



TRANSMITTAL FORM

Applied GeoSystems

43255 Mission Boulevard Fremont, California 94539
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Date	5/13/89	Project No.	18008-3
Subject:	GM report for February 1989		

TO Ms. Susan Claxson
Hayward Fire Department
22300 Foothill Blvd.
Hayward CA 94541

FROM Bill Howell
 TITLE Project Geologist

WE ARE SENDING YOU Attached Under separate cover via _____ the following items:

- Shop drawings Prints Plans Reports Specifications
 Letters Change orders _____

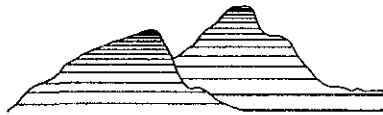
COPIES	DATED	NO.	DESCRIPTION
1	3/29/89	"	Letter Report of Quarterly Ground-Water Monitoring at Beacon Station No. 546, 29705 Mission Boulevard, CA.

THESE ARE TRANSMITTED as checked below:

- For review and comment Approved as submitted Resubmit _____ copies for approval
 As requested Approved as noted Submit _____ copies for distribution
 For approval Returned for corrections Return _____ corrected prints
 For your files _____

REMARKS As per Beacon Oil Company's request of April 28, 1989,
we are forwarding you a copy of the above-referenced
report

COPIES: 1 to AGS project file no. 0329 SEPP.FIN



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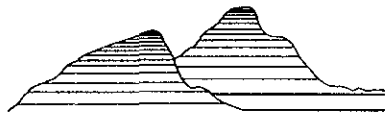
• HOUSTON

LETTER REPORT
QUARTERLY GROUND-WATER MONITORING
at

Beacon Station No. 546
29705 Mission Boulevard
Hayward, California

AGS Job No. 18008-3

Mar 1989



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43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

• FREMONT • COSTA MESA • SACRAMENTO • HOUSTON

March 29, 1989
0329sepp
AGS 18008-3

Mr. Steve Epperson
Beacon Oil Company
525 West Third Street
Hanford, California 93230

Subject: Letter report on ground-water monitoring at
Beacon Station No. 546, 29705 Mission Boulevard,
Hayward, California.

Mr. Epperson:

This letter report summarizes the results of ground-water monitoring, performed at the request of Beacon Oil Company, at the above-referenced site during February 1989. The site is located on the southwest corner of Mission Boulevard and Industrial Parkway in Hayward, California. The location of the site is shown on the Site Vicinity Map (Plate P-1). Work at the site included measuring depths to ground water in three monitoring wells; subjectively inspecting water from the wells; purging the wells; and collecting water samples for laboratory analyses. The locations of the wells, and other pertinent site features are shown on the Generalized Site Plan (Plate P-2).

On February 24, 1989, an Applied GeoSystems geologist measured the depths to water and collected water samples from monitoring wells MW-1, MW-2, and MW-3 for subjective analysis. The static-water level in each well was measured to the nearest 0.01-foot using a Solinst electric water-level indicator. After static ground-water levels were recorded, a water sample was collected from each well and checked for floating product, sheen, and emulsion. The samples were collected by gently lowering approximately half the length of a clean Teflon bailer past the air-water interface and collecting a sample from the surface of the water in each well. The water collected from wells MW-1, MW-2, and MW-3 showed no floating product, sheen, or emulsion. Cumulative results from subjective analyses are presented in Table 1.

After the subjective analyses, the wells were purged of approximately 3 well volumes of water and allowed to recover to at least 80 percent of their static water levels. Samples for

laboratory analysis were then collected from near the static water surface with a clean Teflon bailer. The samples were immediately transferred to laboratory-cleaned, 40-milliliter glass vials. Hydrochloric acid was added to the vials to discourage bacterial degradation. The samples were sealed with Teflon-lined caps, stored on ice, and delivered to Applied GeoSystems Laboratory in Fremont, California, for analysis. This laboratory is certified by the State of California to perform the requested tests. Chain-of-custody protocol was initiated by the sampler and was observed throughout the process of handling the samples. The Chain of Custody Records are enclosed with this report.

The samples were analyzed for total petroleum hydrocarbons (TPH) by modified Environmental Protection Agency (EPA) Method 8015 and for the purgeable gasoline constituents benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) by EPA Method 602. Cumulative results of laboratory analyses are summarized in Table 2. Copies of the Analysis Reports are enclosed with this report.

Compared with the previous laboratory analyses from July 1988, the laboratory analyses for this quarter show a decrease in the concentrations of the purgeable gasoline constituents BTEX in each of the three wells. The levels of TPH increased in well MW-1 and decreased in wells MW-2 and MW-3.

Ground-water depths measured on February 24, 1989, were combined with well head elevations measured by Applied GeoSystems on July 7, 1988, to calculate the differences in water-level elevations. The results are presented in Table 3. A graphic interpretation of the ground-water table at the time of this measurement is shown on the Ground-Water Potentiometric Surface Map (Plate P-3). The ground-water gradient calculated from the above measurements is 0.002 (approximately 1 vertical foot per 500 horizontal feet) toward the southwest. The ground-water gradient and flow direction are approximately the same as those measured during the previous monitoring in July 1988.

Because elevated concentrations of purgeable gasoline constituents are present in the ground water, we recommend that the ground-water be sampled and analyzed for hydrocarbon contamination on a quarterly basis.

In September 1988, Applied GeoSystems proposed to perform an offsite subsurface environmental investigation to delineate the extent of any hydrocarbon contaminant plume in the ground water

downgradient from the site. We proposed installing three monitoring wells in the parking lot of the Holiday Bowl, which lies adjacent to the site to the south, southwest, and southeast. At the request of Beacon Oil Company, we contacted the co-owner of the property, Mr. Ralph Sommer, to obtain authorization for the offsite environmental investigation. To date, we have not been able to obtain authorization from Mr. Sommer.

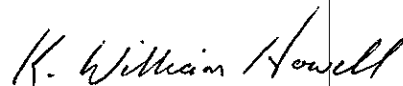
In January 1989, Applied GeoSystems researched the ownership of other properties in the vicinity of the site for possible alternate monitoring well locations. Conclusions from this research were presented in a letter to Beacon Oil Company dated March 7, 1989. In summary, the broad flat ground-water gradient and flow direction at the site suggests that monitoring wells located along Industrial Parkway may provide water quality information of similar value to that from monitoring wells located on Mr. Sommer's property. Possible alternative locations for an offsite subsurface environmental investigation will be addressed, if necessary, in a subsequent Applied GeoSystems report.

Quarterly Ground-Water Monitoring
Beacon Station No. 546, Hayward, California

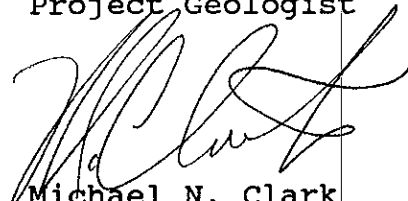
March 29, 1989
AGS 18008-3

Copies of this report should be forwarded to Ms. Susan Claxton of the Hayward Fire Department, 22300 Foothill Boulevard, Hayward, California 94541; and Ms. Lisa McCann of the California Regional Water Quality Control Board, San Francisco Bay Region, 1111 Jackson Street, Room 6040, Oakland, California 94607. Please call us if you have any questions regarding this report.

Sincerely,
Applied GeoSystems

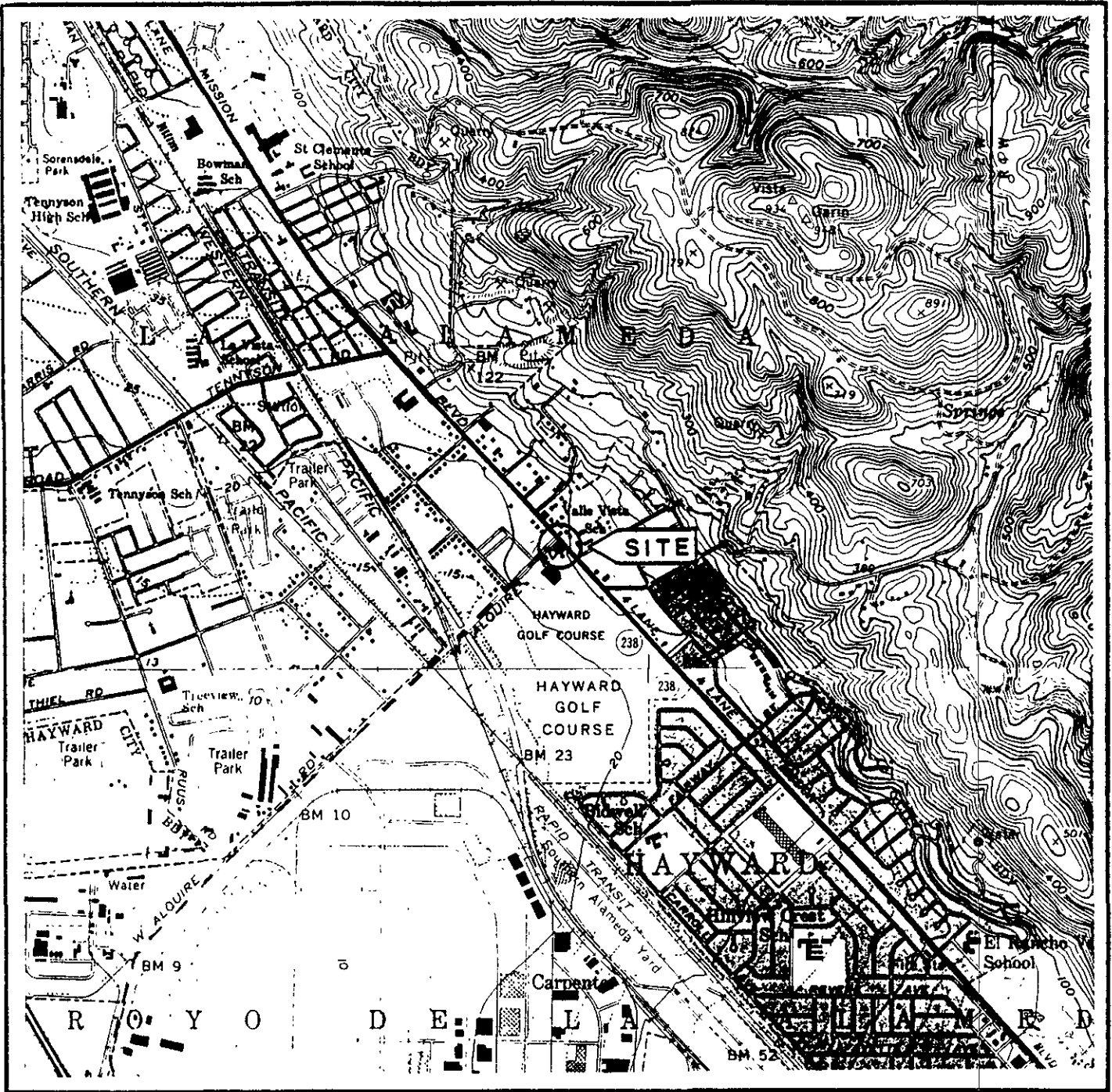


K. William Howell
Project Geologist



Michael N. Clark
C.E.G. 1264

Enclosures: Site Vicinity Map, Plate P-1
Generalized Site Plan, Plate P-2
Cumulative Results of Subjective Analyses, Table 1
Cumulative Analytical Results of Water Samples,
Table 2
Ground-Water Elevation Differences, Table 3
Ground-Water Potentiometric Surface Map, Plate P-3
Chain of Custody Record
Analysis Reports (3)



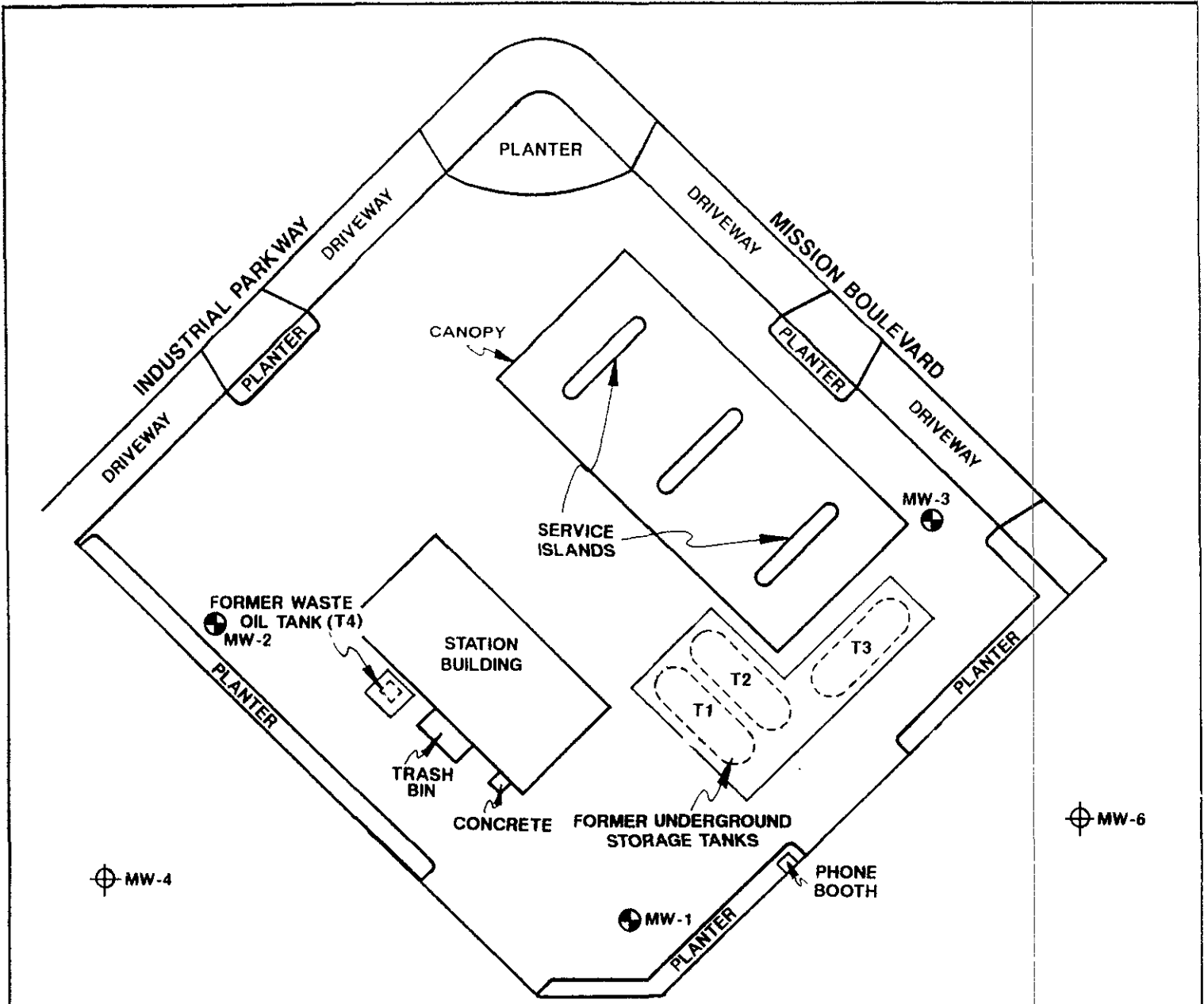
Source: U.S. Geological Survey
 7.5-Minute Quadrangle
 Hayward, California
 Newark, California
 Photorevised 1980



SITE VICINITY MAP
 Beacon Station No. 546
 29705 Mission Boulevard
 Hayward, California

PLATE
P - 1

PROJECT NO. 18008-3



MW-4

MW-6

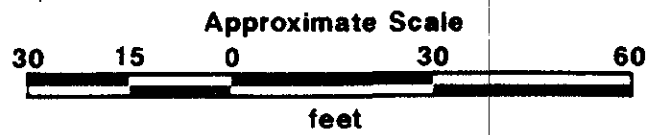
MW-1

MW-3

MW-5

MW-6
 = Proposed monitoring well location
 MW-3
 = Monitoring well location

Source: Measured by tape and compass



GENERALIZED SITE PLAN
Beacon Station No. 546
29705 Mission Boulevard
Hayward, California

PLATE
P - 2

PROJECT NO. 18008-3

TABLE 1
CUMULATIVE RESULTS OF SUBJECTIVE ANALYSES
Beacon Service Station No. 546
29705 Mission Boulevard
Hayward, California

Well	Date	Depth to Water	Floating Product	Sheen	Emulsion
MW-1	7/89	24.45	NONE	NONE	NONE
	2/89	24.42	NONE	NONE	NONE
MW-2	7/88	23.07	NONE	NONE	NONE
	2/89	23.00	NONE	NONE	NONE
MW-3	7/88	26.98	NONE	NONE	NONE
	2/89	26.97	NONE	NONE	NONE

Depth to water in feet below top of well casing.

TABLE 2
 CUMULATIVE RESULTS OF CHEMICAL ANALYSES OF
 WATER SAMPLES
 Beacon Station No. 546
 29705 Mission Boulevard
 Hayward, California

Date	Sample Number	TPH	Benzene	Toluene	Ethyl-benzene	Total Xylenes
Well MW-1						
7/88	W-25-MW1	17.4	4.07	2.99	0.33	3.59
2/89	W-25-MW1	20.8	2.45	1.43	0.19	0.89
Well MW-2						
7/88	W-23-MW2	7.16	1.266	2.117	0.230	1.563
2/89	W-24-MW2	4.13	0.231	0.102	0.030	0.113
Well MW-3						
7/88	W-27-MW3	2.81	0.094	0.006	0.028	0.029
2/89	W-27-MW3	0.09	0.0026	<0.0005	0.0005	0.0006

Results in parts per million (ppm)

TPH = Total petroleum hydrocarbons as gasoline

< = Result below detection limit of method used

Sample designation: W-27-MW3

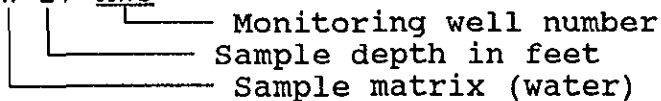
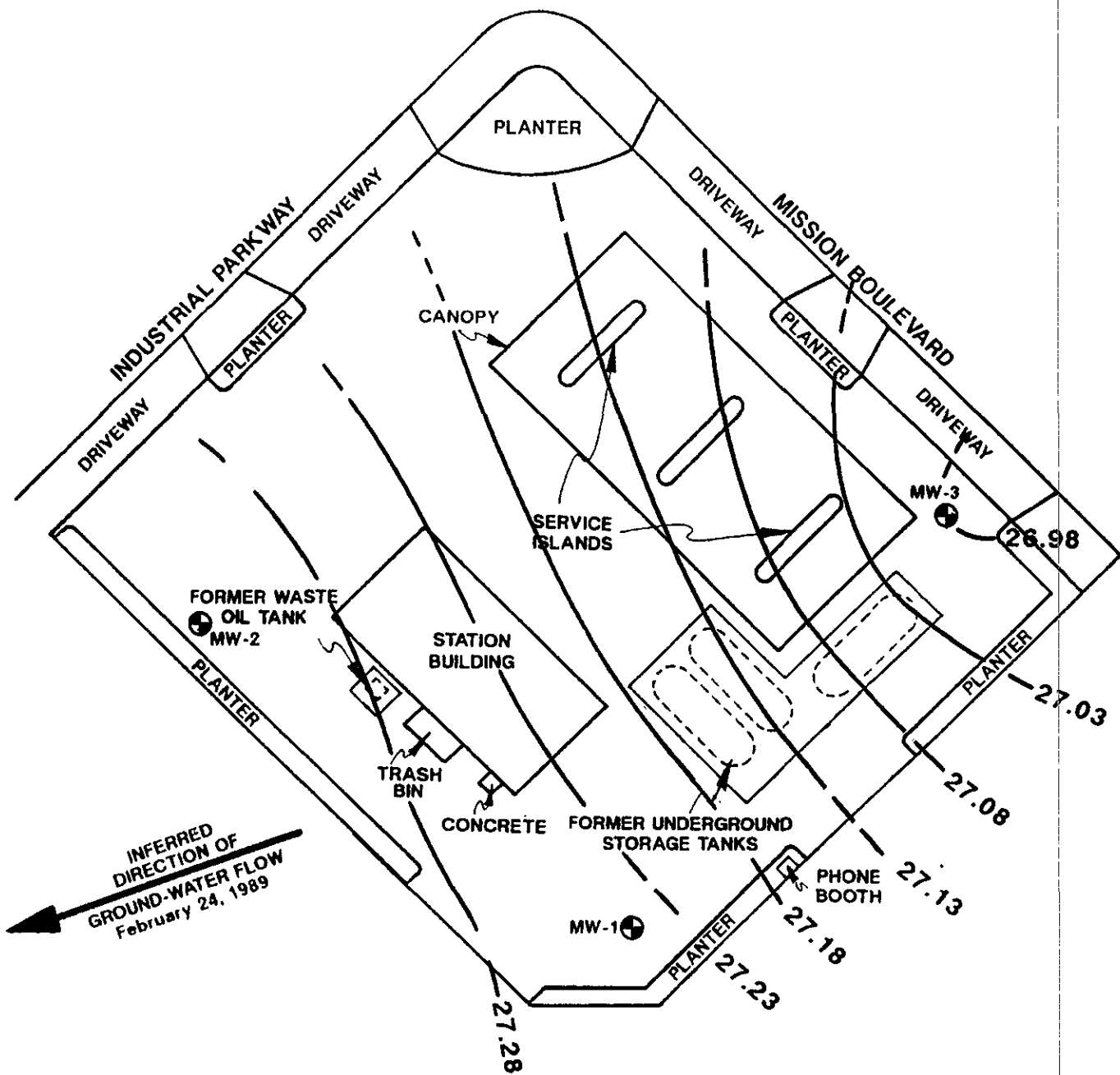


TABLE 3
GROUND-WATER ELEVATION DIFFERENCES
Beacon Station No. 546
29705 Mission Boulevard
Hayward, California
(Measured on February 24, 1988)

Monitoring Well Number	Top of Casing	Static Water Depth	Calculated Water Level
MW-1	2.83	24.42	27.25
MW-2	4.33	23.00	27.33
MW-3	0.00	26.97	26.97

Measurements in feet with respect to an arbitrary datum corresponding to the top of casing of well MW-3
Depth to static water measured in feet below top of casing.



27.28 = Line of equal depth to ground water

⊕ = Monitoring well location
MW-3

Source: Measured by tape and compass



**GROUND-WATER POTENTIOMETRIC
SURFACE MAP**
Beacon Station No. 546
29705 Mission Boulevard
Hayward, California

PLATE
P - 3

PROJECT NO. 18008-3

ANALYSIS REPORT

0212lab.frm

Report Prepared for:
Applied GeoSystems
43255 Mission Blvd.
Fremont, CA 94539
Attention: William K. Howell

Date Received: 02-24-89
Laboratory Number: 90235W01
Subject: 18008-3
Sample: W-25-MW1
Matrix: Water

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline		20.8		0.2	03-01-89	
TEH as Diesel						NR
Benzene		2.45		0.01	03-01-89	
Toluene		1.43		0.01	03-01-89	
Ethylbenzene		0.19		0.01	03-01-89	
Total Xylenes		0.89		0.01	03-01-89	

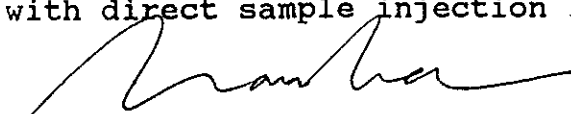
mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.


Tia Tran, Laboratory Supervisor

03-03-89
Date Reported

ANALYSIS REPORT

Report Prepared for:
 Applied GeoSystems
 43255 Mission Blvd.
 Fremont, CA 94539
 Attention: William K. Howell

0212lab.frm
 Date Received: 02-24-89
 Laboratory Number: 90235W02
 Subject: 18008-3
 Sample: W-24-MW2
 Matrix: Water

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline		4.13		0.02	03-01-89	
TEH as Diesel						NR
Benzene		0.231		0.005	03-01-89	
Toluene		0.102		0.005	03-01-89	
Ethylbenzene		0.030		0.005	03-01-89	
Total Xylenes		0.113		0.005	03-01-89	

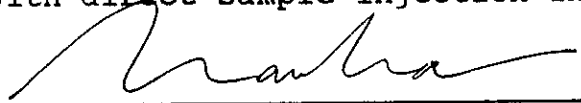
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 Tia Tran, Laboratory Supervisor

03-03-89
 Date Reported

ANALYSIS REPORT

Report Prepared for:
 Applied GeoSystems
 43255 Mission Blvd.
 Fremont, CA 94539
 Attention: William K. Howell

0212lab.frm
 Date Received: 02-24-89
 Laboratory Number: 90235W03
 Subject: 18008-3
 Sample: W-27-MW3
 Matrix: Water

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline		0.09		0.02	03-01-89	
TEH as Diesel						NR
Benzene		0.0026		0.0005	03-01-89	
Toluene		ND		0.0005	03-01-89	
Ethylbenzene		0.0005		0.0005	03-01-89	
Total Xylenes		0.0006		0.0005	03-01-89	

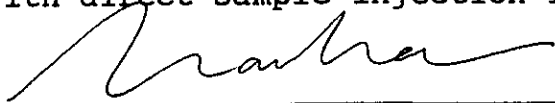
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03-03-89
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