

QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT

at

SEKHON GAS STATION

6600 Foothill Boulevard

Oakland, California

Alameda County

AUG 25 2003

Environmental Health

Prepared for:

Mr. Ravi S. Sekhon
6600 Foothill Boulevard
Oakland, California

August 19, 2003

ADVANCED ASSESSMENT AND REMEDIATION SERVICES



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August 19, 2003

Mr. Don Hwang
Alameda County Health Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: *Submittal of Quarterly Groundwater Monitoring and Sampling Report for
Sekhon Gas Station, 6600 Foothill Blvd., Oakland, California*

Dear Mr. Hwang:

The enclosed report presents the results and findings of the July 2003, quarterly groundwater monitoring and sampling for the above-referenced site.

Please contact Tridib Guha at (925) 363-1999 if you have any questions regarding this report.

Sincerely,

Advanced Assessment and Remediation Services

Tridib K. Guha, R.G., R.E.A.
Principal

Enclosure

cc: Mr. Ravi S. Sekhon, Oakland, California
Mr. Sunil Ramdass, USTCF, Sacramento

TG/SEKHNQ2.RPT

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QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT

For
SEKHON GAS STATION
6600 Foothill Boulevard
Oakland, California

1.0 INTRODUCTION

This report presents the results and findings of the July 2003, quarterly groundwater monitoring and sampling performed at 6600 Foothill Boulevard, Oakland, California. This report is intended to fulfill quarterly self-monitoring requirements and to establish a groundwater monitoring history for the site. A site vicinity map is shown in Figure 1.

2.0 GROUNDWATER MONITORING WELLS

This section presents the water level monitoring, field observations, sampling and analysis procedures, as well as the analytical results. The location of the monitoring wells is presented in Figure 2. The work and related field sampling activities were conducted in accordance with the guidelines and requirements of the Alameda County Department of Environmental Health (ACDEH) and the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB).

2.1 Groundwater Level Monitoring and Surveying

Groundwater levels in each well were measured to the nearest 0.01 foot from the top of the PVC casing, using an electronic sounder tape. A groundwater surface elevation map based on interpretation of groundwater level measurements taken on July 11, 2003, and survey data is presented in Figure 3. The survey data and water level measurements are presented in Table 1. The site was surveyed as per Geotracker requirements on July 11, 2003, by PLS Surveys, Inc., a California licensed surveyor. All groundwater elevations are reported with respect to Mean Sea Level (MSL).

2.2 Field Observations

The purged water from the monitoring wells, MW-1, MW-2 and MW-3 were clear initially. Then with continual purging water turned silty brown. The purged water from MW-4, MW-5 and MW-6 was also clear initially, with continual purging water turned silty gray. However, water samples collected at the time of sampling were clear. Floating product was not observed in the groundwater samples. Sheen was observed in groundwater samples from monitoring well, MW-2 only. In addition, petroleum odor was noticed in the groundwater samples from monitoring wells, MW-2, MW-4, MW-5 and MW-6.

2.3 Sampling and Analytical Procedures

Groundwater samples were collected on July 11, 2003, following water level measurements. Samples were analyzed by North State Environmental Laboratory of South San Francisco, California which is certified by the California Department of Health Services (DHS) to perform the specified analyses.

Before purging, water levels were measured in all wells with an electronic sounder tape. Purging preceded sampling in order to ensure collection of non-stagnant water. A minimum of three casing volumes were removed before sampling the wells. The purged water was monitored for temperature, pH, and conductivity. Purging was considered complete when these parameters had stabilized. The field parameters for groundwater sampling worksheets are presented in Table 3.

To prevent potential cross-contamination, all measuring, purging and sampling equipment was washed in an Alconox detergent solution, rinsed with tap water, and finally with distilled water between wells.

The sampling procedure for each monitoring well involved extracting well water with a clean PVC bailer on a clean nylon cord. Groundwater collected for analysis of Total Petroleum Hydrocarbon as gasoline (TPHg) and Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX), Methyl Tertiary Butyl Ether (MTBE), was decanted into two 40-milliliter volatile organic analysis vials with Teflon-lined septa. Samples to be analyzed for TPHg/BTEX/MTBE were preserved using hydrochloric acid to a pH of 2.0. All samples were labeled and placed in an iced cooler, along with the chain-of-custody document (Appendix A). Samples transported to the laboratory were analyzed within the specified holding time.

Groundwater produced during purging and sampling was contained in 55-gallon steel drums. The drummed water was labeled with the source (i.e. well number) and date.

2.4 Analytical Methods

Samples were analyzed for TPHg/BTEX/MTBE by using EPA Methods SW8020F. A summary of the analytical results of groundwater samples from the monitoring wells is presented in Table 2. The certified analytical reports for this sampling events are included in Appendix A.

3.0 INTERPRETATION OF RESULTS

The results of water level measurements and groundwater sampling are discussed in the following sections.

3.1 Groundwater Elevations and Gradients

A relative groundwater elevation contours for July 11, 2003, is presented in Figure 3. The flow direction, based on groundwater level data, was toward the southeast with an average hydraulic gradient of 0.012 foot per foot for this monitoring period. The average depth to stabilized groundwater in these wells was approximately 8 feet below ground surface.

3.2 Analytical Results

The analytical results for groundwater samples from monitoring wells were found to contain TPHg ranging from non-detect to 3,170 parts per billion (ppb); benzene concentrations ranging from non-detect to 534 ppb; toluene concentrations were non-detect; ethylbenzene concentrations ranging from non-detect to 6.4 ppb; and xylenes concentrations ranging from non-detect to 278 ppb. MTBE were detected in groundwater samples, concentrations ranging from 24 to 38,200 ppb. TPHg, Benzene and MTBE concentrations in groundwater are presented in Figure 4, 5 and 6, respectively.

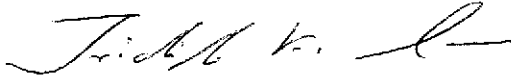
4.0 SELF-MONITORING PROJECT SCHEDULE AND RECOMMENDATIONS

In this sampling event, TPHg was detected in groundwater samples from monitoring wells, MW-2, MW-4, MW-5 and MW-6. The analytical results for this sampling event detected highest concentrations of TPHg, Benzene and MTBE in the furthest downgradient monitoring well, MW-5 and MW-6. Therefore, the site is subject to further site characterization with the possible off-site migration. A work plan for additional site characterization was submitted to ACDEH and waiting approval.

5.0 CERTIFICATION

The information provided in this report is based on the groundwater sampling activities conducted at the site. All data presented in this report is believed to be factual and accurate, unless proven otherwise. Any conclusions or recommendations provided within are based on our expertise and experience conducting work for a similar nature.

Advanced Assessment and Remediation Services



Tridib K. Guha, R.G. 5836

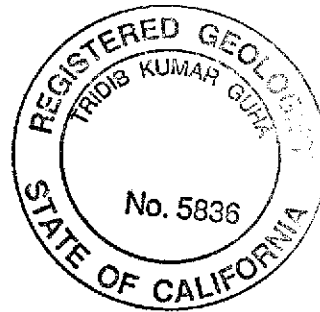


TABLE 1: SURVEY AND WATER LEVEL MONITORING DATA
SEKHON GAS STATION
6600 Foothill Blvd.
Oakland, California

Well No.	Date of Measurement	Casing Elevation (Feet - MSL)	Depth to Groundwater (Feet - MSL)	Product Thickness (Feet)	Groundwater Elevation (Feet - MSL)
MW-1	7/11/03	160.25	8.66	0	151.59
MW-2	7/11/03	158.97	7.58	0	150.39
MW-3	7/11/03	160.17	9.35	0	150.82
MW-4	7/11/03	158.42	6.73	0	151.69
MW-5	7/11/03	158.03	7.94	0	150.09
MW-6	7/11/03	157.24	7.98	0	149.26

Note:

The site was surveyed as per Geotracker standard on July 11, 2003, by PLS Surveys, Inc., a California
All elevations reported with respect to feet above mean sea level (MSL).

TABLE 2: SUMMARY OF ANALYTICAL RESULTS OF GROUNDWATER SAMPLING
Sekhon Gas Station
6600 Foothill Boulevard, Oakland, California

Sample ID	Date of Sampling	TPHg ug/L	MTBE ug/L	Benzene ug/L	Toluene ug/L	Ethylbenzene ug/L	Xylenes ug/L
MW-1 GW	6/13/01	ND	130	ND	ND	ND	ND
MW-1 GW	3/21/02	95	72.5	ND	ND	ND	ND
MW-1 GW	7/9/02	ND	208	ND	ND	ND	ND
MW-1 GW	7/11/03	ND	636	0.7	ND	ND	1.2
MW-2 GW	6/13/01	5800	94000*	160	210	290	980
MW-2 GW	3/21/02	452	79100*	3.4	ND	1.6	2.1
MW-2 GW	7/9/02	497	37600*	61.6	ND	ND	1.6
MW-2 GW	7/11/03	553	38200*	48.9	ND	ND	ND
MW-3 GW	6/13/01	300	450	1	ND	0.07	2
MW-3 GW	3/21/02	274	7520	1.1	ND	1	2.5
MW-3 GW	7/9/02	ND	40.8	ND	ND	ND	ND
MW-3 GW	7/11/03	ND	24.3	ND	ND	ND	ND
MW-4 GW	7/9/02	9680	28300	43	17	369	1990
MW-4 GW	7/11/03	3170	16600	16.5	6.4	71.7	244
MW-5 GW	7/9/02	275	18600	30.2	ND	ND	3
MW-5 GW	7/11/03	890	5090	10	0.6	ND	7.1
MW-6 GW	7/9/02	12000	11300	432	22	637	1740
MW-6 GW	7/11/03	2970	18000	534	6.3	70.1	278
SB-1 GW	6/27/02	554	74.1	1	0.8	11.6	76.2
SB-2 GW	6/27/02	3000	485*	95.6	10.2	394	831
RL		50	0.5	0.5	0.5	0.5	1

Notes:

ND- Not Detected RL- Reporting Limit

ug/L- Microgram per liter (parts per billion)

TPHg- Total petroleum hydrocarbon as gasoline (EPA method modified 8015;

MTBE- Methyl Tertiary Butyl Ether (EPA Method 8020);

BTEX- Benzene, toluene, ethylbenzene, and xylenex (EPA Method 8020);

* Confirmed by GC/MS method 8260B

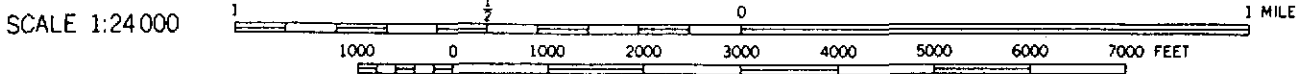
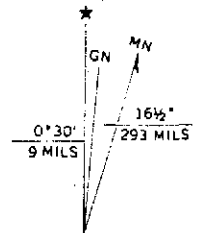
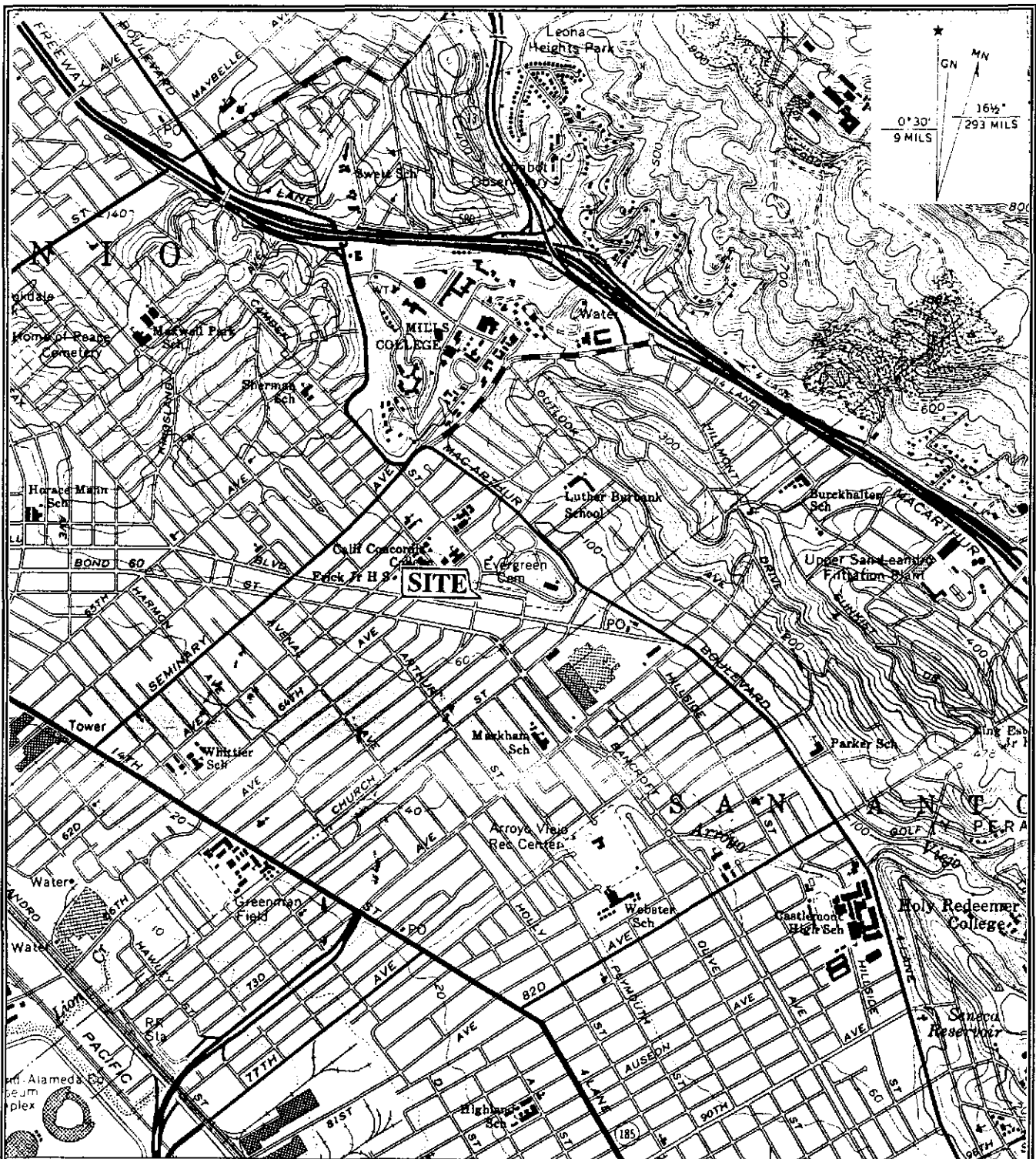
TABLE 3: FIELD PARAMETERS OF GROUNDWATER SAMPLING
Sekhon Gas Station
6600 Foothill Boulevard
Oakland , California

Sample I.D. No.	Date of Sampling	Temperature °F	pH	Conductivity uS
MW-1	7/11/03	70.1	7.57	682
MW-2	7/11/03	71.6	6.5	598
MW-3	7/11/03	71.2	6.87	166
MW-4	7/11/03	71.3	6.61	1012
MW-5	7/11/03	70.6	6.81	515
MW-6	7/11/03	70.6	6.64	978

Note:

°F = degree Fahrenheit

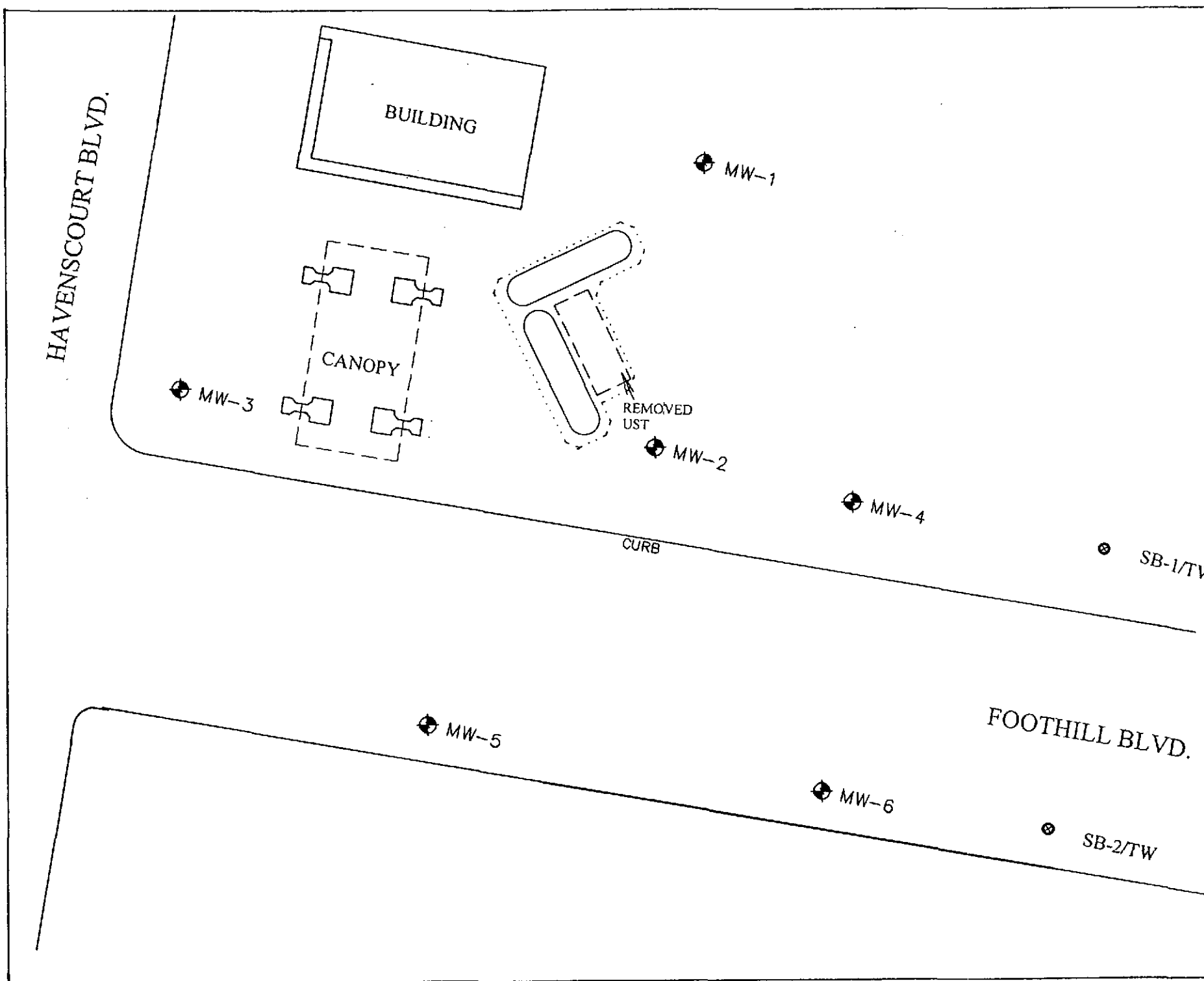
uS = microSiemens



Source: U.S.G.S. Maps; 7.5 Minute Series (Topographic)
 Oakland East Quadrangle, CA
 Aerial Photograph taken 1959 Photorevised 1980

FIGURE 1: SITE VICINITY MAP
SEKHON GAS STATION
 6600 Foothill Blvd.
 Oakland, California

**ADVANCED ASSESSMENT AND
 REMEDIATION SERVICES**
 2380 Salvio Street, Suite 202
 Concord, California



LEGEND

- MW-2 Monitoring Well
- SB-1/TW Soil Boring/Temp. Well
- Present UST
- Limits of Excavation
- Pumps

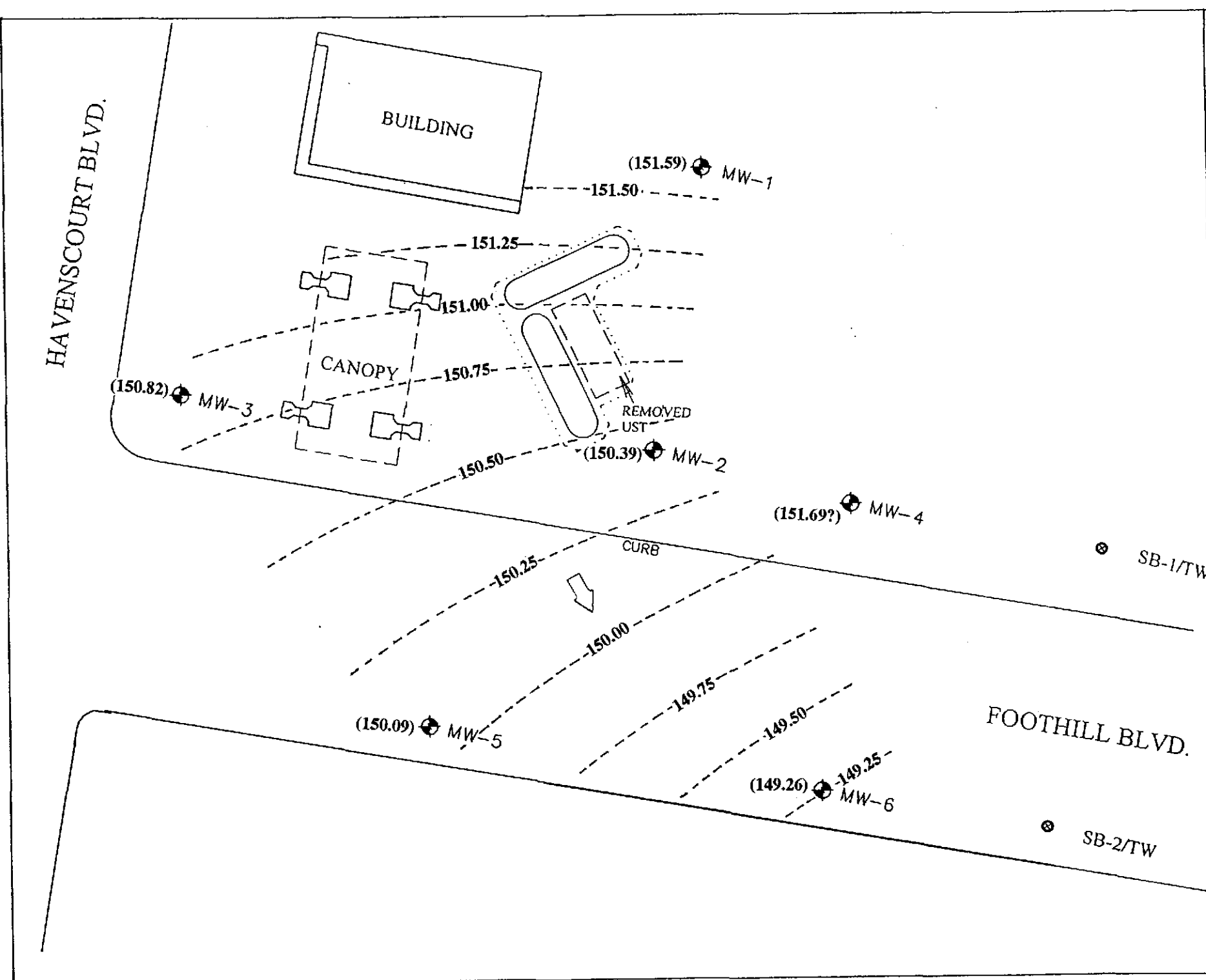
GRAPHIC SCALE



(IN FEET)
1 inch = 30 ft.

FIGURE 2: SITE PLAN
SEKHON GAS STATION
6600 Foothill Blvd.
Oakland, California

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REMEDIATION SERVICES**
2380 Salvio Street, Suite 202
Concord, California

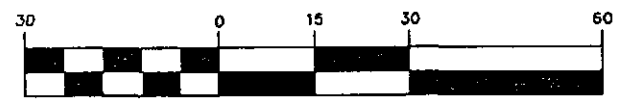


LEGEND

- ◆ MW-2 Monitoring Well
- ⊕ SB-1/TW Soil Boring/Temp. Well
- Present UST
- [- - -] Limits of Excavation
- ⊕ Pumps
- ↓ General Direction of Groundwater Flow

Note:
 1. Water Levels in Monitoring Wells Measured on July 11, 2003
 2. Contour Interval = 0.25 foot
 3. Hydraulic Gradient = 0.012 foot/foot

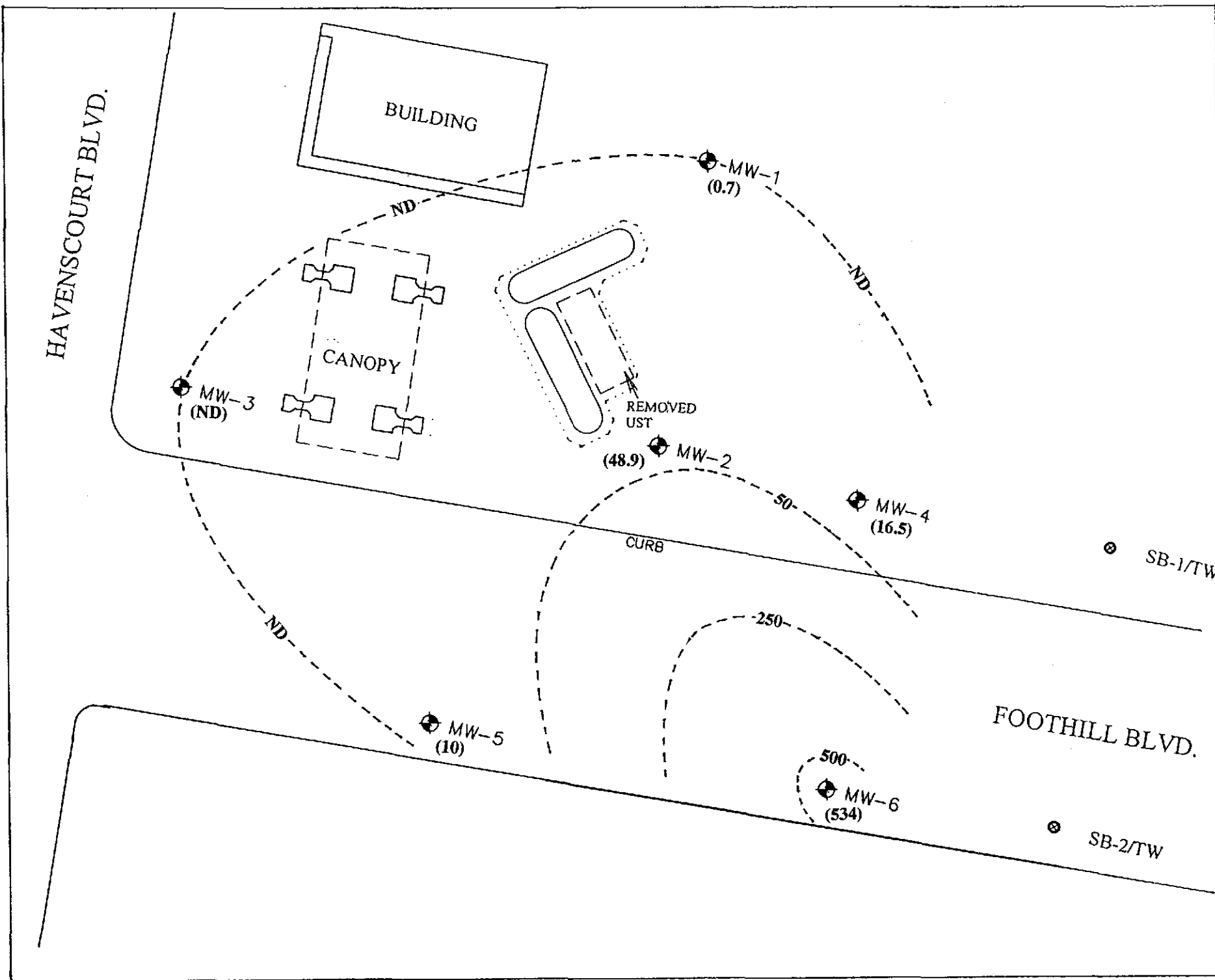
GRAPHIC SCALE



(IN FEET)
 1 inch = 30 ft.

FIGURE 3: GROUNDWATER SURFACE ELEVATION
SEKHON GAS STATION
 6600 Foothill Blvd.
 Oakland, California

ADVANCED ASSESSMENT AND REMEDIATION SERVICES
 2380 Salvio Street, Suite 202
 Concord, California



LEGEND

- ◆ MW-2 Monitoring Well
- ⊕ SB-1/TW Soil Boring/Temp. Well
- Present UST
- [. . .] Limits of Excavation
- ⊕ Pumps

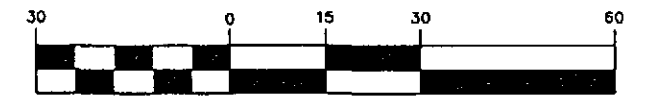
(534) Benzene Concentrations in Groundwater in Parts Per Billion (ppb)

-250- Benzene Concentrations Contour

ND Not Detected above Reported Detection Limit

Note:
 1. Groundwater samples collected on July 11, 2003
 2. Contour Interval = As labelled

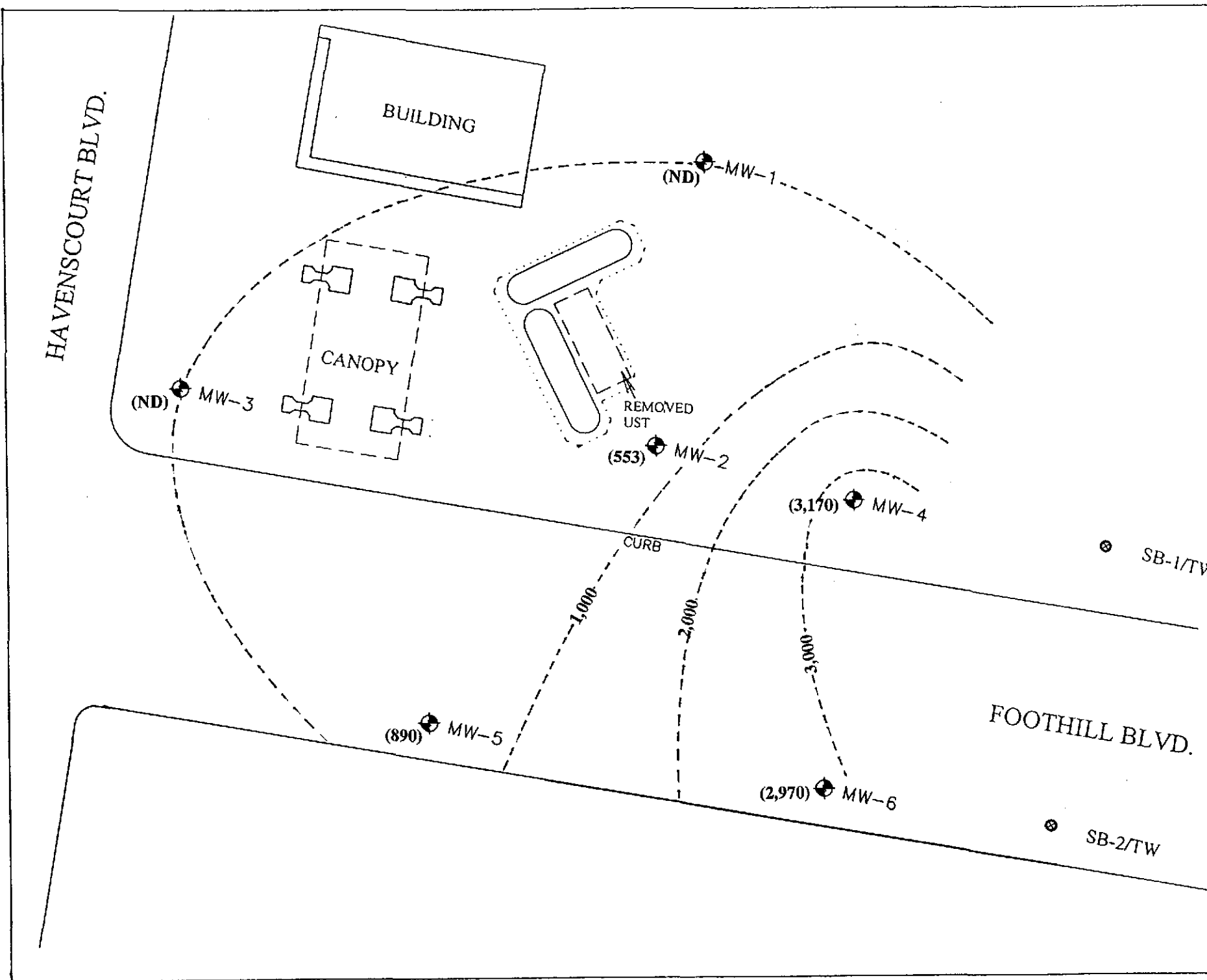
GRAPHIC SCALE



(IN FEET)
 1 inch = 30 ft.

FIGURE 5: BENZENE CONCENTRATIONS IN GROUNDWATER
SEKHON GAS STATION
 6600 Foothill Blvd.
 Oakland, California

ADVANCED ASSESSMENT AND REMEDIATION SERVICES
 2380 Salvio Street, Suite 202
 Concord, California



LEGEND

- MW-2 Monitoring Well
- SB-1/TW Soil Boring/Temp. Well
- Present UST
- Limits of Excavation
- Pumps

(3,170) Total Petroleum Hydrocarbon as Gasoline (TPHg) Concentrations in Groundwater in Parts Per Billion (ppb)

-3,000- TPHg Concentrations Contour

ND Not Detected above Reported Detection Limit

Note:
 1. Groundwater samples collected on July 11, 2003
 2. Contour Interval = 1,000 ppb

GRAPHIC SCALE

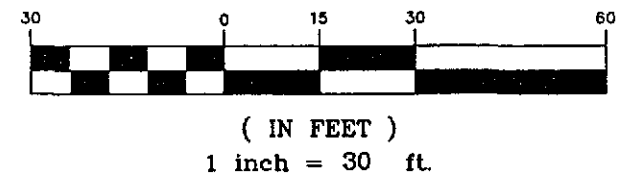
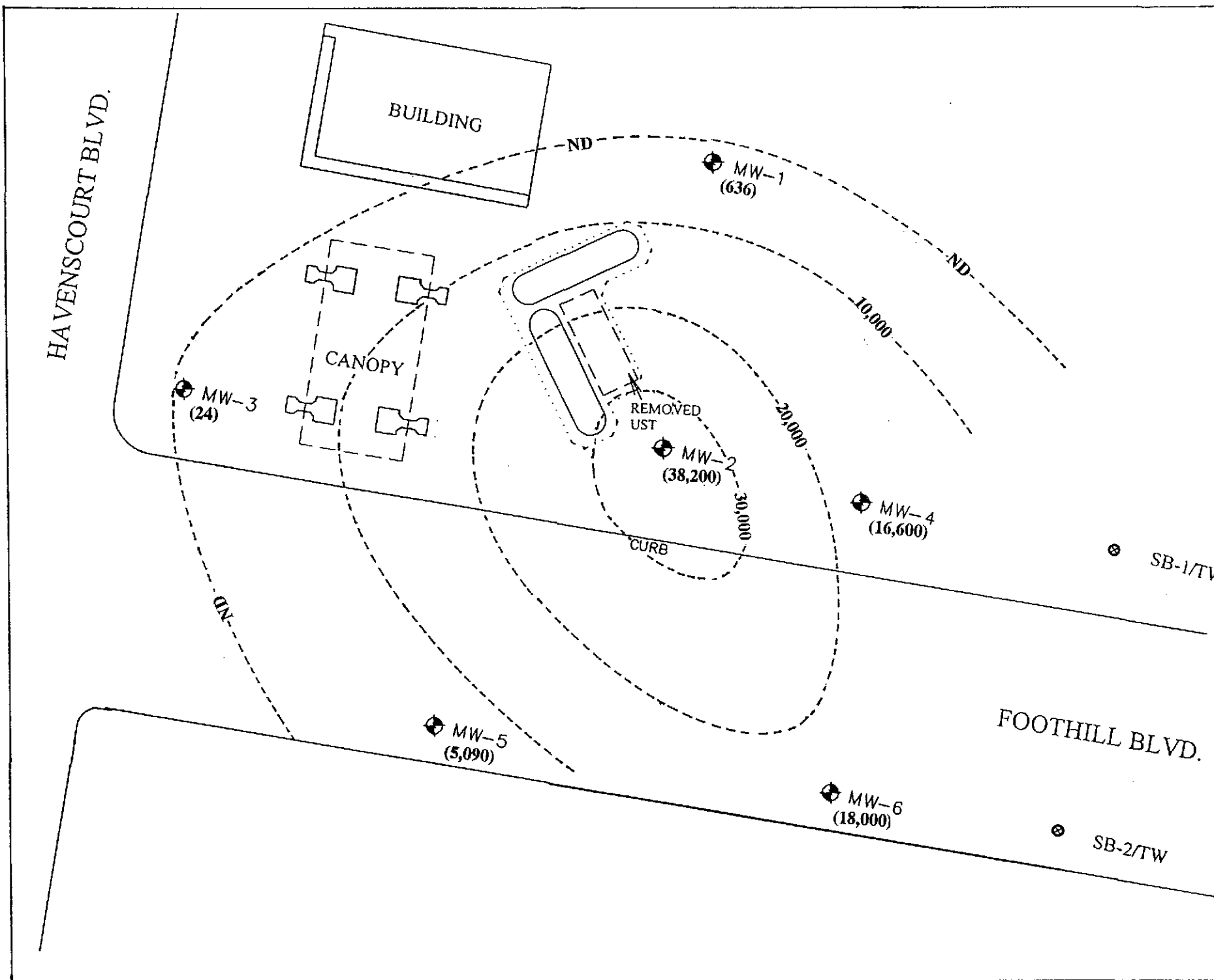


FIGURE 4: TPHg CONCENTRATIONS IN GROUNDWATER
SEKHON GAS STATION
 6600 Foothill Blvd.
 Oakland, California

ADVANCED ASSESSMENT AND REMEDIATION SERVICES
 2380 Salvio Street, Suite 202
 Concord, California



LEGEND

- ◆ MW-2 Monitoring Well
- ⊗ SB-1/TW Soil Boring/ Temp. Well
- Present UST
- [. . .] Limits of Excavation
- ⊕ Pumps

(38,000) Methyl Tertiary Butyl Ether (MTBE) concentrations in Groundwater in Parts Per Billion (ppb)

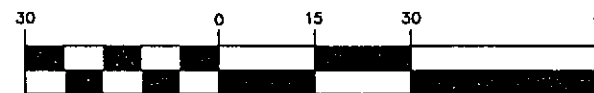
-30,000- MTBE Concentrations Contour

ND Not Detected above Reported Detection Limit

Note:

1. Groundwater samples collected on July 11, 2003
2. Contour Interval = 10000 ppb

GRAPHIC SCALE



(IN FEET)
1 inch = 30 ft.

FIGURE 6: MTBE CONCENTRATIONS IN GROUNDWATER
SEKHON GAS STATION
 6600 Foothill Blvd.
 Oakland, California

ADVANCED ASSESSMENT AND REMEDIATION SERVICES
 2380 Salvio Street, Suite 202
 Concord, California

APPENDIX A

Certified Analytical Reports and Chain-of-Custody Documents

Case Narrative

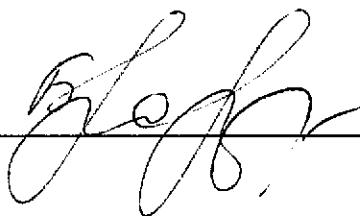
North State Environmental, South San Francisco, CA

Report Date: 07/18/2003
Report Number: 03-0959

Project: SEKHON GAS STATION
Order #: 03-0959

Six water samples were analyzed for gasoline by method 8015M, BTEX and MTBE by method 8021B. No errors were noted during analysis.

Approved by: _____

A handwritten signature in black ink, appearing to be "B. Lopez", written over a horizontal line.

Date: _____

7/18/03



C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 03-0959
Client: Advanced Assessment & Remd.
Project: SEKHON GAS STATION

Date Reported: 07/18/2003

Gasoline, BTEX and MTBE by Methods SW8020F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 03-0959-01 Client ID: MW-1/GW 07/11/2003 W					
Benzene	SW8020F	0.7	UG/L		07/15/2003
Ethylbenzene	SW8020F	ND<0.5	UG/L		07/15/2003
Gasoline Range Organics	SW8020F	ND<50	UG/L		07/15/2003
Methyl-tert-butyl ether	SW8020F	636	UG/L		07/15/2003
Toluene	SW8020F	ND<0.5	UG/L		07/15/2003
Xylenes	SW8020F	1.2	UG/L		07/15/2003
Sample: 03-0959-02 Client ID: MW-2/GW 07/11/2003 W					
Benzene	SW8020F	48.9	UG/L		07/15/2003
Ethylbenzene	SW8020F	ND<0.5	UG/L		07/15/2003
Gasoline Range Organics	SW8020F	553	UG/L		07/15/2003
Methyl-tert-butyl ether	SW8020F	*38200	UG/L		07/15/2003
Toluene	SW8020F	ND<0.5	UG/L		07/15/2003
Xylenes	SW8020F	ND<1.0	UG/L		07/15/2003
Sample: 03-0959-03 Client ID: MW-3/GW 07/11/2003 W					
Benzene	SW8020F	ND<0.5	UG/L		07/15/2003
Ethylbenzene	SW8020F	ND<0.5	UG/L		07/15/2003
Gasoline Range Organics	SW8020F	ND<50	UG/L		07/15/2003
Methyl-tert-butyl ether	SW8020F	24.3	UG/L		07/15/2003
Toluene	SW8020F	ND<0.5	UG/L		07/15/2003
Xylenes	SW8020F	ND<1.0	UG/L		07/15/2003



C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 03-0959
Client: Advanced Assessment & Remd.
Project: SEKHON GAS STATION

Date Reported: 07/18/2003

Gasoline, BTEX and MTBE by Methods SW8020F

Table with 6 columns: Analyte, Method, Result, Unit, Date Sampled, Date Analyzed. It contains three sections of data for samples 03-0959-04, 03-0959-05, and 03-0959-06, listing various compounds like Benzene, Ethylbenzene, and Gasoline Range Organics with their respective results and units.



C E R T I F I C A T E O F A N A L Y S I S

Quality Control/Quality Assurance

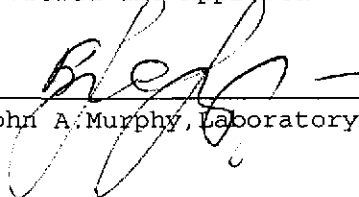
Lab Number: 03-0959
Client: Advanced Assessment & Remd.
Project: SEKHON GAS STATION

Date Reported: 07/18/2003
Gasoline, BTEX and MTBE by Methods SW8020F

Analyte	Method	Reporting Unit Limit	Blank	Avg MS/MSD Recovery	RPD
Gasoline Range Organics	SW8020F	50 UG/L	ND	112/110	2
Benzene	SW8020F	0.5 UG/L	ND	109/112	3
Toluene	SW8020F	0.5 UG/L	ND	114/116	2
Ethylbenzene	SW8020F	0.5 UG/L	ND	94/96	2
Xylenes	SW8020F	1.0 UG/L	ND	119/121	2
Methyl-tert-butyl ether	SW8020F	0.5 UG/L	ND	105/99	6

ELAP Certificate NO:1753

Reviewed and Approved


John A. Murphy, Laboratory Director



North State Labs

90 South Spruce Avenue, Suite W, South San Francisco, CA 94080

Phone: (650) 266-4563 Fax: (650) 266-4560

03-0959

Chain of Custody / Request for Analysis

Lab Job No.: _____ Page 1 of 1

Client: <i>ADVANCED ASSESSMENT + REMED. SVC.</i>	Report to: <i>TRIDIB GUHA</i>	Phone: <i>925-363-1999</i>	Turnaround Time <i>5 DAYS</i>
Mailing Address: <i>2380 SALVIO STREET SUITE 202 CONCORD, CA 94520</i>	Billing to: <i>SAME</i>	Fax:	
		email: <i>causa@earthlink.net</i>	Date: <i>7-11-03</i>
		PO# <i>SEKHON</i>	Sampler: <i>T GUHA</i>

Project / Site Address / Global ID: <i>SEKHON GAS STATION</i>					Analysis Requested							EDF <input checked="" type="checkbox"/>	
Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	TPH	MTBE							Field Point ID
<i>1 MW-1/GW</i>	<i>WATER</i>	<i>2 VOAS</i>	<i>HCL</i>	<i>7-11-03 9:45</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<i>Confirm MTBE by 8260</i>
<i>2 MW-2/GW</i>		<i>2 VOAS</i>		<i>7-11-03 10:10</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<i>3 MW-3/GW</i>		<i>2 VOAS</i>		<i>7-11-03 10:30</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<i>4 MW-4/GW</i>		<i>2 VOAS</i>		<i>7-11-03 10:50</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<i>5 MW-5/GW</i>		<i>2 VOAS</i>		<i>7-11-03 11:10</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<i>6 MW-6/GW</i>		<i>2 VOAS</i>		<i>7-11-03 11:30</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
													<i>PROS - AC</i>
													<i>ICE/COOLER</i>
													<i>SAMPLES RECEIVED</i>
													<i>IN ENCL IN</i>
													<i>GOOD CLUM</i>

Relinquished by: <i>[Signature]</i>	Date: <i>7-11-03</i> Time: <i>11:40</i>	Received by: <i>[Signature]</i>	Lab Comments/ Hazards
Relinquished by:	Date: Time:	Received by:	
Relinquished by:	Date: Time:	Received by:	