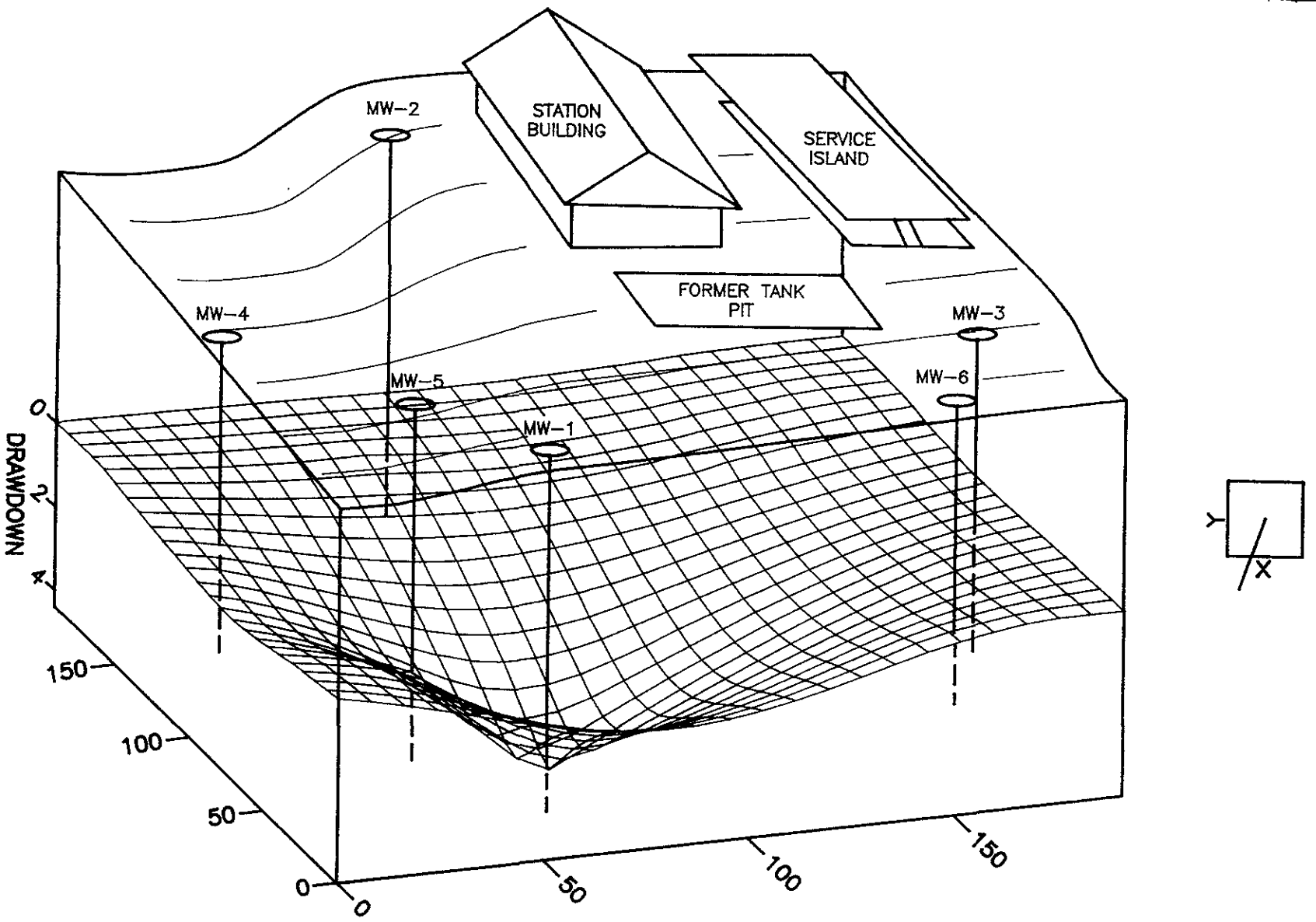
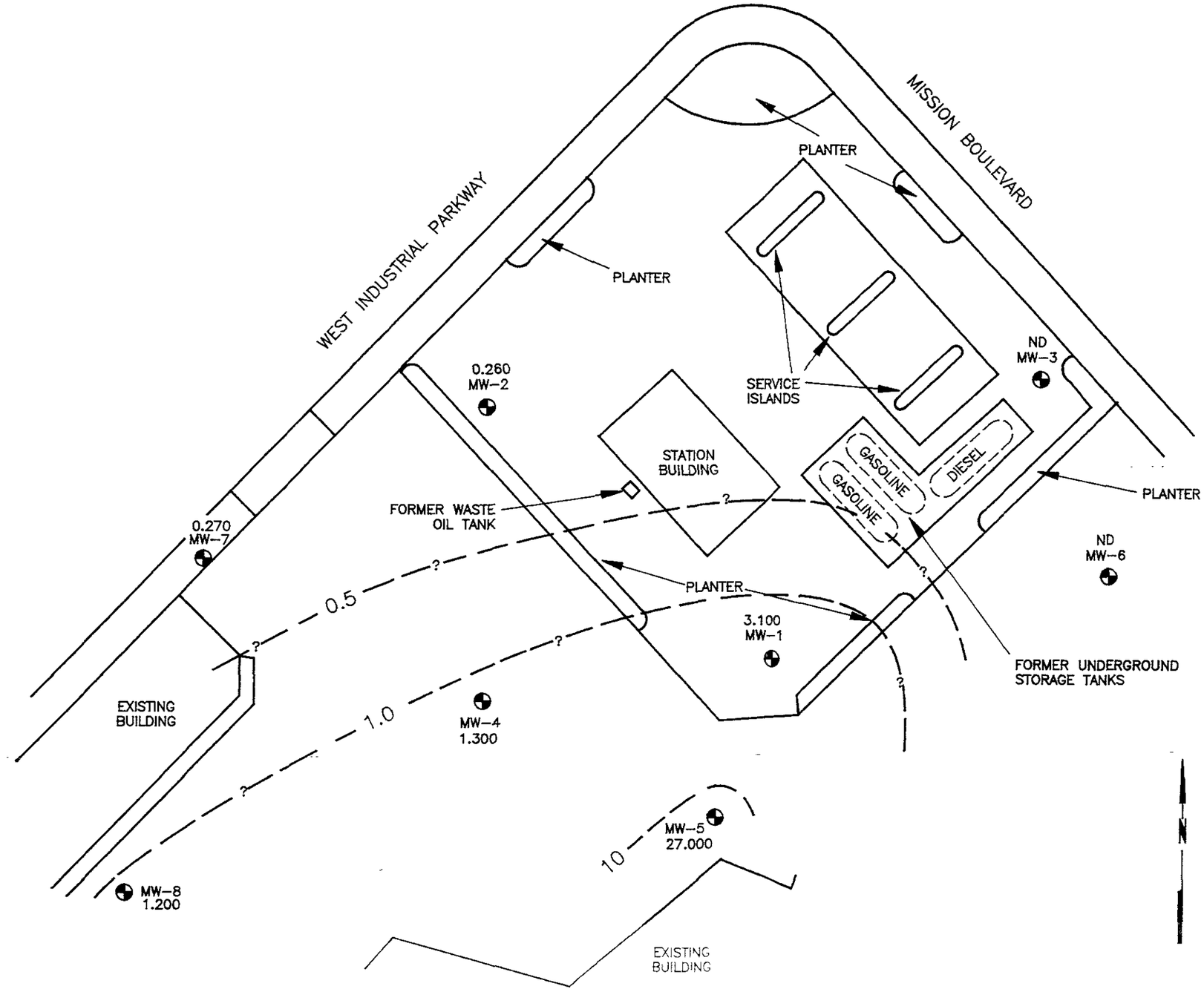


PLATE		
8	**PUMPING TEST CONE OF DEPRESSION** **Beacon Station 546** **29705 Mission Boulevard** **Hayward, California**	Applied GeoSystems **PROJECT NO. 18008-6**

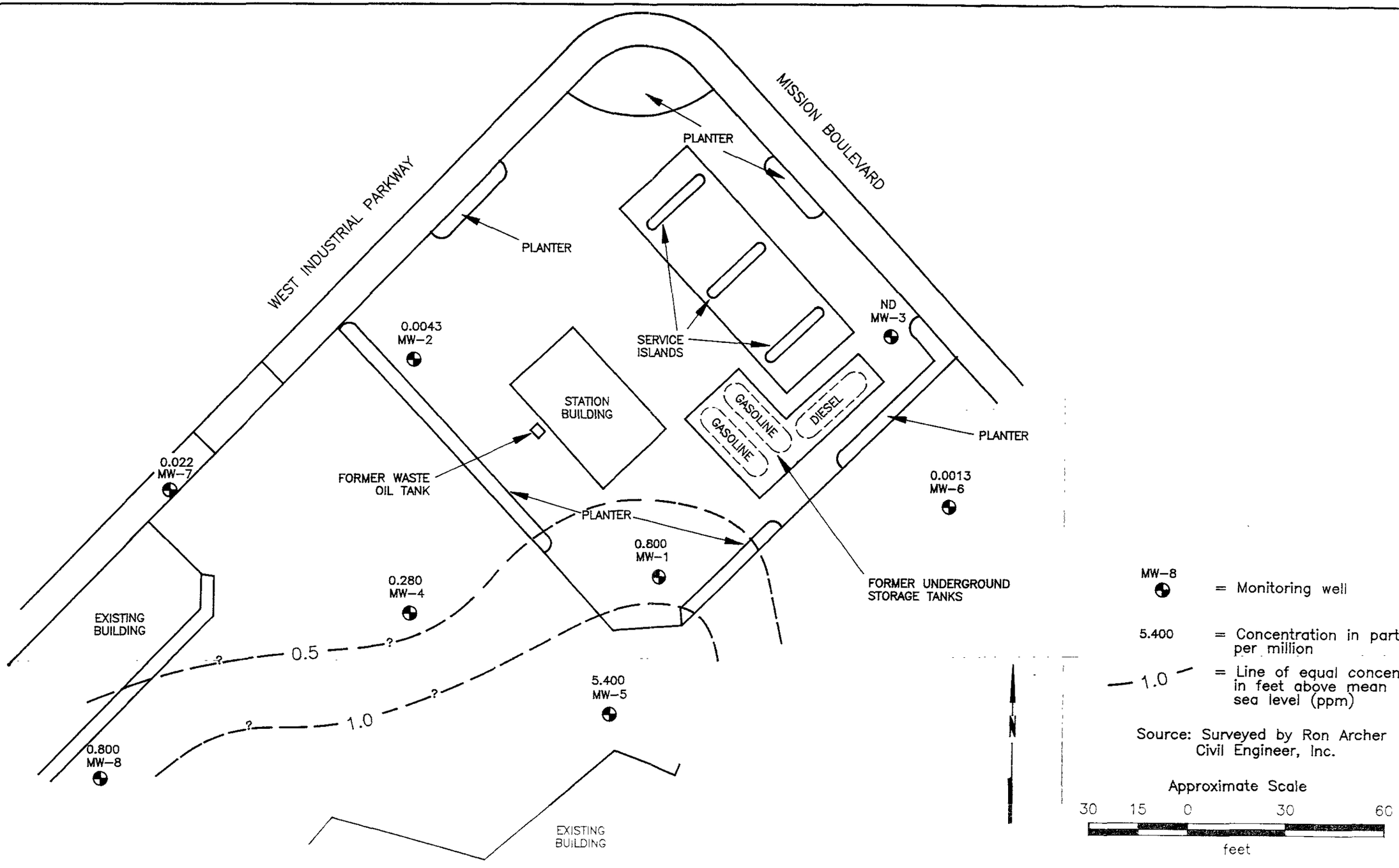


Applied GeoSystems

PROJECT NO. 18008-6

CONCENTRATION OF TPHg IN GROUND WATER (March 5, 1990)
Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE
9



Applied GeoSystems

PROJECT NO. 18008-6

CONCENTRATION OF BENZENE IN GROUND WATER (March 5, 1990)
Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE
10

APPENDIX A
PROCEDURES

OPERATING PROCEDURES

Work conducted during this investigation was performed according to the following operating procedures.

Site Safety Plan

Applied GeoSystems performed field work at the site, on behalf of Ultramar, in accordance with AGS' Site Safety Plan 18008-4S, dated June 1, 1989. This safety plan describes the basic safety requirements for the subsurface environmental investigation, for drilling soil borings, and for installation of monitoring wells at the site. The Site Safety Plan is applicable to personnel and subcontractors of AGS. The personnel and subcontractors of AGS scheduled to perform work at the site were briefed on the contents of the Site Safety Plan before work began. A copy of the Site Safety Plan was kept at the site and was available for reference by appropriate parties during work at the site.

Drilling and Soil Sampling

Applied GeoSystems personnel acquired well installation permits from the Alameda County Flood Control and Water Conservation District. AGS contacted Underground Service Alert to delineate public utility lines before drilling begun. Each borehole was hand-augered to an approximate depth of 5 feet as an added safety measure.

The well borings were drilled with a Mobil B-53 truck-mounted drill rig. Ten-inch-diameter, continuous flight, hollow-stem augers were used to drill each boring. The augers were steam-cleaned prior to each use to minimize the possibility of cross-contamination. Drilling was performed under the observation of a field geologist, and the earth materials in the boring were logged as drilled. Soil samples were logged in accordance with the Unified Soil Classification System.

During drilling, soil samples were collected at 2-1/2- to 5-foot intervals with a California-modified, split-spoon sampler (2.5-inch-inside-diameter) equipped with clean brass sleeves. The samples were collected by advancing each boring to a point just above the sampling depth, then driving the sampler through the

hollow center of the auger and into the native soil. The sampler was driven 18 inches with a standard 140-pound hammer dropped 30 inches. The number of blows required to drive the sampler each successive 6 inches was counted and recorded to give an indication of soil consistency. A soil sample from each recovered sample interval was analyzed in the field with a PID or a similar instrument and those data are recorded on the boring logs.

Soil samples selected for potential laboratory analysis were sealed with aluminum foil, plastic end caps, and tape. The samples were labeled and promptly placed in iced storage for transport to a laboratory that is certified by the State of California to perform the required chemical analyses. The field geologist initiated a Chain of Custody Record and it accompanied the samples to the laboratory. A copy of the Chain of Custody Records are included in Appendix C.

Soil Cuttings

While drilling was in progress, the relative concentration of hydrocarbons in the cuttings were assessed with a PID or a similar instrument. Soil cuttings were placed on and covered with plastic. At Ultramar's request, AGS can arrange to have soil cuttings with acceptable levels of hydrocarbons removed to an appropriate disposal facility.

Construction of Monitoring Wells

The monitoring wells were constructed of flush thread-jointed, 4-inch-inside-diameter, Schedule 40 PVC casing. No chemical cements, glues, or solvents were used in well construction. The screened portion of each well consisted of factory-perforated casing with 0.010-inch-wide slots. Approximately 20 feet of screened casing was placed from total depth to 20 feet below grade in MW-4 and MW-6, and to 15 feet below grade in MW-5. Approximately 15 feet of well screen was placed from the total depth to 18 feet below grade in MW-7. Well MW-8 was screened from total depth (40 feet) to 20 feet below grade.

The annulus of each well will was packed with No. 2 sorted sand from total depth to approximately 2 feet above the screened interval. A 2-foot-thick bentonite plug was placed above the

sand to keep neat cement out of the sand pack. The remaining annulus was backfilled with a slurry of water and neat cement to a few inches below grade.

A locking well cap and padlock was installed on each wellhead, and a traffic-rated, cast-aluminum or steel utility box with a PVC apron was placed over each well and set with concrete flush with the surrounding surface. The box has a watertight seal to protect against surface-water infiltration and requires a specially designed wrench to open. This design discourages vandalism and reduces the possibility of accidental disturbance of the well.

Rescreening of Well MW-4

The well was drilled out, and rescreened with 4-inch-diameter casing. The cement seal was drilled out using 10-inch continuous flight hollow stem augers. A casing lift was attached to the existing casing and it was pulled out of the well in 20 foot sections. The boring was reamed to the original depth with 10-inch augers. The well was then reconstructed using the techniques described above.

Well Development and Ground Water Sampling

The neat cement surrounding the non-perforated section of the well casing was allowed to set for at least 72 hours prior to well development. Before the wells were developed, a sample was collected from near the static surface of the ground water. Samples were collected by gently lowering approximately half the length of a Teflon bailer, cleaned with Alconox (a commercial detergent), past the air-water interface. Water samples were evaluated subjectively for the presence of hydrocarbons.

The wells were developed by a combination of surging and pumping techniques. The wells were pumped until the extracted water appeared free of sediment.

After the wells were developed, the water in the wells were allowed to equilibrate for at least 72 hours prior to being purged and sampled. The wells were purged of a minimum of 4 well volumes of water or until temperature, pH, and conductivity readings stabilized.

Ground water in each of the wells were allowed to recover to greater than 80 percent of static condition before a water sample was collected. Approximately half the length of a clean bailer was lowered gently past the air-water interface to collect a sample from near the ground-water surface. No subjective evidence of hydrocarbons except for odor was observed in the wells. The water samples were decanted slowly into laboratory-cleaned, 40-milliliter glass vials and covered with Teflon-lined lids. The samples were visually checked for air bubbles, sealed, labeled, and promptly placed in iced storage. The geologist initiated a Chain of Custody Record to accompany the samples to a laboratory certified in the State of California for the analysis requested. A copy of the Chain of Custody Record is included in Appendix C to this report.

Purged Water

Water purged during the development and sampling of the monitoring wells was collected in Department of Transportation Type 17E, 55-gallon waste-liquid drums, labelled, and stored onsite. At Ultramar's request, AGS can arrange for the removal of the water to an appropriate facility.

Laboratory Analyses

The PID readings of individual soil samples collected in the field assisted in the selection of the samples to be analyzed. In addition, the selection was based on the matrix of the sample, subjective evaluation of the sample, and the stratigraphic position of the sample. In each boring, the sample displaying the highest PID reading and the sample collected just above ground water was among the samples analyzed. The selected samples were analyzed in the laboratory for TPHg by modified EPA Method 8015, for the purgeable hydrocarbon constituents BTEX by EPA Method 8020.

Water samples were analyzed for TPHg and TPHd by modified EPA Method 8015, and for BTEX by EPA Method 602. Detection limits suitable for the soil and water tests requested and concentrations present are stated on the laboratory reports. Copies of the laboratory reports are included in Appendix C to this report.

Ground-Water Gradient Evaluation

Depth-to-water and survey data were used to evaluate the hydraulic gradient and ground-water flow direction. A licensed land surveyor surveyed the wellhead elevations and locations of the new wells. Elevations are referenced to mean sea level. Elevation differences between the wells were combined with measurements of the depths to static water (measured to the nearest 0.01 foot) in the respective wells to calculate the ground-water elevation in each well. Those data were used to prepare a hydraulic gradient map for the site area. From this map, the ground-water flow direction is inferred.

Aquifer Test - Data Evaluation Methods

Two methods were used to evaluate the parameters hydraulic conductivity (K), transmissivity (T), and storativity (S). The two methods used were the curve matching method, and by an analytical method developed by Theim (1906). The derivation of the equations in each method are based on Theim assumptions.

Curve Matching Method

The curve matching method follows the same procedures as developed by Theis (1935). An appropriate elastic response water table type curve was used for the drawdown data from each observation well. The ß curves used included 0.01, 0.03, and 0.004. The curve was matched to the early-late drawdown data for each well. A matchpoint was picked and the corresponding W_u values recorded. Transmissivity was then calculated using the following equation:

$$T = \frac{114.6\ (Q)\ (W_u)}{s}$$

where

T = transmissivity, in gpd/ft
Q = discharge, in gpm
W_u = Well function
s = drawdown at matchpoint, in feet

After determining T, storativity (S) was calculated using the following relationship:

$$S = \frac{u\ Tt}{1.87\ r^2}$$

where

S = storativity, dimensionless
u = corresponding value from W_u
T = as described above
t = time at matchpoint, in days
r = distance to observation well, in feet

Hydraulic conductivity was estimated assuming a saturated thickness of 20 feet (amount of well screen) and the following relationship:

$$K = T/B$$

where

K = hydraulic conductivity, in gpd/ft
B = saturated thickness, in feet

Five separate values of T, K, and S were derived at from the aforementioned method. The average value for each of these parameters were reported. T and K were converted to cm/sec.

Analytical Method

The equations for the analytical method are not as well known and are listed here:

$$K = \frac{1055\ Q\ \log_2 r_2/r_1}{(h_2^2 - h_1^2)}$$

where

K = hydraulic conductivity, in gal/day/ft^2
Q = discharge of pumping well, in gpm
h_2 = saturated thickness, in feet, at the farthest observation well

h_1 = saturated thickness, in ft, at the nearest observation well

Transmissivity can be found by

$$T = K/B$$

where

T = transmissivity, in gal/day/ft
K = as defined above
B = saturated thickness

Storativity can be found by the equation

$$S = 0.3 \frac{(T)(to)}{r^2}$$

where

S = coefficient of storativity,
T = as described above
t_o = intercept of the straight line at zero drawdown, in days
r = distance, in feet, from the pumped well to the observation well where the drawdown measurements were made

After the calculation of K, T, and S, the values for K and T were multiplied by 0.0003527 to convert the values to cm/sec.

APPENDIX B
LOGS OF BORINGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	DESCRIPTION
Coarse-grained soils	Gravel and gravelly soils	GW	Well-graded gravels of gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sand and sandy soils	SW	Well-graded sand of gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures

MAJOR DIVISIONS		LTR	DESCRIPTION
Fine-grained soils	Silts and clays LL<50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and clays LL>50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils. Elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
Highly organic soils		PT	Peat and other highly organic soils

Depth through which sampler is driven

Relatively undisturbed sample

No sample recovered

Static water level observed in well

Initial water level observed in boring

S-10 Sample number

Sand pack

Bentonite annular seal

Neat cement annular seal

Caved native soil

Blank PVC

Machine-slotted PVC

P.I.D. Photoionization detector

BLOWS REPRESENT THE NUMBER OF BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES TO DRIVE THE SAMPLER THROUGH EACH 6 INCHES OF AN 18-INCH PENETRATION.

DASHED LINES SEPARATING UNITS ON THE LOG REPRESENT APPROXIMATE BOUNDARIES ONLY. ACTUAL BOUNDARIES MAY BE GRADUAL. LOGS REPRESENT SUBSURFACE CONDITIONS AT THE BORING LOCATION AT THE TIME OF DRILLING ONLY.

Applied GeoSystems

PROJECT NO. 18008-6

UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY
Beacon Staion No. 546
29705 Mission Boulevard
Hayward, California

PLATE
B1

Total depth of boring: 40-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 6-26-89

Casing diameter: 2 inches **Length:** 40 feet **Slot size:** 0.020-inch

Screen diameter: 2 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Jcon Drilling **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Dan Kirkman

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches) over baserock (3 inches).	
				CL	Silty clay, trace fine to coarse sand, trace fine gravel, dark brown, slightly damp, medium plasticity, hard.	
4	S-5	12 17 22				
10	S-10	8 11 22				
14	S-15	8 12 20				
20	S-20	17 22 25			Light brown with green mottling, damp.	
					(Section continues downward)	

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-4/MW-4

Beacon Station No. 546
29705 Mission Blvd.
Hayward, Ca.

PLATE B2

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				▽ CL	Silty clay, trace fine to coarse sand, trace fine gravel, light brown, with green mottling, damp, medium plasticity, hard.	
24		12				
		17				
	S-25	27			Brown with blue-green mottling, wet.	
26						
28						
		38			Trace medium sand.	
30		32				
	S-30	27				
32						
34		5			Trace fine gravel, stiff.	
		7				
	S-35	8				
36						
38						
		7				
		7				
40	S-40	8				
					Total Depth = 40-1/2 feet.	
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-4/MW-4

Beacon Station No. 546
29705 Mission Blvd.
Hayward, Ca.

PLATE

B3

Total depth of boring: 35-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 6-27-89

Casing diameter: 2 inches **Length:** 35 feet **Slot size:** 0.020-inch

Screen diameter: 2 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Jcon Drilling **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Dan Kirkman

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
0				CL	Silty clay, trace fine gravel, black, slightly damp, medium plasticity, hard.	
2						
4		8				
	S-5	18				
		20				
6						
8						
		7				
10	S-10	8			Trace fine to coarse sand, brown, very stiff.	
		20				
12						
14		7				
		7				
	S-15	12				
16						
18						
		5				
20		7			Some fine gravel, blue-green.	
	S-20	12				
					(Section continues downward)	

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-5/MW-5

Beacon Station No. 546
29705 Mission Blvd.
Hayward, Ca.

PLATE

B4

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				CL	Silty clay, trace fine gravel, blue–green, slightly damp, medium plasticity, hard.	
				▽		
24		7				
		17				
	S–25	22			Wet	
26						
28						
		9			Some fine to coarse sand, hard.	
		17				
30	S–30	22				
32						
34		6				
		10			Trace fine gravel, trace fine to coarse sand, medium plasticity, very stiff.	
	S–35	12				
36					Total Depth = 35–1/2 feet.	
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-5/MW-5

Beacon Station No. 546
29705 Mission Blvd.
Hayward, Ca.

PLATE

B5

Total depth of boring: 40-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 6-26-89

Casing diameter: 2 inches **Length:** 40 feet **Slot size:** 0.020-inch

Screen diameter: 2 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Jcon Drilling **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Dan Kirkman

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (2 inches) over baserock (4 inches).	
2				CL	Silty clay, trace fine gravel, dark brown, dry, medium plasticity, hard.	
4		10				
	S-5	17				
6		19				
8						
		6			Trace fine to medium gravel, brown, slightly damp, very stiff.	
10	S-10	11				
		12				
12						
14		19				
		25			Less gravel, hard.	
16	S-15	30				
18						
		6				
20		11			Trace fine gravel, trace fine to coarse sand, light brown, with green mottling.	
	S-20	30			(Section continues downward)	

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-6/MW-6

Beacon Station No. 546
29705 Mission Blvd.
Hayward, Ca.

PLATE

B6

Date Rec'd: 8 12 89 (Saturday)

BC CHAIN OF CUSTODY

NO. L-

Client:	Sampler:	Sample Type:
Name: Beacon Oil Co. Address: Attn: Glenn Dembroff	Name: Applied GeoSystems Address: 43255 Mission Leigh Egan	Water X Soil Sludge Oil Other: (specify)

Analysis Requested:

Lab #	Description: BOC #12808	Other Tests	EPA 502.1/8010	EPA 503.1/8020	EPA 502.2/8010/8020	EPA 504 EDB/DBCP	EPA 524.2/8240	EPA 625/8270	PCB	BTX/TPH Gas	BTX/TPH Diesel	EPA 608/8080
6315-1	W 25 MW1 8-10-89			X								
-2	W 24 MW2			X								
-3	W-28 MW3	*1 vial for this sample		X								
-4	W-23 MW4	*3 vials for this sample		X								
-5	W 24 MW5			X								
-6	W-BLANK			X								
-7	W-25 MW6			X								

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Comments:
[illegible]	8 14 89	9:40	[illegible]	8-14-89	10:49	
[illegible]	8-14-89	11:04	Kyle E[illegible]	8-14-89	[illegible]	

White: Return to Customer with Report
Yellow BC Lab Copy

BC Laboratories

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Reem

43255 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 3/22/89 Lab Sample ID No.: [illegible]275-1
Laboratory Name: B C Laboratories
Signature Lab Director: [signature]
Name of Sampler: ____
Sampler Employed By: ____
Date/Time Sample Collected: 3/10/89
Date/Time Sample Received @ Lab: 3/14/89
Date Analysis Completed: 3/18/89

System Name: BOC #13008-[illegible] Hayward, CA [illegible]-25-MW1 [illegible]/89
System Number: ____

Name or Number of Sample Source: ____

Water Type: (G/S) |_| Station Number: |_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Date/Time of Sample: |_|_|_|_|_|_|_|_|_|_| (Y Y M M D D T T T T) User ID: |_|_|_|

Analyzing Agency Code: [illegible]|3|0|8| Date Analysis Completed: |8|9|0|3|1|8| (Y Y M M D D)

Submitted by: ____ Phone #: ____

[illegible] "X" [illegible] delete all data for this station date/time |_|

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	MCL µg/L	* DRL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			0.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	32080		100	0.50
503.1	Benzene	34030	[illegible] 0	1	0.50
	Carbon tetrachloride	32102		5	0.50
503.1	Ethylbenzene	34371	[illegible] 0	680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571	N D	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		6	0.50
	Total 1,3-Dichloropropene	34561		5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	N D	30	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Lab #:6275-1 (cont.)

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	MCL µg/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		.5	0.50
503.1	m,p-Xylene	A-014	152.0		
503.1	o-Xylene	77135	150.0		
503.1	Total Xylenes (m,p, & o)	31551	302.0	1750	0.50
	Bentazon (Basagran)	38710		[illegible]	[illegible]
	Dibromochloropropane (DBCP)	38761		[illegible]	0.01
	Ethylene Dibromide (EDB)	77651		.02	0.02
	Atrazine (AAtrex)	39033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Bolero)	A-001		70	0.30
	Endrin	39390		.2	0.01
	Lindane (gamma-BHC)	39340		4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	39730		100	10.
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS		* DRL
	Bromobenzene	81555			0.50
	Bromochloromethane	A-012			0.50
	Bromomethane (Methyl Bromide)	34413			0.50
	n-Butylbenzene	A-010			0.50
	sec-Butylbenzene	77350			0.50
	tert-Butylbenzene	77353			0.50
	Chloroethane	34311			0.50
	2-Chloroethylvinyl ether	34576			1.0
	Chloromethane (Methyl Chloride)	34418			0.50
	2-Chlorotoluene	A-008			0.50
	4-Chlorotoluene	A-009			0.50
	Dibromomethane	77596			0.50
	1,2-Dichlorobenzene (o-DCB)	34536			0.50
	1,3-Dichlorobenzene (m-DCB)	34566			0.50
	Dichlorodifluoromethane	34668			0.50
	1,1-Dichloroethane (1,1-DCA)	34496			0.50
	cis-1,2-Dichloroethylene	77093			0.50
	trans-1,2-Dichloroethylene	34546			0.50
	1,2-Dichloropropane	34541			0.50
	1,3-Dichloropropane	77173			0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS					k DRL
	2,2-Dichloropropane	77170						0.50
	1,1-Dichloropropene	77168						0.50
	Hexachlorobutadiene	34391						0.50
	Isopropylbenzene	77223						0.50
	p-Isopropyltoluene	A-011						0.50
	Methylene chloride	34423						5.0
	Naphthalene	34696						0.50
	n-Propylbenzene	77224						0.50
	Styrene	77128						0.50
	1,1,1,2-Tetrachloroethane	77562						0.50
503.1	Toluene	34010		2	8	0	0	0.50
	1,2,3-Trichlorobenzene	77613						0.50
	1,2,4-Trichlorobenzene	34551						0.50
	Trichlorofluoromethane (Freon 11)	34488						0.50
	1,2,3-Trichloropropane	77443						0.50
	Trichlorotrifluoroethane (Freon 113)	81611						0.50
	1,2,4-Trimethylbenzene	77222						0.50
	1,3,5-Trimethylbenzene	77226						0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595						5.0
	Methyl Isobutyl Ketone (MIBK)	81596						5.0
	Alachlor (Alanex)	49325						
	Chlordane	39350						0.1
	Heptachlor	39410						0.01
	Heptachlor Epoxide	39420						0.01
	Bromacil (Hyvar)	82198						
	Diazinon	39570						
	Prometryn (Caparol)	39057						
	Chlorothalonil (Daconil, Bravo)	70314						
	Dimethoate (Cygon)	82458						
	Diethylhexylphthalate (DEHP)	39100						5.0
	Aldicarb (Temik)	39053						
	Carbofuran (Furadan)	81405						
	Glyphosate	79743						

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 1500. ug/L Minimum Reporting Level = 0.50 ug/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 8/22/89
Lab Sample ID No: 6275-2
Laboratory Name: B C Laboratories
Signature Lab Director: Scott Lawrence
Name of Sampler:
Sampler Employed By:
Date/Time Sample Collected: 8/10/89
Date/Time Sample Received @ Lab: 8/14/89
Date Analysis Completed: 8/18/89

==

System Name: ECC #18008-5 Hayward, CA 3-14-MW2 8/10/89
System Number:

Name or Number of Sample Source:

Water Type: (G/S) |_| Station Number: |_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Date/Time of Sample: |_|_|_|_|_|_|_|_|_|_| User ID: |_|_|_|
Y Y M M D D T T T T

Analyzing Agency Code: |5|2|2|6| Date Analysis Completed: |8|9|0|8|1|8|
Y Y M M D D

Submitted by: Phone #:

Place an "X" in box to delete all data for this station/date/time. |_|

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	MCL µg/L	* DRL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			0.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	82080		100	0.50
503.1	Benzene	34030	110.0	1	0.50
	Carbon tetrachloride	32102		.5	0.50
503.1	Ethylbenzene	34371	67.0	680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571	ND	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		.5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		6	0.50
	Total 1,3-Dichloropropene	34561		.5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	ND	30	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Lab #:6075-2 (cont.)

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		.5	0.50
503.1	m,p-Xylene	A-014	35		
503.1	o-Xylene	77135	50		
503.1	Total Xylenes (m,p, o)	31551	1050	1750	0.50
	Pentachlorophenol (Pentachlor)	39032		1	2.0
	Dibromochloropropane (DBCP)	38761		.2	0.01
	Ethylene Dibromide (EDB)	77651		.02	0.02
	Atrazine (AAtrex)	39033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Bolero)	A-001		70	0.30
	Endrin	39390		.2	0.01
	Lindane (gamma-BHC)	39340		4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	29730		100	10.
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS		* DRL
	Bromobenzene	81555			0.50
	Bromochloromethane	A-012			0.50
	Bromomethane (Methyl Bromide)	34413			0.50
	n-Butylbenzene	A-010			0.50
	sec-Butylbenzene	77350			0.50
	tert-Butylbenzene	77353			0.50
	Chloroethane	34311			0.50
	2-Chloroethylvinyl ether	34576			1.0
	Chloromethane (Methyl Chloride)	34413			0.50
	2-Chlorotoluene	A-008			0.50
	4-Chlorotoluene	A-009			0.50
	Dibromomethane	77596			0.50
	1,2-Dichlorobenzene (o-DCB)	34536			0.50
	1,3-Dichlorobenzene (m-DCB)	34566			0.50
	Dichlorodifluoromethane	34668			0.50
	1,1-Dichloroethane (1,1-DCA)	34496			0.50
	cis-1,2-Dichloroethylene	77093			0.50
	trans-1,2-Dichloroethylene	34546			0.50
	1,2-Dichloropropane	34541			0.50
	1,3-Dichloropropane	77173			0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS					DBL
	2,3-Dichloropropane	77170						0.50
	1,1-Dichloropropene	77168						0.50
	Hexachlorobutadiene	34391						0.50
	Isopropylbenzene	77223						0.50
	p-Isopropyltoluene	A-011						0.50
	Methylene chloride	34423						0.50
	Naphthalene	34696						0.50
	n-Propylbenzene	77224						0.50
	Styrene	77128						0.50
	1,1,1,2-Tetrachloroethane	77562						0.50
503.1	Toluene	34010		3	5	0		0.50
	1,2,3-Trichlorobenzene	77613						0.50
	1,2,4-Trichlorobenzene	34551						0.50
	Trichlorofluoromethane (Freon 11)	34488						0.50
	1,2,3-Trichloropropane	77443						0.50
	Trichlorotrifluoroethane (Freon 113)	81611						0.50
	1,2,4-Trimethylbenzene	77222						0.50
	1,3,5-Trimethylbenzene	77226						0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595						5.0
	Methyl Isobutyl Ketone (MIBK)	81596						5.0
	Alachlor (Alanex)	77825						
	Chlordane	39350						0.10
	Heptachlor	39410						0.01
	Heptachlor Epoxide	39420						0.01
	Bromacil (Hyvar)	82198						
	Diazinon	39570						
	Prometryn (Caparol)	39057						
	Chlorothalonil (Daconil, Bravo)	70314						
	Dimethoate (Cygon)	38463						
	Diethylhexylphthalate (DEHP)	39100						5.0
	Aldicarb (Temik)	39053						
	Carbofuran (Furadan)	81405						
	Glyphosate	79743						

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 950. ug/L Minimum Reporting Level = 0.50 ug/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD.. BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 3/22/89 Lab Sample ID No.: 8275-3

Laboratory Name: B C Laboratories

Signature Lab Director: Janet Hammond

Name of Sampler:

Sampler Employed By:

Date/Time Sample Collected: 3/10/89

Date/Time Sample Received @ Lab: 3/14/89

Date Analysis Completed: 3/13/89

System Name: BKY #13003-5 Hayward, CA W-28-MW3 3/10/89

System Number:

Name or Number of Sample Source:

Water Type: (G/S)

Station Number:

Date/Time of Sample: Y Y M M D D T T T T

User ID:

Analyzing Agency Code: 5 2 0 6 Date Analysis Completed: 8 9 0 3 1 3 (Y Y M M D D)

Submitted by:

Phone #:

Place an "X" in box to delete all data for this station/date/time.

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS		MCL ug/L	+ DET
	Bromodichloromethane	32101				0.50
	Bromoform	32104				0.50
	Chloroform	32106				0.50
	Dibromochloromethane	32105				0.50
	Total trihalomethanes	32080			100	0.50
503.1	Benzene	34030	5	9	1	0.50
	Carbon tetrachloride	32102			5	0.50
502.1	Ethylbenzene	34371	3	7	680	0.50
502.1	1,4-Dichlorobenzene (p-DCB)	34571	N	D	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531			5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501			6	0.50
	Total 1,3-Dichloropropene	34561			5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	N	D	30	0.50
	1,1,2,2-Tetrachloroethane	34516			1	0.50
	Tetrachloroethylene (PCE)	34475			5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506			200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511			32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD.. BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		5	0.50
503.1	m,p-Xylene	A-014	5.3		
503.1	o-Xylene	77135	2.9		
503.1	Total Xylenes (m,p, & o)	81551	8.2	1750	1.0
	Pentacon (Basagran)	38710		18	2.0
	Dibromochloropropane (DBCP)	38761		2	0.01
	Ethylene Dibromide (EDB)	77651		.02	0.02
	Atrazine (AAtrex)	39033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Bolero)	A-001		70	0.80
	Endrin	39390		2	0.01
	Lindane (gamma-BHC)	39340		4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	39730		100	10.
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	* DRL
	Bromobenzene	81555		0.50
	Bromochloromethane	A-012		0.50
	Bromomethane (Methyl Bromide)	34413		0.50
	n-Butylbenzene	A-010		0.50
	sec-Butylbenzene	77350		0.50
	tert-Butylbenzene	77353		0.50
	Chloroethane	34311		0.50
	2-Chloroethylvinyl ether	34576		1.0
	Chloromethane (Methyl Chloride)	34418		0.50
	2-Chlorotoluene	A-008		0.50
	4-Chlorotoluene	A-009		0.50
	Dibromomethane	77596		0.50
	1,2-Dichlorobenzene (o-DCB)	34536		0.50
	1,3-Dichlorobenzene (m-DCB)	34566		0.50
	Dichlorodifluoromethane	34668		0.50
	1,1-Dichloroethane (1,1-DCA)	34496		0.50
	cis-1,2-Dichloroethylene	77093		0.50
	trans-1,2-Dichloroethylene	34546		0.50
	1,2-Dichloropropane	34541		0.50
	1,3-Dichloropropane	77173		0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Lab #:6275-3 (cont.)

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS				* DRL
	2,3-Dichloropropane	77170					0.50
	1,1-Dichloropropene	77168					0.50
	Hexachlorobutadiene	34391					0.50
	Isopropylbenzene	77223					0.50
	p-Isopropyltoluene	A-011					0.50
	Methylene chloride	34423					0.50
	Naphthalene	34696					0.50
	n-Propylbenzene	77224					0.50
	Styrene	77128					0.50
	1,1,1,2-Tetrachloroethane	77562					0.50
503.1	Toluene	34010		5	7		0.50
	1,2,3-Trichlorobenzene	77613					0.50
	1,2,4-Trichlorobenzene	34551					0.50
	Trichlorofluoromethane (Freon 11)	34488					0.50
	1,2,3-Trichloropropane	77443					0.50
	Trichlorotrifluoroethane (Freon 113)	81611					0.50
	1,2,4-Trimethylbenzene	77222					0.50
	1,3,5-Trimethylbenzene	77226					0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595					5.0
	Methyl Isobutyl Ketone (MIBK)	81596					5.0
	Alachlor (Alanex)	77825					
	Chlordane	39350					0.10
	Heptachlor	39410					0.01
	Heptachlor Epoxide	39420					0.01
	Bromacil (Hyvar)	82198					
	Diazinon	39570					
	Prometryn (Caparol)	39057					
	Chlorothalonil (Daconil, Bravo)	70314					
	Dimethoate (Cygon)	38453					
	Diethylhexylphthalate (DEHP)	39100					5.0
	Aldicarb (Temik)	39053					
	Carbofuran (Furadan)	81405					
	Glyphosate	79742					

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 25.0 ug/L Minimum Reporting Level = 0.50 ug/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43055 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 3/22/89
Laboratory Name: B C Laboratories
Name of Sampler:
Lab Sample ID No.: 8075-4
Signature Lab Director:
Sampler Employed By:
Date/Time Sample Collected: 3/10/89
Date/Time Sample Received @ Lab: 3/14/89
Date Analysis Completed: 3/18/89

System Name: BCC #18008-5 Hayward, CA N-03-MW4 3/10/89
System Number:

Name & Number of Sample Source:

Water Type: (G/S) _ Station Number: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Date/Time of Sample: _ _ _ _ _ _ _ _ _ _ (Y Y M M D D T T T T) User ID: _ _ _

Analyzing Agency Code: 5 8 2 6 Date Analysis Completed: 8 9 0 3 1 8 (Y Y M M D D)

Submitted by: Phone #:

Place an "Y" in box to delete all data for this station date/time. _

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			0.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	82080		100	0.50
503.1	Benzene	34030		1	0.50
	Carbon tetrachloride	32102		5	0.50
503.1	Ethylbenzene	34371		680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571		5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		6	0.50
	Total 1,3-Dichloropropene	34561		5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	ND	30	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		5	0.50
503.1	m,p-Xylene	A-014	2 3 0		
503.1	o-Xylene	77135	2 1 2		
503.1	Total Xylenes (m,p, & o)	81551	4 3 0	1750	1.50
	Pentachlorophenol (Pasagram)	39710		1	2.0
	Dibromochloropropane (DBCP)	38761		0.2	0.01
	Ethylene Dibromide (EDB)	77651		0.02	0.02
	Atrazine (AAtrex)	39033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Bolero)	A-001		70	0.30
	Endrin	39390		2	0.01
	Lindane (gamma-BHC)	39340		4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	39730		100	10.
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS		* DRL
	Bromobenzene	81555			0.50
	Bromochloromethane	A-012			0.50
	Bromomethane (Methyl Bromide)	34413			0.50
	n-Butylbenzene	A-010			0.50
	sec-Butylbenzene	77350			0.50
	tert-Butylbenzene	77353			0.50
	Chloroethane	34311			0.50
	2-Chloroethylvinyl ether	34576			1.0
	Chloromethane (Methyl Chloride)	34418			0.50
	2-Chlorotoluene	A-008			0.50
	4-Chlorotoluene	A-009			0.50
	Dibromomethane	77596			0.50
	1,2-Dichlorobenzene (o-DCB)	34536			0.50
	1,3-Dichlorobenzene (m-DCB)	34566			0.50
	Dichlorodifluoromethane	34668			0.50
	1,1-Dichloroethane (1,1-DCA)	34496			0.50
	cis-1,2-Dichloroethylene	77093			0.50
	trans-1,2-Dichloroethylene	34546			0.50
	1,2-Dichloropropane	34541			0.50
	1,3-Dichloropropane	77173			0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Lab #:6275-4 (cont.)

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS		DRL
	2,2-Dichloropropane	77170			0.50
	1,1-Dichloropropene	77168			0.50
	Hexachlorobutadiene	34391			0.50
	Isopropylbenzene	77223			0.50
	p-Isopropyltoluene	A-011			0.50
	Methylene chloride	34423			0.50
	Naphthalene	34696			0.50
	n-Propylbenzene	77224			0.50
	Styrene	77128			0.50
	1,1,1,2-Tetrachloroethane	77562			0.50
503.1	Toluene	34010	460		0.50
	1,2,3-Trichlorobenzene	77613			0.50
	1,2,4-Trichlorobenzene	34551			0.50
	Trichlorofluoromethane (Freon 11)	34488			0.50
	1,2,3-Trichloropropane	77443			0.50
	Trichlorotriflouroethane (Freon 113)	81611			0.50
	1,2,4-Trimethylbenzene	77222			0.50
	1,3,5-Trimethylbenzene	77226			0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595			5.0
	Methyl Isobutyl Ketone (MIBK)	81596			5.0
	Alachlor (Alanex)	77325			
	Chlordane	39350			[illegible]
	Heptachlor	39410			0.01
	Heptachlor Epoxide	39420			0.01
	Bromacil (Hyvar)	32198			
	Diazinon	39570			
	Prometryn (Caparol)	39057			
	Chlorothalonil (Daconil, Bravo)	70314			
	Dimethoate (Cygon)	38458			
	Diethylhexylphthalate (DEHP)	39100			5.0
	Aldicarb (Temik)	39053			
	Carbofuran (Furadan)	31405			
	Glyphosate	79743			

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 2500. µg/L Minimum Reporting Level = 0.50 µg/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 3/22/89 Lab Sample ID No.: 8275-5
Laboratory Name: B C Laboratories Signature Lab Director:
Name of Sampler: Sampler Employed By:
Date/Time Sample Collected: 8/10/89 Date/Time Sample Received @ Lab: 3/14/89 Date Analysis Completed: 3/18/89

System Name: B-24-MW5 8/10/89 System Number: BOC #18008-5 Hayward, CA

Name or Number of Sample Source:

Water Type: (G/S) | | Station Number: | | | | | | | | | | | |

Date/Time of Sample: | | | | | | | | | | | | User ID: | | | |
Y Y M M D D T T T T

Analyzing Agency Code: |5|2|0|6| Date Analysis Completed: |8|9|0|8|1|3|
Y Y M M D D

Submitted by: Phone #:

Place an "X" in box to delete all data for this station date/time.

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DEL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			1.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	82080		100	0.50
503.1	Benzene	34030	3 6 0	1	0.50
	Carbon tetrachloride	32102		5	0.50
503.1	Ethylbenzene	34371	3 2 0	680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571	2 1 0	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		6	0.50
	Total 1,2-Dichloropropene	34561		5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	3 1 0	30	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		.5	0.50
503.1	m,p-Xylene	A-014	2 8 0		
503.1	o-Xylene	77135	2 2 0		
503.1	Total Xylenes (m,p, & o)	31551	2 1 0	1750	0.50
	Bentazon (Basagran)	39712		18	2.0
	Dibromochloropropane (DBCP)	38761		.2	0.01
	Ethylene Dibromide (EDB)	77651		.02	0.02
	Atrazine (AAtrex)	39033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Bolero)	A-001		70	0.80
	Endrin	39390		.2	0.01
	Lindane (gamma-BHC)	39340		4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	39730		100	10.
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	* DRL
	Bromobenzene	81555		0.50
	Bromochloromethane	A-012		0.50
	Bromomethane (Methyl Bromide)	34413		0.50
	n-Butylbenzene	A-010		0.50
	sec-Butylbenzene	77350		0.50
	tert-Butylbenzene	77353		0.50
	Chloroethane	34311		0.50
	2-Chloroethylvinyl ether	34576		1.0
	Chloromethane (Methyl Chloride)	34418		0.50
	2-Chlorotoluene	A-008		0.50
	4-Chlorotoluene	A-009		0.50
	Dibromomethane	77596		0.50
	1,2-Dichlorobenzene (o-DCB)	34536		0.50
	1,3-Dichlorobenzene (m-DCB)	34566		0.50
	Dichlorodifluoromethane	34668		0.50
	1,1-Dichloroethane (1,1-DCA)	34496		0.50
	cis-1,2-Dichloroethylene	77093		0.50
	trans-1,2-Dichloroethylene	34546		0.50
	1,2-Dichloropropane	34541		0.50
	1,3-Dichloropropane	77173		0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Lab #:6275-5 (cont.)

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS		* PRL
	2,2-Dichloropropane	77170			0.50
	1,1-Dichloropropene	77168			0.50
	Hexachlorobutadiene	34391			0.50
	Isopropylbenzene	77223			0.50
	p-Isopropyltoluene	A-011			0.50
	Methylene chloride	34423			1.50
	Naphthalene	34696			0.50
	n-Propylbenzene	77224			0.50
	Styrene	77128			1.50
	1,1,1,2-Tetrachloroethane	77562			0.50
503.1	Toluene	34010	42.0		0.50
	1,2,3-Trichlorobenzene	77613			0.50
	1,2,4-Trichlorobenzene	34551			0.50
	Trichlorofluoromethane (Freon 11)	34488			0.50
	1,2,3-Trichloropropane	77443			0.50
	Trichlorotrifluoroethane (Freon 113)	81611			0.50
	1,2,4-Trimethylbenzene	77222			0.50
	1,3,5-Trimethylbenzene	77226			0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595			5.0
	Methyl Isobutyl Ketone (MIBK)	81596			5.0
	Alachlor (Alanex)	77825			
	Chlordane	39350			0.10
	Heptachlor	39410			0.01
	Heptachlor Epoxide	39420			0.01
	Bromacil (Hyvar)	82198			
	Diazinon	39570			
	Prometryn (Caparol)	39057			
	Chlorothalonil (Daconil, Bravo)	70314			
	Dimethoate (Cygon)	38458			
	Diethylhexylphthalate (DEHP)	39100			5.0
	Aldicarb (Temik)	39053			
	Carbofuran (Furadan)	31405			
	Glyphosate	79743			

ND - None Detected
California D.O.H.S. Cert. #81

More any unidentified peaks below.
Total Petroleum Hydrocarbons = 2300. µg/L Minimum Reporting Level = 0.50 µg/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 3/22/89
Laboratory Name: B C Laboratories
Name of Sampler:
Lab Sample ID No.: 6275-6
Signature Lab Director: Robert D'Amore
Sampler Employed By:
Date/Time Sample Collected: 3/10/89
Date/Time Sample Received @ Lab: 3/14/89
Date Analysis Completed: 3/18/89

System Name: P&C #18008-5 Hayward, CA W-Blank 3/10/89
System Number:

Name or Number of Sample Source:

Water Type: (G/S) _ Station Number: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Date/Time of Sample: _ _ _ _ _ _ _ _ _ _ (Y Y M M D D T T T T) User ID: _ _ _

Analysing Agency Code: 5 8 0 6 Date Analysis Completed: 8 9 0 8 1 8 (Y Y M M D D)

Submitted by: Phone #:

Place an "Y" in box to delete all data for this station/date/time.

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DEL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			0.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	82080		100	0.50
503.1	Benzene	34030	2 6 0	1	0.50
	Carbon tetrachloride	32102		5	0.50
503.1	Ethylbenzene	34371	2 2	680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571	N D	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		6	0.50
	Total 1,3-Dichloropropene	34561		5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	N D	30	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

 Lab #:6275-6 (cont.)

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	MCL µg/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		.5	0.50
503.1	m,p-Xylene	A-014	8.4		
503.1	o-Xylene	77135	5.4		
503.1	Total Xylenes (m,p, & o	81551	11.3	1750	0.50
	Bentazon (Basagran)	38710		18	2.0
	Dibromochloropropane (DBCP)	38761		.2	0.01
	Ethylene Dibromide (EDB)	77651		.02	0.02
	Atrazine (AAtrex)	39033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Bolero)	A-001		70	0.80
	Endrin	39390		.2	0.01
	Lindane (gamma-BHC)	39340		4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	39730		100	10.
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS		* DRL
	Bromobenzene	81555			0.50
	Bromochloromethane	A-012			0.50
	Bromomethane (Methyl Bromide)	34413			0.50
	n-Butylbenzene	A-010			0.50
	sec-Butylbenzene	77350			0.50
	tert-Butylbenzene	77353			0.50
	Chloroethane	34311			0.50
	2-Chloroethylvinyl ether	34576			1.0
	Chloromethane (Methyl Chloride)	34418			0.50
	2-Chlorotoluene	A-008			0.50
	4-Chlorotoluene	A-009			0.50
	Dibromomethane	77596			0.50
	1,2-Dichlorobenzene (o-DCB)	34536			0.50
	1,3-Dichlorobenzene (m-DCB)	34566			0.50
	Dichlorodifluoromethane	34668			0.50
	1,1-Dichloroethane (1,1-DCA)	34496			0.50
	cis-1,2-Dichloroethylene	77093			0.50
	trans-1,2-Dichloroethylene	34546			0.50
	1,2-Dichloropropane	34541			0.50
	1,3-Dichloropropane	77173			0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	* DRL
	2,2-Dichloropropane	77170		0.50
	1,1-Dichloropropene	77168		0.50
	Hexachlorobutadiene	34391		0.50
	Isopropylbenzene	77223		0.50
	p-Isopropyltoluene	A-011		0.50
	Methylene chloride	34423		0.50
	Naphthalene	34696		0.50
	n-Propylbenzene	77224		0.50
	Styrene	77128		0.50
	1,1,1,2-Tetrachloroethane	77562		0.50
524.1	Toluene	34010	1.9 J	0.50
	1,2,3-Trichlorobenzene	77613		0.50
	1,2,4-Trichlorobenzene	34551		0.50
	Trichlorofluoromethane (Freon 11)	34488		0.50
	1,2,3-Trichloropropane	77443		0.50
	Trichlorotrifluoroethane (Freon 113)	81611		0.50
	1,2,4-Trimethylbenzene	77222		0.50
	1,3,5-Trimethylbenzene	77226		0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595		5.0
	Methyl Isobutyl Ketone (MIBK)	81596		5.0
	Alachlor (Alanex)	77825		
	Chlordane	39350		0.10
	Heptachlor	39410		0.01
	Heptachlor Epoxide	39420		0.01
	Bromacil (Hyvar)	82198		
	Diazinon	39570		
	Prometryn (Caparol)	39057		
	Chlorothalonil (Daconil, Bravo)	70314		
	Dimethoate (Cygon)	38458		
	Diethylhexylphthalate (DEHP)	39100		5.0
	Aldicarb (Temik)	39053		
	Carbofuran (Furadan)	81405		
	Glyphosate	79743		

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 75. µg/L Minimum Reporting Level = 0.50 µg/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 3/22/89 Lab Sample ID No: 6275-7
Laboratory Name: B C Laboratories Signature Lab. Director:
Name of Sampler: Sampler Employed By:
Date/Time Sample Collected: 3/10/89 Date/Time Sample Received @ Lab: 3/14/89 Date Analysis Completed: 3/18/89

System Name: EOC #18008-5 Hayward, CA W-25-MW6 3/10/89 System Number:

Name or Number of Sample Source:

Water Type: (G/S) | | Station Number: | | | | | | | | | | | | | |

Date/Time of Sample: | | | | | | | | | | | | User ID: | | |
Y Y M M D D T T T T

Analyzing Agency Code: |5|8|0|6| Date Analysis Completed: |8|9|0|3|1|8|
Y Y M M D D

Submitted by: Phone #:

Place an "X" in box to delete all data for this station/date/time.

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	MCL µg/L	* DEL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			0.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	82080		100	0.50
503.1	Benzene	34030	1 8 7	1	0.50
	Carbon tetrachloride	32102		.5	0.50
503.1	Ethylbenzene	34371	N D	680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571	N D	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		.5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		6	0.50
	Total 1,3-Dichloropropene	34561		5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	N D	70	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD.. BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	MCL µg/L	* DRL
	Trichloroethylene (TCE)	39130		5	0.50
	Vinyl Chloride (VC)	39175		5	0.50
503.1	m,p-Xylene	A-014	0.9	8	
503.1	o-Xylene	77135	ND		
503.1	Total Xylenes (m,p, o-)	81551	0.9	8	1750 0.50
	Bentazon (Basagran)	38710			18 2.0
	Dibromochloropropane (DBCP)	38761			2 0.01
	Ethylene Dibromide (EDB)	77651			.02 0.02
	Atrazine (AAtrex)	39033			3 1.00
	Molinate (Ordram)	82199			20 2.0
	Simazine (Princep)	39055			10 1.0
	Thiobencarb (Bolero)	A-001			70 0.80
	Endrin	39390			2 0.01
	Lindane (gamma-BHC)	29340			4 0.40
	Methoxychlor	39480			100 10.
	Toxaphene	39400			5 0.50
	2,4-D	39730			100 10.
	2,4,5-TP (Silvex)	39045			10 1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	* DRL
	Bromobenzene	31555		0.50
	Bromochloromethane	A-012		0.50
	Bromomethane (Methyl Bromide)	34413		0.50
	n-Butylbenzene	A-010		0.50
	sec-Butylbenzene	77350		0.50
	tert-Butylbenzene	77353		0.50
	Chloroethane	34311		0.50
	2-Chloroethylvinyl ether	34576		1.0
	Chloromethane (Methyl Chloride)	34418		0.50
	2-Chlorotoluene	A-008		0.50
	4-Chlorotoluene	A-009		0.50
	Dibromomethane	77596		0.50
	1,2-Dichlorobenzene (o-DCB)	34536		0.50
	1,3-Dichlorobenzene (m-DCB)	34566		0.50
	Dichlorodifluoromethane	34668		0.50
	1,1-Dichloroethane (1,1-DCA)	34496		0.50
	cis-1,2-Dichloroethylene	77093		0.50
	trans-1,2-Dichloroethylene	34546		0.50
	1,2-Dichloropropane	34541		0.50
	1,3-Dichloropropane	77173		0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN. REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS		* DRL
	2,2-Dichloropropane	77170			0.50
	1,1-Dichloropropene	77168			0.50
	Hexachlorobutadiene	34391			0.50
	Isopropylbenzene	77223			0.50
	p-Isopropyltoluene	A-011			0.50
	Methylene chloride	34423			0.50
	Naphthalene	34696			0.50
	n-Propylbenzene	77224			0.50
	Styrene	77128			0.50
	1,1,1,2-Tetrachloroethane	77562			0.50
502.1	Toluene	34010	1.6	8	0.50
	1,2,3-Trichlorobenzene	77613			0.50
	1,2,4-Trichlorobenzene	34551			0.50
	Trichlorofluoromethane (Freon 11)	34488			0.50
	1,2,3-Trichloropropane	77443			0.50
	Trichlorotrifluoroethane (Freon 113)	81611			0.50
	1,2,4-Trimethylbenzene	77222			0.50
	1,3,5-Trimethylbenzene	77226			0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595			5.0
	Methyl Isobutyl Ketone MIBK)	81596			5.0
	Alachlor (Alanex)	77825			
	Chlordane	39350			0.10
	Heptachlor	39410			0.01
	Heptachlor Epoxide	39420			0.01
	Bromacil (Hyvar)	82198			
	Diazinon	39570			
	Prometryn (Caparol)	39057			
	Chlorothalonil (Daconil, Bravo)	70314			
	Dimethoate (Cygon)	38458			
	Diethylhexylphthalate DEHP)	39100			5.0
	Aldicarb (Temik)	39053			
	Carbofuran (Furadan)	81405			
	Glyphosate	79743			

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 5.5 µg/L Minimum Reporting Level = 0.50 µg/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BOC / SS#	HAYWARD, CA.
Project No.	**Field Logbook No.**
18008-5	—
Sampler: (Signature)	**Chain of Custody Tape No.**
Keith McVicker	—

ANALYSES

Sample No./Identification	Date	Time	Lab No.	TPH (Gas+Gasoline) EPA 8015	BTEX EPA 8020	TPH (diesel) EPA 8015	Total Oil & Grease 503 E.A	503.1	No. of Containers	REMARKS
W-25-MW1	8-10-89		6815-1	X	X	X		X		
W-24-MW2	KM		-2	X	X	X		X		
J-28-MW3			-3	X	X	X		X		*only 1 vial received OH
W-23-MW4			-4	X	X	X		X		*3 vials received OH
W-24-MW5			-5	X	X	X		X		
W-BLANK	KM		-6	X	X			X		
W-25-MW6	8-10-89 KM		-7					X		
										Total

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Keith McVicker	8-10-89		Bill Nowell	8/10/89	12:00
Bill Nowell	Date	Time	D. Billings	8/11/89	1603
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date Saturday	Time
			BC Labs	8/12/89	8:00A
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Report To: ~~BLANK~~ Leigh Beem	Bill To: GLENN DEMBROFF	NO:
APPLIED GEOSYSTEMS 43255 MISSION BLVD FREMONT, CA. 94539	BEACON OIL CO. 525 W. THIRD ST. HANFORD, CA. 93230	B.C.

White: Return to Customer with Report
Yellow: BC Lab Copy
Pink: Originator Copy

BC Laboratories
4100 Pierce Rd. • Bakersfield, CA 93308

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				CL	Silty clay, trace fine gravel, trace fine to coarse sand, light brown, with green mottling, slightly damp, medium plasticity, hard.	
				▽		
24		11 14				
	S-25	20			Wet.	
26						
28		14 21				
30	S-30	31				
32						
34						
		12 20			Some fine sand, trace fine to medium gravel.	
36	S-36	32				
38						
		7 8			Very stiff.	
40	S-40	10				
					Total Depth = 40-1/2 feet.	
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-6/MW-6

Beacon Station No. 546
29705 Mission Blvd.
Hayward, Ca.

PLATE

B7

Total depth of boring: 34-1/2 feet **Diameter of boring:** 10 inches **Date drilled:** 2-22-90

Casing diameter: 4 inches **Length:** 33 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 15 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Rod and Paul

Method Used: Hollow-Stem Auger **Field Geologist:** Keith McVicker

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0				CL	Silty clay, brown, damp, medium plasticity.	
2						
4						
	S-5		0.3			
6						
				ML	Clayey silt, some sand and gravel, brown, damp, slight plasticity.	
	S-7.5		0.3			
8						
10				CL	Silty clay, trace sand and gravel, brown, damp, slight plasticity.	
12						
	S-12.5		0.3			
14						
16						
	S-17.5		0.3		Dark brown.	
18						
20	S-20		110			
					(Section continues downward)	

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-7/MW-7

Former Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE

B8

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22			▽	CL	Silty clay, trace gravel, dark brown, moist, medium plasticity.	
	S–22.5		0.2		Fractured, brown with green staining in fracture, slight to medium plasticity.	
24				CH	Silty clay, minor sand, green–black, wet, high plasticity, fractured.	
	S–24.5		0.3			
26				CL	Silty clay, minor sand, green–black, wet, medium plasticity.	
	S–27		0.2			
28						
	S–29.5		0		Moist.	
30						
32						
	S–34		0		Some sand and gravel.	
34					Total Depth = 34–1/2 feet.	
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-7/MW-7

Former Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE

B9

Total depth of boring: 40-1/2 feet **Diameter of boring:** 10 inches **Date drilled:** 2-22-90

Casing diameter: 4 inches **Length:** 40 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Rod and Paul

Method Used: Hollow-Stem Auger **Field Geologist:** Keith McVicker

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
0				CL	Silty clay, trace sand and gravel, dark brown, damp, medium plasticity,	
2						
4	S-4		0			
6						
8						
10	S-9.5		0		Increase in silt, trace sand, brown.	
12						
14		18				
		18				
	S-15	20	47.5		Trace sand and gravel, hard.	
16						
18						
		8				
		20				
20	S-20	25	33.7		Green-brown.	

(Section continues downward)

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-8/MW-8

Former Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE

B10

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				CL	Silty clay, trace sand and gravel, green–brown, damp, medium plasticity, hard.	
24	S–24.5	10 15	27		Wet, very stiff, fractured, visible water in fractures.	
26						
28				CH	Silty clay, with trace grvel, tan, wet, high plasticity, very stiff.	
30	S–30	4 5 20	2.7	CL	Silty clay, with trace gravel, tan, wet, medium plasticity, very stiff.	
32						
34				CH	Silty clay, some gravel, brown, wet, high plasticity, very stiff.	
36	S–35	7 15 25	7.9			
38				CL	Silty clay, some gravel, tan, moist, medium plasticity, very stiff.	
40	S–40	7 12 18	6.8		Total Depth = 40–1/2 feet.	
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 18008-6

LOG OF BORING B-8/MW-8

Former Beacon Station 546
29705 Mission Boulevard
Hayward, California

PLATE

B11

APPENDIX C
LABORATORY REPORTS

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
535 Main Street
Martinez, Ca. 94553
(415) 372-5444

April 1, 1987
KEI-J87-0310

10-JAG

Mobil Oil Corporation
P. O. Box 127
Richmond, CA 94807

Attention: Mr. Tim Ross

RE: Subsurface investigation
Beacon Service Station
Mission Blvd. and Industrial Parkway
Hayward, California

Dear Mr. Ross:

This letter summarizes the results of exploratory drilling and soil and water sampling performed by Kaprealian Engineering, Inc. at the referenced site.

KEI conducted its field work on March 25, 1987. Five (5) exploratory borings, labeled B-1 through B-5 on the attached sketch, were made to a depth of 30 feet. Soil samples were taken at five (5) foot intervals to determine if gasoline odor and/or sheen were present. The samples were collected using a California modified split-spoon sampler. Selected samples were saved for chemical analysis. Groundwater was encountered in all five borings at a depth of approximately 26 feet. Water samples were taken from borings B-2, B-3, B-4 and B-5 after drilling was complete. KEI's geologist logged the stratigraphy of the five borings. Copies of the logs are attached.

A total of fourteen (14) soil samples and four (4) water samples were analyzed for total hydrocarbons (THC) and benzene, toluene and xylene (BTX) concentrations. Copies of the laboratory analyses are enclosed, and the results are summarized below.

Sample	Type	THC*	B*	T*	X*
B-1 (15')	soil	17	0.17	<0.1	0.59
B-1 (20')	soil	59	2.2	3.9	3.3
B-1 (25')	soil	1600	5.8	36	64
B-2 (15')	soil	7.3	<0.1	<0.1	0.21
B-2 (25')	soil	16	0.81	<0.1	0.21
B-3 (15')	soil	28	0.34	0.43	0.77
B-3 (20')	soil	140	1.6	2.2	11
B-3 (25')	soil	940	2.7	11	32
B-4 (15')	soil	190	0.15	0.78	14
B-4 (20')	soil	260	0.93	2.1	4.5
B-4 (25')	soil	1100	4.7	46	130
B-5 (5')	soil	1100	6.1	77	230
B-5 (15')	soil	550	<0.27	22	94
B-5 (25')	soil	1400	7.5	68	140
B-2 (W)	water	84000	4900	5200	5200
B-3 (W)	water	2000	760	100	230
B-4 (W)	water	130000	3000	3300	16000
B-5 (W)	water	1700000	31000	48000	200000

* Soil analyses in parts per million (ppm), water analyses in parts per billion (ppb)
THC = Total hydrocarbon
B = Benzene
T = Toluene
X = Xylene

Should you have any questions regarding this letter, please feel free to call me at (415) 372-5444.

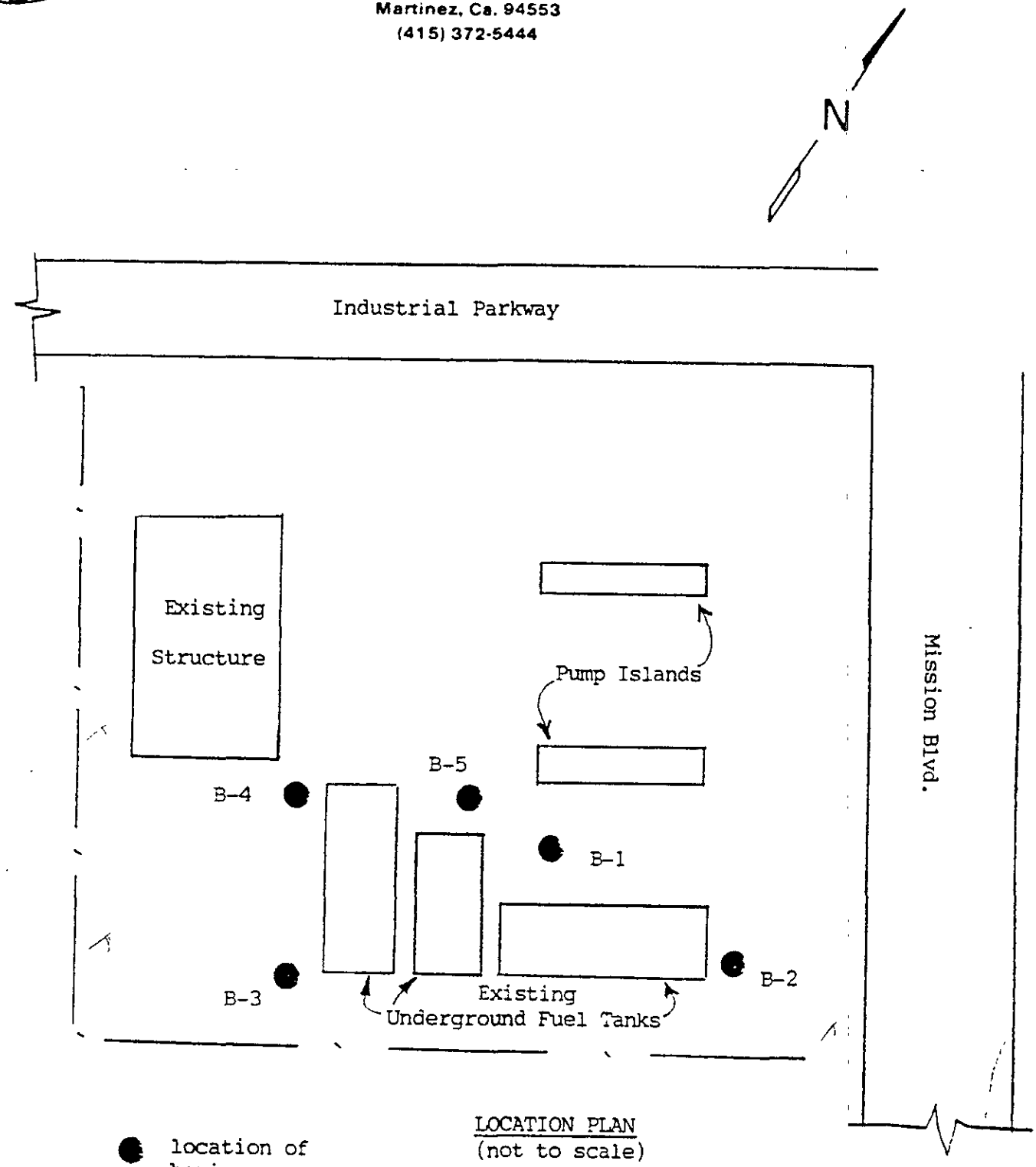
Sincerely,

Kaprealian Engineering, Inc.

Mardo Kaprealian

Attachments: Laboratory analyses
Boring logs

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
535 Main Street
Martinez, Ca. 94553
(415) 372-5444



LOCATION PLAN
(not to scale)

Beacon Service Station
Mission Blvd. & Industrial
Hayward, California

CHAIN OF CUSTODY RECORD

Client/Project Name: BEACON
Project No.: 18008-4
Sampler: (Signature) Dan Kirkman
Project Location: HAYWARD, CA.
Field Logbook No.: —
Chain of Custody Tape No.: —

Sample No./Identification	Date	Time	Lab No.	TPH (gasoline) 8015	BTEX 8020	TEH (diesel) 8015	No. of Containers	REMARKS
S-10-B4	6-27-89		5114-1	X	X			SOIL
S-15-B4	6-27-89		-2	X	X			SOIL
S-20-B4	6-27-89		-3	X	X	X		SOIL
S-10-B5	6-26-89		-4	X	X			SOIL
S-15-B5	6-26-89		-5	X	X			SOIL
S-20-B5	6-26-89		-6	X	X	X		SOIL
S-25-B6	6-26-89		-7	X	X			SOIL
								Total

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Dan Kirkman	6-29-89	1530	L. Beem	6-29-89	1530
L. Beem	6-29-89	1730		6-29-89	1730
					8:40 AM
			Chris Harrell	6-30-89	9:30a

Report To: LEIGH BEEM
APPLIED GEOSYSTEMS
43255 Mission Blvd
Fremont, CA. 94539

Bill To: GLENN DEMBROFF
BEACON OIL COMPANY
525 W. THIRD STREET
HANFORD, CA. 93230

NO:

B.C.

White: Return to Customer with Report
Yellow: BC Lab Copy
Pink: Originator Copy

BC Laboratories
4100 Pierce Rd. • Bakersfield, CA 93308

Rec'd: 6-30-89

BC CHAIN OF CUSTODY

NO. L-

Client:
Bill - Beacon Oil Co.
Name:
Address: 525 W 3rd St
Hanford, Ca. 93230
Attn: Glenn Dembroff

~~Sampler:~~
Report - Applied GeoSystems
Name: 43255 Mission
Address: Fremont, Ca. 94539
Leigh Beem

Sample Type:
Water ____
Soil __X__
Sludge ____
Oil ____
Other: (specify) ____

Analysis Requested: EPA 502.1/8010, EPA 503.1/8020, EPA 502.2/8010/8020, EPA 504 EDB/DBCP, EPA 524.2/8240, EPA 625/8270, PCB, BTX/TPH Gas, BTX/TPH Diesel, EPA 608/8080

Lab #	Description:		Other Tests	EPA 502.1/8010	EPA 503.1/8020	EPA 502.2/8010/8020	EPA 504 EDB/DBCP	EPA 524.2/8240	EPA 625/8270	PCB	BTX/TPH Gas	BTX/TPH Diesel	EPA 608/8080
5114-1	S-10-B4	6-27-89	BTEX (8020) - TPH-GAS (8015)								X		
-2	S-15-B4	6-27-89	↓								X		
-3	S-20-B4	6-27-89	also: BTEX (8020) - TPH-Dies (8015)								X	X	
-4	S-10-B5	6-26-89									X		
-5	S-15-B5	6-26-89									X		
-6	S-20-B5	6-26-89	also BTEX (8020) - TPH-DIESEL (8015)								X	X	
-7	S-25-B6	6-26-89	↓								X		

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Comments:
[signature] Garrett	6-30-89	9:23a	[signature]	6-30-89	10:35	refer to Clients chain-of-custody to end confusion!
[illegible]	[illegible]	[illegible]	Kyle Ernst	6-30-89	11:00 am	

White: Return to Customer with Report
Yellow: BC Lab Copy

BC Laboratories

AGRICULTURE
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Purgeable Aromatics
(SOIL)

Applied GeoSystems
43255 Mission
Fremont, CA 94539
Attention: Leigh Beem

Date of Report: 07-Jul-89

Lab No: 5114-1
Sample Desc: S-10-B4 6/27/89

DATE SAMPLE COLLECTED:	DATE SAMPLE RECEIVED @ LAB:	DATE ANALYSIS COMPLETED:
27-Jun-89	30-Jun-89	06-Jul-89

Constituent	Reporting Units	Analysis Results	Minimum Reporting Level
Benzene	ug/g	None Detected	0.04
Toluene	ug/g	None Detected	0.04
Ethyl Benzene	ug/g	None Detected	0.04
p-Xylene	ug/g	None Detected	0.04
m-Xylene	ug/g	None Detected	0.04
o-Xylene	ug/g	None Detected	0.04
Total Pet. Hydrocarbons	ug/g	None Detected	5.00

TEST METHOD: TPH for gasoline by D.O.H.S. L.U.F.T. method.
Individual constituents by EPA method 8020.

Dry Matter Basis

Comments:

California D.O.H.S. Cert. #102

By _____
J. J. Eglin

_____
Analyst

AGRICULTURE
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Purgeable Aromatics
(SOIL)

Applied GeoSystems
43255 Mission
Fremont, CA 94539
Attention: Leigh Beem

Date of Report: 07-Jul-89

Lab No: 5114-2
Sample Desc: S-15-B4 6/27/89

DATE SAMPLE COLLECTED:	DATE SAMPLE RECEIVED @ LAB:	DATE ANALYSIS COMPLETED:
27-Jun-89	30-Jun-89	06-Jul-89

Constituent	Reporting Units	Analysis Results	Minimum Reporting Level
Benzene	ug/g	None Detected	0.04
Toluene	ug/g	None Detected	0.04
Ethyl Benzene	ug/g	None Detected	0.04
p-Xylene	ug/g	None Detected	0.04
m-Xylene	ug/g	None Detected	0.04
o-Xylene	ug/g	None Detected	0.04
Total Pet. Hydrocarbons	ug/g	None Detected	5.00

TEST METHOD: TPH for gasoline by D.O.H.S. L.U.F.T. method.
Individual constituents by EPA method 8020.

Dry Matter Basis

Comments:

California D.O.H.S. Cert. #102

By _____
J. J. Eglin

_____
Analyst

AGRICULTURE
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Petroleum Hydrocarbons
(SOIL)

Applied GeoSystems
43255 Mission Blvd
Fremont, CA 94539
Attention: Leigh Beem

Date of Report: 08-Jul-89

Lab No.: 5114-3
Sample Desc: S-20-B4 6/27/89

DATE SAMPLE COLLECTED:	DATE SAMPLE RECEIVED @ LAB:	DATE SAMPLE EXTRACTED:	DATE ANALYSIS COMPLETED:
26-Jun-89	30-Jun-89	06-Jul-89	07-Jul-89

Constituent	Reporting Units	Analysis Results	Minimum Reporting Level
Benzene	ug/g	1.27	0.04
Toluene	ug/g	0.92	0.04
Ethyl Benzene	ug/g	0.59	0.04
p-Xylene	ug/g	0.75	0.04
m-Xylene	ug/g	1.28	0.04
o-Xylene	ug/g	0.99	0.04
Total Pet. Hydrocarbons	ug/g	none detected	10.00

TEST METHOD: TPH for Diesel by D.O.H.S. L.U.F.T Manual Method (Carbon Disulfide Extraction). Individual constituents by EPA Method 8020.

Dry Matter Basis

Comments: Sample exhibits
Gasoline Chromatographic Fingerprint

TOTAL PETROLEUM HYDROCARBONS: Quantification of petroleum hydrocarbons utilizing a diesel standard as outlined by the California D.O.H.S. The petroleum hydrocarbons are in addition to the constituents specifically defined.

California D.O.H.S. Cert. #102

By J. J. Eglin
J. J. Eglin

Analyst

AGRICULTURE
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Purgeable Aromatics
(SOIL)

Applied GeoSystems
43255 Mission
Fremont, CA 94539
Attention:Leigh Beem

Date of Report: 07-Jul-89

Lab No: 5114-4
Sample Desc: S-10-B5 6/26/89

DATE SAMPLE COLLECTED:	DATE SAMPLE RECEIVED @ LAB:	DATE ANALYSIS COMPLETED:
26-Jun-89	30-Jun-89	06-Jul-89

Constituent	Reporting Units	Analysis Results	Minimum Reporting Level
Benzene	ug/g	None Detected	0.04
Toluene	ug/g	None Detected	0.04
Ethyl Benzene	ug/g	None Detected	0.04
p-Xylene	ug/g	None Detected	0.04
m-Xylene	ug/g	None Detected	0.04
o-Xylene	ug/g	None Detected	0.04
Total Pet. Hydrocarbons	ug/g	None Detected	5.00

TEST METHOD: TPH for gasoline by D.O.H.S. L.U.F.T. method.
Individual constituents by EPA method 8020.

Dry Matter Basis

Comments:

California D.O.H.S. Cert. #102

By _____ J. J. Eglin

_____ Analyst

AGRICULTURE
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Purgeable Aromatics
(SOIL)

Applied GeoSystems
43255 Mission
Fremont, CA 94539
Attention:Leigh Beem

Date of Report: 07-Jul-89

Lab No: 5114-5
Sample Desc: S-15-B5 6/26/89

DATE SAMPLE COLLECTED:	DATE SAMPLE RECEIVED @ LAB:	DATE ANALYSIS COMPLETED:
26-Jun-89	30-Jun-89	06-Jul-89

Constituent	Reporting Units	Analysis Results	Minimum Reporting Level
Benzene	ug/g	None Detected	0.04
Toluene	ug/g	None Detected	0.04
Ethyl Benzene	ug/g	None Detected	0.04
p-Xylene	ug/g	None Detected	0.04
m-Xylene	ug/g	None Detected	0.04
o-Xylene	ug/g	None Detected	0.04
Total Pet. Hydrocarbons	ug/g	None Detected	5.00

TEST METHOD: TPH for gasoline by D.O.H.S. L.U.F.T. method.
Individual constituents by EPA method 8020.

Dry Matter Basis

Comments:

California D.O.H.S. Cert. #102

By _____
J. J. Eglin

_____
Analyst

AGRICULTURE
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Petroleum Hydrocarbons
(SOIL)

Applied GeoSystems
43255 Mission Blvd
Fremont, CA 94539
Attention: Leigh Beem

Date of Report: 08-Jul-89

Lab No.: 5114-6
Sample Desc: S-20-B5 6/26/89

DATE SAMPLE COLLECTED:	DATE SAMPLE RECEIVED @ LAB:	DATE SAMPLE EXTRACTED:	DATE ANALYSIS COMPLETED:
26-Jun-89	30-Jun-89	06-Jul-89	07-Jul-89

Constituent	Reporting Units	Analysis Results	Minimum Reporting Level
Benzene	ug/g	none detected	0.04
Toluene	ug/g	none detected	0.04
Ethyl Benzene	ug/g	none detected	0.04
p-Xylene	ug/g	none detected	0.04
m-Xylene	ug/g	none detected	0.04
o-Xylene	ug/g	none detected	0.04
Total Pet. Hydrocarbons	ug/g	none detected	10.00

TEST METHOD: TPH for Diesel by D.O.H.S. L.U.F.T Manual Method (Carbon Disulfide Extraction). Individual constituents by EPA Method 8020.

Dry Matter Basis

Comments:

TOTAL PETROLEUM HYDROCARBONS: Quantification of petroleum hydrocarbons utilizing a diesel standard as outlined by the California D.O.H.S. The petroleum hydrocarbons are in addition to the constituents specifically defined.

California D.O.H.S. Cert. #102

By J. J. Eglin
J. J. Eglin

Analyst

AGRICULTURE
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Purgeable Aromatics
(SOIL)

Applied GeoSystems
43255 Mission
Fremont, CA 94539
Attention: Leigh Beem

Date of Report: 07-Jul-89

Lab No: 5114-7
Sample Desc: S-25-B6 6/26/89

DATE SAMPLE COLLECTED:	DATE SAMPLE RECEIVED @ LAB:	DATE ANALYSIS COMPLETED:
26-Jun-89	30-Jun-89	06-Jul-89

Constituent	Reporting Units	Analysis Results	Minimum Reporting Level
Benzene	ug/g	None Detected	0.04
Toluene	ug/g	None Detected	0.04
Ethyl Benzene	ug/g	None Detected	0.04
p-Xylene	ug/g	None Detected	0.04
m-Xylene	ug/g	None Detected	0.04
o-Xylene	ug/g	None Detected	0.04
Total Pet. Hydrocarbons	ug/g	None Detected	5.00

TEST METHOD: TPH for gasoline by D.O.H.S. L.U.F.T. method.
Individual constituents by EPA method 8020.

Dry Matter Basis

Comments:

California D.O.H.S. Cert. #102

By _____
J. J. Eglin

_____
Analyst

TPH DIESEL QUALITY CONTROL

Date: 7/7/89

QC Set: 5114-3

Lab #'s: 5114-3

Instrument: v3700a

Date of Calibration: 6/29/89

Daily Standard

Calib CF: 69289.8657

Daily CF: 63478.0856

RPD: 8.3876

Spike Recovery

Spiked Lab #: 5114-3

Spike Wt: 30.18
(in grams)

Spike Dup Wt: 30.22
(in grams)

Spike Conc: 3032.0000

Spike PR: 91.8595

Spike Dup PR: 86.9966

COMMENTS:

CF - Calibration Factor
PR - Percent Recovery
RPD - Relative Percent Difference

TPH DIESEL QUALITY CONTROL

Date: 7/7/89

QC Set: 5114-6

Lab #'s: 5114-6

Instrument: v3700b

Date of Calibration: 6/29/89

Daily Standard

Calib CF: 108401.2210

Daily CF: 120466.3833

RPD: 11.1301

Spike Recovery

Spiked Lab #: 5114-3

Spike Wt: 30.18 (in grams)

Spike Dup Wt: 30.22 (in grams)

Spike Conc: 3032.0000

Spike PR: 107.6710

Spike Dup PR: 112.5815

COMMENTS:

CF - Calibration Factor
PR - Percent Recovery
RPD - Relative Percent Difference

Date Rec'd: 7/6/89

BC CHAIN OF CUSTODY

NO. L-

Client:	Sampler:	Sample Type:
Name: Applied Geo Systems Address: Fremont, CA 94539 Attn: Leigh Beam	Name: Address: Dan Kickman	Water ✓ Soil ____ Sludge ____ Oil ____ Other: (specify) ____

Lab #	Description: Proj. Location - Hayward, CA #18008-4	Other Tests	Analysis Requested: EPA 502.1/8010	EPA 503.1/8020	EPA 502.2/8010/8020	EPA 504 EDB/DBCP	EPA 524.2/8240	EPA 625/8270	PCB	BTX/TPH Gas	BTX/TPH Diesel	EPA 608/8080
5245-1	W-22-MW4 6-30-89	& TPH		X								
-2	W-24-MW5			X								
-3	W-24-MW6			X								

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Comments:
			Kyle Ent	7/6/89	5:30p	
						48 hour Rush

White: Return to Customer with Report
Yellow. BC Lab Copy

BC Laboratories

Note: Original Chain of Custody Was Not Included in Package. Faxed Copy is All We Rec

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd Ste B
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS
(Volatiles)

Date of Report: 7/10/89 Lab Sample ID No. 5245-1
Laboratory Name: B C Laboratories Signature Lab Director
Name of Sampler: Sampler Employed By:
Date/Time Sample Collected: 7/06/89 Date/Time Sample Received @ Lab: 7/06/89 Were Holding Times Observed? YES
Test Methods: EPA 503.1 Were all the Constituents listed below quantified? YES

==========

System Name: W-22-MW4 Project Location - Hayward, CA #18008-4 System Number:
Description of Sampling Point: County Name:
Name/No. Of Sample Source: Station Number:
Date & Time of Sample: Y Y M M D D T T T T
Water Type G/S
User ID:
Submitted to SWQIS By:

Place an "X" in box to delete all data for this station/date/time

REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSIS RESULTS	DETECTION LIMIT
	Date Analysis Completed			89 (Y Y) 07 (M M) 07 (D D)	
	Analyzing Agency Code (Lab)				
	Intensive Survey Number				
ug/L	Benzene		34030	14.4	0.50
ug/L	Chlorobenzene		34301	ND	0.50
ug/L	1,4-dichlorobenzene		34571	ND	0.50
ug/L	Ethyl Benzene		34371	32.0	0.50
ug/L	Toluene		34010	191.0	0.50
ug/L	m-xylene		81551	15.8	0.50
ug/L	o-xylene		81551	48.0	0.50
ug/L	p-xylene		81551	46.8	0.50
ug/L	Total Purgeable Hydrocarbons		*	550.0	50.0

California D.O.H.S. Cert. #102

*Storet codes are not yet available

NOTE ANY UNIDENTIFIED PEAKS BELOW
Analyzed by GC/MS Method 524.2

NOTE ND = NONE DETECTED

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd Ste B
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS
(Volatiles)

Date of Report: 7/10/89 Lab Sample ID No. 5245-2

Laboratory Name: B C Laboratories

Signature Lab Director

Name of Sampler:

Sampler Employed By:

Date/Time Sample Collected: 7/06/89

Date/Time Sample Received @ Lab: 7/06/89

Were Holding Times Observed? YES

Test Methods: EPA 503.1

Were all the Constituents listed below quantified? YES

System Name: W-24-MW5

Project Location - Hayward, CA #18008-4

System Number:

Description of Sampling Point:

County Name:

Name/No. Of Sample Source:

Station Number: |_|_|_|4|_|_|_|=|_|_|_|_|_|_|_|

Date & Time of Sample: |_|_|_|_|_|_|_|_|_|_| (Y Y M M D D T T T T)

Water Type G/S |_|

User ID: |_|_|_|

Submitted to SWQIS By:

Place an "X" in box to delete all data for this station/date/time |_|

REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSIS RESULTS	DETECTION LIMIT
	Date Analysis Completed	_		89 (Y Y) 07 (M M) 07 (D D)	_._
	Analyzing Agency Code (Lab)	_		_ _ _	_ _ _
	Intensive Survey Number	_		_ _ _	_ _ _
ug/L	Benzene	_	34030	_ 9 7 0 . 0	_ _ 0 . 5 0
ug/L	Chlorobenzene	_	34301	_ _ N D _ _	_ _ 0 . 5 0
ug/L	1,4-dichlorobenzene	_	34571	_ _ N D _ _	_ _ 0 . 5 0
ug/L	Ethyl Benzene	_	34371	_ 5 2 0 . 0	_ _ 0 . 5 0
ug/L	Toluene	_	34010	1 1 0 0 . 0	_ _ 0 . 5 0
ug/L	m-xylene	_	81551	_ 2 5 0 . 0	_ _ 0 . 5 0
ug/L	o-xylene	_	81551	_ 5 3 0 . 0	_ _ 0 . 5 0
ug/L	p-xylene	_	81551	_ 4 7 0 . 0	_ _ 0 . 5 0
ug/L	Total Purgeable Hydrocarbons	_	*	5 2 0 0 . 0	_ _ 0 . 5 0

California D.O.H.S. Cert. #102

*Storet codes are not yet available

NOTE ANY UNIDENTIFIED PEAKS BELOW
Analyzed by GC/MS Method 524.2

NOTE ND = NONE DETECTED

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd Ste B
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS
(Volatiles)

Date of Report: 7/10/89 Lab Sample ID No. 5245-3
Laboratory Name: B C Laboratories Signature Lab Director
Name of Sampler: Employed By:
Date/Time Sample Collected: 7/06/89 Date/Time Sample Received @ Lab: 7/06/89 Were Holding Times Observed? YES
Test Methods: EPA 503.1 Were all the Constituents listed below quantified? YES

System Name: W-24-MW6 Project Location - Hayward, CA #18008-4 System Number:
Description of Sampling Point: County Name:
Name/No. Of Sample Source: Station Number: |-|-|-|4|-|-|-|=|-|-|-|-|-|-|-|
Date & Time of Sample: |-|-|-|-|-|-|-|-|-|-| (Y Y M M D D T T T T) Water Type G/S |-| User ID: |-|-|-| Submitted to SWQIS By:

Place an "X" in box to delete all data for this station/date/time |-|

REPORTING UNITS	CONSTITUENT	T T	STORET CODE	ANALYSIS RESULTS	DETECTION LIMIT
	Date Analysis Completed			89 (Y Y) 07 (M M) 07 (D D)	
	Analyzing Agency Code (Lab)				
	Intensive Survey Number				
ug/L	Benzene		34030	83.5	0.50
ug/L	Chlorobenzene		34301	ND	0.50
ug/L	1,4-dichlorobenzene		34571	ND	0.50
ug/L	Ethyl Benzene		34371	26.9	0.50
ug/L	Toluene		34010	58.7	0.50
ug/L	m-xylene		81551	13.1	0.50
ug/L	o-xylene		81551	35.4	0.50
ug/L	p-xylene		81551	31.4	0.50
ug/L	Total Purgeable Hydrocarbons		*	350.0	0.50

California D.O.H.S. Cert. #102

*Storet codes are not yet available

NOTE ANY UNIDENTIFIED PEAKS BELOW
Analyzed by GC/MS Method 524.2

NOTE ND = NONE DETECTED

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Beacon	Hayward, CA
Project No.	**Field Logbook No.**
18008-9	
Sampler: (Signature)	**Chain of Custody Tape No.**
Dan Kirkman	

Sample No./Identification	Date	Time	Lab No.	TPH gas DHS LUFT	BTEX EPA 503.1						No. of Containers	REMARKS
W-22-MW4	6-30-89		5245-1	X	X						4	WATER
W-24-MW5	6-30-89		-2	X	X						4	WATER
W-24-MW6	6-30-89		-3	X	X						4	WATER
												* Note 48-hour
												turn around
											12	Total

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Dan Kirkman	7-5-89	1100	[signature]	7-5-89	1100
[signature]	7-5-89	1320	K. M. Green 85326	7-5-89	1320
			Cheryl Robberstad	7-6-89	3:20 PM
[signature]	7-6-89	5:17	[signature]		

Report To:	Bill To:	NO:
Leigh Boom Applied GeoSystems 43255 Mission Blvd. Fremont, CA. 94539	Glenn Dembroff Beacon Oil Company 525 West Third St. Hanford, CA. 93230	558 B.C.

White: Return to Customer with Report
Yellow: BC Lab Copy
Pink: Originator Copy

BC Laboratories
4100 Pierce Rd. • Bakersfield, CA 93308

BC Lab # 5245-1 thru 3

SAMPLER (signature): James N Koehler

Phone: 651-1906

LABORATORY: Mobil Chem lab

TURNAROUND TIME: Beacon Standard

Project Leader: L.B.

Phone No. 651-1906

Applied GeoSystems

43255 Mission Blvd Suite B Fremont, CA 94539 415/651-190

SHIPPING INFORMATION:

Shipper

Address

Date Shipped

Service Used

Airbill No. Cooler No.

Relinquished by: (signatures)	Received by: (signatures)	Date	Tim
James N. Koehler			
	Received for laboratory by:		
	[illegible]	10/19/89	3:[illegible]

LABORATORY SHOULD SIGN UPON RECEIPT AND RETURN A COPY OF THIS FORM WITH THE LABORATORY RESULTS

Sample No.	Site Identification	Date Sampled	Analyses Requested	Sample Condition Upon Receipt
W-26-MW1	18008-5	10-18-89	TPHg, BTEX	HCl - ICE
W-24-MW2	18008-5	10-18-89		HCl - ICE
W-28-MW3	18008-5	10-18-89		HCl - ICE
W-23-MW4	18008-5	10-18-89		HCl - ICE
W-25-MW5	18008-5	10-18-89		HCL - ICE
W-25-MW6	18008-5	10-18-89		HCL - ICE

MOBILE CHEM LABS INC.

1678 Rellez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
V109100	SITE # 18008-5
	W-26-MW1 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	79
Benzene	0.5	0.5
Toluene	0.5	0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5
		<0.5

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
V109101	SITE # 18008-5
	W-24-MW2 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	930
Benzene	0.5	240
Toluene	0.5	52
Xylenes	0.5	74
Ethylbenzene	0.5	84

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

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Applied Geosystems
43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description	
V109102	SITE # 18008-5	
	[illegible]-MW3	WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

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Lab Director

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Applied Geosystems
43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
V109103	SITE # 18008-5
	M-28-MW4 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	8,100
Benzene	0.5	1,600
Toluene	0.5	120
Xylenes	0.5	550
Ethylbenzene	0.5	120

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

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Donald G. Evans
Lab Director

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Applied Geosystems
43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
7109104	SITE # 18008-5
	W-25-MW5 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	8,800
Benzene	0.5	2,900
Toluene	0.5	370
Xylenes	0.5	150
Ethylbenzene	0.5	330

Note: Analysis was performed using EPA methods 5030, TPH MFT and 602

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Lab Director

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Applied Geosystems
43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-20-89

Sample Number	Sample Description
[illegible]9105	SITE # 18008-5 W-25-MW6 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

MOBILE CHEM LABS

Donald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd.
Fremont, Ca. 94539
Attn: Bill Short

Date Sampled: 02-22/23-90
Date Received:02-27-90
Date Reported:02-28-90

Sample Number	Sample Description	Detection Limit	SOIL Total Petroleum Hydrocarbons as Diesel
		ppm	ppm
	Ultramar # 546 29705 Mission Blvd., Hayward Project # 18008-6		
B020168	S-20-B8	5	<5
B020169	S-25-B8	5	<5
B020171	S-20-B7	5	<5
B020172	S-221/2-B7	5	<5

Note: Analysis was performed using EPA methods 3550 and TPH LUFT

MOBILE CHEM LABS

Joyce A V Dishmeau

for Ronald G. Evans
Lab Director

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.: 18008-6

PROJECT NAME: Former [illegible] STATION [illegible] 20705 Mission Blvd, [illegible]

P.O NO:

SAMPLERS (Signature): [illegible]

DATE MM/DD/YY	TIME		No. of Cont-ainers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)						Preserved?	REMARKS	LABORATORY I.D. NUMBER
2/22/93	1500	S-15-B8	1	/	X							[illegible]		
		S-20-B8	1	.	/	X								
		S-25 B8	1	.	X	/								
2/23/93	1500	S-17½-B7	1	X	X								[illegible]	
		S 20-B7	1	X	X	X								
		S-22½-B7	1	X	X	X								

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
[illegible]	[illegible] 1400	[illegible]
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature)
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature)

Laboratory: [illegible]

Turn Around: [illegible]

SEND RESULTS TO:

Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826

(415) 651-1906

Proj. Mgr.: Bill Short

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied GeoSystems
43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-23-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
B020170	Project # 18008-6 Ultramar Station # 5346 29705 Mission Blvd., Hayward S-171 2-B7 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	1.5
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	<0.1
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 5020 used for BTX distinction.

MOBILE CHEM LABS

Joyce A. V. Dishmeau

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied GeoSystems
43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-23-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
B020171	Project # 18008-6 Ultramar Station # 546 29705 Mission Blvd., Hayward 3-20-87 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	9.9
Benzene	0.1	0.1
Toluene	0.1	0.1
Xylenes	0.1	0.1
Ethylbenzene	0.1	0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Joyce M Dishneau

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied GeoSystems
43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-23-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
B020172	Project # 18008-6 Ultramar Station # 5146 29705 Mission Blvd., Hayward S-221/2-B7 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	<1.0
Benzene	0.1	<0.1
Toluene	0.1	0.1
Xylenes	0.1	0.1
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Joyce M Dishneau

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied GeoSystems
43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-22-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
B020167	Project # 18008-6 Ultramar Station # 5346 29705 Mission Blvd., Hayward 2-15-88 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	14
Benzene	0.1	0.9
Toluene	0.1	0.1
Xylenes	0.1	0.1
Ethylbenzene	0.1	0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Joyce A. Dishaccio

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied GeoSystems
43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-22-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
B020168	Project # 18008-6 Ultramar Station # 546 29705 Mission Blvd., Hayward 3-20-88 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	150
Benzene	0.1	1.7
Toluene	0.1	0.1
Xylenes	0.1	6.6
Ethylbenzene	0.1	2.7

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Rellez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied GeoSystems
43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-22-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
B020169	Project # 18008-6 Ultramar Station # 5146 29705 Mission Blvd., Hayward 3-25-88 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	2.6
Benzene	0.1	0.3
Toluene	0.1	<0.1
Xylenes	0.1	0.3
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Joyce A V Dishneau

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

INVOICE

Invoice to: Ultramar Inc.
525 W. 3rd. St.
Hanford, CA. 93230
Attn: Glenn Dembroff

Invoice # 01176

Invoice Date:03-16-90 P.O. # Terms: NET 30 DAYS

QUANTITY	DESCRIPTION	UNIT COST	EXTENSION
	Ultramar - Hayward Project # 18008-6 rec'd 03-07-90	Applied Geosystems Eric Twitty	
8	Total Petroleum Hydrocarbons as Gasoline with BTX Distinction WATER	$90.00	$720.00
32	VOA'S @ $1.47 each		$47.04
8	Total Petroleum Hydrocarbons as Diesel WATER	$90.00	$720.00
	Analytical Discount		<$432.00>
	Courier Charge		$20.00
		AMOUNT DUE	$1,075.04

2 % PER MONTH INTEREST CHARGES ON ACCOUNTS OVER 30 DAYS
ALL ACCOUNTS ARE SUBJECT TO COLLECTION & LEGAL FEES AFTER DUE DATE

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
18008-6	BEACON - HAYWARD
P.O. NO.	SAMPLERS (Signature)
	TWitty

DATE MM/DD/YY	TIME		No. of Cont-ainers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Preserved?	REMARKS	LABORATORY I.D. NUMBER
3/5	3:00	W-26-MW3	4	X	X		HCl/ICE		
3/5	3:00	W-26-MW3	1			X			
3/5	3:30	W-23-MW6	4	X	X				
3/5	3:30	W-23-MW6	1			X			
3/6	4:00	W-23-MW2	4	X	X		HCl/ICE		
3/6	4:00	W-23-MW2	1			X			
3/6	4:45	W-16-MW8	4	X	X				
3/6	4:45	W-16-MW8	1			X			
3/6	4:30	W-17-MW7	4	X	X				
3/6	4:30	W-17-MW7	1			X			
	4:15	W-21-MW4	4	X	X				
	4:15	W-21-MW4	1			X			
	4:30	W-23-MW5	4	X	X				
	4:30	W-23-MW5	1			X			
	4:00	W-24-MW1	4	X	X				
	4:00	W-24-MW1	1			X			

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
TWitty	3/7/90 15:15	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
	3/7/90 10:00	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):

Laboratory:

Turn Around: 2 week

SEND RESULTS TO:

Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826

(415) 651-1906

Proj. Mgr.: Bill Short

MOBILE CHEM LABS INC.

1678 Rellez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received:03-07-90
Date Reported:03-15-89

Sample Number	Sample Description
B030079	Project # 18008-6 Ultramar Hayward W-24-MW1 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	3,100
Benzene	0.5	800
Toluene	0.5	190
Xylenes	0.5	380
Ethylbenzene	0.5	0.6

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce W Dishman

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

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Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received: 03-07-90
Date Reported: 03-13-89

Sample Number	Sample Description
B030074	Project # 18008-6 Ultramar Hayward W-23-MW2 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	260
Benzene	0.5	4.3
Toluene	0.5	2.5
Xylenes	0.5	44
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce A.V. Diskman

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

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Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-05-90
Date Received:03-07-90
Date Reported:03-12-89

Sample Number	Sample Description
B030072	Project # 18008-6 Ultramar Hayward W-26-MW3 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce V. Dishman

for Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received:03-07-90
Date Reported:03-14-89

Sample Number	Sample Description
B030077	Project # 18008-6 Ultramar Hayward W-21-MW4 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	1,300
Benzene	0.5	280
Toluene	0.5	71
Xylenes	0.5	190
Ethylbenzene	0.5	0.6

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce M Dishman

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received:03-07-90
Date Reported:03-15-89

Sample Number	Sample Description
B030078	Project # 18008-6 Ultramar Hayward W-23-MW5 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	27,000
Benzene	0.5	5,400
Toluene	0.5	980
Xylenes	0.5	3,400
Ethylbenzene	0.5	1,300

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-05-90
Date Received: 03-07-90
Date Reported: 03-12-89

Sample Number	Sample Description
B030073	Project # 18008-6 Ultramar Hayward W-23-MW6 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	1.3
Toluene	0.5	1.4
Xylenes	0.5	1.7
Ethylbenzene	0.5	1.2

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce A. V. Dishneau

for Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received: 03-07-90
Date Reported: 03-14-89

Sample Number	Sample Description
B030076	Project # 18008-6 Ultramar Hayward W-17-MW7 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	270
Benzene	0.5	22
Toluene	0.5	<0.5
Xylenes	0.5	1.4
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce M Dishroom

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

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Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received:03-07-90
Date Reported:03-15-89

Sample Number	Sample Description
B030075	Project # 18008-6 Ultramar Hayward W-16-MW8 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	1,200
Benzene	0.5	800
Toluene	0.5	190
Xylenes	0.5	380
Ethylbenzene	0.5	0.6

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce V Dishman

Ronald G. Evans
Lab Director

APPENDIX D
SIEVE ANALYSIS

SIEVE ANALYSIS DATA SHEET

Job No.: 18008-5 Client/Location: Beacon / Hayward

Sample No.: S-25-B5 Boring No.: B5 Depth: 25'

Soil Description: Silt clay (c. Fed)

Pan: D Amount Tested (Dry Weight): 500/426 gms.

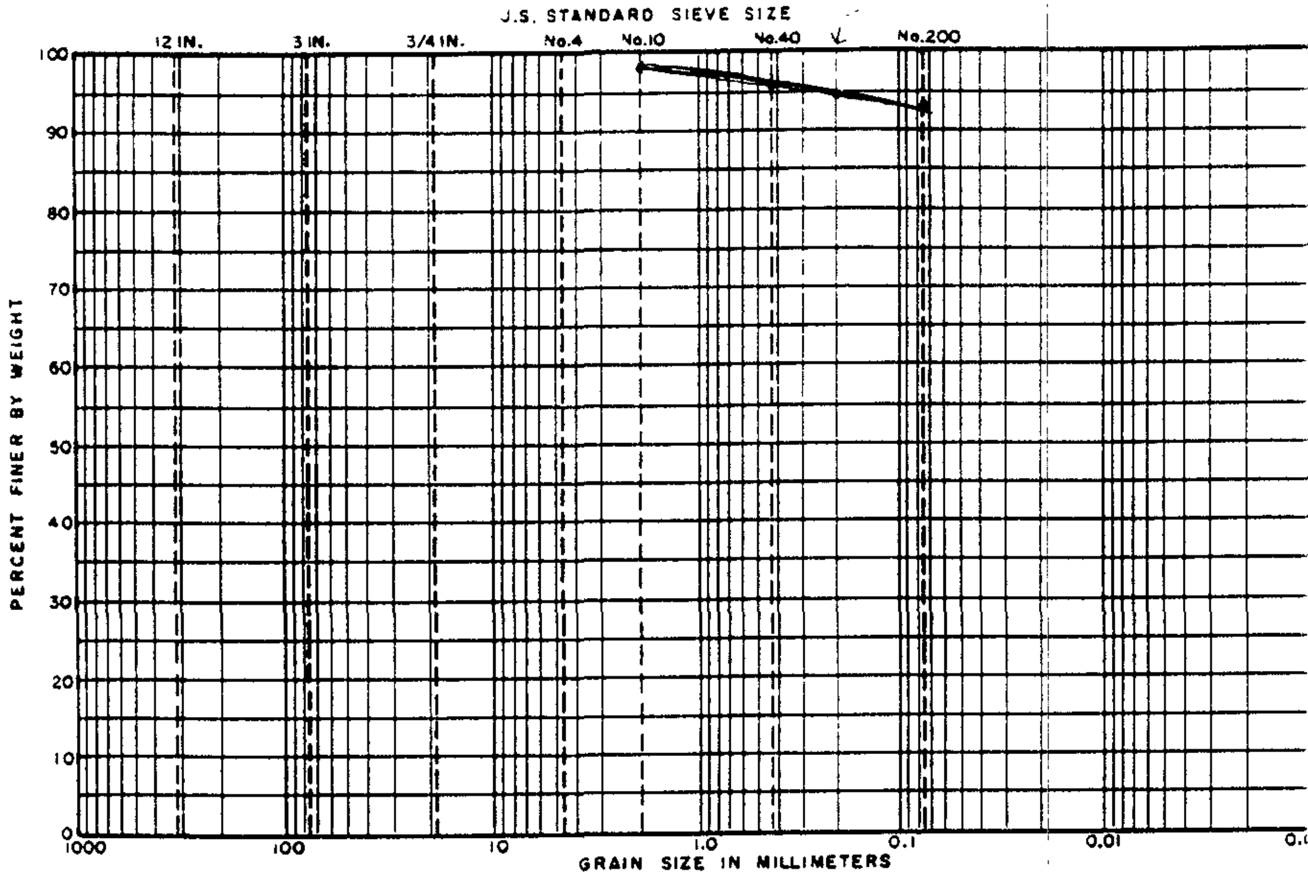
Sieve Number (Circle)	Cumulative Weight Retained (gms.)	Cumulative Percent Retained (%)	Cumulative Percent Passing (%)
4"			
2"			
1"			
1/2"			
1/4"			
#10			
#20	9	2.1	97.8
#40	20	3.7	96.3
#60	22	5.	94.0
#100	30	7.0	93.0
#140	37	8.6	91.4
#200	42	9.8	90.2%

#200 Wash Analysis

Dry weight before wash:	420	gms.
Weight retained after wash:	43	gms.
Percent retained:	10	%
Percent passing #200:	90	%

DRAWN BY ____ DATE ____
CHECKED BY ____ DATE ____

JOB NUMBER 18008 4 CLIENT B[illegible]
LOCATION Hayward



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

(UNIFIED SOIL CLASSIFICATION SYSTEM)

LEGEND			
BORING NUMBER		5	
DEPTH (FEET)		25	
SOIL DESCRIPTION		CL	
EFFECTIVE SIZE, D_{10}			
COEFFICIENT OF UNIFORMITY D_{60}/D_{10}			
COEFFICIENT OF CURVATURE $D_{30}^2/(D_{10} \times D_{60})$			

GRADATION TEST DATA

RON ARCHER
CIVIL ENGINEER, INC.

CONSULTING • PLANNING • DESIGN • SURVEYING

4133 Mohr Ave., Suite E • Pleasanton, CA 94566
(415) 462-9372

JULY 5, 1989
* REVISED FEBRUARY 27, 1990

JOB NO.1574
JOB NO 1574.1

ELEVATIONS OF EXISTING MONITOR WELLS LOCATED AT AND AROUND THE BEACON GAS STATION AT 29705 MISSION BOULEVARD AT WEST INDUSTRIAL PARKWAY, CITY OF HAYWARD ALAMEDA COUNTY, CALIFORNIA.

FOR APPLIED GEOSYSTEMS
PROJECT NO. 18008-4
18008-6

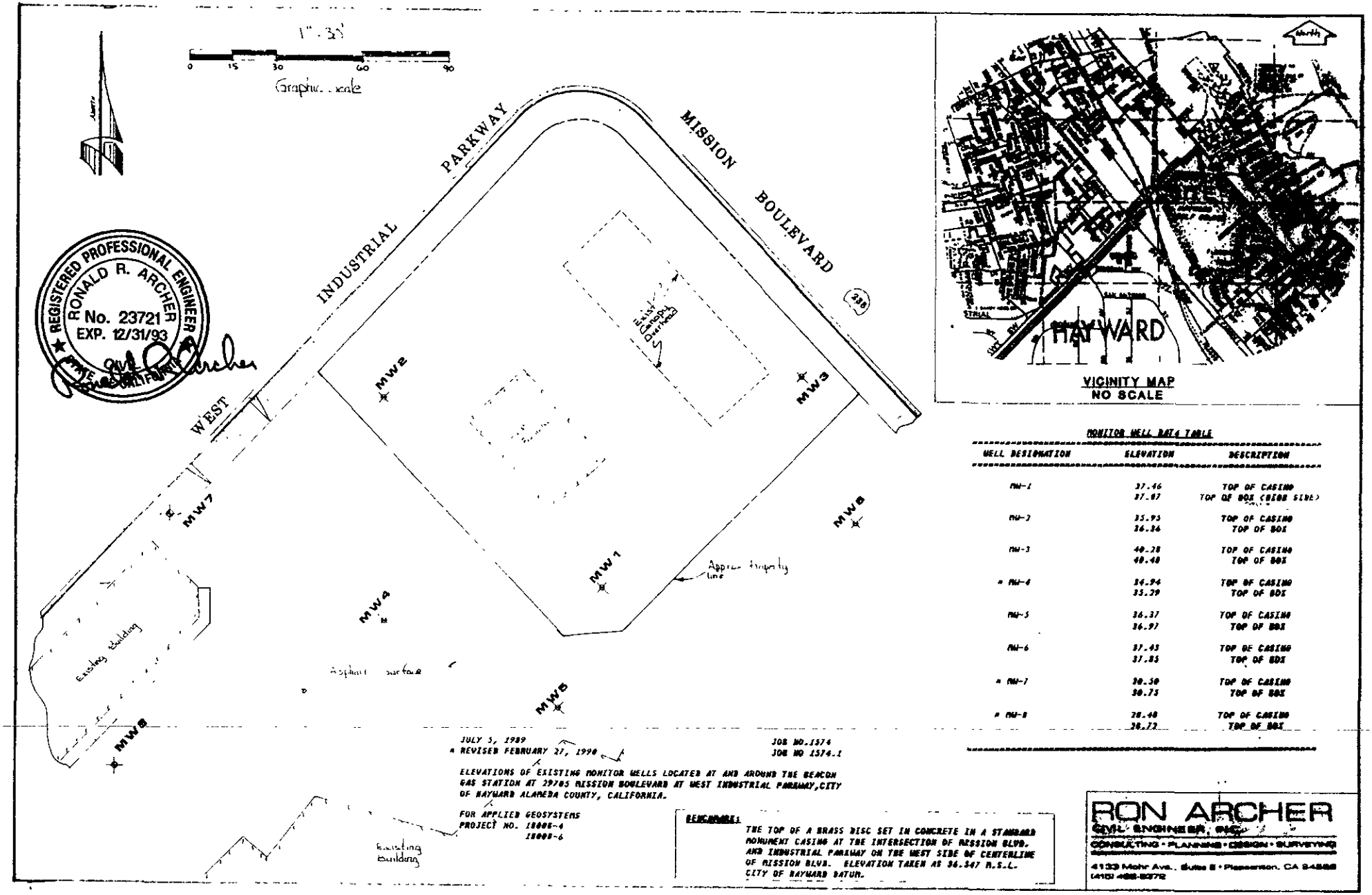
BENCHMARK:

THE TOP OF A BRASS DISC SET IN CONCRETE IN A STANDARD MONUMENT CASING AT THE INTERSECTION OF MISSION BLVD. AND INDUSTRIAL PARKWAY ON THE WEST SIDE OF CENTERLINE OF MISSION BLVD. ELEVATION TAKEN AS 36.547 M.S.L. CITY OF HAYWARD DATUM.

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEVATION	DESCRIPTION
MW-1	37.46	TOP OF CASING
	37.87	TOP OF BOX (HIGH SIDE)
MW-2	35.95	TOP OF CASING
	36.36	TOP OF BOX
MW-3	40.28	TOP OF CASING
	40.48	TOP OF BOX
* MW-4	34.94	TOP OF CASING
	35.29	TOP OF BOX
MW-5	36.37	TOP OF CASING
	36.97	TOP OF BOX
MW-6	37.43	TOP OF CASING
	37.85	TOP OF BOX
* MW-7	30.50	TOP OF CASING
	30.75	TOP OF BOX
* MW-8	28.48	TOP OF CASING
	28.72	TOP OF BOX

APPENDIX E
SURVEYORS REPORT



MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEVATION	DESCRIPTION
MW-1	37.46	TOP OF CASING
	37.87	TOP OF BOX (HIGH SIDE)
MW-2	35.93	TOP OF CASING
	36.36	TOP OF BOX
MW-3	40.28	TOP OF CASING
	40.48	TOP OF BOX
* MW-4	34.94	TOP OF CASING
	35.29	TOP OF BOX
MW-5	36.37	TOP OF CASING
	36.97	TOP OF BOX
MW-6	37.43	TOP OF CASING
	37.85	TOP OF BOX
* MW-7	36.56	TOP OF CASING
	36.75	TOP OF BOX
* MW-8	28.48	TOP OF CASING
	28.72	TOP OF BOX

JULY 5, 1989 JOB NO.1574
* REVISED FEBRUARY 27, 1990 JOB NO 1574.1

ELEVATIONS OF EXISTING MONITOR WELLS LOCATED AT AND AROUND THE BEACON GAS STATION AT 29705 MISSION BOULEVARD AT WEST INDUSTRIAL PARKWAY, CITY OF HAYWARD ALAMEDA COUNTY, CALIFORNIA.

FOR APPLIED GEOSYSTEMS
PROJECT NO. 18008-4
18008-6

BENCHMARK:
THE TOP OF A BRASS DISC SET IN CONCRETE IN A STANDARD MONUMENT CASING AT THE INTERSECTION OF MISSION BLVD. AND INDUSTRIAL PARKWAY ON THE WEST SIDE OF CENTERLINE OF MISSION BLVD. ELEVATION TAKEN AS 36.547 M.S.L. CITY OF HAYWARD DATUM.

RON ARCHER
CIVIL ENGINEER, INC.
CONSULTING · PLANNING · DESIGN · SURVEYING
4133 Mohr Ave., Suite B · Pleasanton, CA 94566
(415) 462-9272

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Lab #:6275-2 (cont.)

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		.5	0.50
503.1	m,p-Xylene	A-014	5 3		
503.1	o-Xylene	77135	2 9		
503.1	Total Xylenes (m,p, o)	81551	3 2	1750	1.50
	Pentazon (Basagran)	38710		18	2.0
	Dibromochloropropane (DBCP)	38761		.2	0.01
	Ethylene Dibromide (EDB)	77651		.02	0.02
	Atrazine (AAtrex)	39033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Polero)	A-001		70	0.80
	Endrin	39390		.2	0.01
	Lindane (gamma-BHC)	39340		4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	39730		100	10.
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	* DRL
	Bromobenzene	81555		0.50
	Bromochloromethane	A-012		0.50
	Bromomethane (Methyl Bromide)	34413		0.50
	n-Butylbenzene	A-010		0.50
	sec-Butylbenzene	77350		0.50
	tert-Butylbenzene	77353		0.50
	Chloroethane	34311		0.50
	2-Chloroethylvinyl ether	34576		1.0
	Chloromethane (Methyl Chloride)	34418		0.50
	2-Chlorotoluene	A-008		0.50
	4-Chlorotoluene	A-009		0.50
	Dibromomethane	77596		0.50
	1,2-Dichlorobenzene (o-DCB)	34536		0.50
	1,3-Dichlorobenzene (m-DCB)	34566		0.50
	Dichlorodifluoromethane	34668		0.50
	1,1-Dichloroethane (1,1-DCA)	34496		0.50
	cis-1,2-Dichloroethylene	77093		0.50
	trans-1,3-Dichloromethylene	34546		0.50
	1,2-Dichloropropane	34541		0.50
	1,3-Dichloropropane	77173		0.50

ENVIRONMENTAL
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4100 PIERCE RD.. BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	* DRL
	2,2-Dichloropropane	77170		0.50
	1,1-Dichloropropene	77168		0.50
	Hexachlorobutadiene	34391		0.50
	Isopropylbenzene	77223		0.50
	p-Isopropyltoluene	A-011		0.50
	Methylene chloride	34423		0.50
	Naphthalene	34696		0.50
	n-Propylbenzene	77224		0.50
	Styrene	77128		0.50
	1,1,1,2-Tetrachloroethane	77562		0.50
503.1	Toluene	34010	5 7	0.50
	1,2,3-Trichlorobenzene	77613		0.50
	1,2,4-Trichlorobenzene	34551		0.50
	Trichlorofluoromethane (Freon 11)	34488		0.50
	1,2,3-Trichloropropane	77443		0.50
	Trichlorotrifluoroethane (Freon 113)	81611		0.50
	1,2,4-Trimethylbenzene	77222		0.50
	1,3,5-Trimethylbenzene	77226		0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595		5.0
	Methyl Isobutyl Ketone (MIBK)	81596		5.0
	Alachlor (Lasso)	77825		
	Chlordane	39350		0.10
	Heptachlor	39410		0.01
	Heptachlor Epoxide	39420		0.01
	Bromacil (Hyvar)	82198		
	Diazinon	39570		
	Prometryn (Caparol)	39057		
	Chlorothalonil (Daconil, Bravo)	70314		
	Dimethoate (Cygon)	38459		
	Diethylhexylphthalate (DEHP)	39100		5.0
	Aldicarb (Temik)	39053		
	Carbofuran (Furadan)	81405		
	Glyphosate	79743		

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 25.0 µg/L Minimum Reporting Level = 0.50 µg/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
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J. J. EGLIN, REG. CHEM. ENGR.

4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

40055 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 8/22/89
Laboratory Name: B C Laboratories
Name of Sampler:
Lab Sample ID No. 8275-4
Signature Lab Director:
Sampler Employed By:

Date/Time Sample Collected: 8/10/89
Date/Time Sample Received @ Lab: 8/14/89
Date Analysis Completed: 8/18/89

System Name: BOC #18008-F Hayward, CA N-23-MW4 8/10/89
System Number:

Name or Number of Sample Source:

Water Type: (G/S) _ Station Number: | | | | | | | | | | | | |

Date/Time of Sample: | | | | | | | | | | | | (Y Y M M D D T T T T) User ID: | | | |

Analyzing Agency Code: |5|2|2|6| Date Analysis Completed: |8|9|0|8|1|8| (Y Y M M D D)

Submitted by: Phone #:

Place an "X" in box to delete all data for this station date/time. |_|

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			0.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	82080		100	0.50
503.1	Benzene	34030		1	0.50
	Carbon tetrachloride	32102		5	0.50
503.1	Ethylbenzene	34371	ND	680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571	ND	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		6	0.50
	Total 1,3-Dichloropropene	34561		5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	ND	20	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
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BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	MCL µg/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		.5	0.50
503.1	m,p-Xylene	A-014			
503.1	o-Xylene	77135			
503.1	Total Xylenes m.p.	81551		1750	1.50
	Benzene (Basagran)	28710		18	2.0
	Dibromochloropropane (DBCP)	38761			0.01
	Ethylene Dibromide (EDB)	77651		.02	0.02
	Atrazine (AAtrex)	39033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Bolero)	A-001		70	0.80
	Endrin	39390		2	0.01
	Lindane (gamma-BHC)	39340		4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	39730		100	10.
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	* DRL
	Bromobenzene	81555		0.50
	Bromochloromethane	A-012		0.50
	Bromomethane (Methyl Bromide)	34413		0.50
	n-Butylbenzene	A-010		0.50
	sec-Butylbenzene	77350		0.50
	tert-Butylbenzene	77353		0.50
	Chloroethane	34311		0.50
	2-Chloroethylvinyl ether	34576		1.0
	Chloromethane (Methyl Chloride)	34418		0.50
	2-Chlorotoluene	A-008		0.50
	4-Chlorotoluene	A-009		0.50
	Dibromomethane	77596		0.50
	1,2-Dichlorobenzene (o-DCB)	34536		0.50
	1,3-Dichlorobenzene (m-DCB)	34566		0.50
	Dichlorodifluoromethane	34668		0.50
	1,1-Dichloroethane (1,1-DCA)	34496		0.50
	cis-1,2-Dichloroethylene	77093		0.50
	trans-1,2-Dichloroethylene	34546		0.50
	1,2-Dichloropropane	34541		0.50
	1,3-Dichloropropane	77173		0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Lab #:6275-4 (cont.)

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS		DRL
	2,2-Dichloropropane	77170			0.50
	1,1-Dichloropropene	77168			0.50
	Hexachlorobutadiene	34391			0.50
	Isopropylbenzene	77223			0.50
	p-Isopropyltoluene	4-011			0.50
	Methylene chloride	34423			0.50
	Naphthalene	34696			0.50
	n-Propylbenzene	77224			0.50
	Styrene	77128			0.50
	1,1,1,2-Tetrachloroethane	77562			0.50
503.1	Toluene	34010	4	6	0.50
	1,2,3-Trichlorobenzene	77613			0.50
	1,2,4-Trichlorobenzene	34551			0.50
	Trichlorofluoromethane (Freon 11)	34488			0.50
	1,2,3-Trichloropropane	77443			0.50
	Trichlorotrifluoroethane (Freon 113)	81611			0.50
	1,2,4-Trimethylbenzene	77222			0.50
	1,3,5-Trimethylbenzene	77226			0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595			5.0
	Methyl Isobutyl Ketone (MIBK)	81596			5.0
	Alachlor (Alanex)	77825			
	Chlordane	39350			0.10
	Heptachlor	39410			0.01
	Heptachlor Epoxide	39420			0.01
	Bromacil (Hyvar)	82198			
	Diazinon	39570			
	Prometryn (Caparol)	39057			
	Chlorothalonil (Daconil, Bravo)	70314			
	Dimethoate (Cygon)	38458			
	Diethylhexylphthalate (DEHP)	39100			5.2
	Aldicarb (Temik)	39053			
	Carbofuran (Furadan)	81405			
	Glyphosate	79743			

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 2500. ug/L Minimum Reporting Level = 0.50 ug/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 3/22/89 Lab Sample ID No: 8275-5
Laboratory Name: B C Laboratories Signature Lab Director:
Name of Sampler: Employed By:
Date/Time Sample Collected: 3/10/89 Date/Time Sample Received @ Lab: 3/14/89 Date Analysis Completed: 3/18/89

System Name: BOC #18008-5 Hayward, CA N-24-MW5 3/10/89 System Number:

Name or Number of Sample Source:

Water Type: (G/S): Station Number:

Date/Time of Sample: Y Y M M D D T T T T User ID:

Analyzing Agency Code: 5260 Date Analysis Completed: 8 9 0 8 1 3 (Y Y M M D D)

Submitted by: Phone #:

Place an "X" in box to delete all data for this station date/time.

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	k PRL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			0.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	32080		100	0.50
503.1	Benzene	34030	2 6 0	1	0.50
	Carbon tetrachloride	32102		.5	0.50
503.1	Ethylbenzene	34371	3 2 0	680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571	N D	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		.5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		6	0.50
	Total 1,3-Dichloropropene	34561		.5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	N D	30	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

k Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN. REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD. CALIFORNIA 93308 PHONE 327-4911

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		.5	0.50
503.1	m,p-Xylene	A-014	2 8 0		
503.1	o-Xylene	77135	2 8 0		
503.1	Total Xylenes (m,p, &	81551	2 1 0	175	1.50
	Bentazon (Basagran)	38711		18	2.0
	Dibromochloropropane (DBCP)	38761		.2	0.01
	Ethylene Dibromide (EDB)	77651		.02	0.02
	Atrazine (AAtrex)	39033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Bolero)	A-001		70	0.80
	Endrin	39390		.2	0.01
	Lindane (gamma-BHC)	39340		.4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	39730		100	10
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYTE RESULTS	* DRL
	Bromobenzene	81555		0.50
	Bromochloromethane	A-012		0.50
	Bromomethane (Methyl Bromide)	34413		0.50
	n-Butylbenzene	A-010		0.50
	sec-Butylbenzene	77350		0.50
	tert-Butylbenzene	77353		0.50
	Chloroethane	34311		0.50
	2-Chloroethylvinyl ether	34576		1.0
	Chloromethane (Methyl Chloride)	34418		0.50
	2-Chlorotoluene	A-008		0.50
	4-Chlorotoluene	A-009		0.50
	Dibromomethane	77596		0.50
	1,2-Dichlorobenzene (o-DCB)	34536		0.50
	1,3-Dichlorobenzene (m-DCB)	34566		0.50
	Dichlorodifluoromethane	34668		0.50
	1,1-Dichloroethane (1,1-DCA)	34496		0.50
	cis-1,2-Dichloroethylene	77093		0.50
	trans-1,2-Dichloroethylene	34546		0.50
	1,2-Dichloropropane	34541		0.50
	1,3-Dichloropropane	77173		0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD.. BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Lab #:6275-5 (cont.)

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	* PRL
	2,2-Dichloropropane	77170		0.50
	1,1-Dichloropropene	77168		0.50
	Hexachlorobutadiene	34391		0.50
	Isopropylbenzene	77223		0.50
	p-Isopropyltoluene	A-011		0.50
	Methylene chloride	34423		1.50
	Naphthalene	34696		0.50
	n-Propylbenzene	77224		0.50
	Styrene	77128		0.50
	1,1,1,2-Tetrachloroethane	77562		0.50
503.1	Toluene	34010	430	0.50
	1,2,3-Trichlorobenzene	77613		0.50
	1,2,4-Trichlorobenzene	34551		0.50
	Trichlorofluoromethane (Freon 11)	34488		0.50
	1,2,3-Trichloropropane	77443		0.50
	Trichlorotrifluoroethane (Freon 113)	81611		0.50
	1,2,4-Trimethylbenzene	77222		0.50
	1,3,5-Trimethylbenzene	77226		0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595		5.0
	Methyl Isobutyl Ketone (MIBK)	81596		5.0
	Alachlor (Alanex)	77825		
	Chlordane	39350		0.10
	Heptachlor	39410		0.01
	Heptachlor Epoxide	39420		0.01
	Promacil (Hyvar)	82198		
	Diazinon	39570		
	Prometryn (Caparol)	39057		
	Chlorothaloni1 (Daconil, Bravo)	70314		
	Dimethoate (Cygon)	38458		
	Diethylhexylphthalate (DEHP)	39100		5.0
	Aldicarb (Temik)	39053		
	Carbofuran (Furadan)	31405		
	Glyphosate	79743		

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 2300. ug/L Minimum Reporting Level = 0.50 ug/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

J. J. EGLIN. REG. CHEM. ENGR.

4100 PIERCE RD.. BAKERSFIELD. CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 3/22/89
Laboratory Name: B C Laboratories
Name of Sampler:
Lab Sample ID No.: 6275-6
Signature Lab Director:
Sampler Employed By:

Date/Time Sample Collected: 3/10/89
Date/Time Sample Received @ Lab: 3/14/89
Date Analysis Completed: 3/18/89

System Name: EOC #18008-6 Hayward, CA W-Blank 3/10/89
System Number:

Name or Number of Sample Source:

Water Type: (G/S) |_| Station Number: |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Date/Time of Sample: |_|_|_|_|_|_|_|_|_|_| (Y Y M M D D T T T T) User ID: |_|_|_|

Analyzing Agency Code: |5|8|0|6| Date Analysis Completed: |3|2|0|8|1|8| (Y Y M M D D)

Submitted by: Phone #:

Place an "X" in box to delete all data for this station/date/time. |_|

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			0.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	82080		100	0.50
503.1	Benzene	34030	2 8 0	1	0.50
	Carbon tetrachloride	32102		5	0.50
503.1	Ethylbenzene	34371	2 2	680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571	N D	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		5	0.50
	Total 1,3-Dichloropropene	34561		5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	N D	30	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	34506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN. REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD. CALIFORNIA 93308 PHONE 327-4911

Lab #:6275-6 (cont.)

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	MCL µg/L	*	DEL
	Trichloroethylene (TCE)	39180		5		0.50
	Vinyl Chloride (VC)	39175		5		0.50
503.1	m,p-Xylene	A-014	[illegible]	4		
503.1	o-Xylene	77135	[illegible]	4		
503.1	Total Xylenes (m,p, & o)	81551	[illegible]	1750		1.50
	Pentachlorophenol (Pentagran)	39710		13		[illegible]
	Dibromochloropropane (DBCP)	38761		[illegible]		[illegible]
	Ethylene Dibromide (EDB)	77651		02		0.02
	Atrazine (AAtrex)	39033		3		1.00
	Molinate (Ordram)	82199		20		2.0
	Simazine (Princep)	39055		10		1.0
	Thiobencarb (Bolero)	A-001		70		0.80
	Endrin	39390		2		0.01
	Lindane (gamma-BHC)	39340		4		0.40
	Methoxychlor	39480		100		10.
	Toxaphene	39400		5		0.50
	2,4-D	39730		100		10.
	2,4,5-TP (Silvex)	39045		10		1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	*	DEL
	Bromobenzene	81555			0.50
	Bromochloromethane	A-012			0.50
	Bromomethane (Methyl Bromide)	34413			0.50
	n-Butylbenzene	A-010			0.50
	sec-Butylbenzene	77350			0.50
	tert-Butylbenzene	77353			0.50
	Chloroethane	34311			0.50
	2-Chloroethylvinyl ether	34576			1.0
	Chloromethane (Methyl Chloride)	24418			0.50
	2-Chlorotoluene	A-008			0.50
	4-Chlorotoluene	A-009			0.50
	Dibromomethane	77596			0.50
	1,2-Dichlorobenzene (o-DCB)	34536			0.50
	1,3-Dichlorobenzene (m-DCB)	34566			0.50
	Dichlorodifluoromethane	34668			0.50
	1,1-Dichloroethane (1,1-DCA)	34496			0.50
	cis-1,2-Dichloroethylene	77093			0.50
	trans-1,2-Dichloroethylene	34546			0.50
	1,2-Dichloropropane	34541			0.50
	1,3-Dichloropropane	77173			0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	DRL
	2,2-Dichloropropane	77170		0.50
	1,1-Dichloropropene	77168		0.50
	Hexachlorobutadiene	34391		0.50
	Isopropylbenzene	77223		0.50
	p-Isopropyltoluene	A-011		0.50
	Methylene chloride	34423		.50
	Naphthalene	34696		0.50
	n-Propylbenzene	77224		0.50
	Styrene	77128		0.50
	1,1,1,2-Tetrachloroethane	77562		0.50
503.1	Toluene	34010	1.2 J	0.50
	1,2,3-Trichlorobenzene	77613		0.50
	1,2,4-Trichlorobenzene	34551		0.50
	Trichlorofluoromethane (Freon 11)	34488		0.50
	1,2,3-Trichloropropane	77443		0.50
	Trichlorotrifluoroethane (Freon 113)	81611		0.50
	1,2,4-Trimethylbenzene	77222		0.50
	1,3,5-Trimethylbenzene	77226		.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595		5.0
	Methyl Isobutyl Ketone (MIBK)	81596		5.0
	Alachlor (Alanex)	77825		
	Chlordane	39350		.1
	Heptachlor	39410		0.01
	Heptachlor Epoxide	39420		0.01
	Bromacil (Hyvar)	82198		
	Diazinon	39570		
	Prometryn (Caparol)	39057		
	Chlorothalonil (Daconil, Bravo)	70314		
	Dimethoate (Cygon)	38458		
	Diethylhexylphthalate (DEHP)	39100		5.0
	Aldicarb (Temik)	39053		
	Carbofuran (Furadan)	81405		
	Glyphosate	79743		

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 75. µg/L Minimum Reporting Level = 0.50 µg/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD., BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Applied GeoSystems
Attention: Leigh Beem

43255 Mission Blvd
Fremont, CA 94539

PURGEABLE ORGANIC ANALYSIS

Date of Report: 3/22/89
Laboratory Name: B C Laboratories
Name of Sampler:
Lab Sample ID No.: 8275-7
Signature Lab Director:
Sampler Employed By:
Date/Time Sample Collected: 3/10/89
Date/Time Sample Received @ Lab: 3/14/89
Date Analysis Completed: 3/18/89

System Name: BCC #18008-6 Hayward, CA N-25-MW6 3/10/89
System Number:

Name or Number of Sample Source:

Water Type: (G/S) |_| Station Number: |_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Date/Time of Sample: |_|_|_|_|_|_|_|_|_|_| (Y Y M M D D T T T T) User ID: |_|_|_|

Analyzing Agency Code: |5|3|0|6| Date Analysis Completed: |8|9|0|8|1|8| (Y Y M M D D)

Submitted by: Phone #:

Place an "X" in box to delete all data for this station/date/time. |_|

REGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Bromodichloromethane	32101			0.50
	Bromoform	32104			0.50
	Chloroform	32106			0.50
	Dibromochloromethane	32105			0.50
	Total trihalomethanes	82080		100	0.50
503.1	Benzene	34030	1 8 7	1	0.50
	Carbon tetrachloride	32102		.5	0.50
503.1	Ethylbenzene	34371	N D	680	0.50
503.1	1,4-Dichlorobenzene (p-DCB)	34571	N D	5	0.50
	1,2-Dichloroethane (1,2-DCA)	34531		5	0.50
	1,1-Dichloroethylene (1,1-DCE)	34501		6	0.50
	Total 1,3-Dichloropropene	34561		5	0.50
503.1	Monochlorobenzene (Chlorobenzene)	34301	N D	30	0.50
	1,1,2,2-Tetrachloroethane	34516		1	0.50
	Tetrachloroethylene (PCE)	34475		5	0.50
	1,1,1-Trichloroethane (1,1,1-TCA)	24506		200	0.50
	1,1,2-Trichloroethane (1,1,2-TCA)	34511		32	0.50

* Detection Limit for Reporting purposes

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD.. BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

REGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	MCL ug/L	* DRL
	Trichloroethylene (TCE)	39180		5	0.50
	Vinyl Chloride (VC)	39175		5	0.50
503.1	m,p-Xylene	A-014	21 98		
503.1	o-Xylene	77135	ND		
503.1	Total Xylenes (m,p,)	81551	21 98	1750	0.50
	Pentazon (Basagran)	28710		18	2.0
	Dibromochloropropane (DBCP)	28761		0	0.01
	Ethylene Dibromide (EDB)	77651		02	0.02
	Atrazine (AAtrex)	29033		3	1.00
	Molinate (Ordram)	82199		20	2.0
	Simazine (Princep)	39055		10	1.0
	Thiobencarb (Bolero)	A-001		70	0.80
	Endrin	39390		.2	0.01
	Lindane (gamma-BHC)	39340		4	0.40
	Methoxychlor	39480		100	10.
	Toxaphene	39400		5	0.50
	2,4-D	39720		100	10.
	2,4,5-TP (Silvex)	39045		10	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSIS RESULTS	* DRL
	Bromobenzene	81555		0.50
	Bromochloromethane	A-012		0.50
	Bromomethane (Methyl Bromide)	34413		0.50
	n-Butylbenzene	A-010		0.50
	sec-Butylbenzene	77350		0.50
	tert-Butylbenzene	77353		0.50
	Chloroethane	34311		0.50
	2-Chloroethylvinyl ether	34576		1.0
	Chloromethane (Methyl Chloride)	34418		0.50
	2-Chlorotoluene	A-008		0.50
	4-Chlorotoluene	A-009		0.50
	Dibromomethane	77596		0.50
	1,2-Dichlorobenzene (o-DCB)	34536		0.50
	1,3-Dichlorobenzene (m-DCB)	34566		0.50
	Dichlorodifluoromethane	34668		0.50
	1,1-Dichloroethane (1,1-DCA)	34496		0.50
	cis-1,2-Dichloroethylene	77093		0.50
	trans-1,2-Dichloromethylene	34546		0.50
	1,2-Dichloropropane	34541		0.50
	1,3-Dichloropropane	77173		0.50

ENVIRONMENTAL
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
J. J. EGLIN, REG. CHEM. ENGR.
4100 PIERCE RD.. BAKERSFIELD. CALIFORNIA 93308 PHONE 327-4911

UNREGULATED ORGANIC CHEMICALS (CONTINUED)

TEST METHOD	CONSTITUENTS ALL CONSTITUENTS REPORTED µg/L	ENTRY #	ANALYSIS RESULTS	* DRL
	2,2-Dichloropropane	77170		0.50
	1,1-Dichloropropene	77168		0.50
	Hexachlorobutadiene	34391		0.50
	Isopropylbenzene	77223		0.50
	p-Isopropyltoluene	A-011		0.50
	Methylene chloride	34423		0.50
	Naphthalene	34696		0.50
	n-Propylbenzene	77224		0.50
	Styrene	77128		0.50
	1,1,1,2-Tetrachloroethane	77562		0.50
503.1	Toluene	34010	1.6	0.50
	1,2,3-Trichlorobenzene	77613		0.50
	1,2,4-Trichlorobenzene	34551		0.50
	Trichlorofluoromethane (Freon 11)	34488		0.50
	1,2,3-Trichloropropane	77443		0.50
	Trichlorotrifluoroethane (Freon 113)	81611		0.50
	1,2,4-Trimethylbenzene	77222		0.50
	1,3,5-Trimethylbenzene	77226		0.50
	Methyl Ethyl Ketone (MEK, Butanone)	81595		5.0
	Methyl Isobutyl Ketone (MIBK)	81596		5.0
	Alachlor (Alanex)	77825		
	Chlordane	39350		0.10
	Heptachlor	39410		0.01
	Heptachlor Epoxide	39420		0.01
	Bromacil (Hyvar)	82198		
	Diazinon	39570		
	Prometryn (Caparol)	39057		
	Chlorothalonil (Daconil, Bravo)	70314		
	Dimethoate (Cygon)	38458		
	Diethylhexylphthalate (DEHP)	39100		5.0
	Aldicarb (Temik)	39053		
	Carbofuran (Furadan)	81405		
	Glyphosate	79743		

ND - None Detected
California D.O.H.S. Cert. #81

Note any unidentified peaks below.
Total Petroleum Hydrocarbons = 5.5 µg/L Minimum Reporting Level = 0.50 µg/L
TPH value is in addition to the above named compounds.
Analyzed by GC/MS Method 524.2

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BOC / SS#	HAYWARD, CA.
Project No.	**Field Logbook No.**
18008-5	—
Sampler: (Signature)	**Chain of Custody Tape No.**
Keith McVicker	—

ANALYSES

Sample No./Identification	Date	Time	Lab No.	TPH (AS GASOLINE) EPA 8015	BTEX EPA 8020	~~TPH (DIESEL) EPA 8015~~ →	Total Oil+Grease 503 E.F		503.1		No. of Containers	REMARKS
W-25-MW1	8-10-89		6815-1	X	X	X			X			
W-24-MW2	KM		-2	X	X	X			X			
W-28-MW3			-3	X	X	X			X			* only 1 vial received OH
W-23-MW4			-4	X	X	X			X			* 3 vials received OH
W-24-MW5			-5	X	X	X			X			
W-BLANK	KM		-6	X	X				X			
W-25-MW6	8-10-89 AH		-7						X			
												Total

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Keith McVicker	8-10-89		Bill Howell	8/10/89	12:00
Bill Howell			D. Billy[illegible]	8/11/89	1603
			[illegible] PC [illegible]	Saturday 8-12-89	8:00A

Report To:	Bill To:	NO:
~~Blair Stuart~~ Leigh Beem APPLIED GEOSYSTEMS 43255 MISSION BLVD FREMONT, CA. 94539	GLENN DEMBROFF BEACON OIL CO. 525 W. THIRD ST. HANFORD, CA. 93230	B.C.

White: Return to Customer with Report
Yellow: BC Lab Copy
Pink: Originator Copy

BC Laboratories

4100 Pierce Rd. • Bakersfield, CA 93308

CHAIN OF CUSTODY RECORD

Applied GeoSystems
43255 Mission Blvd Suite B Fremont, CA 94539 415/651-1

SAMPLER (signature): James N Koehler
Phone: 651-1906

LABORATORY: Mobil Chem Lab

TURNAROUND TIME: Beacon Standard

Project Leader: L.B.
Phone No. 651-1906

SHIPPING INFORMATION:
Shipper
Address
Date Shipped
Service Used
Airbill No. Cooler No.

Relinquished by: (signatures)	Received by: (signatures)	Date	Ti
James N. Koehler			
	Received for laboratory by:	10/19/89	3:

LABORATORY SHOULD SIGN UPON RECEIPT AND RETURN A COPY OF THIS FORM WITH THE LABORATORY RESULTS

Sample No.	Site Identification	Date Sampled	Analyses Requested	Sample Condition Upon Receipt
W-26-MW1	18008-5	10-18-89	TPHg, BTEX	HCl-ICE
W-24-MW2	18008-5	10-18-89		HCl-ICE
W-28-MW3	18008-5	10-18-89		HCl-ICE
W-23-MW4	18008-5	10-18-89		HCl-ICE
W-25-MW5	18008-5	10-18-89		HCL-ICE
W-25-MW6	18008-5	10-18-89		HCL-ICE

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1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
W109100	SITE # 18008-5 W-26-MW1 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	79
Benzene	0.5	0.5
Toluene	0.5	0.5
Xylenes	0.5	0.5
Ethylbenzene	0.5	0.5
		<0.5

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

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Applied Geosystems
43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
V109101	SITE # 18008-5
	W-34-MW2 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	930
Benzene	0.5	240
Toluene	0.5	22
Xylenes	0.5	74
Ethylbenzene	0.5	34

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

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43255 Mission Blvd. Suite B
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Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
V109102	SITE # 18008-5
	[illegible]-MW3 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

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Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
V109103	SITE # 18008-5
	W-18-MW4 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	8,100
Benzene	0.5	1,500
Toluene	0.5	720
Xylenes	0.5	550
Ethylbenzene	0.5	120

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

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Applied Geosystems
43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
7109104	SITE # 18008-5 W-25-MW5 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	8,800
Benzene	0.5	1,900
Toluene	0.5	270
Xylenes	0.5	150
Ethylbenzene	0.5	330

Note: Analysis was performed using EPA methods 5030, TPH DUFT and 602

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43255 Mission Blvd. Suite B
Fremont, CA 94539
Attn: Leigh Been

Date Sampled: 10-18-89
Date Received: 10-19-89
Date Reported: 10-30-89

Sample Number	Sample Description
[illegible]105	SITE # 18008-5
	W-25-MW6 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	50
Benzene	0.5	0.5
Toluene	0.5	0.5
Xylenes	0.5	0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030, TPH LUFT and 602

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Ronald G. Evans
Lab Director

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO	PROJECT NAME
13008-6	Former [illegible] Station Site 20 [illegible] Mission Blvd [illegible]
P.O. NO	SAMPLERS (Signature)
	[illegible signature]

ANALYSIS

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)						Preserved?	REMARKS	LABORATORY I.D. NUMBER
2/22/9[illegible]	1300	S-15-B8	1	/	/							[illegible]		
|	|	S-21-B8	1	.	/	/						|		
|	|	S-[illegible]-B8	.	.	/	/						|		
2/23/9[illegible]	1000	S-[illegible]-B7	1	x	x							|	[illegible]	
|	|	S-20-B7	1	.	X	/						|		
|	|	S-22½-B7	1	x	/	x								

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
[illegible signature]	[illegible]	[illegible signature]
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature)

Laboratory: [illegible]

Turn Around: [illegible]

SEND RESULTS TO

Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826

(415) 651-1906

Proj. Mgr.: [illegible]

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd.
Fremont, Ca. 94539
Attn: Bill Short

Date Sampled: 02-22/23-90
Date Received:02-27-90
Date Reported:02-28-90

Sample Number	Sample Description	Detection Limit	SOIL Total Petroleum Hydrocarbons as Diesel
		ppm	ppm
	Ultramar # 546 29705 Mission Blvd., Hayward Project # 18008-6		
B020168	S-20-B8	5	<5
B020169	S-25-B8	5	<5
B020171	S-20-B7	5	<5
B020172	S-221/2-B7	5	<5

Note: Analysis was performed using EPA methods 3550 and TPH LUFT

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Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-23-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
3020170	Project # 18008-6 Ultramar Station # 5146 23705 Mission Blvd., Hayward B-17: 2-87 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	1.5
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	<0.1
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

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Joyce M. Dishman

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43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-23-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
3020171	Project # 18008-6 Ultramar Station # 5546 23705 Mission Blvd., Hayward 2-20-E7 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	9.9
Benzene	0.1	0.1
Toluene	0.1	0.1
Xylenes	0.1	0.1
Ethylbenzene	0.1	0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 5020 used for BTX distinction.

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43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-23-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
E020172	Project # 18008-6 Ultramar Station # 5546 29705 Mission Blvd., Hayward [illegible]

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons -- Gasoline	1.0	1.6
Benzene	0.1	[illegible]
[illegible]ene	[illegible]	[illegible]
[illegible]enes	[illegible]	[illegible]
Ethylbenzene	0.1	0.1

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 8020 used for BTX distinction.

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43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-22-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
9020167	Project # 18008-6 Ultramar Station # 5546 [illegible] Mission Blvd., Hayward [illegible] OIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	14
Benzene	0.1	0.5
Toluene	0.1	0.2
Xylenes	0.1	0.1
Ethylbenzene	0.1	0.1

Note: analysis was performed using EPA methods 5020 and TPH LUFT with method 3020 used for BTX distinction.

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43555 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-22-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
3020168	Project # 18008-6 Ultramar Station # 5646 23715 Mission Blvd., Hayward T-21-13 [illegible]

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	150
Benzene	0.1	1.7
Toluene	.1	.1
Xylenes	.1	5.3
Ethylbenzene	.1	2.7

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

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Applied GeoSystems
[illegible] Mission Blvd.
Fremont, CA 94538
Attn: Bill Short

Date Sampled: [illegible]-90
Date Received: [illegible]-27-90
Date Reported: [illegible]-90

Sample Number	Sample Description
[illegible]	Project # 1800[illegible]-6 Ultramar Station # [illegible]46 [illegible] Mission Blvd., Hayward [illegible]

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	150
Benzene	.1	[illegible]
Toluene	.1	[illegible]
Xylenes	.1	[illegible]
Ethylbenzene	.1	[illegible]

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 8020 used for BTX distinction.

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Applied GeoSystems
43255 Mission Blvd.
Fremont, CA 94539
Attn: Bill Short

Date Sampled: 02-22-90
Date Received: 02-27-90
Date Reported: 03-07-90

Sample Number	Sample Description
B020169	Project # 18008-6 Ultramar Station # 546 29705 Mission Blvd., Hayward B-18-S8 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	2.6
Benzene	0.1	0.3
Toluene	0.1	0.1
Xylenes	0.1	0.3
Ethylbenzene	0.1	0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 5020 used for BTX distinction.

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Joyce A. V. Dushneau

Ronald G. Evans
Lab Director

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1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

INVOICE

Invoice to: Ultramar Inc.
525 W. 3rd. St.
Hanford, CA. 93230
Attn: Glenn Dembroff

Invoice # 01176

Invoice Date:03-16-90 P.O. # Terms: NET 30 DAYS

QUANTITY	DESCRIPTION	UNIT COST	EXTENSION
	Ultramar - Hayward Project # 18008-6 rec'd 03-07-90	Applied Geosystems Eric Twitty	
8	Total Petroleum Hydrocarbons as Gasoline with BTX Distinction WATER	$90.00	$720.00
32	VOA'S @ $1.47 each		$47.04
8	Total Petroleum Hydrocarbons as Diesel WATER	$90.00	$720.00
	Analytical Discount		<$432.00>
	Courier Charge		$20.00
		AMOUNT DUE	$1,075.04

2 % PER MONTH INTEREST CHARGES ON ACCOUNTS OVER 30 DAYS
ALL ACCOUNTS ARE SUBJECT TO COLLECTION & LEGAL FEES AFTER DUE DATE

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
18008-6	BEACON - HAYWARD
P.O. NO.	SAMPLERS (Signature)
	Twitty

DATE MM/DD/YY	TIME		No. of Cont-ainers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Preserved?	REMARKS	LABORATORY I.D. NUMBER
3/5	3:00	W-26 - MW3	4	X	X		HCl/Ice		
3/5	3:00	W-26 - MW3	1			X			
3/5	3:30	W-23 - MW6	4	X	X				
3/5	3:30	W-23 - MW6	1			X			
3/6	4:00	W-23 - MW2	4	X	X		HCl/Ice		
3/6	4:00	W-23 - MW2	1			X			
3/6	4:45	W-16 - MW8	4	X	X				
3/6	4:45	W-16 - MW8	1			X			
3/6	4:30	W-17 - MW7	4	X	X				
3/6	4:30	W-17 - MW7	1			X			
	4:15	W-21 - MW4	4	X	X				
	4:15	W-21 - MW4	1			X			
	4:30	W-23 - MW5	4	X	X				
	4:30	W-23 - MW5	1			X			
	4:00	W-24 - MW1	4	X	X				
	4:00	W-24 - MW1	1			X			

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
Twitty	3/7/00	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature)
	3/7/00 10:00	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):

Laboratory:

Turn Around: 2 wk

SEND RESULTS TO:

Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826

(415) 651-1906

Proj. Mgr.: Bill Short

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Lafayette, CA 94549 • (415) 945-1266

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Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received: 03-07-90
Date Reported: 03-15-89

Sample Number	Sample Description
B030079	Project # 18008-6 Ultramar Hayward W-24-MW1 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	3,100
Benzene	0.5	800
Toluene	0.5	190
Xylenes	0.5	380
Ethylbenzene	0.5	0.6

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce M' Dishman

Ronald G. Evans
Lab Director

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Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received: 03-07-90
Date Reported: 03-13-89

Sample Number	Sample Description
B030074	Project # 18008-6 Ultramar Hayward W-23-MW2 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	260
Benzene	0.5	4.3
Toluene	0.5	2.5
Xylenes	0.5	44
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

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Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-05-90
Date Received: 03-07-90
Date Reported: 03-12-89

Sample Number	Sample Description
B030072	Project # 18008-6 Ultramar Hayward W-26-MW3 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

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Ronald G. Evans
Lab Director

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Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received:03-07-90
Date Reported:03-14-89

Sample Number	Sample Description
B030077	Project # 18008-6 Ultramar Hayward W-21-MW4 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	1,300
Benzene	0.5	280
Toluene	0.5	71
Xylenes	0.5	190
Ethylbenzene	0.5	0.6

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce W Dishman

Ronald G. Evans
Lab Director

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Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received:03-07-90
Date Reported:03-15-89

Sample Number	Sample Description
B030078	Project # 18008-6 Ultramar Hayward W-23-MW5 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	27,000
Benzene	0.5	5,400
Toluene	0.5	980
Xylenes	0.5	3,400
Ethylbenzene	0.5	1,300

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-05-90
Date Received: 03-07-90
Date Reported: 03-12-89

Sample Number	Sample Description
B030073	Project # 18008-6 Ultramar Hayward W-23-MW6 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	1.3
Toluene	0.5	1.4
Xylenes	0.5	1.7
Ethylbenzene	0.5	1.2

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce M Dishman

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received: 03-07-90
Date Reported: 03-14-89

Sample Number	Sample Description
B030076	Project # 18008-6 Ultramar Hayward W-17-MW7 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	270
Benzene	0.5	22
Toluene	0.5	<0.5
Xylenes	0.5	1.4
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce M. Dishman

Ronald G. Evans
Lab Director

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Applied Geosystems
43255 Mission Blvd. Ste. B
Fremont, CA 94539
Attn: Eric Twitty

Date Sampled: 03-06-90
Date Received:03-07-90
Date Reported:03-15-89

Sample Number	Sample Description
B030075	Project # 18008-6 Ultramar Hayward W-16-MW8 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	1,200
Benzene	0.5	800
Toluene	0.5	190
Xylenes	0.5	380
Ethylbenzene	0.5	0.6

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Joyce V Dishmeau

for Ronald G. Evans
Lab Director

APPENDIX D
SIEVE ANALYSIS

SIEVE ANALYSIS DATA SHEET

Job No.: 18008-5 Client/Location: Beacon / Hayward

Sample No.: S-25-35 Boring No.: 35 Depth: 25'

Soil Description: [illegible]

Pan: D Amount Tested (Dry Weight): 500/[illegible] gms.

Sieve Number (Circle)	Cumulative Weight Retained (gms.)	Cumulative Percent Retained (%)	Cumulative Percent Passing (%)
4"			
2"			
1"			
1/2"			
1/4"			
#10			
#20	0	0.1	98
#40	[illegible]	[illegible]	96.5
#60	22	[illegible]	[illegible]
#100	30	[illegible]	[illegible]
#140	37	[illegible]	91.4
#200	[illegible]	[illegible]	[illegible]

#200 Wash Analysis

Dry weight before wash: [illegible] gms.

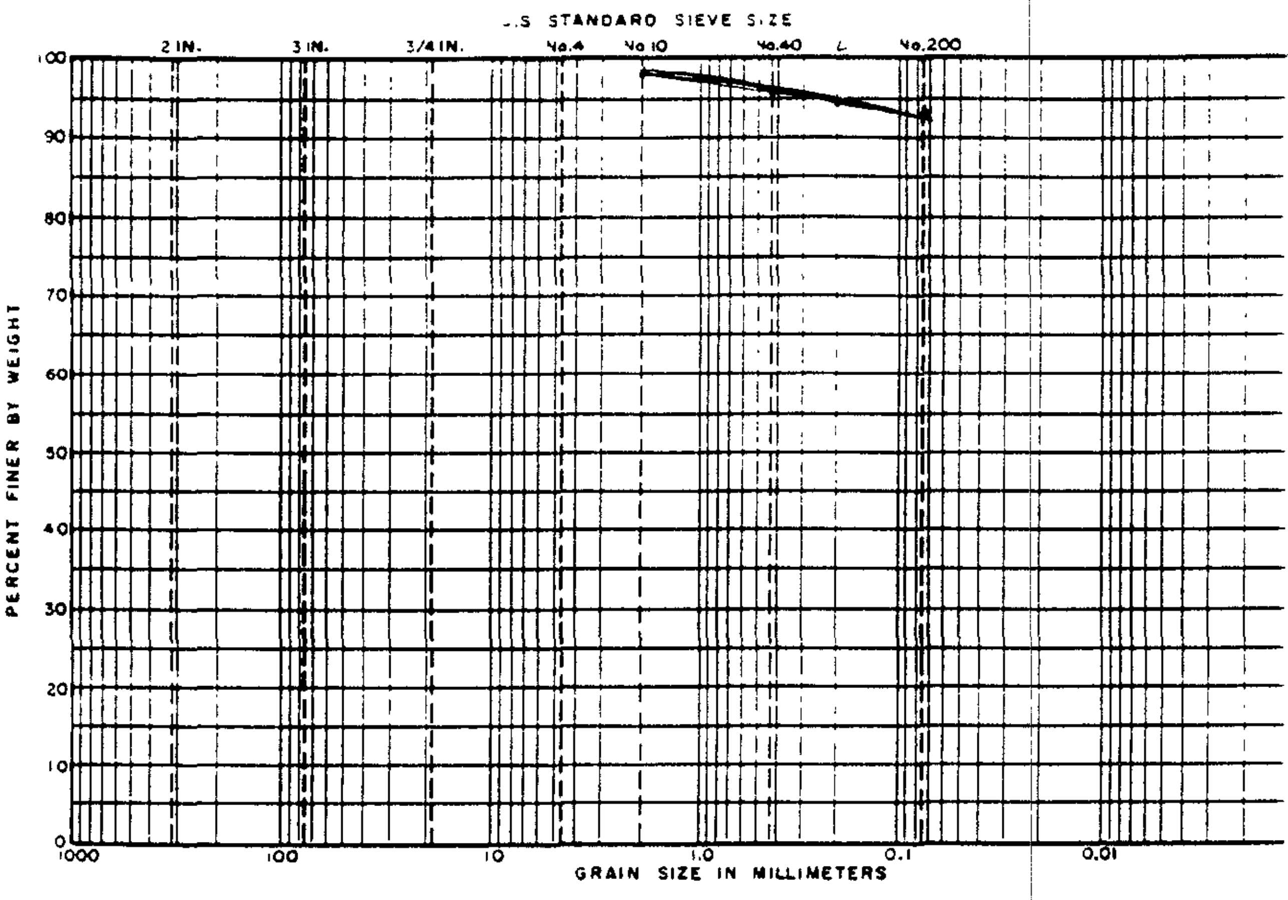
Weight retained after wash: 43 gms.

Percent retained: 0 %

Percent passing #200: 90 %

JOB [illegible] CLIENT [illegible]
LOCATION [illegible]

DRAWN BY DATE
CHECKED BY DATE



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

(UNIFIED SOIL CLASSIFICATION SYSTEM)

LEGEND			
BORING NUMBER		[illegible]	
DEPTH (FEET)		[illegible]	
SOIL DESCRIPTION		[illegible]	
EFFECTIVE SIZE, D_{10}			
COEFFICIENT OF UNIFORMITY D_{60}/D_{10}			
COEFFICIENT OF CURVATURE $D_{30}^2/(D_{10} \times D_{60})$			

GRADATION TEST DATA

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REGISTERED PROFESSIONAL ENGINEER
RONALD R. ARCHER
No. 23721
EXP. 12/31/93
CIVIL
STATE OF CALIFORNIA

JULY 5, 1989
* REVISED FEBRUARY 27, 1990

JOB NO. 1574
JOB NO 1574.1

ELEVATIONS OF EXISTING MONITOR WELLS LOCATED AT AND AROUND THE BEACON GAS STATION AT 29705 MISSION BOULEVARD AT WEST INDUSTRIAL PARKWAY, CITY OF HAYWARD ALAMEDA COUNTY, CALIFORNIA.

FOR APPLIED GEOSYSTEMS
PROJECT NO. 18008-4
18008-6

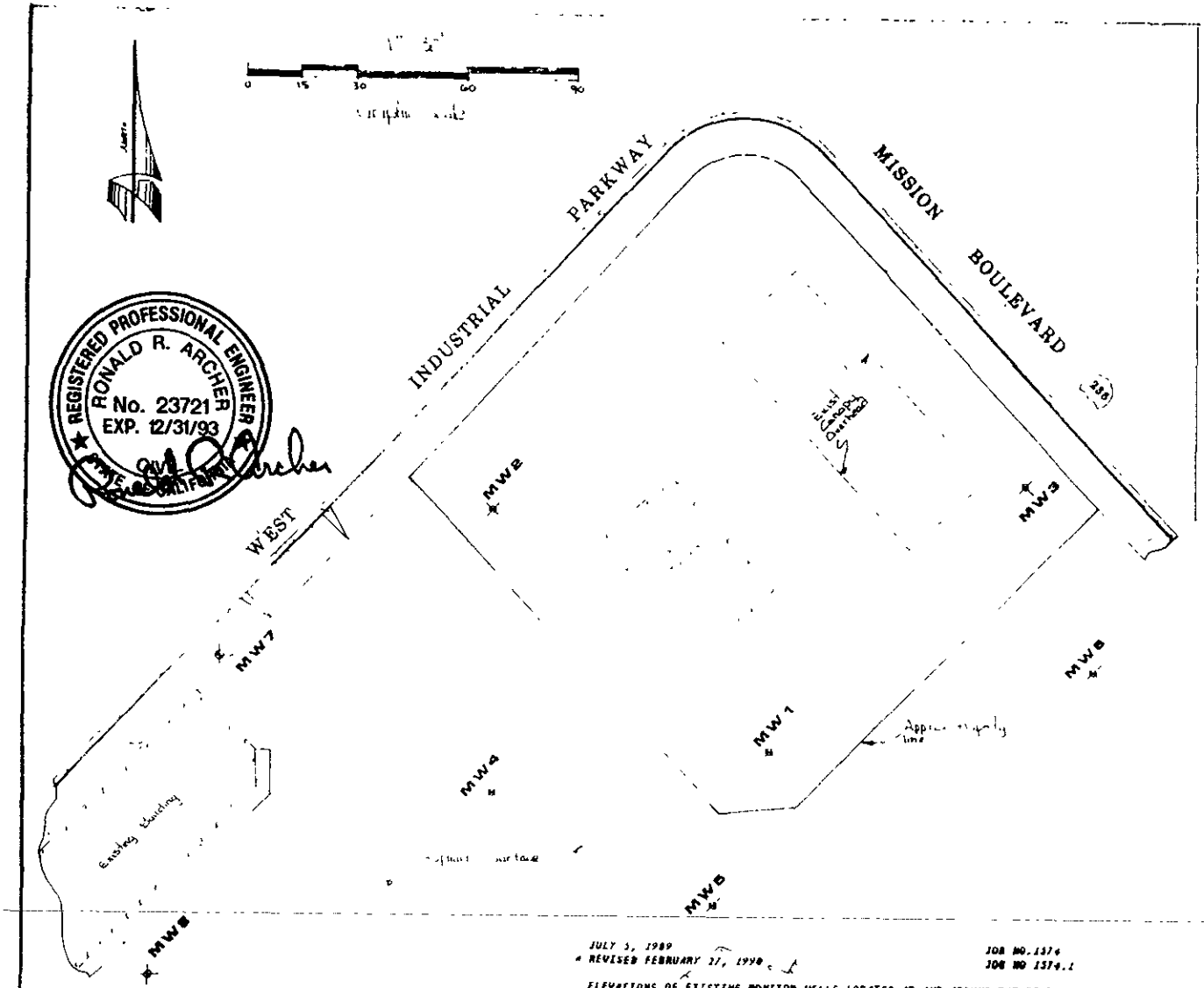
BENCHMARK:

THE TOP OF A BRASS DISC SET IN CONCRETE IN A STANDARD MONUMENT CASING AT THE INTERSECTION OF MISSION BLVD. AND INDUSTRIAL PARKWAY ON THE WEST SIDE OF CENTERLINE OF MISSION BLVD. ELEVATION TAKEN AS 36.547 M.S.L. CITY OF HAYWARD DATUM.

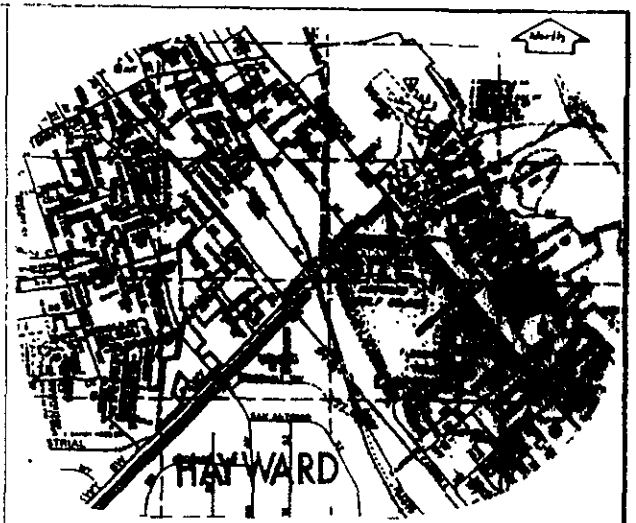
MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEVATION	DESCRIPTION
MW-1	37.46	TOP OF CASING
	37.87	TOP OF BOX (HIGH SIDE)
MW-2	35.95	TOP OF CASING
	36.36	TOP OF BOX
MW-3	40.28	TOP OF CASING
	40.48	TOP OF BOX
* MW-4	34.94	TOP OF CASING
	35.29	TOP OF BOX
MW-5	36.37	TOP OF CASING
	36.97	TOP OF BOX
MW-6	37.43	TOP OF CASING
	37.85	TOP OF BOX
* MW-7	30.50	TOP OF CASING
	30.75	TOP OF BOX
* MW-8	28.48	TOP OF CASING
	28.72	TOP OF BOX

APPENDIX E
SURVEYORS REPORT



REGISTERED PROFESSIONAL ENGINEER
RONALD R. ARCHER
No. 23721
EXP. 12/31/93
CIVIL



VICINITY MAP
NO SCALE

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEVATION	DESCRIPTION
MW 1	37.46	TOP OF CASING
	37.07	TOP OF BOX (BOLT SLOT)
MW 2	35.93	TOP OF CASING
	36.36	TOP OF BOX
MW 3	40.28	TOP OF CASING
	40.48	TOP OF BOX
* MW-4	34.94	TOP OF CASING
	35.29	TOP OF BOX
MW-5	36.37	TOP OF CASING
	36.97	TOP OF BOX
MW-6	37.45	TOP OF CASING
	37.85	TOP OF BOX
* MW-7	38.50	TOP OF CASING
	38.75	TOP OF BOX
* MW-8	38.48	TOP OF CASING
	38.72	TOP OF BOX

JULY 5, 1989
* REVISED FEBRUARY 27, 1990

JOB NO. 1374
JOB NO 1374.1

ELEVATIONS OF EXISTING MONITOR WELLS LOCATED AT AND AROUND THE BEACON GAS STATION AT 29705 MISSION BOULEVARD AT WEST INDUSTRIAL PARKWAY, CITY OF HAYWARD ALAMEDA COUNTY, CALIFORNIA.

FOR APPLIED GEOSYSTEMS
PROJECT NO. 18008-4
18008-6

BENCHMARK:
THE TOP OF A BRASS DISC SET IN CONCRETE IN A STANDARD MONUMENT CASING AT THE INTERSECTION OF MISSION BLVD. AND INDUSTRIAL PARKWAY ON THE WEST SIDE OF CENTERLINE OF MISSION BLVD. ELEVATION TAKEN AS 36.547 M.S.L. CITY OF HAYWARD DATUM.

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