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QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT
at
SHEHAN PROPERTY
845 Pacific Avenue
Alameda, California

Prepared for.

Mr. William J. Sheehan
1236 Bay Street
Alameda, California

Alameda County
MAR 02 2004
Environmental Health

February 27, 2004

ADVANCED ASSESSMENT AND REMEDIATION SERVICES



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February 27, 2004

Mr Amir Gholami
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: Quarterly Groundwater Monitoring and Sampling for
Sheehan Property, 845 Pacific Avenue, Alameda, California

Dear Mr. Gholami

The enclosed report presents the results and findings of the January 2004, quarterly groundwater monitoring and sampling for the above-referenced facility.

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

Sincerely,

Advanced Assessment and Remediation Services

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

cc: Mr. William Sheehan, Alameda, California

16/SHEEHANQ4/Enclosure

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QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT
for
Sheehan Property
845 Pacific Avenue
Alameda, California

1.0 INTRODUCTION

This report presents the results and findings of January 2004, quarterly groundwater monitoring and sampling performed at 845 Pacific Avenue, Alameda, 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 water level monitoring, field observations, sampling and analysis procedures, as well as 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 Environmental Health Department (ACEHD) 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 January 8, 2004, and survey data is presented in Figure 3. The survey data and groundwater elevation measurements are presented in Table 1.

2.2 Field Observations

The purged groundwater from all three monitoring wells, MW-1, MW-2 and MW-3 was clear initially, but turned slightly turbid brown with continual purging. 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. Neither floating product nor sheen was observed in the groundwater samples from all three monitoring wells. However, a very strong petroleum odor was noticed in the groundwater samples from monitoring well, MW-1.

2.3 Sampling and Analytical Procedures

Groundwater samples were collected on January 8, 2004, following groundwater elevation measurements. Samples were analyzed by North State Labs 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 proceeded 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. Field parameters of groundwater sampling 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 from each monitoring well for analysis of Total Petroleum Hydrocarbon as gasoline (TPHg) and Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX), into two 40-milliliter volatile organic analysis vials with Teflon-lined septa. Groundwater collected from each monitoring well for analysis of Total Petroleum Hydrocarbon as diesel (TPHd) was decanted into one 1-liter amber glass bottle. Samples to be analyzed for TPHg/BTEX 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 within 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 by using analytical methods 8015M/8021B, TPHd by analytical methods 8015M

A summary of the analytical results of groundwater samples from the monitoring wells is presented in Table 2. The certified analytical reports and chain-of-custody documents for this sampling event are included in Appendix A.

3.0 INTERPRETATION OF RESULTS

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

3.1 Groundwater Elevations and Gradients

A relative groundwater elevation contour map for January 8, 2004, is presented in Figure 3. The flow direction, based on groundwater level data, was toward the north-northeast with an average hydraulic gradient of 0.01 foot per foot for this monitoring period. The average depth to stabilized groundwater in these wells was approximately 7 feet below ground surface.

3.2 Analytical Results

The analytical results for groundwater samples from monitoring wells, MW-1 and MW-2, found to contain TPHd at a concentration 18,000 and 530 parts per billion (ppb) and TPHg at 256 and 248 ppb respectively. However, laboratory reported that the groundwater samples did not match gasoline pattern. This is because the fuel pattern matches home heating oil diesel range hydrocarbons (see letter from the Laboratory Director in Appendix A). Both TPHg and TPHd were not detected in groundwater samples from MW-3. Benzene, Toluene, Ethylbenzene compounds were not detected in the groundwater samples

from all three monitoring wells. Xylenes were detected in groundwater samples from MW-1 and MW-2 at a concentrations 3.5 and 1.2 ppb respectively. TPHd concentrations in groundwater are presented in Figure 4.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the site investigation and completion of four quarterly groundwater monitoring and sampling, the following conclusions are drawn:

1. The concentration of petroleum hydrocarbon (home heating oil) at the site was greatly reduced since site characterization by HK2/SEMCO(1997).
2. Dissolved-phase petroleum hydrocarbons in the groundwater beneath the site apparently are limited to monitoring well, MW-1, close to the former location of the underground heating oil storage tank.
3. Petroleum hydrocarbon constituents were non-detect in groundwater samples from MW-3 and low concentration in MW-2.
4. Benzene was consistently non-detect in groundwater samples from all three monitoring wells. Also, toluene, ethylbenzene and xylenes concentrations were non-detect to very low.

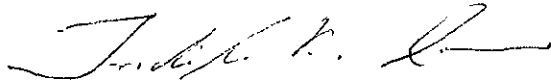
Recommendations are as follows:

1. Case closure for this site.
2. Plug and abandon monitoring wells MW-1 through MW-3.
3. Provide well closure reports and waste disposal records to appropriate agencies.

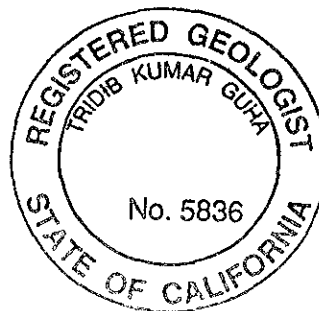
5.0 CERTIFICATION

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 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



TABLES

TABLE 1: SURVEY AND WATER LEVEL MONITORING DATA
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

Well No.	Date of Measurement	Casing Elevation (Feet - Relative)	Depth to Groundwater (Feet - Relative)	Product Thickness (Feet)	Groundwater Elevation (Feet - Relative)
MW-1	10/17/02	100	9.55	0	90.45
MW-1	3/7/03	100	6.78	0	93.22
MW-1	6/5/03	100	7.66	0	92.34
MW-1	10/24/03	100	9.35	0	90.65
MW-1	1/8/04	100	6.04	0	93.96
MW-2	10/17/02	100.8	10.61	0	90.19
MW-2	3/7/03	100.8	7.81	0	92.99
MW-2	6/5/03	100.8	8.7	0	92.10
MW-2	10/24/03	100.8	10.35	0	90.45
MW-2	1/8/04	100.8	7.06	0	93.74
MW-3	10/17/03	100.08	10.17	0	89.91
MW-3	3/7/03	100.08	7.39	0	92.69
MW-3	6/5/03	100.08	8.24	0	91.94
MW-3	10/24/03	100.08	9.89	0	90.19
MW-3	1/8/04	100.08	6.58	0	93.50

Notes:

- 1 Wellhead elevations surveyed relative to each other, from a common datum, but not tied to a benchmark.
- 2 The top of the casing elevation for MW-1 was assumed 100.00 feet (Above Mean Sea Level); all well elevations are relative to MW-1. The elevations at each well were taken on the top of the well casing on October 17, 2002.

**TABLE 2: SUMMARY OF ANALYTICAL RESULTS OF GROUNDWATER SAMPLING
SHEEHAN PROPERTY**

845 Pacific Avenue, Alameda, California

Sample ID	Date of Sampling	TPHg ug/L	MTBE ug/L	Benzene ug/L	Toluene ug/L	Ethylbenzene ug/L	Xylenes ug/L	TPHd ug/L
B-1	5/14/97	ND	ND	2	2	3	9	ND
B-2	5/14/97	360	ND	ND	ND	1	15	2,000
B-3	5/14/97	3,200	ND	ND	ND	3	6	ND
B-4	5/14/97	6,100	ND	35	ND	27	160	430,000
B-5	5/14/97	3,100	27	2	0.5	19	34	65,000
SB-1/TW/GW	10/9/02	ND	*ND	ND	1	ND	ND	ND
MW-1/GW	10/17/02	**71	ND	ND	ND	ND	2	ND
MW-1/GW	3/7/03	ND	ND	ND	ND	ND	ND	130
MW-1/GW	6/5/03	ND	ND	ND	ND	ND	ND	ND
MW-1/GW	10/24/03	**146	NA	ND	ND	ND	ND	32,500
MW-1/GW	1/8/04	**256	NA	ND	ND	ND	3.5	18,000
MW-2/GW	10/17/02	**809	*ND	ND	1.2	1.2	5.7	4,490
MW-2/GW	3/7/03	**100	ND	ND	ND	ND	ND	640
MW-2/GW	6/5/03	**132	ND	ND	ND	ND	ND	620
MW-2/GW	10/24/03	**270	NA	ND	ND	ND	ND	1,370
MW-2/GW	1/8/04	**248	NA	ND	ND	ND	1.2	530
MW-3/GW	10/17/02	ND	ND	ND	ND	ND	ND	ND
MW-3/GW	3/7/03	ND	ND	ND	ND	ND	ND	68
MW-3/GW	6/5/03	ND	ND	ND	ND	ND	ND	ND
MW-3/GW	10/24/03	ND	NA	ND	ND	ND	ND	ND
MW-3/GW	1/8/04	ND	NA	ND	ND	ND	ND	ND
RL		50	0.5	0.5	0.5	0.5	1	50

Notes:

ND- Not Detected RL- Reporting Limit NA- Not Analyzed

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

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

TPHd- Total petroleum hydrocarbon as diesel (EPA method modified 8015)

MTBE- Methyl Tertiary Butyl Ether (EPA Method 8020; after 9/24/01 by Method 8260)

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

** Does not match gasoline pattern

* Confirmed by GC/MS method 8260

TABLE 3: FIELD PARAMETERS OF GROUNDWATER SAMPLING

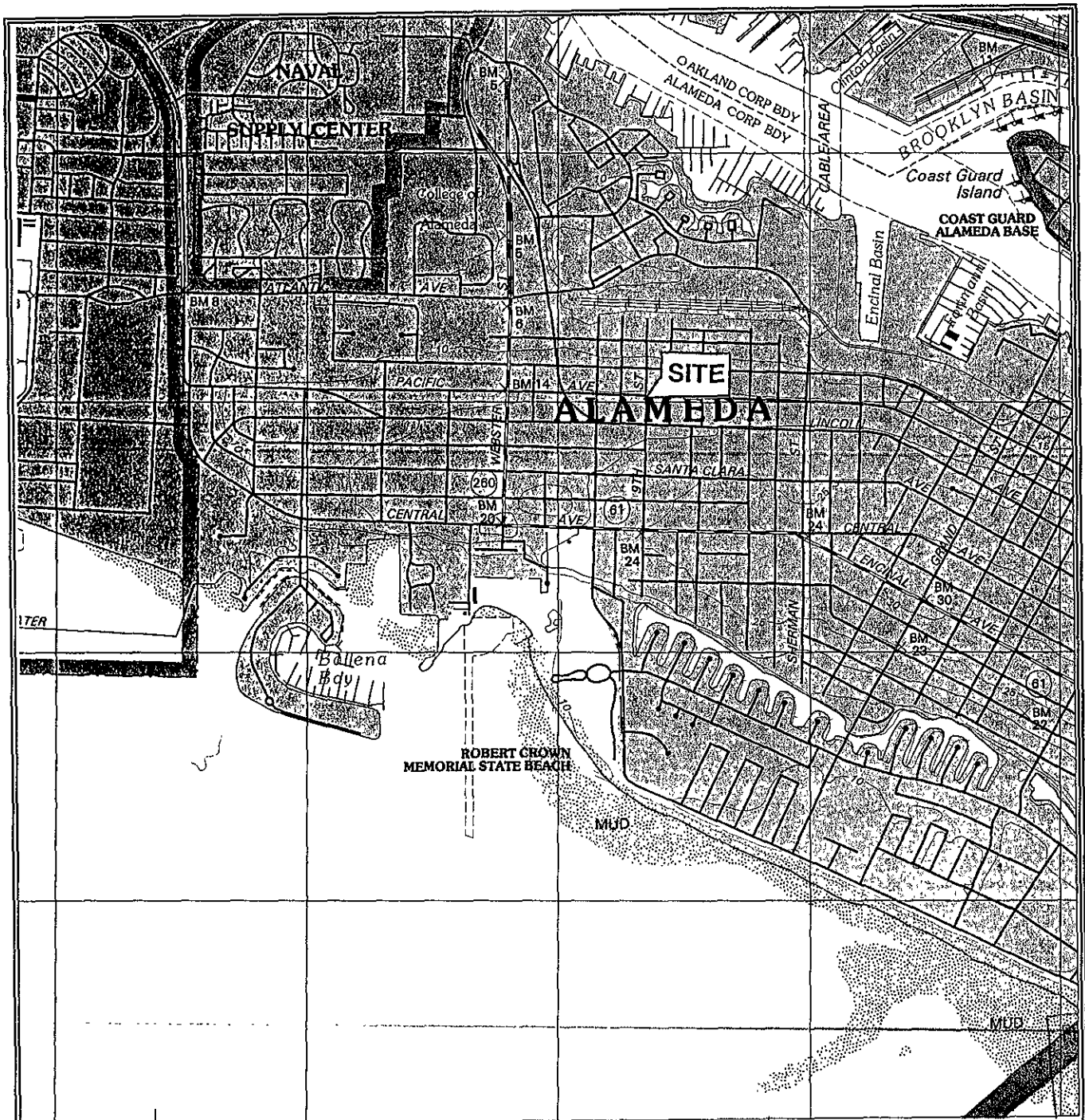
Sheehan Property
845 Pacific Avenue
Alameda , California

Sample I.D. No.	Date of Sampling	Temperature °F	pH	Conductivity uS
MW-1	10/17/02	70	7.18	1408
MW-1	3/7/03	62.1	6.71	226
MW-1	6/5/03	67.3	6.58	177
MW-1	10/24/03	72.7	6.38	222
MW-1	1/8/04	62.9	6.95	223
MW-2	10/17/02	67.9	6.92	1691
MW-2	3/7/03	62.8	6.97	430
MW-2	6/5/03	67.1	7.18	273
MW-2	10/24/03	70	6.43	520
MW-2	1/8/04	62.8	7.26	476
MW-3	10/17/02	67.8	7.03	1652
MW-3	3/7/03	61.9	7.33	338
MW-3	6/5/03	67	6.46	289
MW-3	10/24/03	74.3	6.53	251
MW-3	1/8/04	62.8	7.12	367

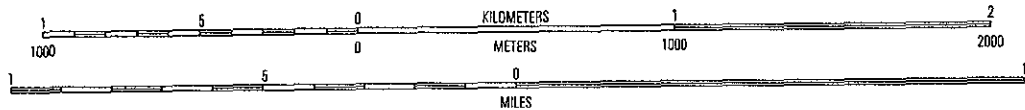
Note

°F = degree Fahrenheit
uS = microsiemens/cm

FIGURES



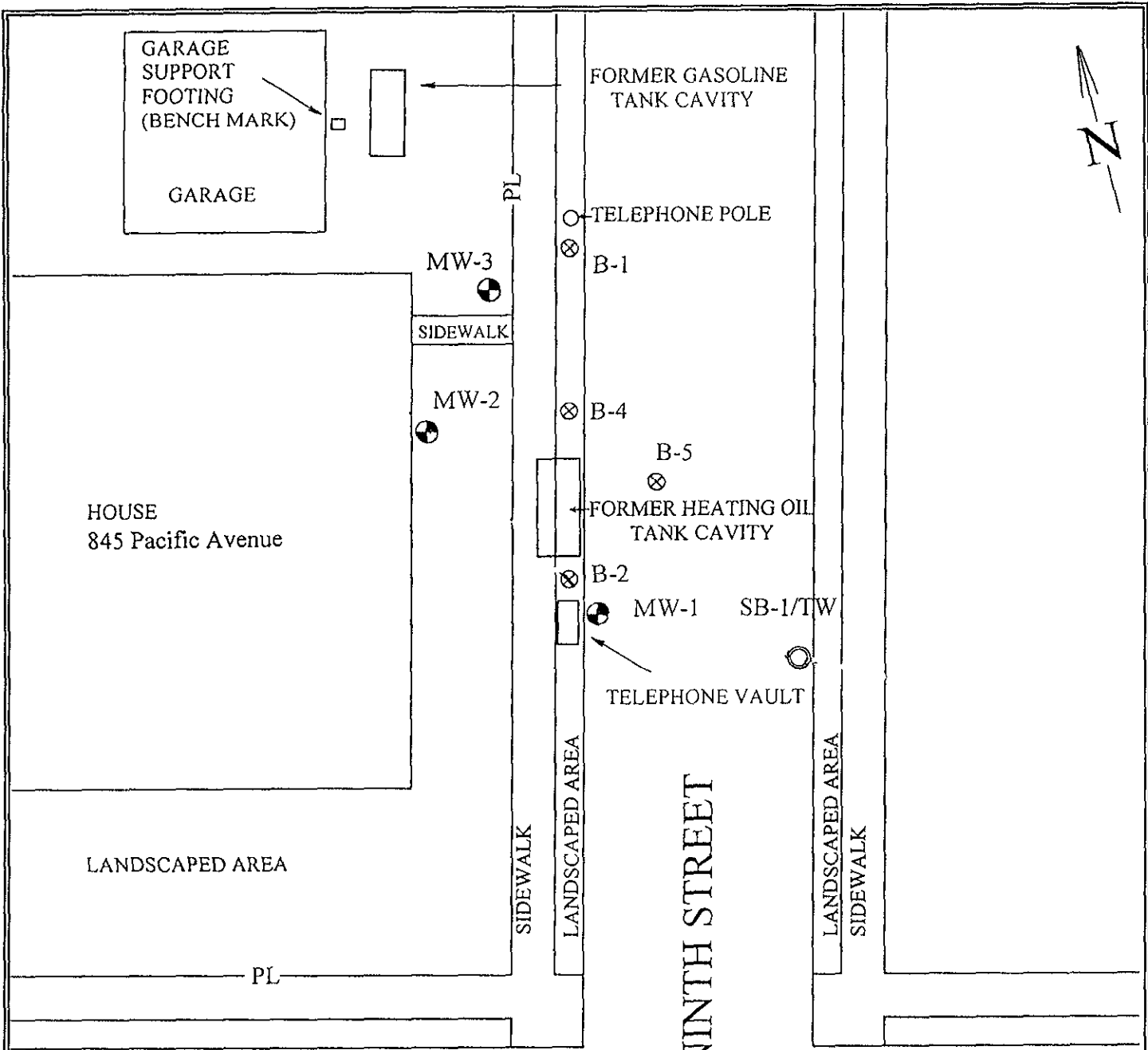
SCALE 1:24 000



Source: U.S.G.S. Maps, 7.5 Minute Series (Topographic)
 Oakland West Quadrangle, CA
 1993 Map Edited 1996

FIGURE 1: SITE VICINITY MAP
SHEEHAN PROPERTY
 845 Pacific Avenue
 Alameda, California

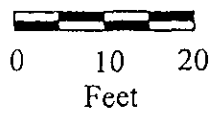
**ADVANCED ASSESSMENT AND
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 2380 Salvio Street, Suite 202
 Concord, California



PACIFIC AVENUE

NINTH STREET

LEGEND

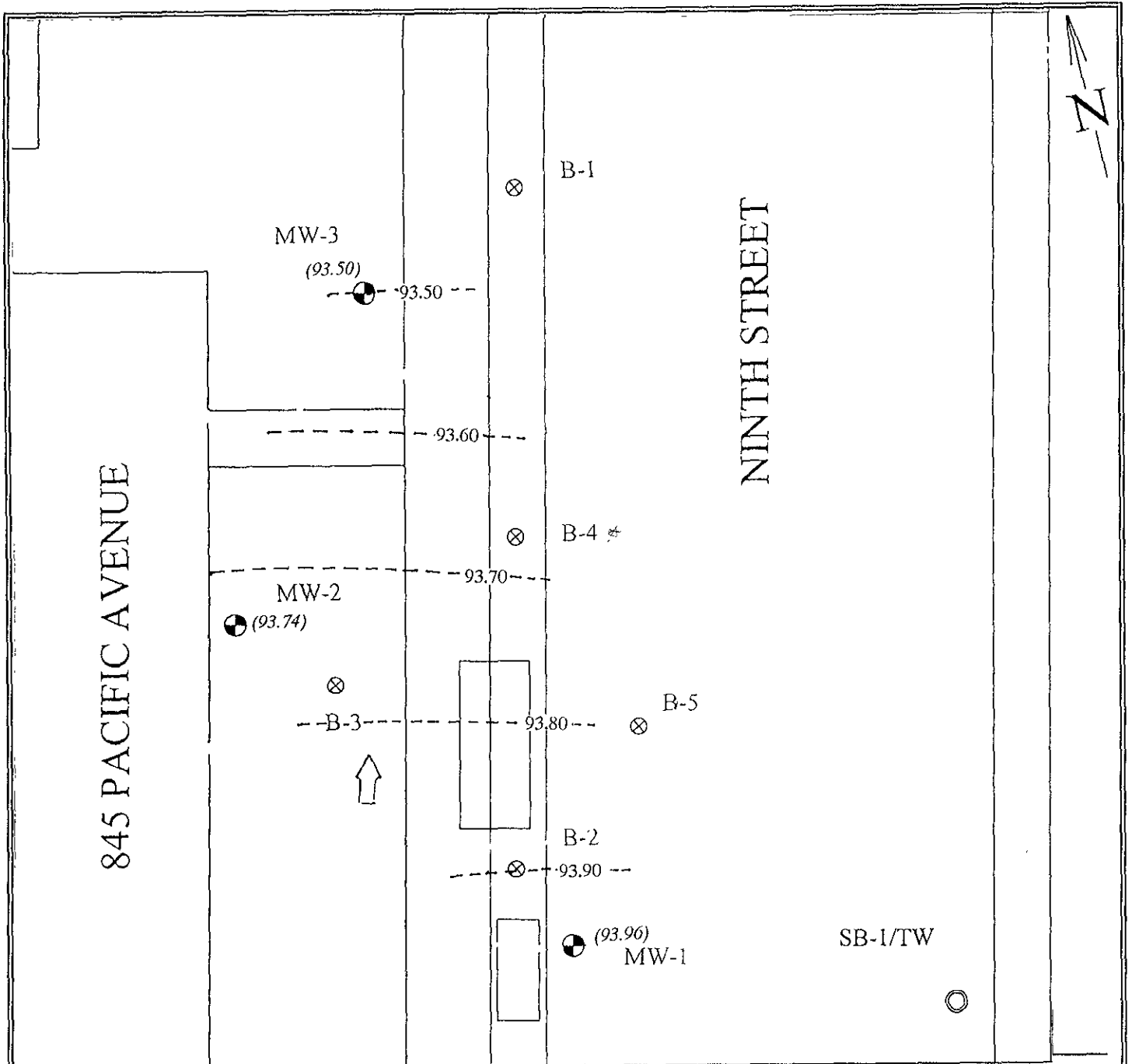


Source of the Base Map:
HK2, Inc./ SEMCO report

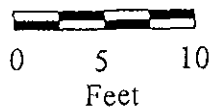
- ⊗ B-1 Soil Boring by HK2, Inc.
- ⊕ MW-1 Monitoring Well
- ⊙ SB-1/TW Soil Boring/ Temporary Well
- PL Property Line

FIGURE 2: SITE PLAN
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

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Concord, California 94520



PACIFIC AVENUE



LEGEND

- ⊗ B-1 Soil Boring by HK2, Inc.
- ⊕ MW-1 Monitoring Well
- SB-1/TW Soil Boring/ Temporary Well

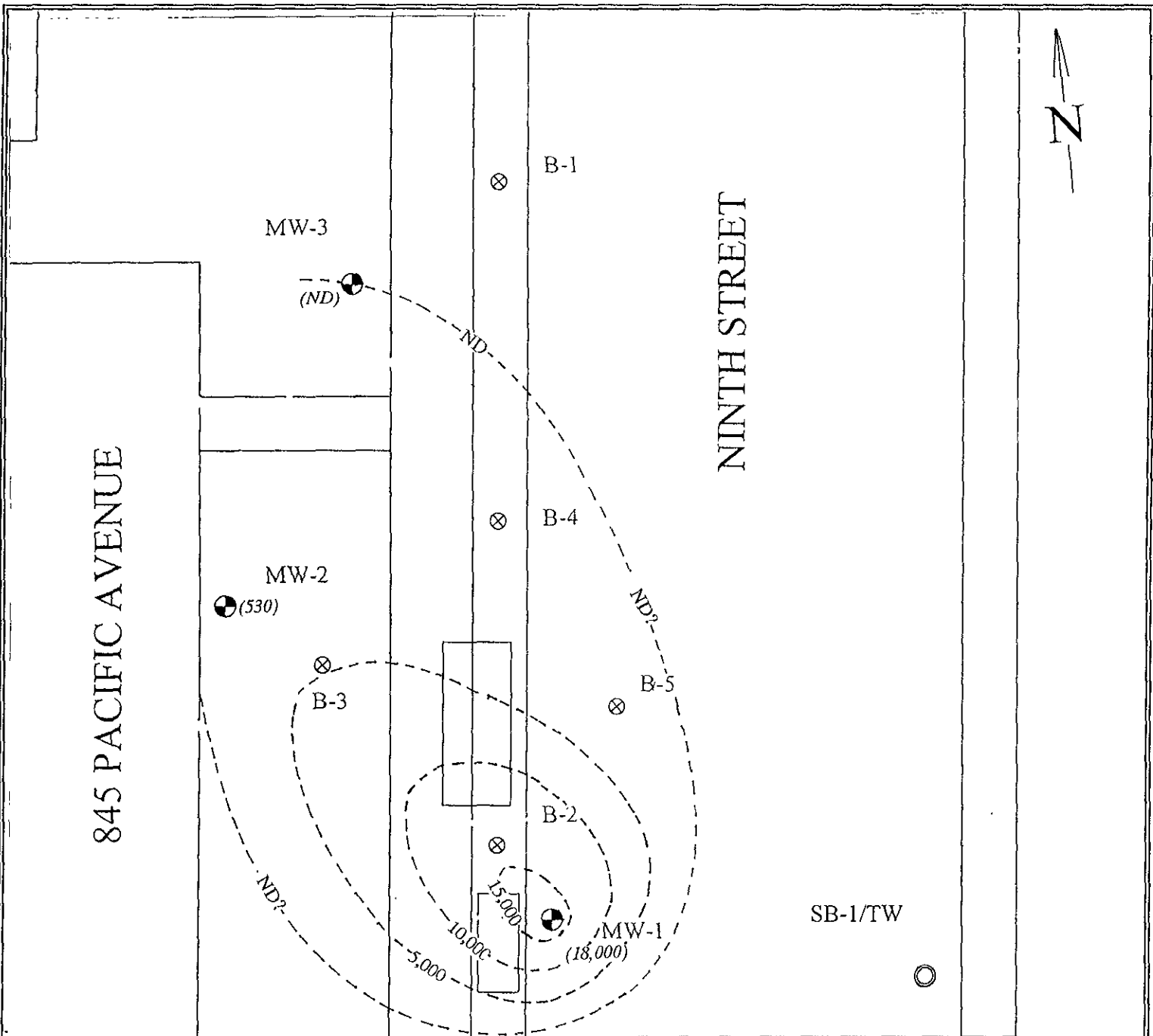
- (93.74) Relative Groundwater Elevations
 - 93.70- Groundwater Elevation Contour
 - ↑ General Direction of Groundwater Flow
- Note:

1. Water Levels in Monitoring Wells measured on January 8, 2004
2. Contour Interval = 0.10 foot
3. Hydraulic Gradient = 0.01 foot/foot

Source of the Base Map:
HK2, Inc./ SEMCO report

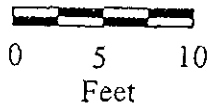
FIGURE 3: GROUNDWATER SURFACE ELEVATIONS
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

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PACIFIC AVENUE

LEGEND



- ⊗ B-1 Soil Boring by HK2, Inc.
- MW-1 Monitoring Well
- SB-1/TW Soil Boring/ Temporary Well

- (530) Total Petroleum Hydrocarbon as Diesel (TPH_d) Concentrations in Groundwater in Parts Per Billion (ppb)
- 5,000- TPH_d Concentrations Contour
- (ND) Not Detected above reported Detection Limit
- Contour Interval = 5,000 ppb

Source of the Base Map:
HK2, Inc./ SEMCO report

FIGURE 4: TPH_d CONCENTRATIONS IN GROUNDWATER
SHEEHAN PROPERTY
 845 Pacific Avenue
 Alameda, California

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APPENDIX A

Laboratory Reports and Chain of Custody Documents

Case Narrative

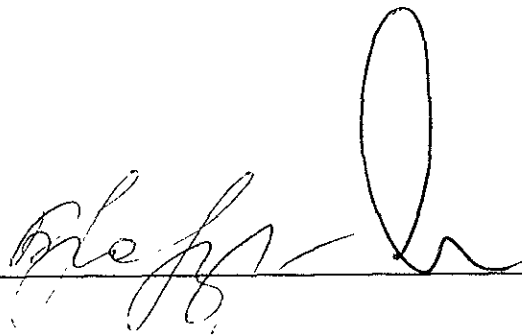
North State Environmental, South San Francisco, CA

Report Date: 01/15/2004
Report Number: 04-0027

Project: 845 PACIFIC AVE ALAMEDA
Order #: 04-0027

Three water samples were analyzed for diesel and gasoline by method 8015M and BTEX by method 8021B. No errors were found during analysis.

Approved by: _____

A handwritten signature in black ink, appearing to be 'Steph L', written over a horizontal line.

Date: _____

1/15/04



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

Lab Number: 04-0027
Client: Advanced Assessment & Remd.
Project: 845 PACIFIC AVE ALAMEDA

Date Reported: 01/15/2004

Gasoline and BTEX by Methods 8015M/8021B
Diesel Range Hydrocarbons by Method 8015M

Table with 5 columns: Analyte, Method, Result, Unit, Date Sampled, Date Analyzed. It contains three sections of data for samples 04-0027-01, 04-0027-02, and 04-0027-03, listing various hydrocarbons and their results.

*Does not match typical gasoline.



North State Labs

CA ELAP# 1753

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

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

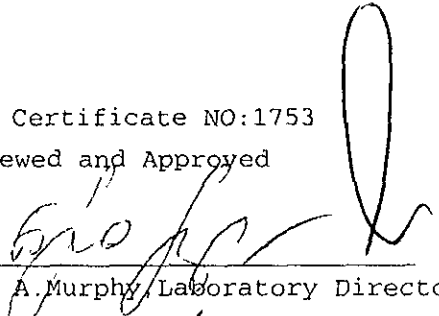
Lab Number: 04-0027
Client: Advanced Assessment & Remd.
Project: SHEEHAN PROPERTY/845 PACIFIC AVE ALAMEDA

Date Reported: 01/15/2004
Gasoline and BTEX by Methods 8015M/8021B
Diesel Range Hydrocarbons by Method 8015M

Analyte	Method	Reporting Unit	Blank	Avg MS/MSD	RPD
Gasoline Range Organics	SW8020F	50 UG/L	ND	132/128	3
Benzene	SW8020F	0.5 UG/L	ND	105/105	0
Toluene	SW8020F	0.5 UG/L	ND	109/109	0
Ethylbenzene	SW8020F	0.5 UG/L	ND	110/110	0
Xylenes	SW8020F	1.0 UG/L	ND	115/114	1
Diesel Fuel #2	CATFH	0.05 MG/L	ND	103/108	5

ELAP Certificate NO:1753

Reviewed and Approved


John A. Murphy, Laboratory Director



North State Labs

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

CA ELAP # 1753

February 18, 2004

Tridib Guha
Advanced Assessment
& Remediation
2380 Salvio St. Suite 200
Concord, CA 94520

Re: Sheehan Property 845 Pacific Ave Alameda, CA 94501

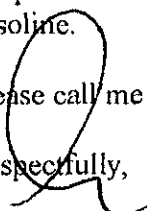
Tradib: At your request I have examined the data from the analyses of the water samples from the Sheehan site for past monitoring events. This site is, as I understand, a residence in Alameda that had a home heating oil tank removed. The samples are from several wells installed on the site to monitor the ground water for fuel.

In the course of these analyses, we have reported total petroleum hydrocarbons by method 8015M as diesel range hydrocarbons and as gasoline range hydrocarbons per the state water quality control board guidelines. The water samples show varied levels of diesel range hydrocarbons, and also, from time to time, a result in the gasoline range. These hydrocarbons that result in the gasoline range hydrocarbons results are, in each case, noted to: "Not match gasoline pattern." This is because the fuel pattern seen at this site is due to the home heating oil residual that closely matches the pattern from diesel range hydrocarbons. This results in a detection in the gasoline range, due to overlap of the two fuel ranges. Here is no indication of gasoline on the site, over many events.

In addition, the results for analysis of benzene, toluene, ethylbenzene and xylenes by Method 8021B that have been conducted in each sampling event are consistent with the presence of diesel range home heating oil residuals and not with the presence of gasoline.

Please call me if you have any questions.

Respectfully,


John A. Murphy
Lab Director