**Epigene International**
CONSULTING GEOLOGISTS

January 30, 1997

Mr. J. W. Silveira
499 Embarcadero
Oakland, CA 94606

Subject: Quarterly Monitoring Report for Site Located at 1200 20th Ave., Oakland

## INTRODUCTION

The site is located at the northeast corner of 20th Avenue and Solano Way in Oakland. A location map is shown on Figure 1. Two gasoline tanks were removed from the site on January 19, 1994 . A report documenting the tank removal activities and soil sampling and analysis was prepared by Epigene International dated February 14, 1994.

Based on the presence of soil contamination below the tank, the Alameda County Department of Environmental Health requested a subsurface investigation to assess the possible impact of the contamination on groundwater. Three monitoring wells were installed at the locations shown on Figure 2 in February of 1995.

## GROUNDWATER SAMPLING

The wells were purged and sampled on January 17, 1997. The purging was carried out

using an electric submersible pump. Each well was purged of approximately seven to ten casing volumes and allowed to recover prior to sampling. Purge water was placed in a 55 gallon drum and left in front of the building.

Groundwater samples were collected in a dedicated bailer and placed in 40 ml VOAS that were supplied by the laboratory. The VOAS were labeled and stored in a cooled ice chest for transportation to a State-certified laboratory under chain of custody control.

The groundwater samples from each well were analyzed for TPH as gasoline and BTEX compounds. Hydrocarbon contamination was detected in primarily in MW-1 and the levels were significantly reduced from the last monitoring in October of 1996. Very low levels of Benzene and Xylenes were present in MW-2. MW-3 was non-detect for gasoline and BTEX. Tables 1 presents a summary of the results through time for wells MW-1, MW-2 and MW-3. The data are also presented on a bar graph on Figure 3. Concentrations of gasoline through time are graphed on Figure 4. The certified laboratory report and chain of custody documentation for the groundwater samples is presented in Appendix A.

## GROUNDWATER GRADIENT

The elevation for the top of casing of each well was surveyed in March 1995 to mean sea level based on the City of Oakland datum. Because the original gradient was more northerly than expected, the top of casing elevations were resurveyed on June 20 to assess whether or not there was a survey error. The resurveyed elevations were the same as the original elevations.

The direction and slope of the gradient was calculated using a three-point solution. The

calculated groundwater elevations and the direction of the gradient for the June 3 gauging are shown on Figure 2. A graph showing changes in groundwater elevation through time is presented in Figure 5. The direction of the gradient continues to be generally toward the north (N11E). The slope of the gradient was calculated to be 0.06 ft/ft.

## CONCLUSIONS AND RECOMMENDATIONS

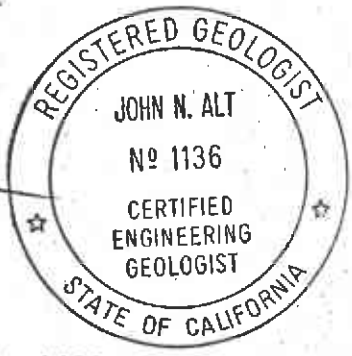
This report presents the results of the seventh quarterly monitoring of the three wells located adjacent to the site. The levels of contamination in the wells continues to be relatively low.

Mr. Barney Chan of Alameda County Department of Environmental Health Services has requested that additional site characterization investigations be carried out to assess whether or not contamination is present to the southwest (downslope direction) of the former tank site. He also requested that a risk analysis be completed prior to considering the site for closure. A workplan has been prepared as a separate document to address the request of th County.

The northward trend of the groundwater gradient continues to be somewhat anomalous to the northwestward trend that was expected for this area. However, MW-2 continues to be in the calculated down-gradient direction of the former tanks.

It is a pleasure to work with you on this project. Should you have any questions, please contact the undersigned. With your permission, I will request a meeting with Mr. Chan of Alameda County to review the additional work requested for the site and the proposed workplan.

Sincerely,




John N. Alt
Certified Engineering Geologist No. 1136

cc: Mr. Robert Shapiro, Esq.
Mr. Barney Chan, Alameda County Dept. of Environmental Health

Attachments

| 1200 20th Avenue, Oakland: Gasoline and BTEX Concentrations (ppB). | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Feb. 22, 1995** | | | | | | | |
| Well # | Gasoline | | Well # | Benzene | Toluene | Ethylbenz. | Xylenes |
| MW-1 | 1900 | | MW-1 | 92 | 39 | 57 | **260** |
| MW-2 | ND (<50) | | MW-2 | ND (<0.5) | ND (<0.5) | ND (<0.5) | ND (<0.5) |
| MW-3 | ND (<50) | | MW-3 | ND (<0.5) | ND (<0.5) | ND (<0.5) | ND (<0.5) |
| | | | | | | | |
| **Jun. 20, 1995** | | | | | | | |
| Well # | Gasoline | | Well # | Benzene | Toluene | Ethylbenz. | Xylenes |
| MW-1 | 4100 | | MW-1 | **410** | 32 | 14 | 180 |
| MW-2 | ND (<50) | | MW-2 | 1.8 | ND (<0.5) | 1.1 | 0.62 |
| MW-3 | 160 | | **MW-3** | 0.6 | ND (<0.5) | 0.6 | 0.72 |
| | | | | | | | |
| **Oct. 16, 1995** | | | | | | | |
| Well # | Gasoline | | Well # | Benzene | Toluene | Ethylbenz. | Xylenes |
| MW-1 | 1300 | | MW-1 | **180** | 22 | 32 | 81 |
| MW-2 | 55 | | MW-2 | 2.2 | ND (<0.5) | 1.5 | ND (<0.5) |
| MW-3 | 130 | | **MW-3** | 5.8 | ND (<0.5) | 3.2 | ND (<0.5) |
| | | | | | | | |
| **Feb. 16, 1996** | | | | | | | |
| Well # | Gasoline | | Well # | Benzene | Toluene | Ethylbenz. | Xylenes |
| MW-1 | 1700 | | MW-1 | **200** | 21 | 41 | 120 |
| MW-2 | ND (<50) | | MW-2 | 3.3 | 2.7 | 0.99 | 2.4 |
| MW-3 | 54 | | MW-3 | 5.6 | 2.8 | 2.9 | 8.1 |
| | | | | | | | |
| **Jun. 3, 1996** | | | | | | | |
| Well # | Gasoline | | Well # | **Benzene** | Toluene | Ethylbenz. | Xylenes |
| MW-1 | 1900 | | MW-1 | **160** | 7 | 34 | 31 |
| MW-2 | ND (<50) | | MW-2 | ND (<0.5) | 0.6 | ND (<0.5) | 1.2 |
| MW-3 | ND (<50) | | MW-3 | ND (<0.5) | ND (<0.5) | ND (<0.5) | ND (<0.5) |
| | | | | | | | |
| **Sep. 17, 1996** | | | | | | | |
| Well # | Gasoline | | Well # | Benzene | Toluene | Ethylbenz. | Xylenes |
| MW-1 | 4700 | | MW-1 | 460 | 66 | 190 | **680** |
| MW-2 | ND (<50) | | MW-2 | 9.3 | 0.57 | 1.3 | 1.9 |
| MW-3 | 96 | | MW-3 | 12 | 7.1 | 4 | 6.2 |
| | | | | | | | |
| **Jan. 17, 1997** | | | | | | | |
| Well # | Gasoline | | Well # | **Benzene** | Toluene | Ethylbenz. | Xylenes |
| **MW-1** | 2200 | | MW-1 | 230 | 35 | 100 | **330** |
| MW-2 | ND (<50) | | MW-2 | 2.6 | ND (<0.5) | ND (<0.5) | 0.76 |
| MW-3 | ND (<50) | | MW-3 | ND (<0.5) | ND (<0.5) | ND (<0.5) | ND (<0.5) |
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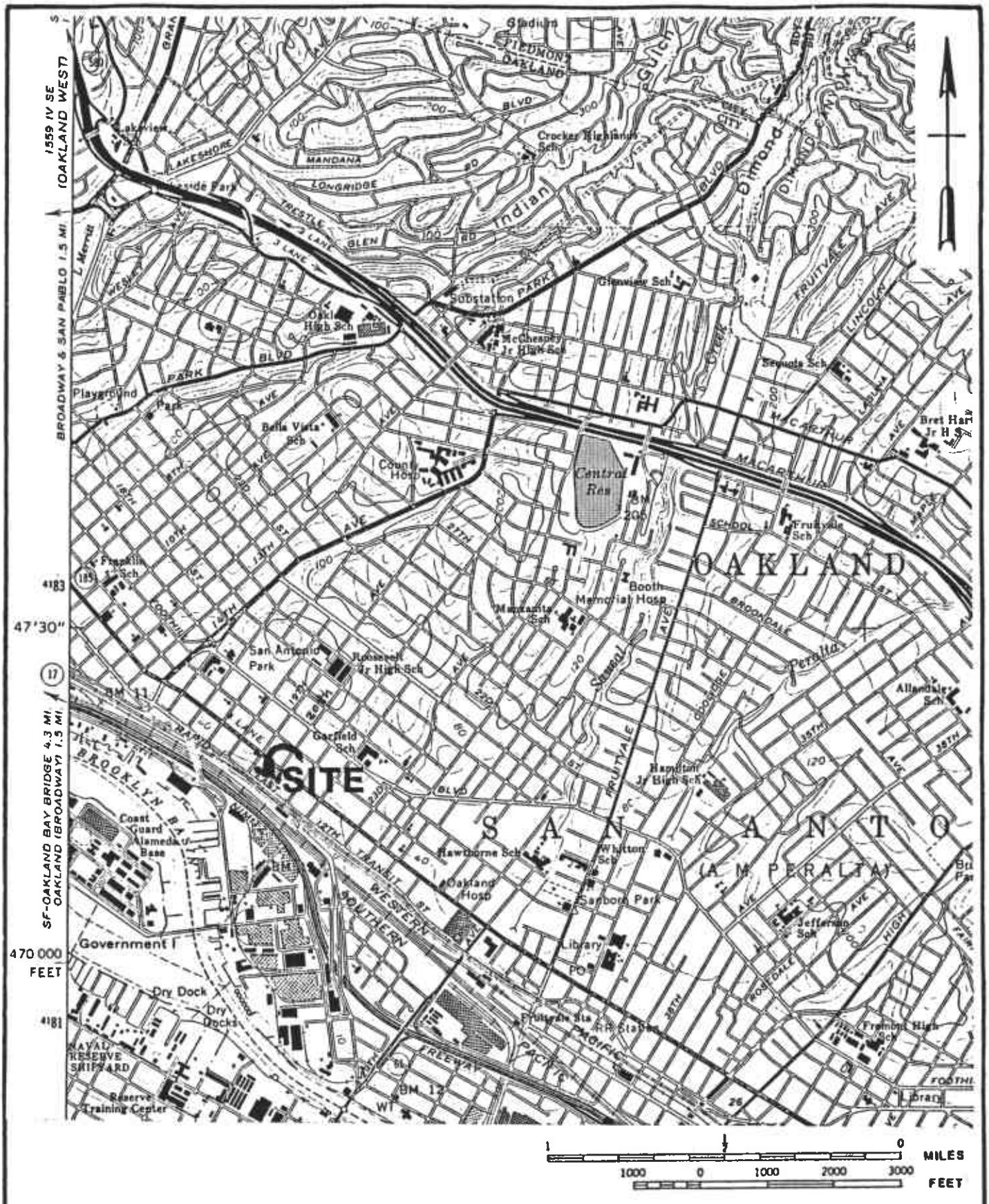
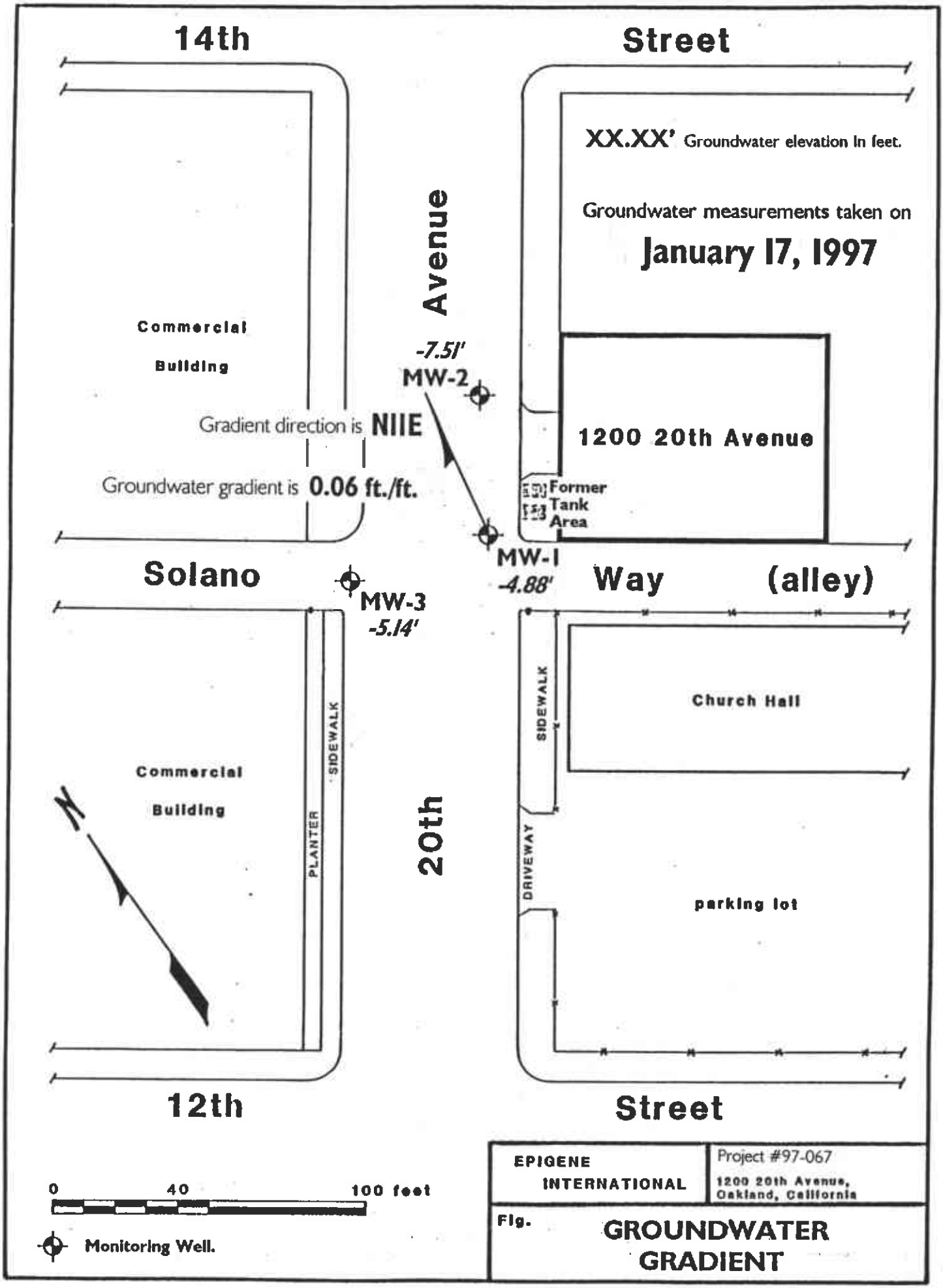


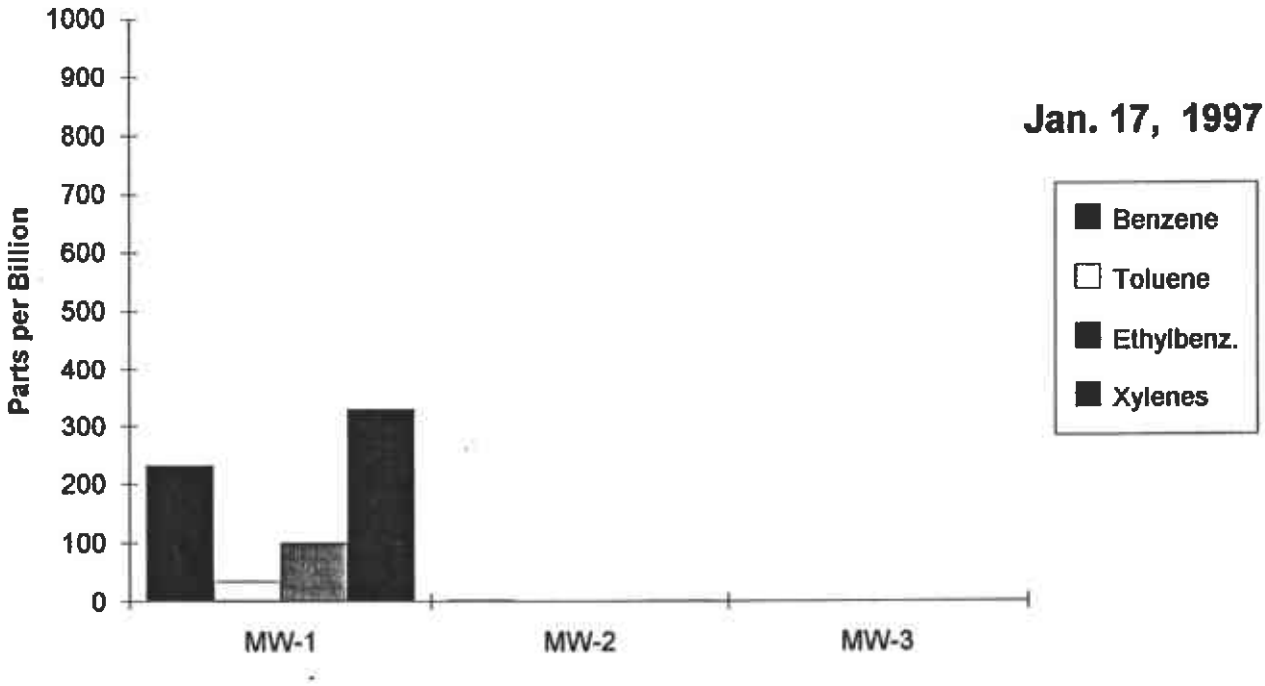

**Base map from U.S.G.S. 7 1/2' series Oakland East quadrangle, 1980.**

| | |
|---|---|
| EPIGENE INTERNATIONAL | Project #96-067<br>1200 20th Avenue, Oakland, California. |

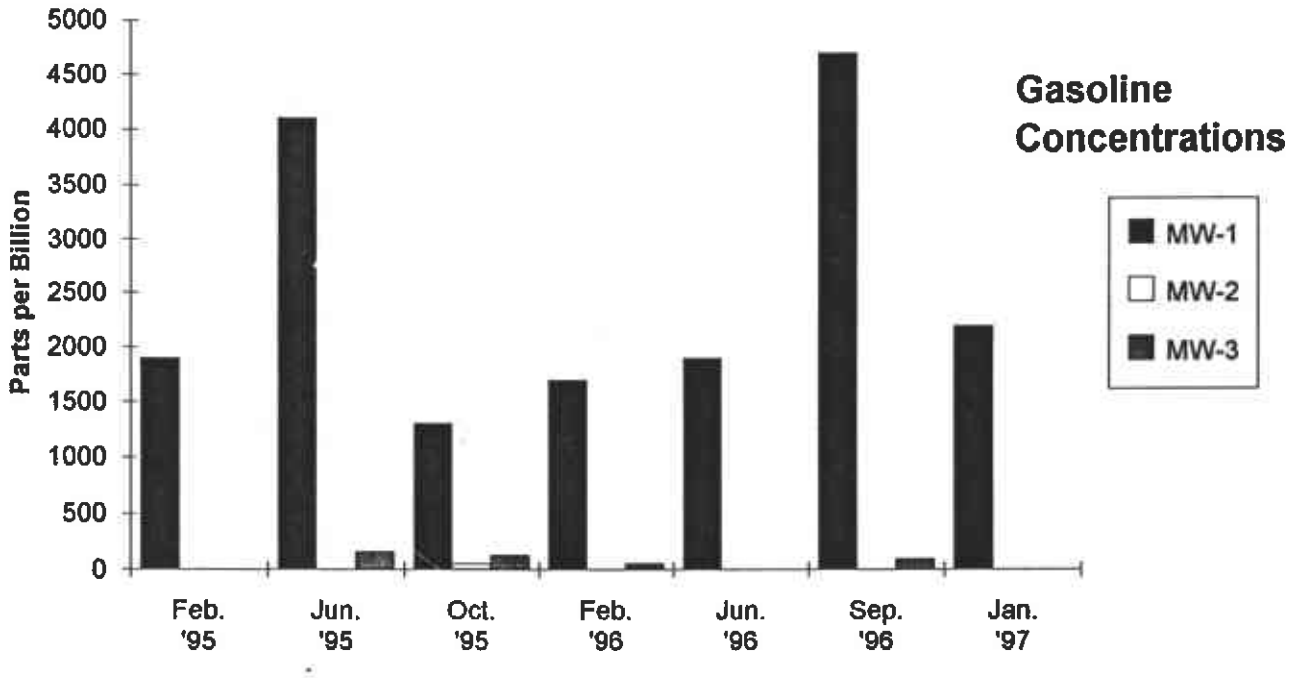
Fig. 1

# SITE LOCATION MAP

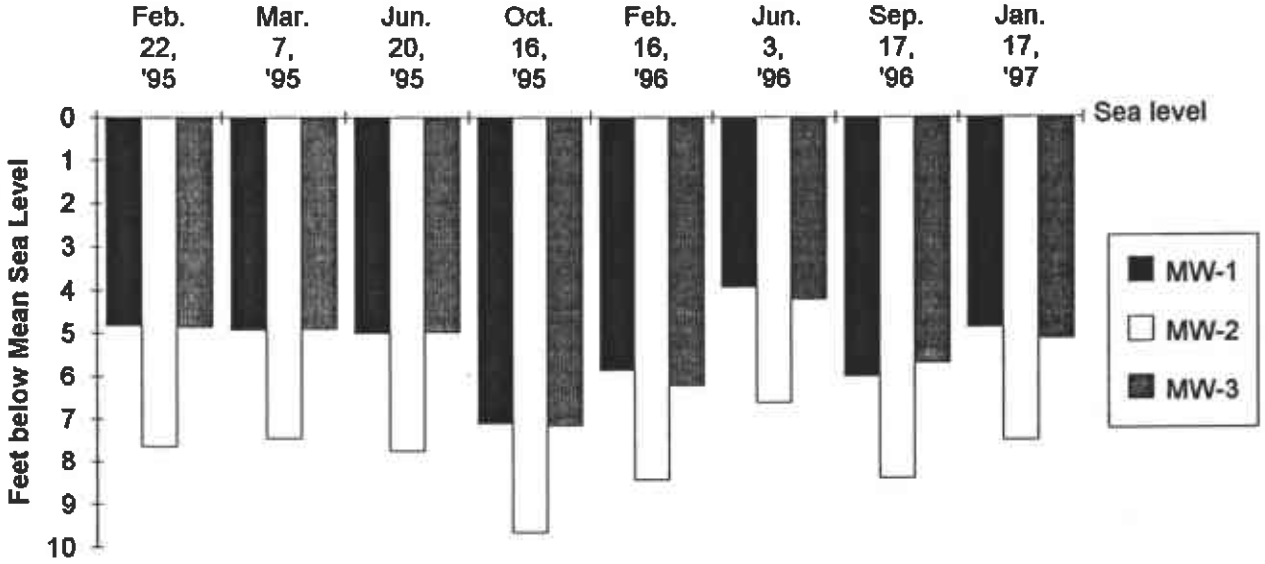

14th
Street
XX.XX' Groundwater elevation in feet.
Groundwater measurements taken on
January 17, 1997
Avenue
Commercial
Building
-7.51'
MW-2
Gradient direction is NIIE
Groundwater gradient is 0.06 ft./ft.
1200 20th Avenue
Former
Tank
Area
MW-1
-4.88'
Solano
Way
(alley)
MW-3
-5.14'
SIDEWALK
Church Hall
Commercial
Building
PLANTER
SIDEWALK
20th
DRIVEWAY
parking lot
12th
Street
0
40
100 feet
Monitoring Well.
EPIGENE
INTERNATIONAL
Project #97-067
1200 20th Avenue,
Oakland, California
Fig.
GROUNDWATER
GRADIENT


Jan. 17, 1997
Parts per Billion
1000
900
800
700
600
500
400
300
200
100
0
MW-1
MW-2
MW-3
Benzene
Toluene
Ethylbenz.
Xylenes

| 1200 20th Avenue, Oakland: Gasoline Concentrations in Groundwater (ppB) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| Date | MW-1 | MW-2 | MW-3 | | | | |
| Feb. '95 | 1900 | ND (<50) | ND (<50) | | | | |
| Jun. '95 | 4100 | ND (<50) | 160 | | | | |
| Oct. '95 | 1300 | 55 | 130 | | | | |
| Feb. '96 | 1700 | ND (<50) | 54 | | | | |
| Jun. '96 | 1900 | ND (<50) | ND (<50) | | | | |
| Sep. '96 | 4700 | ND (<50) | 96 | | | | |
| Jan. '97 | 2200 | ND (<50) | ND (<50) | | | | |



## 1200 20th Avenue, Oakland: Groundwater Elevations



# APPENDIX A

# CERTIFIED LABORATORY REPORT

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

01/28/97

Dear John:

Enclosed are:

1). the results of **3** samples from your **1200 20th Ave., Oakland** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

| | | |
|---|---|---|
| Epigene International<br>38750 Paseo Padre Pkwy, # A-11<br>Fremont, CA 94536 | Client Project ID: 1200 20th Ave., Oakland | Date Sampled: 01/17/97 |
| | | Date Received: 01/20/97 |
| | Client Contact: John Alt | Date Extracted: 01/21/97 |
| | Client P.O: | Date Analyzed: 01/21/97 |

**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX***

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

| Lab ID | Client ID | Matrix | TPH(g)+ | MTBE | Benzene | Toluene | Ethylben-zene | Xylenes | % Rec. Surrogate |
|---|---|---|---|---|---|---|---|---|---|
| 72994 | MW-1 | W | 2200,a | --- | 230 | 35 | 100 | 330 | 102 |
| 72995 | MW-2 | W | ND | --- | 2.6 | ND | ND | 0.76 | 102 |
| 72996 | MW-3 | W | ND | --- | ND | ND | ND | ND | 104 |
| | | | | | | | | | |
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| | | | | | | | | | |
| Reporting Limit unless otherwise stated; ND means not detected above the reporting limit | | W | 50 ug/L | 5.0 | 0.5 | 0.5 | 0.5 | 0.5 | |
| | | S | 1.0 mg/kg | 0.05 | 0.005 | 0.005 | 0.005 | 0.005 | |

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, and all TCLP extracts in mg/L

# cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

# QC REPORT FOR HYDROCARBON ANALYSES

Date: 01/21/97 Matrix: Water

| Analyte | Concentration (mg/L) Sample (#72664) | MS | MSD | Amount Spiked | % Recovery MS | MSD | RPD |
|---|---|---|---|---|---|---|---|
| TPH (gas) | 0.0 | 107.0 | 105.6 | 100.0 | 107.0 | 105.6 | 1.3 |
| Benzene | 0.0 | 11.1 | 10.2 | 10.0 | 111.0 | 102.0 | 8.5 |
| Toluene | 0.0 | 11.1 | 10.4 | 10.0 | 111.0 | 104.0 | 6.5 |
| Ethyl Benzene | 0.0 | 10.8 | 10.3 | 10.0 | 108.0 | 103.0 | 4.7 |
| Xylenes | 0.0 | 31.4 | 30.1 | 30.0 | 104.7 | 100.3 | 4.2 |
| TPH (diesel) | 0 | 150 | 153 | 150 | 100 | 102 | 2.1 |
| TRPH (oil & grease) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

# CHAIN OF CUSTODY 7968AEI106


**Epigene International**
CONSULTING GEOLOGISTS
38750 Paseo Padre Parkway, Suite A-11
Fremont, California, 94536
Business: (510) 791-1986 FAX: (510) 791-3306


| | |
|---|---|
| **Laboratory:** | McCampbell Analytical |
| | 110 2nd Avenue South, D-7 |
| | Pacheco, California 94553. |
| | telephone: (510) 798-1620 FAX: (510) 798-1622 |
| **Contact:** | Ed Hamilton |

| | |
|---|---|
| **Contact:** JOHN N ALT | **Sampler:** JDA/MD |
| **Project Name:** 1200 20th Ave, Oakland | |
| **Project no.** | **Date:** Jan 17, 1997 |

| Sample I.D. | Date/Time Sampled | Matrix Desc. | Container No. of | Container Type | Comments | TPH/Gasoline | BTEX | TPH/Diesel | 601/8010 | 602/8020 | Total Oil & Grease | Lab. # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. MW-1 | 1/17/97 pm | Water | 2 | Vials | | X | X | | | | | 72994 |
| 2. MW-2 | 1/17/97 pm | Water | 2 | Vials | | X | X | | | | | 72995 |
| 3. MW-3 | 1/17/97 pm | Water | 2 | Vials | | X | X | | | | | 72996 |
| 4. | | | | | | | | | | | | |
| 5. | | | | | | | | | | | | |
| 6. | | | | VOAS | O&G | METALS | OTHER | | | | | |
| 7. | ICE/T° ✓ | | PRESERVATIVE | | | | | | | | | |
| 8. | GOOD CONDITION ✓ | | APPROPRIATE | | | | | | | | | |
| 9. | HEAD SPACE ABSENT ✓ | | CONTAINERS ✓ | | | | | | | | | |
| 10. | | | | | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Relinquished by:** | **Date:** 1/20/97 | **Time:** 7:30 | **Received by:** | **Date:** 1/20/97 | **Time:** 2:30 |
| **Relinquished by:** | **Date:** | **Time:** | **Received by:** | **Date:** | **Time:** |
| **Relinquished by:** | **Date:** | **Time:** | **Received by:** | **Date:** | **Time:** |

**Turnaround Time:** Normal

**Additional Comments:**