

**QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT**  
at  
**SEKHON GAS STATION**  
6600 Foothill Boulevard  
Oakland, California

Prepared for:

Mr. Ravi Sekhon  
6600 Foothill Boulevard  
Oakland, California

July 31, 2004

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**ADVANCED ASSESSMENT AND REMEDIATION SERVICES**



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July 31, 2004

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

Alameda County  
AUG 05 2004  
Environmental Health

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 May 2004, 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. Joseph Le Blanc, Oakland, California  
Mr. Sunil Ramdass, USTCF, Sacramento

TG/SEKHNQ5.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 May 2004, 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 field observations and groundwater elevation measurement, sampling, and analysis procedures, as well as the analytical methods. The location of the groundwater 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 Elevation Monitoring and Surveying**

The groundwater elevation in each well was 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 elevation measurements taken on May 21, 2004 and survey data is presented in Figure 3. The survey data and groundwater elevation 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**

Groundwater was purged from a total of six groundwater monitoring wells, MW-1 through MW-6. The purged water from all six monitoring wells was clear initially. As the purging proceeded, the water from monitoring well MW-1 and MW-3 turned clear with brown flakes, from monitoring well MW-2 and MW-6 turned brownish gray, from monitoring well MW-5 turned clear with small brownish gels, and the purged water from monitoring wells MW-4, turned silty brownish gray. Approximately three well volumes of groundwater were purged from each well. After purging each well was allowed some time for groundwater recovery. Subsequently, the water was again clear and water samples were collected. Floating product was not observed in any of the groundwater samples and sheen was observed in the groundwater from monitoring well MW-4 only. 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 May 21, 2004, following groundwater elevation measurements. Samples were analyzed by North State Labs of South San Francisco, California (NSL), which is certified by the California Department of Health Services (DHS) to perform the specified analyses.

Before purging, groundwater elevations 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 was 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 are presented in Table 4.

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 from each monitoring well for analysis of Total Petroleum Hydrocarbon as gasoline (TPHg) and Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX), Methyl Tertiary Butyl Ether (MTBE), and fuel oxygenates, Di-isopropyl ether (DIPE), Ethyl-tert-butyl-ether (ETBE), Tert-Amyl methyl ether (TAME) and Tert-Butyl alcohol (TBA) was decanted into two 40-milliliter volatile organic analysis vials with Teflon-lined septa. Samples to be analyzed for TPHg/BTEX/MTBE and fuel oxygenates 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 using EPA Methods 8015M and 8020 and for BTEX and fuel oxygenates using EPA Method 8260B. 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 event are included in Appendix A.

## 3.0 INTERPRETATION OF RESULTS

The results of water elevation measurements, groundwater sampling and analytical results are discussed in the following sections.

### 3.1 Groundwater Elevations and Gradients

A groundwater elevation contour map for May 21, 2004, is presented in Figure 3. The flow directions, based on groundwater elevation data, between monitoring wells MW-1, MW-2 and MW-3 was toward the N50°W; between monitoring wells MW-2 and MW-3 was toward the N83°W; and between monitoring wells MW-2, MW-5 and MW-6 was toward the S13°W. The average hydraulic gradient calculated was approximately 0.019 foot per foot. The average depth to groundwater in these wells was approximately

7.5 feet below ground surface (bgs). The depth to groundwater in monitoring well MW-4 was 5.79 feet bgs, which is the shallowest depth. Figure 3A is a rose diagram for historical groundwater flow direction for the site between June 2001 to May 2004.

### 3.2 Analytical Results

The analytical results for groundwater samples from monitoring wells were found to contain TPHg ranging from non-detect (ND) to 9,340 parts per billion (ppb); benzene concentrations ranging from ND to 340 ppb; toluene concentrations ND to 12.7; ethylbenzene concentrations ranging from ND to 309 ppb; and xylenes concentrations ranging from ND to 860 ppb. MTBE was detected in groundwater samples from all monitoring wells at concentrations ranging from 54 to 24,600; TAME was detected in MW-6 at concentration of 12 ppb; DIPE was detected only in groundwater samples from MW-5 at concentration of 8.7 ppb; TBA was detected in groundwater samples from MW-3, MW-5 and MW-6 at concentrations of 1,100, 1,340 and 4,060 ppb, respectively. ETBE was not detected in groundwater samples. Analytical results for groundwater samples from six monitoring wells are presented in Tables 2 and 3. The official laboratory reports and chain of custody documents are included in Appendix A. TPHg, benzene and MTBE concentrations in groundwater are presented in Figures 4, 5 and 6, respectively.

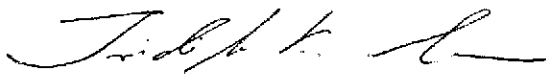
### 4.0 SELF-MONITORING PROJECT SCHEDULE AND RECOMMENDATIONS

In this sampling event, MTBE was detected in groundwater samples from all six monitoring wells. The highest concentration is in MW-2. The analytical results for this sampling event indicate that the highest concentration of Benzene occurs in the monitoring well, MW-1 and farthest downgradient monitoring well, MW-6. With the possible off-site migration of contamination, further site characterization is warranted. Consequently, an addendum to work plan for additional site characterization has been approved by ACDEH. Also, we recommend immediate start of aggressive interim remediation by periodic groundwater extraction and disposal of the extracted water at a designated facility.

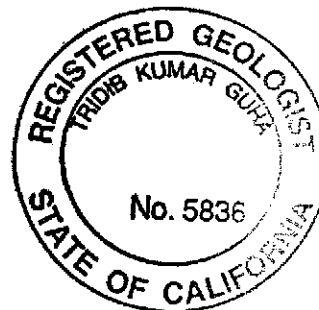
### 5.0 CERTIFICATION

The information provided in this report is based on the groundwater sampling activities conducted at the site. All data presented in this report are believed to be factual and accurate, unless proven otherwise. Any conclusions or recommendations provided within this report are based on our expertise and experience conducting work of 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-1	11/13/03	160.25	8.10	0	152.15
MW-1	2/19/04	160.25	8.24	0	152.01
MW-1	5/21/04	160.25	8.51	0	151.74
MW-2	7/11/03	158.97	7.58	0	150.39
MW-2	11/13/03	158.97	8.01	0	150.96
MW-2	2/19/04	158.97	6.43	0	152.54
MW-2	5/21/04	158.97	6.83	0	152.14
MW-3	7/11/03	160.17	9.35	0	150.82
MW-3	11/13/03	160.17	8.85	0	151.32
MW-3	2/19/04	160.17	8.46	0	151.71
MW-3	5/21/04	160.17	9.09	0	151.08
MW-4	7/11/03	158.42	6.73	0	151.69
MW-4	11/13/03	158.42	6.54	0	151.88
MW-4	2/19/04	158.42	4.37	0	154.05
MW-4	5/21/04	158.42	5.79	0	152.63
MW-5	7/11/03	158.03	7.94	0	150.09
MW-5	11/13/03	158.03	7.41	0	150.62
MW-5	2/19/04	158.03	6.14	0	151.89
MW-5	5/21/04	158.03	7.42	0	150.61
MW-6	7/11/03	157.24	7.98	0	149.26
MW-6	11/13/03	157.24	7.47	0	149.77
MW-6	2/19/04	157.24	5.09	0	152.15
MW-6	5/21/04	157.24	6.38	0	150.86

Note:

The site was surveyed as per Geotracker standard on July 11, 2003, by PLS Surveys, Inc., a California licensed surveyor. 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	TBA ug/L
MW-1/GW	6/13/01	ND	130	ND	ND	ND	ND	NA
MW-1/GW	3/21/02	95	72.5	ND	ND	ND	ND	NA
MW-1/GW	7/9/02	ND	208	ND	ND	ND	ND	NA
MW-1/GW	7/11/03	ND	636	0.7	ND	ND	1.2	NA
MW-1/GW	11/13/03	ND<5000#	72000	ND	ND	ND	ND	22000
MW-1/GW	2/19/04	1350	82000	460	ND	ND	ND	8630
MW-1/GW	5/21/04	ND	12000	ND<50	ND<50	ND<50	ND<100	ND<1000
MW-2/GW	6/13/01	5800	94000*	160	210	290	980	980
MW-2/GW	3/21/02	452	79100*	3.4	ND	1.6	2.1	NA
MW-2/GW	7/9/02	497	37600*	61.6	ND	ND	1.6	NA
MW-2/GW	7/11/03	553	38200*	48.9	ND	ND	ND	NA
MW-2/GW	11/13/03	ND<2500#	47000	ND	ND	ND	ND	11000
MW-2/GW	2/19/04	4390	26700	410	265	160	490	3930
MW-2/GW	5/21/04	1150	24600	254	ND<200	ND<200	ND<400	ND<4000
MW-3/GW	6/13/01	300	450	?	ND	0.07	2	NA
MW-3/GW	3/21/02	274	7520	1.1	ND	1	2.5	NA
MW-3/GW	7/9/02	ND	40.8	ND	ND	ND	ND	NA
MW-3/GW	7/11/03	ND	24.3	ND	ND	ND	ND	NA
MW-3/GW	11/13/03	ND	37	ND	ND	ND	ND	27
MW-3/GW	2/19/04	83	42.7	ND	ND	ND	ND	508
MW-3/GW	5/21/04	ND	54	ND	ND	ND	ND	1100
MW-4/GW	7/9/02	9680	28300	43	17	369	1990	NA
MW-4/GW	7/11/03	3170	16600	16.5	6.4	71.7	244	NA
MW-4/GW	11/13/03	ND<1000#	16000	49	ND	340	900	4500
MW-4/GW	2/19/04	7230	14300	107	7	497	1063	1440
MW-4/GW	5/21/04	9340	7380	194	ND	309	860	ND<2000
MW-5/GW	7/9/02	275	18600	30.2	ND	ND	3	NA
MW-5/GW	7/11/03	890	5090	10	0.6	ND	7.1	NA
MW-5/GW	11/13/03	ND<1000#	3400	ND	ND	ND	ND	3100
MW-5/GW	2/19/04	1310	438	ND	0.7	ND	2.2	1340
MW-5/GW	5/21/04	1960	214	9.7	0.7	ND	ND	436
MW-6/GW	7/9/02	12000	11300	432	22	637	1740	NA
MW-6/GW	7/11/03	2970	18000	534	6.3	70.1	278	NA
MW-6/GW	11/13/03	ND<2500#	18000	300	ND	ND	52	ND
MW-6/GW	2/19/04	5340	5310	184	5	65	127	4260
MW-6/GW	5/21/04	6110	3900	340	12.7	205	308.8	4060
SB-1 GW	6/27/02	554	74.1	1	0.8	11.6	76.2	NA
SB-2 GW	6/27/02	3000	485*	95.6	10.2	394	831	NA
PQL		#	0.5	0.5	0.5	0.5	1	1

Notes:

ND- Not Detected      NA- Not Analyzed      PQL- Practical Quantitation Limit

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

TPHg- Total petroleum hydrocarbon as gasoline (EPA method 8015 MOD)

MTBE- Methyl Tertiary Butyl Ether (EPA Method 8260B)

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

TBA- tert-Butanol (EPA Method 8260B) Other oxygenates were not detected

\* Confirmed by GC/MS method 8260B

# Laboratory explanations (dated November 26 & December 8, 2003) attached



**TABLE 3: SUMMARY OF FUEL OXYGENATES ANALYTICAL RESULTS OF GROUNDWATER SAMPLING**

*Sekhon Gas Station*

6600 Foothill Boulevard, Oakland, California

Sample ID	Date of Sampling	MTBE ug/L	ETBE ug/L	TAME ug/L	DIPE ug/L	TBA ug/L
MW-1/GW	11/13/03	72,000	ND<5	ND<5	ND<5	22,000
MW-1/GW	2/19/04	82,000	ND<500	ND<500	ND<250	8,630
MW-1/GW	5/21/04	12,000	ND<100	ND<100	ND<50	ND<1000
MW-2/GW	11/13/03	47,000	ND<5	ND<5	ND<5	11,000
MW-2/GW	2/19/04	26,700	ND<10	91	ND<5	3,930
MW-2/GW	5/21/04	24,600	ND<400	ND<400	ND<200	ND<4000
MW-3/GW	11/13/03	37	ND<5	ND<5	ND<5	27
MW-3/GW	2/19/04	42.7	ND	ND	ND	508
MW-3/GW	5/21/04	54	ND<1	ND<1	ND<0.5	1100
MW-4/GW	11/13/03	16,000	ND<5	ND<5	ND<5	4,500
MW-4/GW	2/19/04	14,300	ND<10	29	ND<5	1,440
MW-4/GW	5/21/04	7,380	ND<200	ND<200	ND<100	ND<2000
MW-5/GW	1/28/04	3,400	ND<200	ND<5	ND<5	3,100
MW-5/GW	2/19/04	438	ND	2	2.6	1,340
MW-5/GW	5/21/04	214	ND<1	ND<1	8.7	436
MW-6/GW	11/13/03	18,000	ND<5	ND<5	ND<5	ND
MW-6/GW	2/19/04	5,310	ND<10	17	ND<5	4,260
MW-6/GW	5/21/04	3,900	ND<1	12	ND<0.5	4,060
RL		0.5	1	1	0.5	10

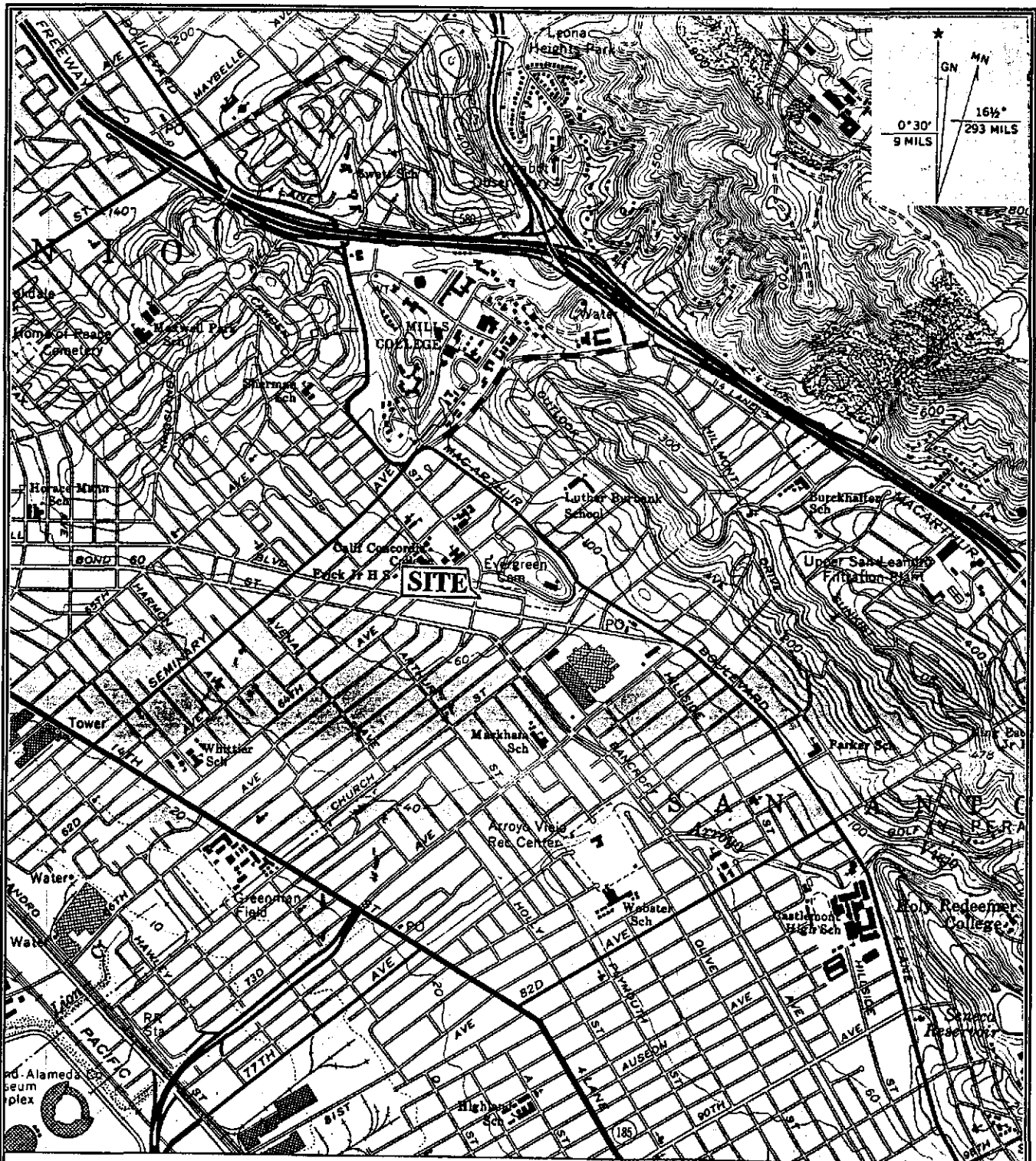
Notes: ND- Not Detected      RL- Reporting Limit  
 ug/L -                      Microgram per Liter (parts per billion)  
 MTBE -                      Methyl-tert-butyl ether (EPA Method 8260B)  
 ETBE -                      Ethyl tert-butyl ether (EPA Method 8260B)  
 TAME -                      tert-Amyl methyl ether (EPA Method 8260 B)  
 DIPE -                      Di-isopropyl ether (EPA Method 8260B)  
 TBA -                      tert-Butyl alcohol (EPA Method 8260 B)

**TABLE 4: FIELD PARAMETERS OF GROUNDWATER SAMPLING**  
*Sekhon Gas Station*  
**6600 Foothill Boulevard**  
**Oakland , California**

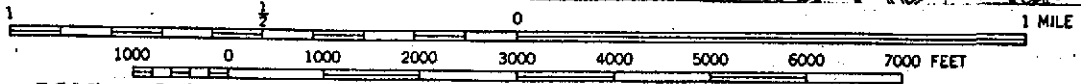
Sample I.D. No.	Date of Sampling	Temperature °F	pH	Conductivity uS
MW-1	7/11/03	70.1	7.57	682
MW-1	11/13/03	70.2	6.88	658
MW-1	2/19/04	65.8	7.12	964
MW-1	5/21/04	67.5	6.98	642
MW-2	7/11/03	71.6	6.50	598
MW-2	11/13/03	72.3	6.79	863
MW-2	2/19/04	66.2	6.55	816
MW-2	5/21/04	70.3	6.33	817
MW-3	7/11/03	71.2	6.87	166
MW-3	11/13/03	73.6	7.28	144
MW-3	2/19/04	67.4	6.73	403
MW-3	5/21/04	69.0	6.82	392
MW-4	7/11/03	71.3	6.61	1012
MW-4	11/13/03	73.0	6.71	1002
MW-4	2/19/04	65.2	6.49	958
MW-4	5/21/04	68.7	6.38	921
MW-5	7/11/03	70.6	6.81	515
MW-5	11/13/03	69.3	6.73	558
MW-5	2/19/04	64.3	7.18	455
MW-5	5/21/04	67.3	6.82	396
MW-6	7/11/03	70.6	6.64	978
MW-6	11/13/03	67.1	6.75	983
MW-6	2/19/04	61.2	6.85	682
MW-6	5/21/04	65.6	6.63	860

Note:

°F = degree Fahrenheit  
uS = microSiemens



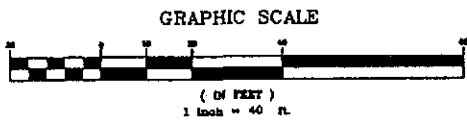
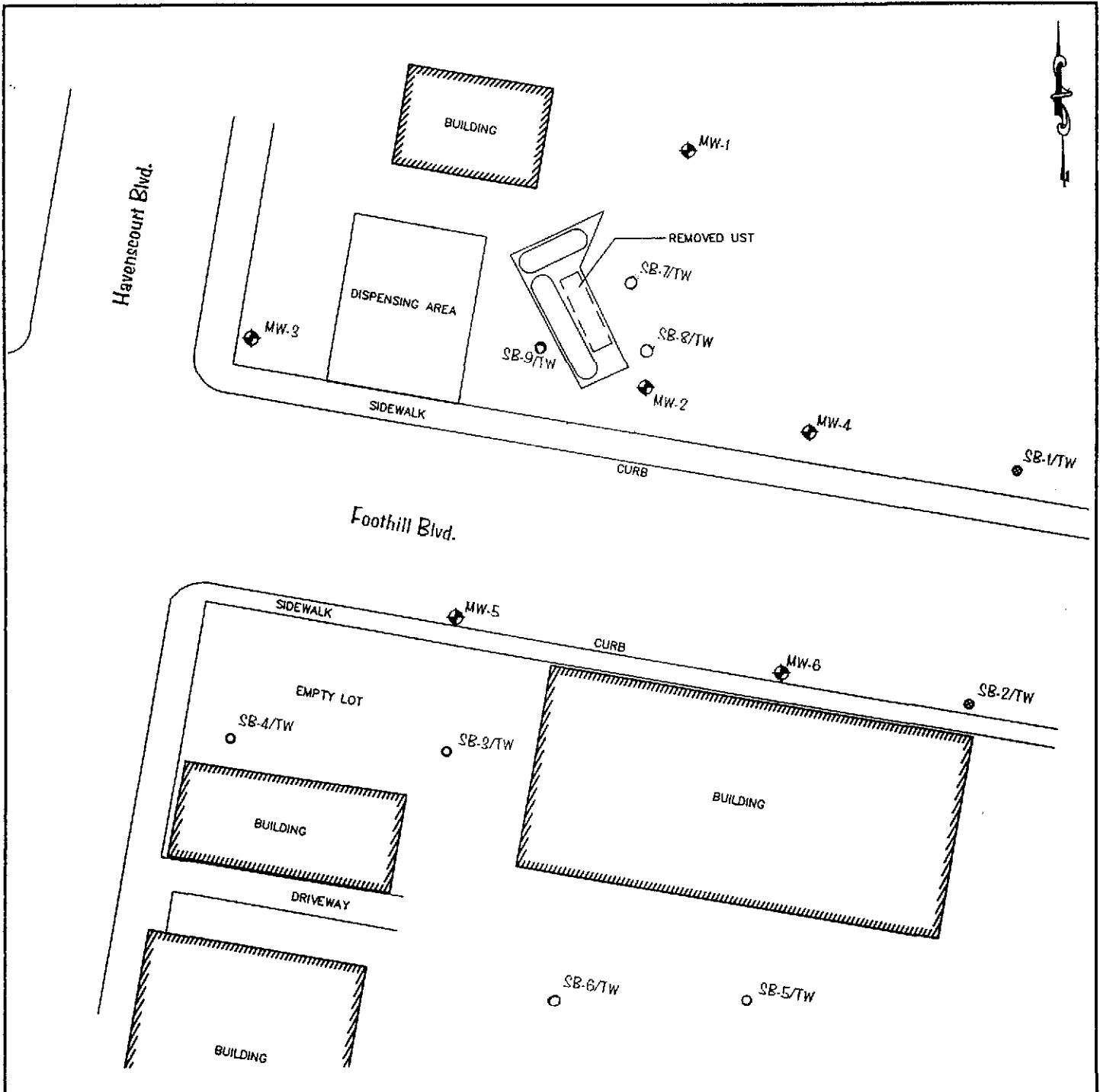
SCALE 1:24 000



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

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**LEGEND**

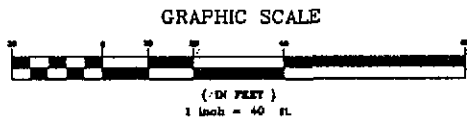
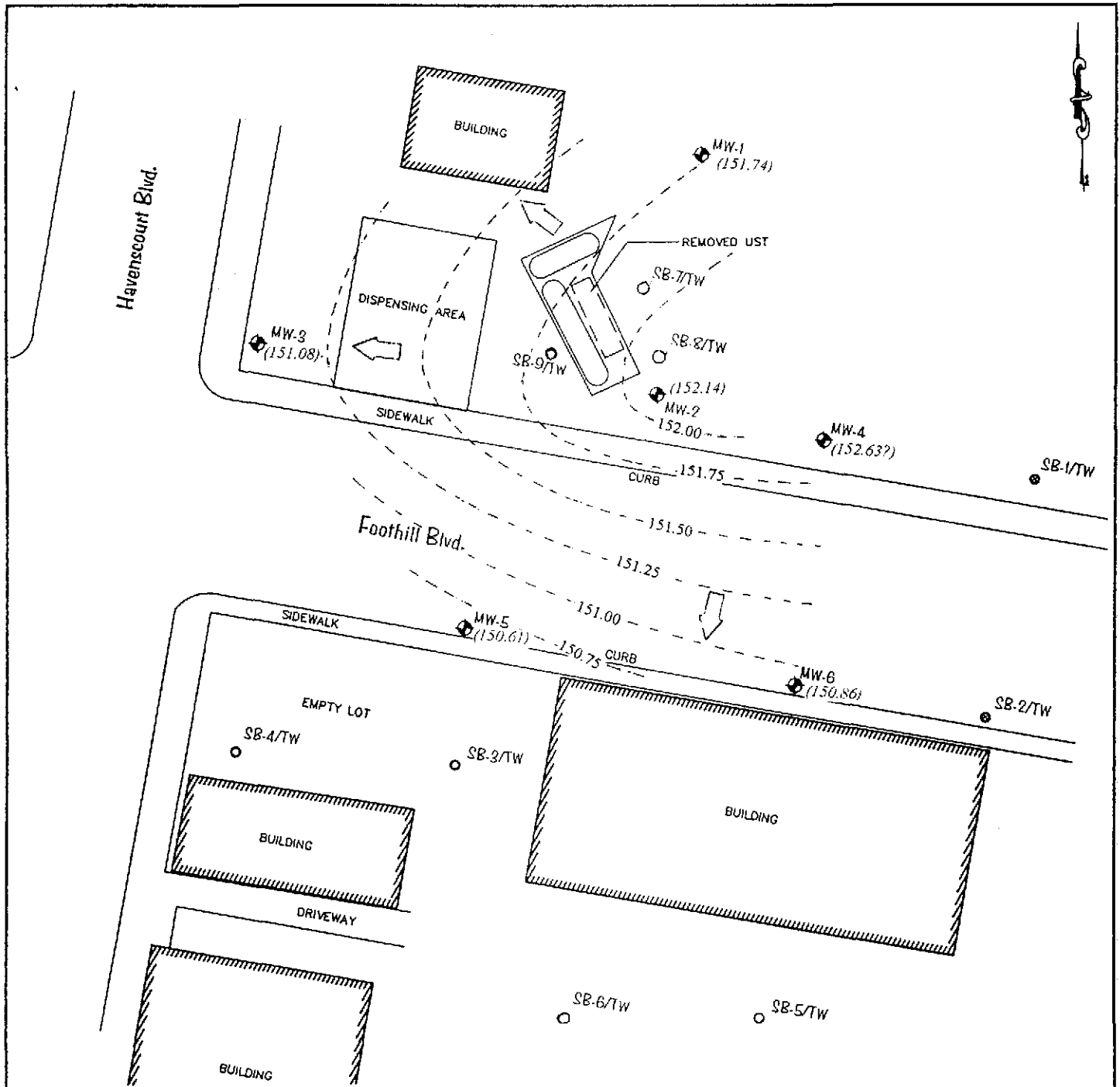
- ◆ MW-1 Monitoring Well
- SB-1 Soil boring/Temporary well
- SB-5/TW Proposed Soil boring/Temporary well

Notes:

1. Locations of the wells and borings are georeferenced By GPS Surveying method by PLS Survey, Inc.
2. Background map information from City of Oakland 1/40 scale aerials and P&D Environmental report.

**FIGURE 2: SITE PLAN**  
**SEKHON GAS STATION**  
 6600 Foothill Boulevard  
 Oakland, CA 94544

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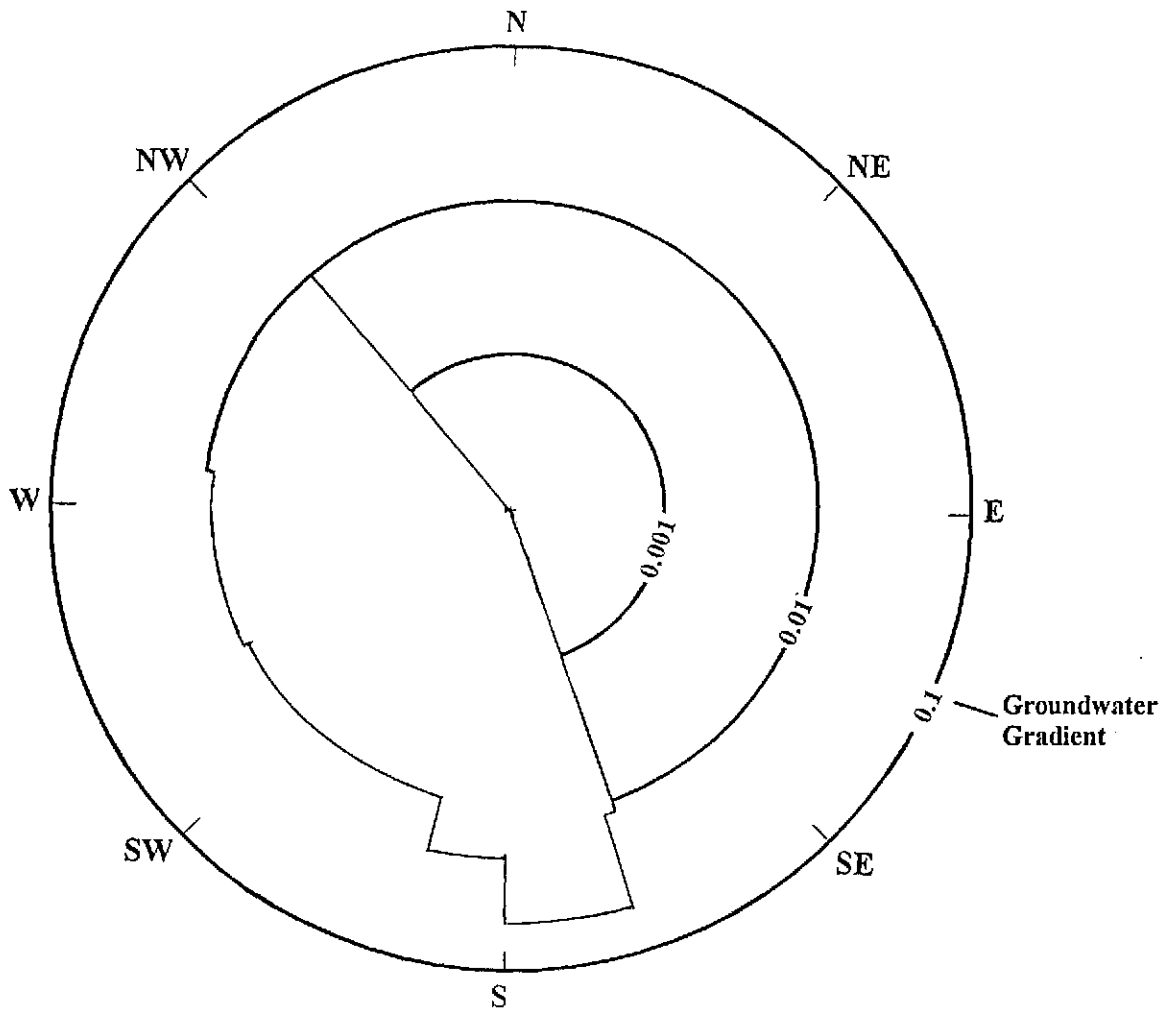
- LEGEND**
- MW-1 Monitoring Well
  - SB-1 Soil boring/Temporary well
  - SB-5/TW Proposed Soil boring/Temporary well
  - (152.14) Groundwater Elevations (MSL)
  - 151.00- Groundwater Elevation Contour
  - ↓ General Direction of Groundwater Flow

- Note:
1. Water Levels in Monitoring Wells Measured on May 21, 2004
  2. Contour Interval = 0.25 foot
  3. Hydraulic Gradient = 0.019

- Notes:
1. Locations of the wells and borings are georeferenced By GPS Surveying method by PLS Survey, Inc.
  2. Background map information from City of Oakland 1/40 scale aerials and P&D Environmental report.

**FIGURE 3: GROUNDWATER SURFACE ELEVATIONS**  
**SEKHON GAS STATION**  
 6600 Foothill Boulevard  
 Oakland, CA 94544

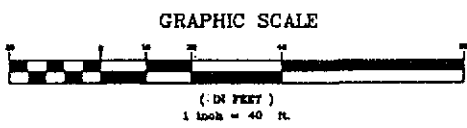
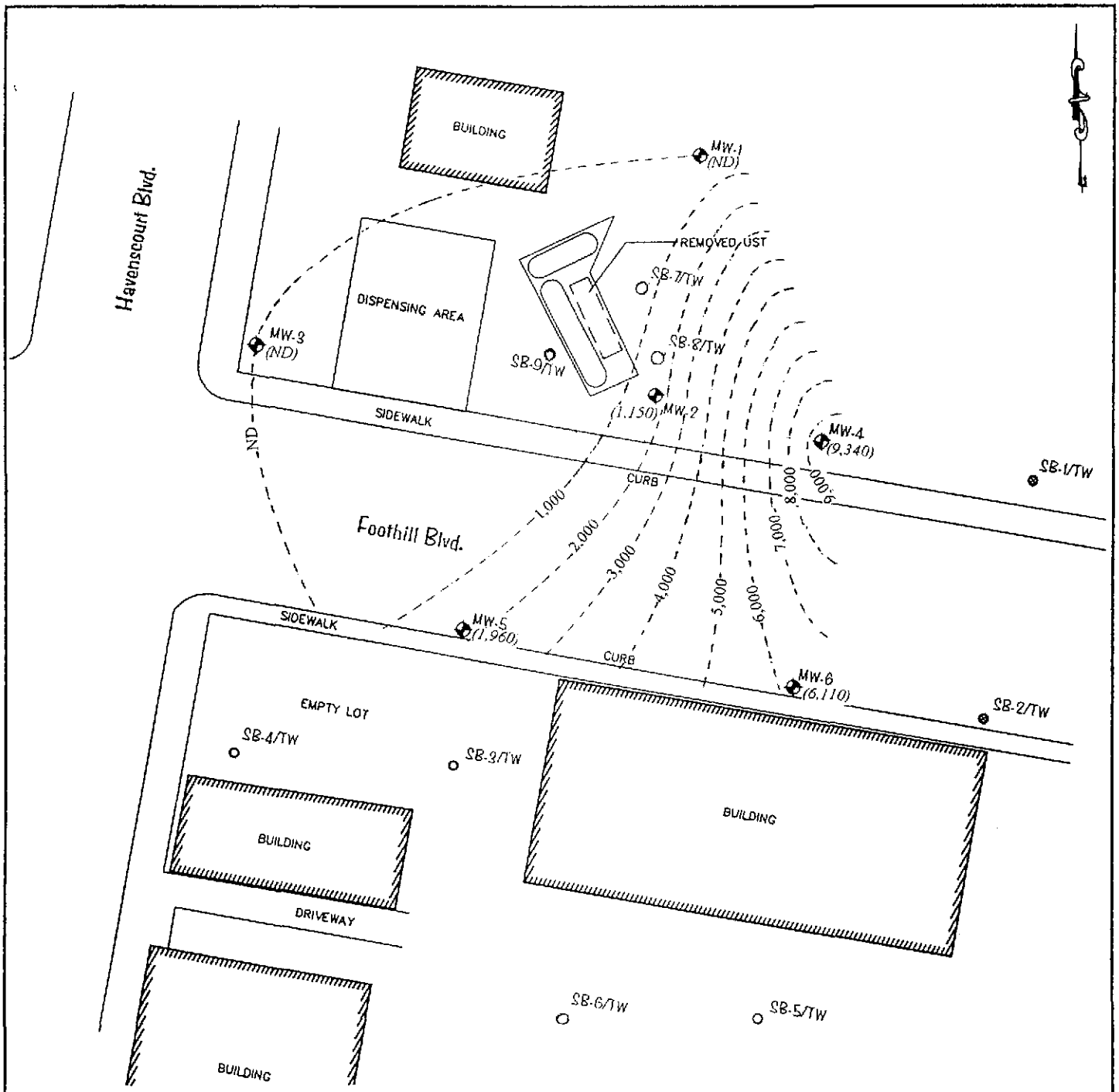
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**FIGURE 3A: HISTORICAL GROUNDWATER FLOW DIRECTION**  
**SEKHON GAS STATION**  
 6600 Foothill Blvd.  
 Oakland, California

(June 2001 - May 2004)

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**LEGEND**

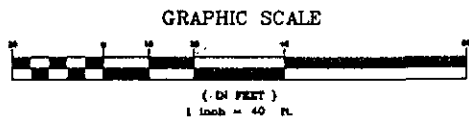
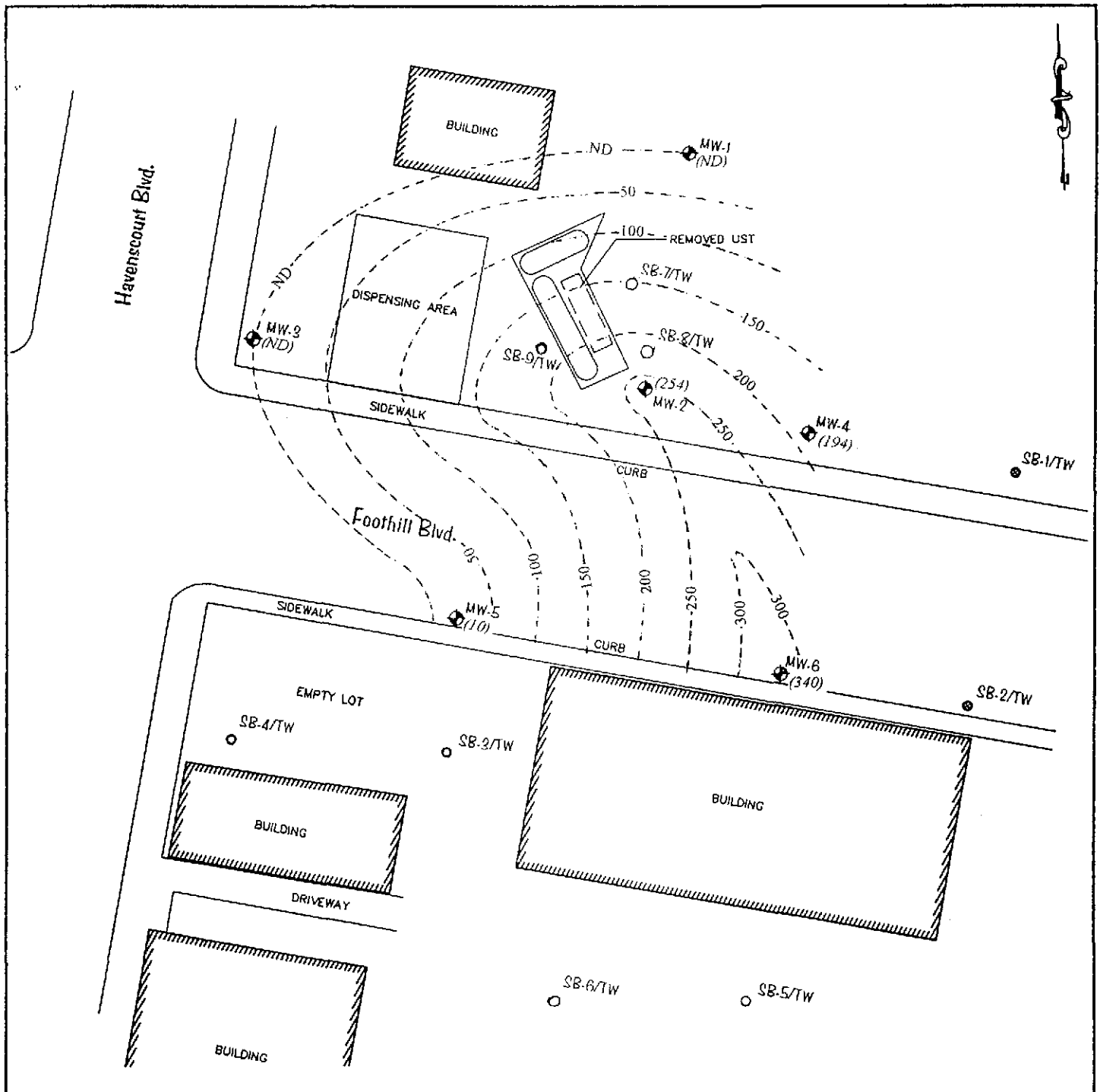
- ◆ MW-1 Monitoring Well
- SB-1 Soil boring/Temporary well
- SB-5/TW Proposed Soil boring/Temporary well
- (9,340) Total Petroleum Hydrocarbon as Gasoline (TPHg) concentrations in Groundwater in Parts per Billion (ppb)
- 6,000- TPHg concentration contour
- ND Not detected above reported detection limit

- Notes:
1. Locations of the wells and borings are georeferenced By GPS Surveying method by PLS Survey, Inc.
  2. Background map information from City of Oakland 1/40 scale aerials and P&D Environmental report.

- Note:
1. Groundwater samples collected on May 21, 2004
  2. Contour interval = 1,000 ppb

**FIGURE 4: TPHg CONCENTRATIONS IN GROUNDWATER**  
**SEKHON GAS STATION**  
 6600 Foothill Boulevard  
 Oakland, CA 94544

**ADVANCED ASSESSMENT and**  
**REMEDIATION SERVICES**  
 2380 Salvio Street, Suite 202  
 Concord, CA 94520



**LEGEND**

- ⊕ MW-1 Monitoring Well
- ⊙ SB-1 Soil boring/Temporary well
- SB-5/TW Proposed Soil boring/Temporary well
- (340) Benzene concentrations in groundwater in Parts per Billion (ppb)
- 250- Benzene concentration contour
- ND Not detected above reported detection limit

**Notes:**

1. Locations of the wells and borings are georeferenced By GPS Surveying method by PLS Survey, Inc.
2. Background map information from City of Oakland 1/40 scale aerials and P&D Environmental report.

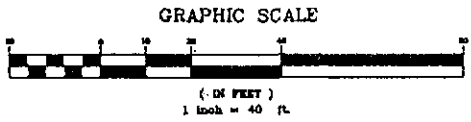
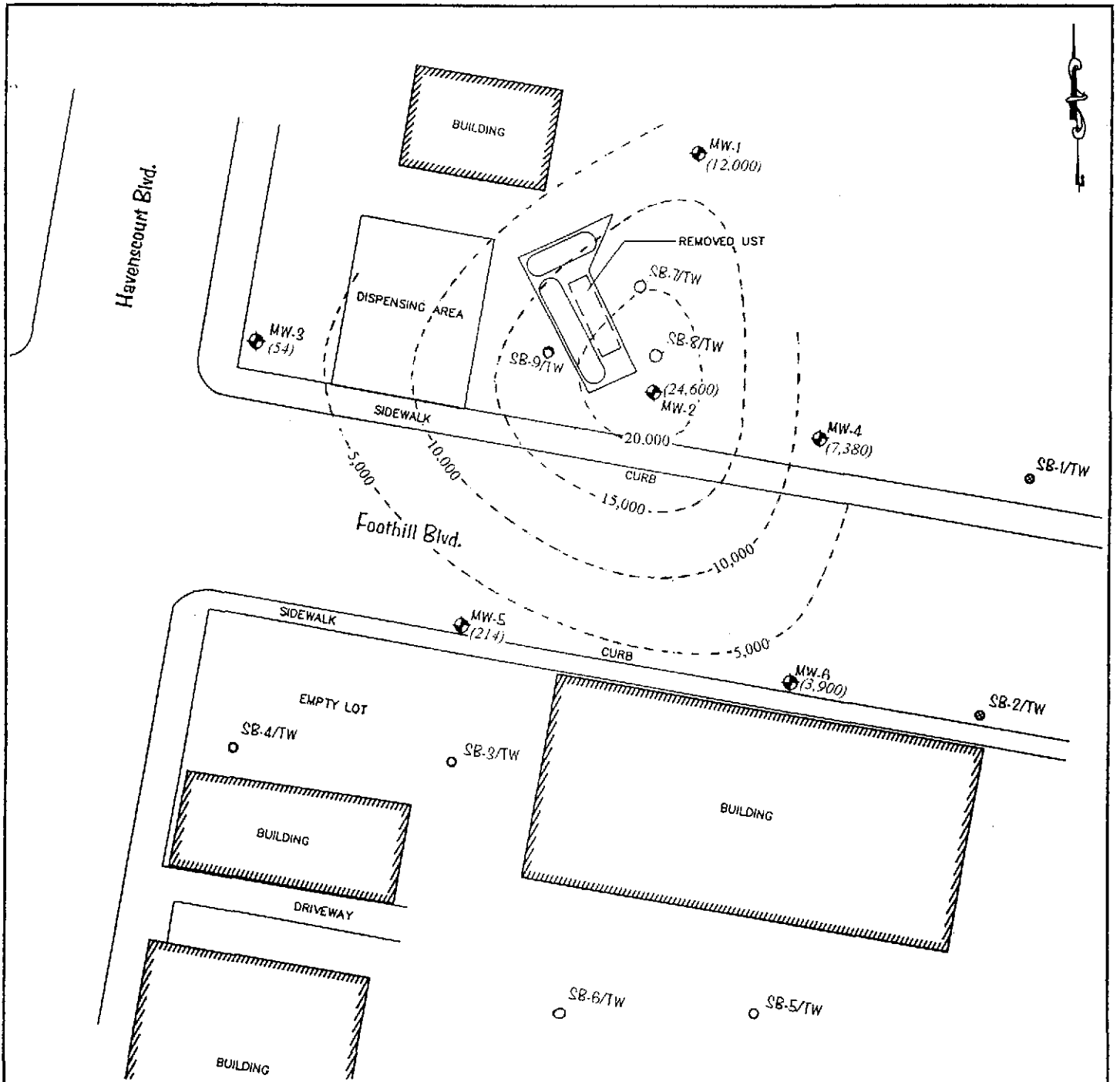
**Note:**

1. Groundwater samples collected on May 21, 2004
2. Contour interval = 50 ppb

**FIGURE 5: BENZENE CONCENTRATIONS IN GROUNDWATER**  
**SEKHON GAS STATION**  
 6600 Foothill Boulevard  
 Oakland, CA 94544

**ADVANCED ASSESSMENT and**  
**REMEDATION SERVICES**  
 2380 Salvio Street, Suite 202  
 Concord, CA 94520





**LEGEND**

◆	MW-1	Monitoring Well
●	SB-1	Soil boring/Temporary well
○	SB-5/TW	Proposed Soil boring/Temporary well
(24,600)		Methyl Tertiary Butyl Ether (MTBE) concentrations in groundwater in Parts per Billion (ppb)
-10,000-		MTBE concentration contour
ND		Not detected above reported detection limit

- Notes:
- Locations of the wells and borings are georeferenced By GPS Surveying method by PLS Survey, Inc.
  - Background map information from City of Oakland 1/40 scale aerials and P&D Environmental report.

- Note:
- Groundwater samples collected on May 19, 2004
  - Contour interval = 5,000 ppb

**FIGURE 6: MTBE CONCENTRATIONS IN GROUNDWATER**  
**SEKHON GAS STATION**  
 6600 Foothill Boulevard  
 Oakland, CA 94544

**ADVANCED ASSESSMENT and**  
**REMEDATION SERVICES**  
 2380 Salvio Street, Suite 202  
 Concord, CA 94520

## **APPENDIX A**

### **Laboratory Reports and Chain of Custody Documents**



North State Labs

CA ELAP# 1753

90 South Spruce Avenue, Suite V • South San Francisco, CA 94080 • (650) 266-4563 • FAX (650) 266-4560

## Case Narrative

Client: Advanced Assessment & Remediation Services

Project: SEKHON GAS STATION

Lab No: 04-0723

Date Received: 05/21/2004

Date reported: 06/03/2004

Six water samples were analyzed for gasoline by method 8015M, BTEX and fuel oxygenates by GC/MS method 8260B. Results for QC/QA samples met all requirements. No errors were noted during analysis. For samples 04-0723-01, -02 and -04 reporting limits for analysis by GC/MS increased because of sample dilution.



John A. Murphy  
Laboratory Director



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

Lab Number: 04-0723  
Client: Advanced Assessment & Remd.  
Project: SEKHON GAS STATION

Date Reported: 06/03/2004

Gasoline Range Hydrocarbons by Method 8015M

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 04-0723-01	Client ID: MW-1/GW			05/21/2004	W
Gasoline Range Organics	SW8020F	ND<50	UG/L		05/27/2004
Sample: 04-0723-02	Client ID: MW-2/GW			05/21/2004	W
Gasoline Range Organics	SW8020F	1150	UG/L		05/27/2004
Sample: 04-0723-03	Client ID: MW-3/GW			05/21/2004	W
Gasoline Range Organics	SW8020F	ND<50	UG/L		05/28/2004
Sample: 04-0723-04	Client ID: MW-4/GW			05/21/2004	W
Gasoline Range Organics	SW8020F	9340	UG/L		05/28/2004
Sample: 04-0723-05	Client ID: MW-5/GW			05/21/2004	W
Gasoline Range Organics	SW8020F	1960	UG/L		05/28/2004
Sample: 04-0723-06	Client ID: MW-6/GW			05/21/2004	W
Gasoline Range Organics	SW8020F	6110	UG/L		06/03/2004



North State Labs

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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

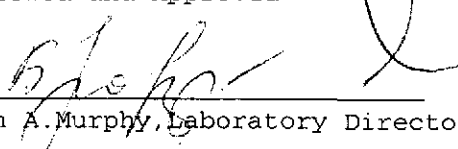
Lab Number: 04-0723  
Client: Advanced Assessment & Remd.  
Project: SEKHON GAS STATION

Date Reported: 06/03/2004  
Gasoline Range Hydrocarbons by Method 8015M

Analyte	Method	Reporting Unit	Blank	Avg MS/MSD	RPD
Gasoline Range Organics	SW8020F	50 UG/L	ND	113/112	1

ELAP Certificate NO:1753

Reviewed and Approved

  
John A. Murphy, Laboratory Director



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

Job Number: 04-0723  
Client : Advanced Assessment & Remd.  
Project : SEKHON GAS STATION

Date Sampled : 05/21/2004  
Date Analyzed: 06/03/2004  
Date Reported: 06/03/2004

Volatile Organics by GC/MS Method 8260

Laboratory Number	04-0723-01	04-0723-02	04-0723-03	04-0723-04	04-0723-05
Client ID	MW-1/GW	MW-2/GW	MW-3/GW	MW-4/GW	MW-5/GW
Matrix	W	W	W	W	W
Analyte	UG/L	UG/L	UG/L	UG/L	UG/L
Methyl-tert-butyl ether	12000	24600	54.0	7380	214
Ethyl tert-butyl ether	ND<100	ND<400	ND<1	ND<200	ND<1
tert-Amyl methyl ether	ND<100	ND<400	ND<1	ND<200	ND<1
Di-isopropyl ether (DIPE)	ND<50	ND<200	ND<0.5	ND<100	8.7
tert-Butyl alcohol	ND<1000	ND<4000	1100	ND<2000	436
1,2-Dichloroethane	ND<100	ND<400	ND<1	ND<200	ND<1
1,2-Dibromoethane	ND<100	ND<400	ND<1	ND<200	ND<1
Ethanol	ND<10000	ND<40000	ND<100	ND<20000	ND<100
Benzene	ND<50	254	ND<0.5	194	9.7
Toluene	ND<50	ND<200	ND<0.5	ND<100	0.7
Ethylbenzene	ND<50	ND<200	ND<0.5	309	ND<0.5
Xylene, Isomers m & p	ND<100	ND<400	ND<1	860	ND<1
o-xylene	ND<50	ND<200	ND<0.5	ND<100	ND<0.5
SUR-Dibromofluoromethane	107	101	115	108	106
SUR-Toluene-d8	104	105	105	105	105
SUR-4-Bromofluorobenzene	91	92	92	91	90
SUR-1,2-Dichloroethane-d4	85	95	98	94	86



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

Job Number: 04-0723  
Client : Advanced Assessment & Remd.  
Project : SEKHON GAS STATION

Date Sampled : 05/21/2004  
Date Analyzed: 06/02/2004  
Date Reported: 06/03/2004

Volatile Organics by GC/MS Method 8260

Laboratory Number	04-0723-06
Client ID	MW-6/GW
Matrix	W
Analyte	UG/L
Methyl-tert-butyl ether	3900
Ethyl tert-butyl ether	ND<1
tert-Amyl methyl ether	12
Di-isopropyl ether (DIPE)	ND<0.5
tert-Butyl alcohol	4060
1,2-Dichloroethane	ND<1
1,2-Dibromoethane	ND<1
Ethanol	ND<100
Benzene	340
Toluene	12.7
Ethylbenzene	205
Xylene, Isomers m & p	294
o-xylene	14.8
SUR-Dibromofluoromethane	105
SUR-Toluene-d8	104
SUR-4-Bromofluorobenzene	92
SUR-1,2-Dichloroethane-d4	94



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

Job Number: 04-0723
Client : Advanced Assessment & Remd.
Project : SEKHON GAS STATION

Date Sampled : 05/21/2004
Date Analyzed: 06/02/2004
Date Reported: 06/03/2004

Volatile Organics by GC/MS Method 8260
Quality Control/Quality Assurance Summary

Table with columns: Laboratory Number, Client ID, Matrix, Analyte, Results UG/L, %Recoveries, MS/MSD Recovery, RPD, Recovery Limit, RPD Limit. Lists various analytes like Ethanol, Benzene, Toluene, etc., with their respective recovery percentages and RPD values.

Reviewed and Approved

Handwritten signature of John A. Murphy
John A. Murphy
Laboratory Director



