

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



August 27, 2001
StID #4252/RO0000272

REMEDIAL ACTION COMPLETION CERTIFICATION

Wells Fargo Trust c/o
Mr. John Ward
P.O. Box 63939
San Francisco, CA 94613

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

RE: Walter Blumert Company, 490 43rd St., Oakland CA 94609

Dear Mr. Ward:

This letter confirms the completion of site investigation and remedial action for the 1-350 gallon paint thinner and the one (1) 1000 gallon gasoline tank located at the above described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground tank is greatly appreciated.

Based on information in the above-referenced file and with provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25299.37 of this Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.77 of the Health and Safety Code and that no further action related to the petroleum release(s) as the site is required.

This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code.

Please contact Barney Chan at (510) 567-6765 if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung
Director, Environmental Health

c: B. Chan, Hazardous Materials Division-files
Chuck Headlee, RWQCB
Mr. Allan Patton, SWRCB Cleanup Fund
Mr. Leroy Griffin, City of Oakland OES, 1635 Martin Luther
King Dr., Oakland CA 94612

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August 27, 2001
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Wells Fargo Trust c/o
Mr. John Ward
P.O. Box 63939
San Francisco, CA 94613

RE: Walter Blumert Company, 490 43rd St., Oakland CA 94609

Dear Mr. Ward:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with the Health and Safety Code, Chapter 6.75 (Article 4, Section 25299.37 h). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Health Services, Local Oversight Program (LOP) is required to use this case closure letter. We are also enclosing the case closure summary. This document confirms the completion of the investigation and cleanup of the reported release at the subject site.

Site Investigation and Cleanup Summary:

Please be advised that the following conditions exist at the site:

- 30 parts per million (ppm) Total Petroleum Hydrocarbons as diesel (TPHd), 720 ppm TPH as gasoline, 1.4, 1.3, 7.2, 30 ppm benzene, toluene, ethyl benzene and xylenes, respectively remain in the soil at the site.
- 3200 ppb TPHg and 240, ND, 18, 5, ND, benzene, toluene, ethyl benzene, xylenes and MTBE, respectively remain in groundwater at the site.

This site should be included in the City's permit tracking system. Please contact me at (510) 567-6765 with any questions.

Sincerely,

Barney M. Chan
Hazardous Materials Specialist

enclosures: Case Closure Letter, Case Closure Summary

c: Mr. L. Griffin, City of Oakland CES, 1605 MLK Jr. Way,
Oakland CA 94612

✓ B. Chan, files letter only.

Trlt 490 43rd St

RB#01-0891

JUL 11 2001

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Date: ~~March 22~~, 2001
June 15

Agency name: Alameda County-HazMat Address: 1131 Harbor Bay Parkway
Room 250
City/State/Zip: Alameda, CA 94502-6577 Phone: (510) 567-6700
Responsible staff person: Barney Chan Title: Hazardous Materials Spec.

II. CASE INFORMATION

Site facility name: Walter Blumert Company
Site facility address: 490 43rd St. Oakland CA 94609
RB LUSTIS Case No: N/A Local Case No./LOP Case No.: 4252 RO# 272
ULR filing date: 1/24/92 SWEEPS No: N/A

| <u>Responsible Parties:</u> | <u>Addresses:</u> | <u>Phone Numbers:</u> |
|--|---|-----------------------|
| Wells Fargo Trust c/o Mr. John Ward | P.O. Box 63939 San Francisco, CA 94613 | 415-396-3019 |

| <u>Tank No:</u> | <u>Size in gal.:</u> | <u>Contents:</u> | <u>Closed in-place or removed?:</u> | <u>Date:</u> |
|-----------------|----------------------|------------------|-------------------------------------|--------------|
| 1 | 1000 | UL gasoline | removed | 12/11/91 |
| 2 | 350 | paint thinner | removed | 12/11/91 |

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: unknown, however, the paint thinner tank was partially deteriorated on the top.

Site characterization complete? Yes

Date approved by oversight agency:

Monitoring Wells installed? YES Number: 4

Proper screened interval? Yes, from 6-22' and 10-20' in MW-4

Highest GW depth: 8.5 feet bgs Lowest depth: 13 feet bgs

Flow direction: southwest

Leaking Underground Fuel Storage Program

Most sensitive current use: mixed commercial/residential

Are drinking water wells affected? No Aquifer name:

Is surface water affected? No Nearest affected SW name:

Off-site beneficial use impacts (addresses/locations): NA

Report(s) on file? Yes Where are report(s) filed?

| | | |
|--|-----|-------------------------------|
| Alameda County EHS | and | City of Oakland Fire Services |
| 1131 Harbor Parkway, 2 nd Floor | | 1605 MLK Jr. Dr. |
| Alameda CA 94502 | | Oakland CA 94612 |

Treatment and Disposal of Affected Material:

| <u>Material</u> | <u>Amount (include units)</u> | <u>Action (Treatment of Disposal w/destination)</u> | <u>Date</u> |
|-----------------|-----------------------------------|---|-------------|
| USTs | 1-1000, 1-380 gal | disposed @ H&H Shipping | 12/11/91 |
| Soil | 100 cy | disposed @ Redwood Landfill Novato, CA | ? |

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

| Contaminant | Soil (ppm) | | Water (ppb) | |
|--------------------|-------------------|----------------|--------------------|----------------|
| | <u>1 Before</u> | <u>After 2</u> | <u>3 Before</u> | <u>After 4</u> |
| TPPH | 490 | 720 | 7000 | 3200 |
| Benzene | 0.88 | 1.4 | 990 | 240 |
| Toluene | 6.5 | 1.3 | 29 | ND |
| Ethylbenzene | 19 | 7.2 | 280 | 18 |
| Xylenes | 18 | 30 | 130 | 5 |
| TPHd | 76 | 190 | | |
| MTBE | | | | <25 |

Comments (Depth of Remediation, etc.):

- 1 soil samples from original tank removal, 12/11/91
- 2 soil samples after over-excavation on 3/31/92
- 3 grab groundwater sample from borings EB-1 and EB-2, 6/1/94
- 4 most recent monitoring event from MW-4, 12/28/00

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? unknown

Leaking Underground Fuel Storage Tank Program

IV. CLOSURE

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? unknown

Does corrective action protect public health for current land use? YES

Site management requirements: site should be included in the City of Oakland Permit Tracking System

Should corrective action be reviewed if land use changes? yes

Monitoring wells Decommissioned: NO

Number Decommissioned: no Number Retained: 4

List enforcement actions taken:

List enforcement actions rescinded:

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Barney M. Chan Title: Hazardous Materials Specialist

Signature: *Barney M Chan* Date: 6/15/01

Reviewed by

Name: eva chu Title: Hazardous Material Specialist

Signature: *eva chu* Date: 4/3/01

Name: Susan Hugo Title: Acting Supervisor

Signature: *Susan L. Hugo* Date: 6/14/01

VI. RWQCB NOTIFICATION

Date Submitted to RB: RB Response: *comair*

RWQCB Staff Name: C. Headlee Title: AEG

Signature: *Cheryl Headlee* Date: 7/13/01

VII. ADDITIONAL COMMENTS, DATA, ETC. see site summary

Leaking Underground Fuel Storage Tank Program

IV. CLOSURE

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? unknown

Does corrective action protect public health for current land use? YES

Site management requirements: site should be included in the City of Oakland Permit Tracking System

Should corrective action be reviewed if land use changes? yes

Monitoring wells Decommisioned: NO

Number Decommisioned: no Number Retained: 4

List enforcement actions taken:

List enforcement actions rescinded:

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Barney M. Chan

Title: Hazardous Materials Specialist

Signature: *Barney M Chan*

Date: 6/15/01

Reviewed by

Name: eva chu

Title: Hazardous Material Specialist

Signature: *eva chu*

Date: 4/3/01

Name: Susan Hugo

Title: Acting Supervisor

Signature: *Susan Z. Hugo*

Date: 6/14/01

VI. RWQCB NOTIFICATION

Date Submitted to RB:

RB Response:

RWQCB Staff Name: C. Headlee

Title: AEG

Signature:

Date:

VII. ADDITIONAL COMMENTS, DATA, ETC. see site summary

KEI-J91-1201.R1
 June 29, 1992

TABLE 1

SUMMARY OF LABORATORY ANALYSES
 SOIL

| <u>Date</u> | <u>Sample</u> | <u>Depth (feet)</u> | <u>TPH as Diesel</u> | <u>TPH as Gasoline</u> | <u>Benzene</u> | <u>Toluene</u> | <u>Xylenes</u> | <u>Ethyl-benzene</u> |
|-------------------------|---------------|---------------------|----------------------|------------------------|-----------------|-----------------|----------------|----------------------|
| 12/11/91 | A1 | 10.0 | 7.8 | 190 | 0.88 | 6.5 | 22 | 1.9 |
| | A2 | 10.0 | 37 | 240 | 0.050 | 0.12 | 4.6 | 0.48 |
| | B1 | 10.0 | 76 | 490 | 0.43 | 0.48 | 18 | 19 |
| 3/31/92 | A(11.5) | 11.5 | 10* | 480 | 1.4 | 1.3 | 9.9 | 7.2 |
| | B(11.5) | 11.5 | 25* | 440 | 0.55 | ND | 16 | 3.3 |
| | SW-N | 10.0 | ND* | 3.6 | ND | ND | 0.050 | 0.0072 |
| | SW-S | 10.0 | 7.6* | 190 | 0.20 | 0.12 | 1.9 | 1.9 |
| | SW-E | 10.0 | 190* | 720 | 0.75 | 0.91 | 30 | 5.4 |
| | SW-W | 10.0 | ND* | ND | ND | ND | ND | ND |
| <u>Detection Limits</u> | | | 1.0 | 1.0 | 0.0050 | 0.0050 | 0.0050 | 0.0050 |

* The sample was analyzed for TPH as paint thinner.

ND = Non-detectable.

Results are in parts per million (ppm), unless otherwise indicated.

TABLE 3
SUMMARY OF LABORATORY ANALYSES
SOIL

| <u>Sample Number</u> | <u>TPH as Diesel</u> | <u>TPH as Gasoline</u> | <u>Benzene</u> | <u>Toluene</u> | <u>Xylenes</u> | <u>Ethyl-benzene</u> | <u>TPH as Paint Thinner</u> |
|--------------------------------------|----------------------|------------------------|----------------|----------------|----------------|----------------------|-----------------------------|
| (Collected on April 12 and 13, 1993) | | | | | | | |
| MW1(5) | ND | ND | ND | ND | ND | ND | ND |
| MW1(9.5) | 2.2* | 20 | 0.069 | 0.019 | 0.090 | 0.030 | ND |
| MW1(11.5) | 6.9* | 210 | 1.2 | 0.90 | 2.6 | 1.2 | ND 11+ |
| MW2(5) | ND | ND | ND | ND | ND | ND | ND |
| MW2(7.5) | 9.3** | 66♦ | 0.24 | ND | 0.35 | 0.026 | ND 15 |
| MW2(10) | 190** | 1,000♦ | 3.4 | ND | 20 | ND | 320 |
| MW2(11.5) | 180** | 710♦ | 3.0 | 0.71 | 14 | 0.68 | 310 |
| MW3(5) | 4.7** | ND | ND | ND | ND | ND | 7.6 |
| MW3(10) | 590** | 2,000♦ | 2.6 | 0.88 | 28 | 0.74 | 1,000 |
| MW3(12) | 53** | 630♦ | 0.86 | 0.12 | 2.3 | 1.1 | 89 |

NOTE: The soil samples were collected at the depths below grade indicated in the () of the respective sample number.

- * Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.
- ** Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be diesel.
- ♦ Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.
- + Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a paint thinner and non-paint thinner mixture.

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

TABLE 3 - GROUNDWATER SAMPLE ANALYTICAL RESULTS

| Well / Date | Mineral Spirits (µg/L) | TPHg (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl- Benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|-------------------------|------------------------------|-----------------------|-------------------|-------------------|-----------------------------|----------------------------|---------------------|
| MW-1 | | | | | | | |
| 04/29/93 | 600 | 290 | 31 | 1.9 | 2.7 | 5.4 | -- |
| 12/13/93 | 820 | 1,700 | 170 | 22 | 19 | 48 | -- |
| 03/15/94 | 1,200 | 2,100 | 250 | 12 | 27 | 38 | -- |
| 06/16/94 | 430 | 700 | 35 | 6.8 | 8.7 | 10 | -- |
| 09/13/94 | 73 | 170 | 6.6 | 1.6 | 2.4 | 3.3 | -- |
| 12/08/94 | 170 | 420 | 16 | 3.0 | 2.9 | 2.7 | -- |
| 03/14/95 | 65 | 630 | 39 | ND | 7.0 | 8.6 | -- |
| 06/28/95 | 130 | 720 | 100 | 7.8 | 23 | 32 | -- |
| 10/13/95 | 900 | 290 | 8.6 | 0.55 | 2.8 | 1.4 | -- |
| 12/05/95 | 70 | 94 | 5.6 | ND | 0.67 | 0.53 | -- |
| 05/30/96 | <50 | 1,700 ⁽¹⁾ | 62 | <0.5 | 16 | 18 | <5 |
| 09/03/96 | <50 | 570 | 1.8 | 0.61 | 8.5 | 7.3 | <5 |
| 12/06/96 | <51 | 2,600 | 84 | 2.8 | 30 | 23 | -- |
| 06/12/97 | <51 | 580 | 9.4 | 1.3 | 5.0 | 4.0 | 8.1 |
| 12/16/97 | 490 ⁽⁴⁾ | 840 | 12 | 2.5 | 8.0 | 4.4 | 17 |
| 06/19/98 | 480 | 130 | 0.80 | <0.50 | 1.8 | 0.52 | <5.0 |
| 12/17/98 | 300 ⁽⁴⁾ | 89 | 1.9 | <0.50 | <0.50 | 0.69 | <5.0 |
| 06/22/99 | <50 | 220 | 6.7 | <0.50 | 4.5 | <0.50 | <5.0 |
| 12/20/99 | <50 | 130 | 1.5 | <0.50 | 0.71 | <0.50 | <5.0 |
| 03/29/00 | <50 | 360 | 7.0 | 2.0 | 4.7 | 3.5 | <5.0 |
| 07/05/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 |
| 10/11/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 |
| MW-2 | | | | | | | |
| 04/29/93 | 4,100 | 11,000 | 2,400 | 51 | 76 | 160 | -- |
| 12/13/93 | 2,600 | 11,000 | 1,400 | 66 | 150 | 94 | -- |
| 06/16/94 | 11,000 | 18,000 | 2,100 | ND | 200 | 70 | -- |
| 09/13/94 | 5,400 | 12,000 | 1,400 | 50 | 200 | 89 | -- |
| 12/08/94 | 3,200 | 11,000 | 1,700 | 34 | 200 | 86 | -- |
| 03/14/95 | 670 | 14,000 | 1,500 | 41 | 160 | 66 | -- |
| 06/28/95 | 8,700 | 11,000 | 1,700 | ND | 230 | 78 | -- |
| 10/13/95 | 1,500 | 9,400 | 1,200 | 41 | 200 | 61 | -- |
| 12/05/95 | 24,000 | 150,000 | 890 | 200 | 720 | 500 | -- |
| 05/30/96 | <50 | 10,000 ⁽¹⁾ | 61 | 5.1 | 28 | 11 | <5 ⁽²⁾ |
| 09/03/96 | <50 | 7,400 | 960 | 19 | 130 | 37 | <100 ⁽²⁾ |
| 09/03/96 ⁽³⁾ | 2,800 | 7,800 | 1,400 | <0.5 | 210 | 91 | 300 |
| 12/06/96 | <54 | 12,000 | 850 | 8 | 140 | 36 | -- |
| 06/12/97 | <50 | 5,100 | 810 | 25 | 6.8 | 13 | <5 |
| 12/16/97 | 3,600 ⁽⁴⁾ | 3,000 | 400 | 9.2 | 26 | 10 | 44 |
| 06/19/98 | 7,200 | 5,900 | 760 | 15 | 100 | 33 | <25 |
| 12/17/98 | 3,400 ⁽⁴⁾ | 7,300 | 850 | 33 | 200 | 22 | <25 |
| 06/22/99 | 1,200 | 7,800 | 660 | <10 | 140 | <10 | <100 |
| 12/20/99 | 4,600 ⁽⁴⁾ | 9,400 | 650 | 24 | 92 | 21 | <100 |
| 03/29/00 | 3,600 | 11,000 | 590 | 130 | 250 | 440 | <250 |
| 07/05/00 | 6,200 | 6,500 | 360 | 56 | 130 | 170 | <250 |
| 10/11/00 | 2,800 | 1,100 | 63 | 2.7 | 15 | 2.8 | <5.0 |

| Well/ Date | Mineral Spirits (µg/L) | TPHg (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl Benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|-------------------------|------------------------------|----------------------|-------------------|-------------------|----------------------------|----------------------------|--------------------|
| MW-3 | | | | | | | |
| 04/29/93 | 5,800 | 8,500 | 840 | 17 | 40 | 42 | -- |
| 12/13/93 | 3,500 | 6,200 | 580 | 120 | 65 | 120 | -- |
| 06/16/94 | 4,700 | 7,700 | 910 | ND | 86 | 50 | -- |
| 09/13/94 | 8,700 | 6,800 | 430 | 14 | 45 | 37 | -- |
| 12/08/94 | 2,100 | 1,500 | 820 | ND | 52 | 28 | -- |
| 03/14/95 | 480 | 5,600 | 250 | 11 | 25 | 30 | -- |
| 06/28/95 | 2,100 | 14,000 | 650 | 18 | 70 | 54 | -- |
| 10/13/95 | 430 | 2,500 | 270 | 1.9 | 15 | 10 | -- |
| 12/05/95 | 5,400 | 4,200 | 250 | ND | 26 | ND | -- |
| 05/30/96 | <50 | 5,300 ⁽¹⁾ | 65 | 1.5 | 9.0 | 5.1 | <5 ⁽²⁾ |
| 09/03/96 | <50 | 8,900 | 460 | 17 | 51 | 77 | <25 ⁽²⁾ |
| 09/03/96 ⁽³⁾ | 7,100 | 4,800 | 800 | 14 | 39 | 39 | 120 |
| 12/06/96 | <100 | 7,000 | 740 | <5 | 60 | 17 | -- |
| 06/12/97 | <50 | 2,800 | 460 | 14 | 59 | 28 | <50 |
| 12/16/97 | 4,000 ⁽⁴⁾ | 4,900 | 1,700 | 17 | 52 | 20 | 92 |
| 06/19/98 | 10,000 | 3,800 | 470 | 19 | 49 | 21 | <25 |
| 12/17/98 | 240 ⁽⁴⁾ | 5,000 | 450 | 18 | 100 | 4.8 | <25 |
| 06/22/99 | 790 | 3,100 | 190 | <1.0 | 52 | <1.0 | <10 |
| 12/20/99 | 6,400 ⁽⁴⁾ | 4,500 | 230 | 12 | 47 | 38 | <100 |
| 03/29/00 | 2,900 | 7,900 | 330 | <2.5 | 58 | 30 | <25 |
| 07/05/00 | 2,300 | 3,400 | 190 | 15 | 29 | 12 | <25 |
| 10/11/00 | 2,000 | 4,100 | 230 | <10 | 37 | 18 | <100 |
| MW-4 | | | | | | | |
| 06/22/99 | 1,900 | 3,200 | 410 | <2.5 | 54 | 12 | 90 |
| 12/20/99 | 2,000 ⁽⁴⁾ | 2,000 | 160 | 7.4 | 8.0 | 7.0 | 25 |
| 03/29/00 | <50 | 4,200 | 600 | 15 | 26 | 24 | 74 |
| 07/05/00 | <50 | 2,900 | 410 | 23 | 19 | 18 | 56 |
| 10/11/00 | 860 | 3,200 | 190 | 11 | 14 | 13 | <25 |
| 12/28/00 | 590 ⁽⁴⁾ | 3,100 | 240 | <2.5 | 18 | 5.0 | <25 |

Notes: All water results are reported in µg/L, approximately equal to ppb

< = Not detected at laboratory reporting limit indicated

-- = Analysis not performed

⁽¹⁾ Value revised by Chromalab from May 1996, submission 9605835

⁽²⁾ Confirmed by gas chromatography/mass spectrometry (GC/MS)

⁽³⁾ Duplicate sample analysis by Sequoia Analytical

⁽⁴⁾ Quantitation for this analyte is based on the response factor of diesel. Hydrocarbons reported do not match the pattern of the mineral spirit standard.

5.0 DISCUSSION

Groundwater gradient and flow direction were calculated at 0.031 foot/foot to the south-southwest in December 2000. These values are consistent with previous sampling events.

Analytical results from the October 2000 sampling event indicate that concentrations of TPHg, BTEX and mineral spirits were not detected in well MW-1. Concentrations of mineral spirits decreased in wells MW-2 and MW-3, and increased to above the laboratory detection limit in

KEI-P91-1201.R6
July 20, 1994

TABLE 4

SUMMARY OF LABORATORY ANALYSES
SOIL

| <u>Date</u> | <u>Sample Number</u> | <u>TPH as Paint Thinner</u> | <u>Gasoline</u> | <u>Benzene</u> | <u>Toluene</u> | <u>Ethylbenzene</u> | <u>Xylenes</u> |
|-------------|----------------------|-----------------------------|-----------------|----------------|----------------|---------------------|----------------|
| 6/01/94 | EB1(5) | ND | ND | ND | ND | ND | ND |
| | EB1(10) | ND | ND | ND | ND | ND | ND |
| | EB1(11.5) | ND | ND | ND | ND | ND | ND |
| | EB2(5) | ND | ND | ND | ND | ND | ND |
| | EB2(10) | 28 | 65* | 0.53 | 0.13 | 0.50 | 1.9 |
| | EB2(12) | 45 | 180* | 0.42 | 0.26 | 0.81 | 2.9 |

NOTE: The soil samples were collected at the depths below grade indicated in the () of the respective sample number.

* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

KEI-P91-1201.R6
 July 20, 1994

TABLE 5
 SUMMARY OF LABORATORY ANALYSES
 WATER

| <u>Date</u> | <u>Sample Number</u> | <u>TPH as Paint Thinner</u> | <u>TPH as Gasoline</u> | <u>Benzene</u> | <u>Toluene</u> | <u>Ethyl-benzene</u> | <u>Xylenes</u> |
|-------------|----------------------|-----------------------------|------------------------|----------------|----------------|----------------------|----------------|
| 6/01/94 | EB1 | 7,000 | 3,400 | 26 | 6.7 | 5.9 | 8.5 |
| | EB2 | 3,700 | 9,200 | 990 | 29 | 280 | 130 |
| | ND | | | | | | |
| | ND | | | | | | |
| | ND | | | | | | |
| | ND | | | | | | |

NOTE: Water samples were collected during drilling. The results of the analyses may not be representative of formation water, and should be used for comparative informational purposes only.

Results in parts per billion (ppb), unless otherwise indicated.

4.0 FINDINGS

4.1 Subsurface Conditions

The investigation area was covered with concrete sidewalks and asphalt roadway above approximately 1 to 2 feet of baserock and fill material consisting of silt. Below the baserock/fill, the encountered native soil consisted of dark brown to dark olive gray silty clay (CL). Disseminated, very fine to fine grained sand was observed in both borings in which only soil samples were collected (SB1 and SB2). Sand content appeared to increase with depth. Soil borings were completed to a depth of 9 feet bgs; however, the borings where water samples were collected were completed to a depth of approximately 15 to 19 feet bgs. Lithologic logs and the USCS of the borings in which soil samples were collected (SB1 and SB2) are included as Appendix 2. Soils were not evaluated in borings B3 through B8. The borings were completed to a total depth of approximately 15 to 19 feet bgs. Some lithology information could be inferred from the rate of penetration, type of soil remaining on the sampling probes upon removal, ability to develop the boring with compressed air, and the ability to collect water samples.

During the investigation, water was encountered at a depth of approximately 15 feet bgs. Water samples were collected from selected borings with the use of pre-cleaned stainless steel bailers. The water was immediately transferred to laboratory-supplied 40-milliliter VOA vials (without head space) and 1-liter amber bottles, which were placed in a pre-chilled, insulated container pending transport to Chromalab, Inc., a state-certified analytical laboratory.

4.2 Analytical Results

Soil samples collected from borings SB1 and SB2 were analyzed for TPHg, BTEX, and TPH as paint thinner. No TPHg and BTEX concentrations were detected in the two soil samples analyzed with the exception of 0.54 milligram per kilogram (mg/kg) or parts per million (ppm) total xylenes. TPH as paint thinner concentrations were detected in sample SB1-9.0 at 52 ppm and in sample SB2-9.0 at 78 ppm. Due to sample interference, the TPHg reporting limit in soil sample SB2-9.0 was raised to 500 mg/kg. However, the lack of detectable BTEX concentrations indicates that TPHg was probably not present, which is similar to the analytical results reported in sample SB1-9.0. Results of the soil sample analyses are summarized in Table 1. A copy of the analytical results and chain of custody record is included in Appendix 3.

TABLE 1 - SOIL SAMPLE ANALYTICAL RESULTS

| Boring/ Sample Depth | Paint Thinner (ppm) | TPHg (ppm) | Benzene (ppm) | Toluene (ppm) | Ethyl- benzene (ppm) | Total Xylenes (ppm) |
|----------------------------|---------------------------|---------------|------------------|------------------|----------------------------|---------------------------|
| SB1-9.0 | 52 | < 100 | < 0.10 | < 0.10 | < 0.10 | 0.54 |
| SB2-9.0 | 78 | < 500 | < 0.50 | < 0.50 | < 0.50 | < 0.5 |

Grab groundwater samples were collected from borings B3 through B8 and analyzed for TPHg, BTEX, and TPH as paint thinner. Concentrations of TPHg ranged from nondetect in samples collected from borings B3 and B8 to 46,000 micrograms per liter ($\mu\text{g/L}$) or parts per billion (ppb) in boring B6. Concentrations of TPH as paint thinner ranged from nondetect in samples collected from borings B3 and B8 to 16,000 ppb in boring B7.

Analytical results for grab groundwater samples at this site are suspect due to overlapping fuel patterns. Respective sample fuel patterns overlap for both TPHg and TPH as paint thinner analyses and analytical fuel patterns resembles a gasoline and paint thinner mix. Sample results for the water analysis are presented in Table 2. Analytical results for TPH as paint thinner are illustrated on Figure 3 and TPHg analytical results are illustrated on Figure 4. A copy of the analytical results and chain of custody forms is attached as Appendix 3.

TABLE 7 - GROUNDWATER SAMPLE ANALYTICAL RESULTS

| Boring/ Sample Number | TPHg (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl- benzene (ppb) | Total Xylenes (ppb) | Paint Thinner (ppb) |
|-----------------------------|---------------|------------------|------------------|----------------------------|---------------------------|---------------------------|
| B3-W | <50 | 0.89 | 1.6 | <0.50 | 0.91 | <500 |
| B4-W | 11,000* | 200 | 66 | 220 | 96 | 6,800* |
| B5-W | 5,300* | 18 | 18 | 32 | 56 | 12,000* |
| B6-W | 46,000* | 880 | <0.50 | 160 | 180 | <800 |
| B7-W | 4,400* | 190 | 14 | 130 | 100 | 16,000* |
| B8-W | <50 | <0.50 | 0.97 | <0.50 | 1.8 | <500 |

Notes: $\mu\text{g/L}$ = micrograms per Liter, approximately equal to ppb

*Estimated concentration for gasoline and paint thinner due to overlapping fuel patterns. Fuel pattern resembles gasoline and paint thinner mix.

5.0 DISCUSSION

Previous soil samples collected in the northeastern corner of the excavation pit indicated an impact from contents of the former USTs. However, analytical results from the additional subsurface investigation conducted on April 16, 1996, indicated no concentrations of TPHg in soil samples SB1-9.0 and SB2-9.0, which were collected at a depth of 9 feet bgs in the northeastern corner of the previous excavation. Minor concentrations of TPH as paint thinner were detected in soil samples SB1-9.0 and SB2-9.0 at 52 and 78 ppm, respectively. These results indicate minor soil impact is probably confined to soils immediately adjacent to the former paint thinner UST.

The April 1996 investigation indicated elevated levels of TPHg and TPH as paint thinner in groundwater samples collected from exploratory soil borings drilled downgradient from the former UST excavation. Groundwater downgradient of the former USTs has been impacted from the

The borings were advanced using a hydraulically-driven Geoprobe® with 2-inch-diameter, hollow-stem direct-push augers operated under the supervision of a C-57 licensed contractor. An ACC geologist observed the advancement of each probe. No drill cuttings were generated using the pneumatic process.

The Geoprobe® was driven approximately 6 feet into the saturated zone. After completion of drilling, an ORC® and water mixture consisting of approximately 14 pounds of ORC® to 5 gallons of water was injected into each boring. This mixture represents a slurry with approximately 25% solids, and was disseminated at a rate of approximately 1 gallon of ORC® grout per one foot of boring while removing the probes. Each of 25 soil borings received approximately 14 pounds of ORC®, resulting in the introduction of 350 pounds of ORC® into the saturated zone. After installation of the ORC® slurry, portland cement was poured into each boring above the ORC® to complete each hole to just below the surface. The surface of each probe location was capped with concrete to match existing grade.

During installation of ORC®, one grab groundwater sample was obtained from a soil boring adjacent to the UST excavation. ACC attempted to collect grab groundwater samples from several of the soil borings located near the center of the street and downgradient of the former USTs. Attempted and completed grab groundwater sample locations are illustrated on Figure 3. Analytical results from the grab groundwater sample obtained from boring OB-1 indicate that mineral spirits are present at a concentration of 130,000 ppb, TPHg at 41,000 ppb, and benzene at 790 ppb. Toluene, ethylbenzene, total xylenes, and MTBE were not detected above the laboratory reporting limit. Analytical results are summarized in Table 3, and copies of the chain of custody record and laboratory analytical results are included in Appendix 3.

TABLE 3 - GRAB GROUNDWATER SAMPLE ANALYTICAL RESULTS

| Sample Number | TPHg (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethylbenzene (µg/l) | Total Xylenes (µg/l) | MTBE (µg/l) | Mineral Spirits (µg/l) |
|---------------|-------------|----------------|----------------|---------------------|----------------------|-------------|------------------------|
| OB-1 | 41,000 | 790 | <13 | <13 | <13 | <130 | 130,000 |

Notes: µg/l = micrograms per liter, equivalent to parts per billion (ppb)
< sample falls below indicated laboratory reporting limit

↑
higher than what found in OB-1.

Table 1. Ground Water Sampling and Analyses, Quarterly Well Sampling on December 28, 2000—489 43rd Street, Bucate Plata

| Sample Location | Sample Date | Matrix Sampled | TPH-D µg/L | TPH-G µg/L | Benzene µg/L | Toluene µg/L | Ethyl benzene µg/L | Xylenes µg/L | MTBE µg/L | Lead µg/L | Paint Thinner µg/L |
|---|-------------|----------------|---------------|---------------|-----------------|-----------------|--------------------------|-----------------|--------------|--------------|--------------------------|
| MWA-1 | 12/20/99 | Water | 57 | 110 | ND | 0.79 | ND | ND | ND | ND | ND |
| MWA-1 | 3/27/00 | Water | ND | 84 | ND | ND | ND | ND | ND | ND | 75 |
| MWA-1 | 6/29/00 | Water | ND | 97 | ND | ND | ND | ND | ND | ND | 51 |
| MWA-1 | 9/22/00 | Water | ND | 64 | ND | ND | ND | ND | ND | ND | 160 |
| MWA-1 | 12/28/00 | Water | ND | 80 | ND | ND | ND | ND | ND | ND | ND |
| Laboratory Detection Limit | | Water | 50 | 50 | 0.50 | 0.50 | 0.50 | 0.50 | 5.0 | 5.0 | 50 |
| Maximum Contaminant Level (drinking water standard set by the California Dept of Health Services) | | | N/A | N/A | 1.0 | 150 | 700 | 1750 | N/A | N/A | N/A |

Legend:

All results are expressed in µg/L unless otherwise noted

N/A = Not available

ND = at or below laboratory detection limit.

TPH-D = total petroleum hydrocarbons as diesel

TPH-G = total petroleum hydrocarbons as gasoline

Paint Thinner = total petroleum hydrocarbons as paint thinner

Note 1: The State of California has not yet developed a final MCL for MTBE. The State is proposing a primary MCL of 13 µg/L for MTBE and a secondary MCL of 5 µg/L.

Note 2: The State of California has not established an MCL for lead, but the USEPA has established a lead MCL of 15 µg/L.

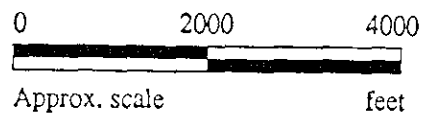
Table G-1

Calculation of Emission Rate and Concentration of Benzene from Groundwater in Indoor and Ambient Air Using Farmer's Simplified Indoor and Box Models and Estimation of Cancer and Non-Cancer Risks for Residential and Occupational Inhalation Exposure Only

| Basic Data | Conc. in Water (mg/L) | Depth to Groundwater (ft) | Emission Rate (mg/m ² -sec) | | Indoor Air Conc. (mg/m ³) | | Ambient Air Conc. (mg/m ³) | | Residential Inhalation Exposure Risk | | | | Occupational Inhalation Exposure Risk | | | | |
|------------------------------|-----------------------|---------------------------|--|-----------|---------------------------------------|-----------|--|-----------|--------------------------------------|----------|----------|----------|---------------------------------------|----------|----------|----|----|
| | | | Clay Soil | Sand Soil | Clay Soil | Sand Soil | Clay Soil | Sand Soil | ELCR | | HQ | | ELCR | | HQ | | |
| Chemical <i>Benzene</i> | 0.005 | 1 | 1.12E-03 | 6.49E-04 | 2.63E-01 | 1.53E-01 | 5.92E-03 | 3.45E-03 | 1.22E-03 | 7.11E-04 | NA | NA | 7.20E-06 | 4.19E-06 | NA | NA | |
| Henry's Law Constant | | 5 | 2.23E-04 | 1.30E-04 | 5.27E-02 | 3.07E-02 | 1.18E-03 | 6.90E-04 | 2.44E-04 | 1.42E-04 | NA | NA | 1.44E-06 | 8.39E-07 | NA | NA | |
| 0.228 Unitless | | 10 | 1.12E-04 | 6.49E-05 | 2.63E-02 | 1.53E-02 | 5.92E-04 | 3.45E-04 | 1.22E-04 | 7.11E-05 | NA | NA | 7.20E-07 | 4.19E-07 | NA | NA | |
| Air Diffusion Coefficient | | 15 | 7.43E-05 | 4.33E-05 | 1.76E-02 | 1.02E-02 | 3.95E-04 | 2.30E-04 | 8.13E-05 | 4.74E-05 | NA | NA | 4.80E-07 | 2.80E-07 | NA | NA | |
| 0.08715 cm ² /sec | | 20 | 5.58E-05 | 3.25E-05 | 1.32E-02 | 7.67E-03 | 2.96E-04 | 1.72E-04 | 6.10E-05 | 3.55E-05 | NA | NA | 3.60E-07 | 2.10E-07 | NA | NA | |
| Water Content | | 25 | 4.46E-05 | 2.60E-05 | 1.05E-02 | 6.14E-03 | 2.37E-04 | 1.38E-04 | 4.88E-05 | 2.84E-05 | NA | NA | 2.88E-07 | 1.68E-07 | NA | NA | |
| 0.15 for sand soil | | 30 | 3.72E-05 | 2.16E-05 | 8.78E-03 | 5.11E-03 | 1.97E-04 | 1.15E-04 | 4.07E-05 | 2.37E-05 | NA | NA | 2.40E-07 | 1.40E-07 | NA | NA | |
| 0.225 for clay soil | | 50 | 2.23E-05 | 1.30E-05 | 5.27E-03 | 3.07E-03 | 1.18E-04 | 6.90E-05 | 2.44E-05 | 1.42E-05 | NA | NA | 1.44E-07 | 8.39E-08 | NA | NA | |
| Indoor Area | | 0.05 | 1 | 1.12E-02 | 6.49E-03 | 2.63E+00 | 1.53E+00 | 5.92E-02 | 3.45E-02 | 1.22E-02 | 7.11E-03 | NA | NA | 7.20E-05 | 4.19E-05 | NA | NA |
| 2000 ft ² | | | 5 | 2.23E-03 | 1.30E-03 | 5.27E-01 | 3.07E-01 | 1.18E-02 | 6.90E-03 | 2.44E-03 | 1.42E-03 | NA | NA | 1.44E-05 | 8.39E-06 | NA | NA |
| Box Area | | | 10 | 1.12E-03 | 6.49E-04 | 2.63E-01 | 1.53E-01 | 5.92E-03 | 3.45E-03 | 1.22E-03 | 7.11E-04 | NA | NA | 7.20E-06 | 4.19E-06 | NA | NA |
| 105300 ft ² | | | 15 | 7.43E-04 | 4.33E-04 | 1.76E-01 | 1.02E-01 | 3.95E-03 | 2.30E-03 | 8.13E-04 | 4.74E-04 | NA | NA | 4.80E-06 | 2.80E-06 | NA | NA |
| Average Wind Speed | | | 20 | 5.58E-04 | 3.25E-04 | 1.32E-01 | 7.67E-02 | 2.96E-03 | 1.72E-03 | 6.10E-04 | 3.55E-04 | NA | NA | 3.60E-06 | 2.10E-06 | NA | NA |
| 13.71 ft/sec | | | 25 | 4.46E-04 | 2.60E-04 | 1.05E-01 | 6.14E-02 | 2.37E-03 | 1.38E-03 | 4.88E-04 | 2.84E-04 | NA | NA | 2.88E-06 | 1.68E-06 | NA | NA |
| Cross-wind Width | | | 30 | 3.72E-04 | 2.16E-04 | 8.78E-02 | 5.11E-02 | 1.97E-03 | 1.15E-03 | 4.07E-04 | 2.37E-04 | NA | NA | 2.40E-06 | 1.40E-06 | NA | NA |
| 357 ft | 50 | | 2.23E-04 | 1.30E-04 | 5.27E-02 | 3.07E-02 | 1.18E-03 | 6.90E-04 | 2.44E-04 | 1.42E-04 | NA | NA | 1.44E-06 | 8.39E-07 | NA | NA | |
| Down-wind Length | 1 | | 2.23E-02 | 1.30E-02 | 5.27E+00 | 3.07E+00 | 1.18E-01 | 6.90E-02 | 2.44E-02 | 1.42E-02 | NA | NA | 1.44E-04 | 8.39E-05 | NA | NA | |
| 295 ft | 5 | | 4.46E-03 | 2.60E-03 | 1.05E+00 | 6.14E-01 | 2.37E-02 | 1.38E-02 | 4.88E-03 | 2.84E-03 | NA | NA | 2.88E-05 | 1.68E-05 | NA | NA | |
| Roughness Height | 10 | | 2.23E-03 | 1.30E-03 | 5.27E-01 | 3.07E-01 | 1.18E-02 | 6.90E-03 | 2.44E-03 | 1.42E-03 | NA | NA | 1.44E-05 | 8.39E-06 | NA | NA | |
| 0.16 ft | 15 | | 1.49E-03 | 8.66E-04 | 3.51E-01 | 2.05E-01 | 7.90E-03 | 4.60E-03 | 1.63E-03 | 9.48E-04 | NA | NA | 9.60E-06 | 5.59E-06 | NA | NA | |
| Mixing Height | 20 | | 1.12E-03 | 6.49E-04 | 2.63E-01 | 1.53E-01 | 5.92E-03 | 3.45E-03 | 1.22E-03 | 7.11E-04 | NA | NA | 7.20E-06 | 4.19E-06 | NA | NA | |
| 26.6 ft | 25 | | 8.92E-04 | 5.20E-04 | 2.11E-01 | 1.23E-01 | 4.74E-03 | 2.76E-03 | 9.76E-04 | 5.69E-04 | NA | NA | 5.76E-06 | 3.36E-06 | NA | NA | |
| Attenuation Factor | 30 | | 7.43E-04 | 4.33E-04 | 1.76E-01 | 1.02E-01 | 3.95E-03 | 2.30E-03 | 8.13E-04 | 4.74E-04 | NA | NA | 4.80E-06 | 2.80E-06 | NA | NA | |
| 0.1 | 50 | 4.46E-04 | 2.60E-04 | 1.05E-01 | 6.14E-02 | 2.37E-03 | 1.38E-03 | 4.88E-04 | 2.84E-04 | NA | NA | 2.88E-06 | 1.68E-06 | NA | NA | | |
| Building Height | 0.25 | 1 | 5.58E-02 | 3.25E-02 | 1.32E+01 | 7.67E+00 | 2.96E-01 | 1.72E-01 | 6.10E-02 | 3.55E-02 | NA | NA | 3.60E-04 | 2.10E-04 | NA | NA | |
| 10 ft | | 5 | 1.12E-02 | 6.49E-03 | 2.63E+00 | 1.53E+00 | 5.92E-02 | 3.45E-02 | 1.22E-02 | 7.11E-03 | NA | NA | 7.20E-05 | 4.19E-05 | NA | NA | |
| Air Exchange Rate | | 10 | 5.58E-03 | 3.25E-03 | 1.32E+00 | 7.67E-01 | 2.96E-02 | 1.72E-02 | 6.10E-03 | 3.55E-03 | NA | NA | 3.60E-05 | 2.10E-05 | NA | NA | |
| 12 times/day | | 15 | 3.72E-03 | 2.16E-03 | 8.78E-01 | 5.11E-01 | 1.97E-02 | 1.15E-02 | 4.07E-03 | 2.37E-03 | NA | NA | 2.40E-05 | 1.40E-05 | NA | NA | |
| Porosity | | 20 | 2.79E-03 | 1.62E-03 | 6.59E-01 | 3.84E-01 | 1.48E-02 | 8.62E-03 | 3.05E-03 | 1.78E-03 | NA | NA | 1.80E-05 | 1.05E-05 | NA | NA | |
| 0.45 for clay soil | | 25 | 2.23E-03 | 1.30E-03 | 5.27E-01 | 3.07E-01 | 1.18E-02 | 6.90E-03 | 2.44E-03 | 1.42E-03 | NA | NA | 1.44E-05 | 8.39E-06 | NA | NA | |
| 0.3 for sand soil | 30 | 1.86E-03 | 1.08E-03 | 4.39E-01 | 2.56E-01 | 9.87E-03 | 5.75E-03 | 2.03E-03 | 1.18E-03 | NA | NA | 1.20E-05 | 6.99E-06 | NA | NA | | |



Base modified from 7.5 minute U.S.G.S. Oakland West Quadrangle
(photorevised 1980)



KEI
KAPREALIAN ENGINEERING
INCORPORATED

WELLS FARGO BANK
(WALTER BLUMERT CO, INC.)
490 43RD STREET
OAKLAND, CA

LOCATION
MAP

Figure 1



TELEGRAPH AVENUE

Walter Blumert Co.
Painting and Decorating

Parking

Building

ND for TPH, BT EX

*3.6 ppm TPH &
ND B*

*TPH 490 ppm
B - 0.43 ppm*

Former Gasoline
Storage Tank

Sidewalk

SW-W

SW-N

B1
B(11.5)

*440 ppm TPH
0.58 ppm B*

*720 ppm TPH
0.76 ppm B*

A1 A(11.5) A2

Former
Paint Thinner
Storage Tank

43RD STREET

*190 ppm TPH
0.20 ppm B*

*110 ppm TPH
0.88 ppm B*

*48 ppm TPH
1.4 ppm B*

*(10 ft)
220 ppm TPH
0.05 ppm B*

LEGEND

* Sample point location

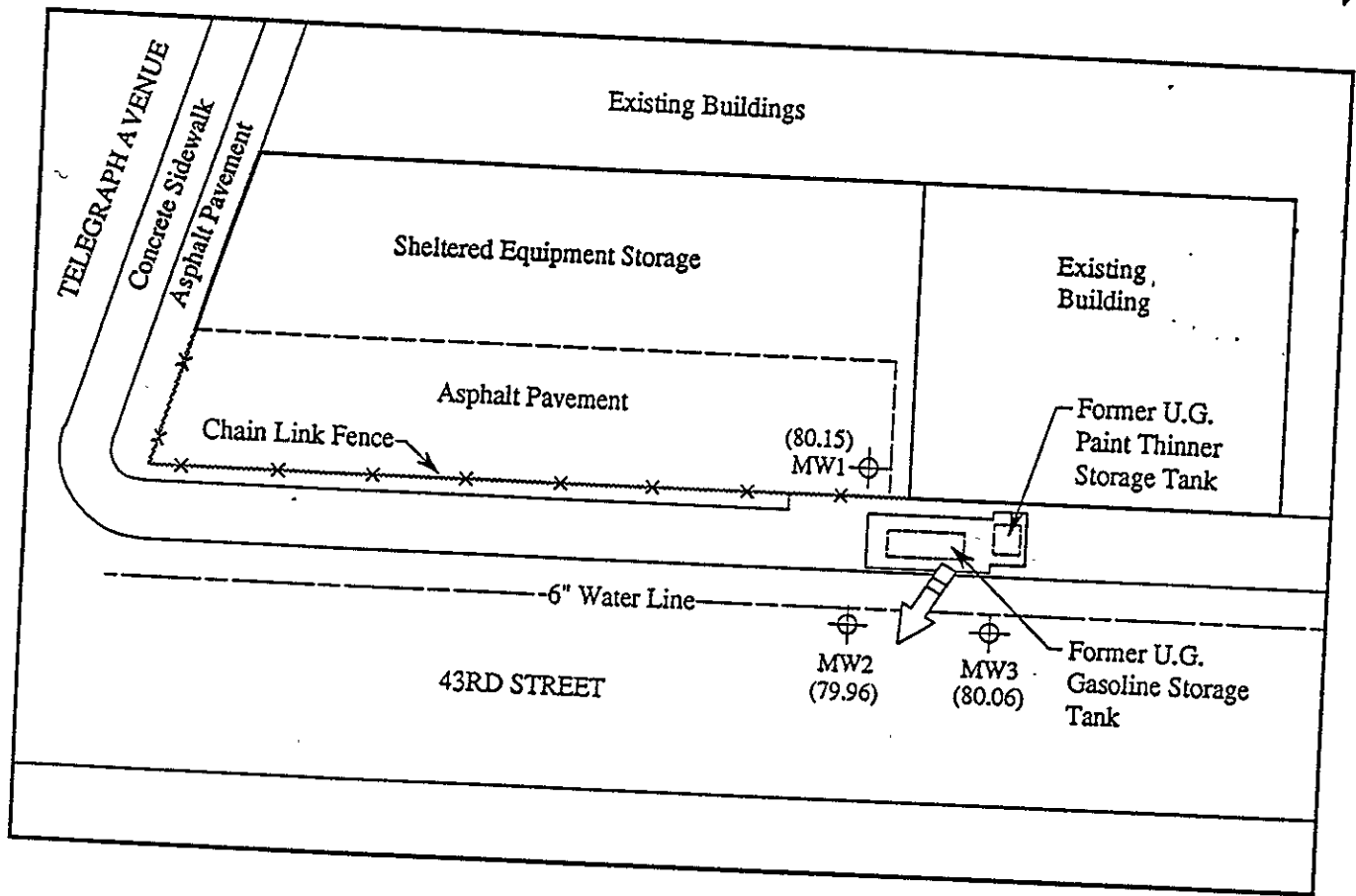
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

WELLS FARGO BANK
(WALTER BLUMERT CO., INC.)
490 43RD STREET
OAKLAND, CA

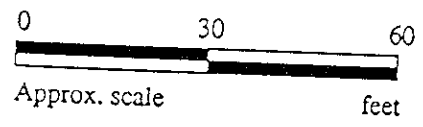
SITE
PLAN

Fig. 2



LEGEND

-  Monitoring well
-  Ground water elevation in feet above Mean Sea Level
-  Direction of ground water flow

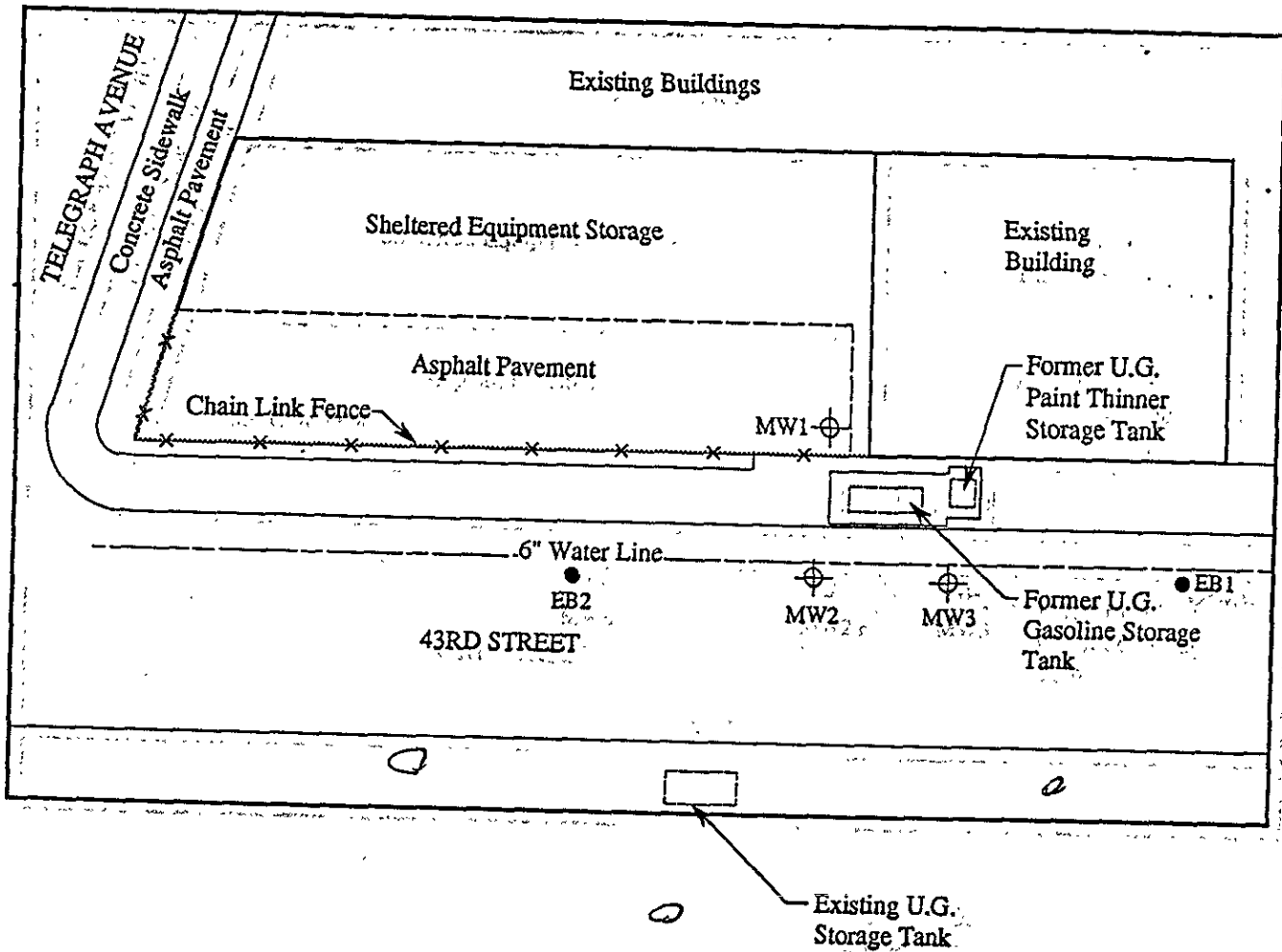
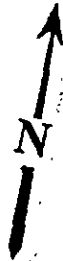


GROUND WATER FLOW DIRECTION MAP FOR THE APRIL 29, 1993 MONITORING EVENT


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INCORPORATED

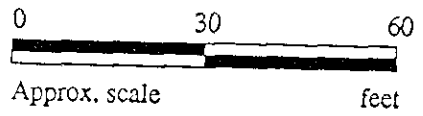
WELLS FARGO BANK
(WALTER BLUMERT CO, INC.)
490 43RD STREET
OAKLAND, CALIFORNIA

FIGURE 3



LEGEND

- ⊕ Monitoring well (existing)
- Exploratory boring

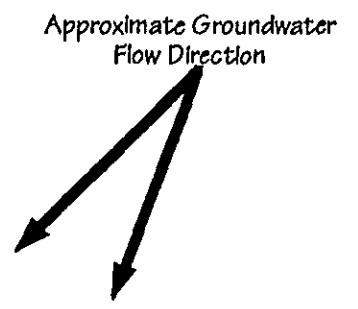
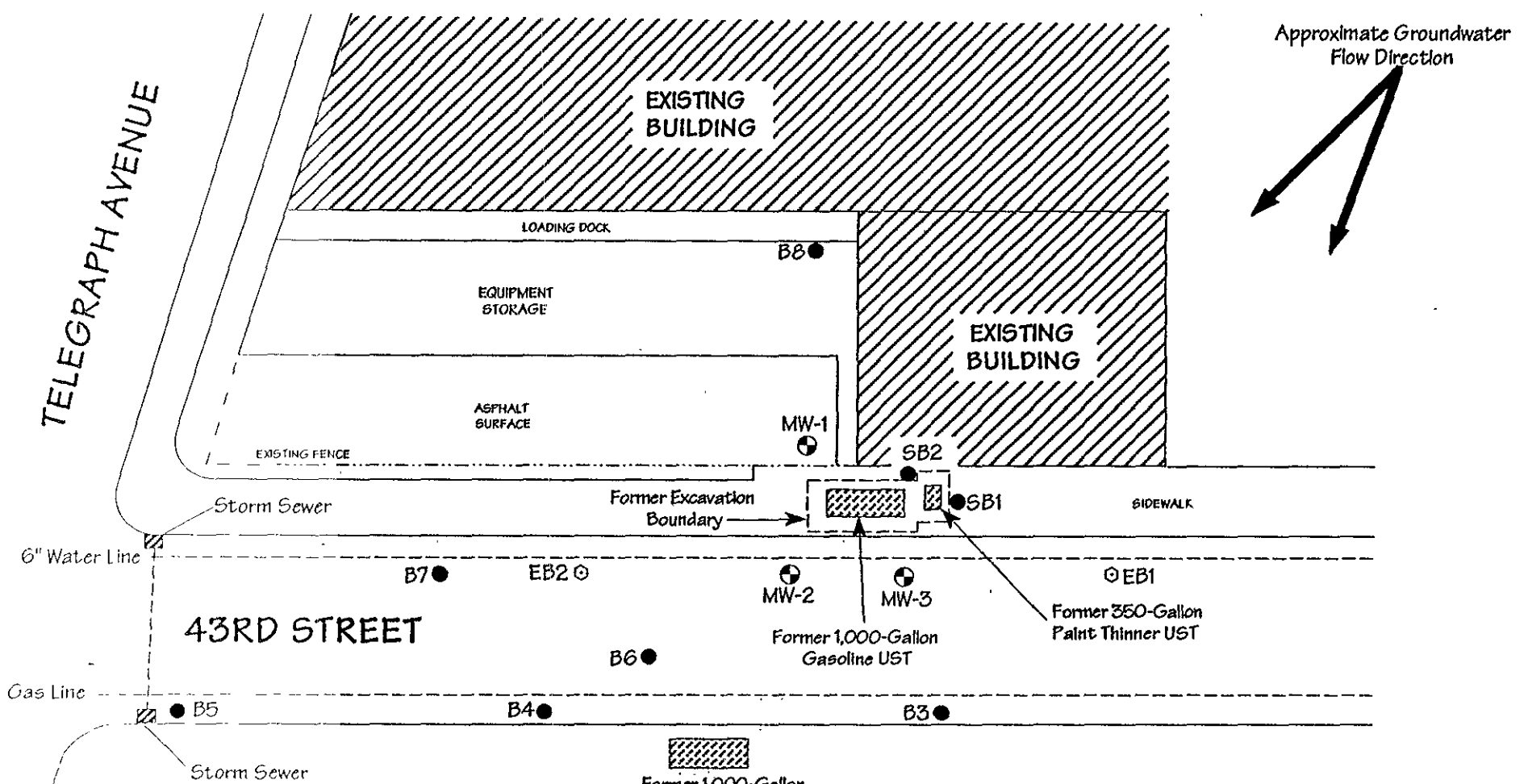


MONITORING WELL AND EXPLORATORY BORING LOCATION MAP


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WELLS FARGO BANK
(WALTER BLUMERT CO, INC.)
490 43RD STREET
OAKLAND, CALIFORNIA

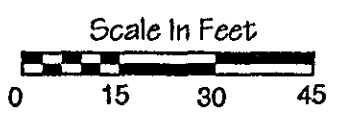
FIGURE
5



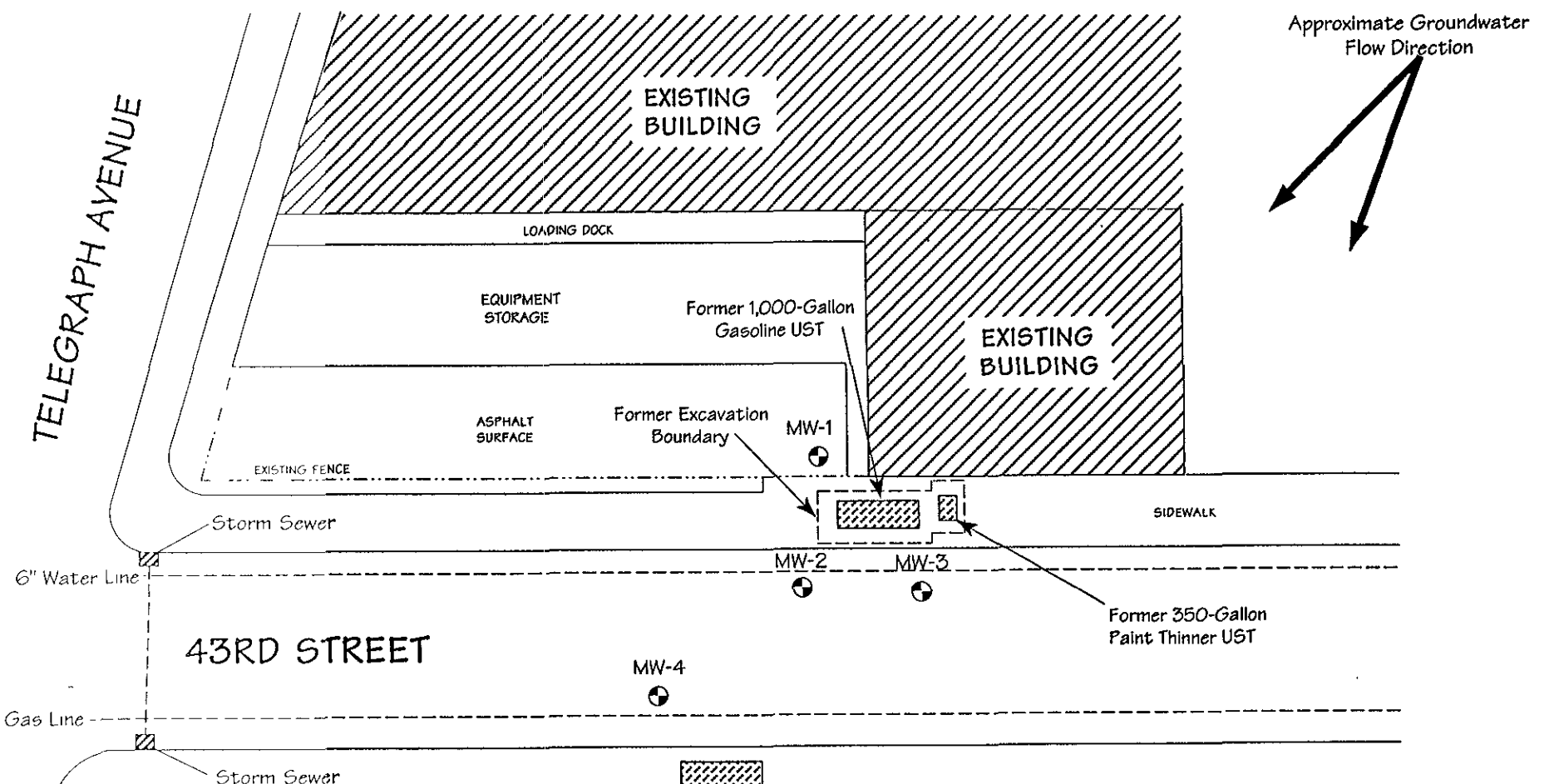
Legend


- MW-2 - Existing Groundwater Monitoring Well
- B4 - ACC Soil Boring Location (April 16, 1996)
- EB2 - Kaprealian Engineering Boring Location
- Former Underground Storage Tank

Former 1,000-Gallon Gasoline UST (489 43rd Street)





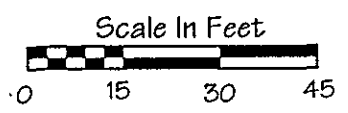
| | |
|---|-----------------|
| Title: Site Plan 490 43rd Street Oakland, California | |
| Figure Number: 6 | Scale: 1" = 30" |
| Drawn By: JVC | Date: 4/17/96 |
| Project Number: 6305-1.1 | |
| ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404 | |
| | |

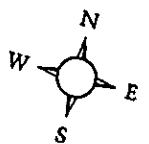


 Former 1,000-Gallon Gasoline UST (489 43rd Street)

Legend

- MW-2  - Existing Groundwater Monitoring Well
-  - Former Underground Storage Tank



| | |
|---|----------------------|
| Title: Site Plan 490 43rd Street Oakland, California | |
| Figure Number: 7 | Scale: 1" = 30" |
| Drawn By: NHD | Date: 6/10/99 |
| Project Number: 6305-001.01 | |
| ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404 | |
|  | |

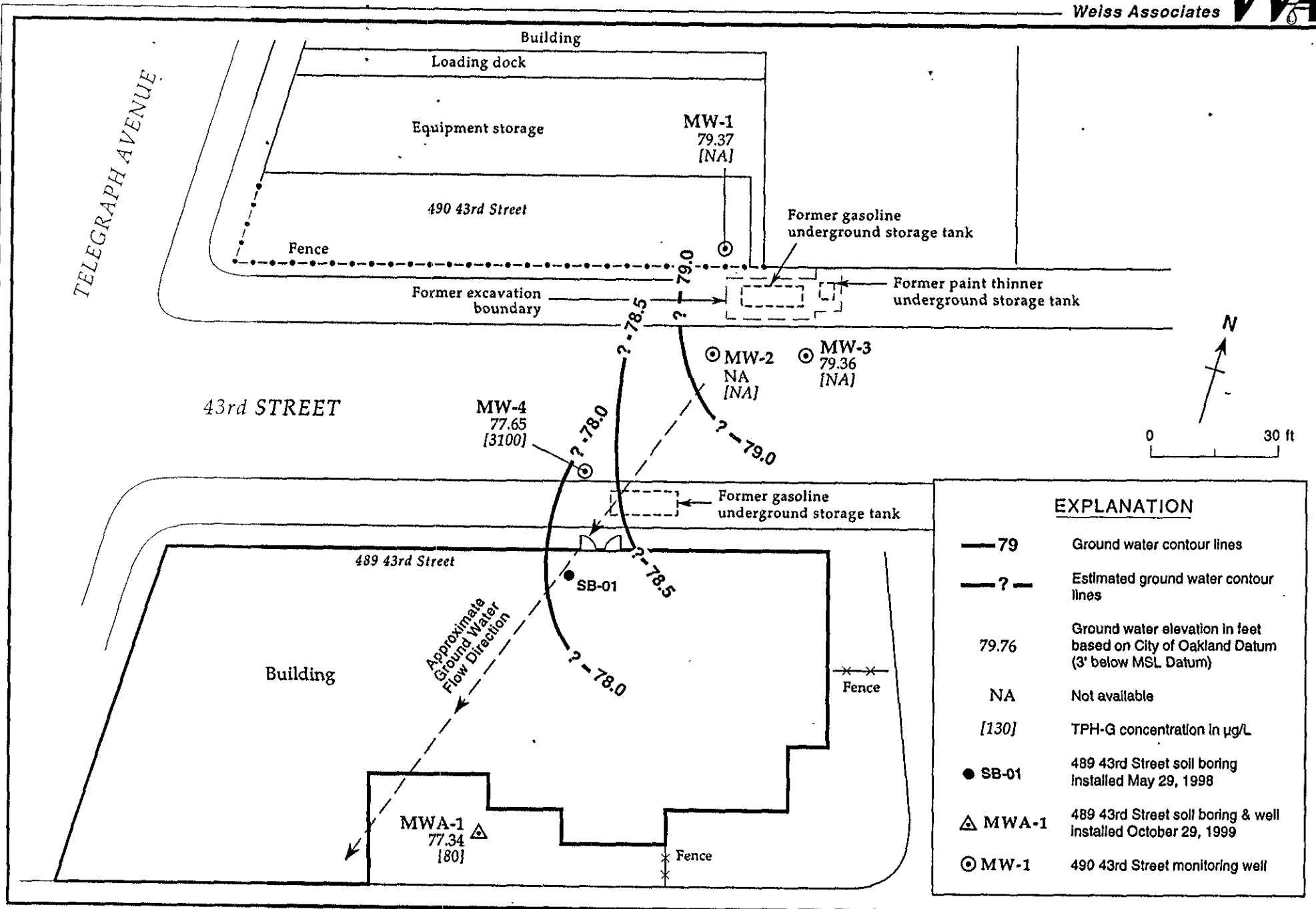
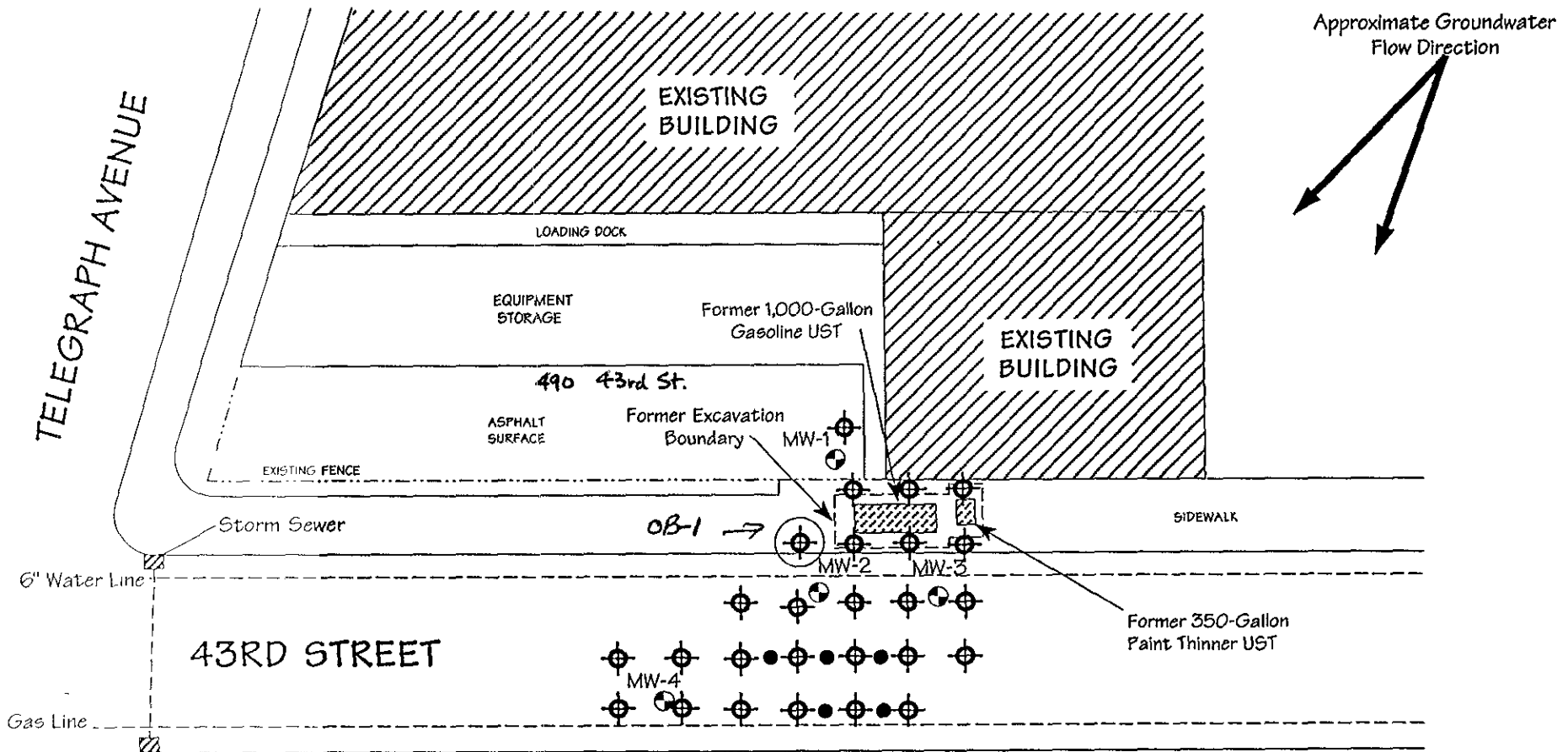


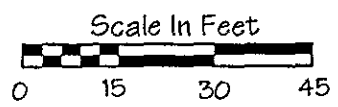
Figure 8. Quarterly Sampling Data, December 28, 2000 - 489 43rd Street, Oakland, California



Legend

- Soil Boring and ORC Injection Location
- Soil Boring, ORC Injection, and Grab Groundwater Sample Location
- Attempted Grab Groundwater Sample Location
- Existing Groundwater Monitoring Well
- Former Underground Storage Tank

Former 1,000-Gallon Gasoline UST (489 43rd Street)



| | |
|--|------------------------|
| Title: Soil Boring Locations 490 43rd Street Oakland, California | |
| Figure Number: 9 | Scale: 1" = 30" |
| Drawn By: NHD | Date: 6/10/99 |
| Project Number: 6305-001.01 | |
| ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404 | |
| | |

BORING LOG

| | | |
|--|---|--|
| Project No. KEI-P91-1201 | Boring Diameter 8" | Logged By <i>JGG</i> D.L. <i>LEG 1633</i> |
| | Casing Diameter 2" | |
| Project Name Wells Fargo Bank 490 43rd. Street, Oakland | Well Cover Elevation | Date Drilled April 12, 1993 |
| Boring No. MW1 | Drilling Method Hollow-stem Auger | Drilling Company Great Sierra Exploration |

| Penetration blows/6" | G. W. level | Depth (feet) Samples | Strati- graphy USCS | Description |
|-------------------------|----------------|----------------------------|---------------------------|--|
| | | 0 | | Asphalt pavement over sand and gravel base. |
| | | | ML | Clayey silt, trace fine-grained sand, stiff, moist, black. |
| | | | CL | Silty clay, estimated at 10-15% sand and trace gravel, very stiff, moist, dark brown with iron oxide staining. |
| 6/11/13 | | 5 | ML | Silt with sand, estimated at 10-15% clay and trace gravel, very stiff, moist, brown. |
| | | | GC | Clayey gravel with sand, gravel to 2 inches in diameter, dense to very dense, moist, dark greenish gray and olive brown, mottled. |
| 14/23/35 | | 10 | GM | Silty gravel with sand, trace clay, gravel to 5/8 inch in diameter, very dense, very moist, olive gray. |
| 15/28/42 | ▼ | | ML | Gravelly silt, estimated at 10-15% sand, gravel to 1 inch in diameter, hard, friable, moist to very moist, dark greenish gray and olive brown. |
| 16/33/41 | | | | Gravelly silt as above, except olive brown only. |
| | | 15 | | Sandy silt, estimated at 10-15% gravel to 1 inch in diameter, hard, moist, olive gray and dark greenish gray, mottled. |
| 7/11/14 | | | GM | Silty gravel with sand, estimated at 15% silt and 5% clay, gravel to 1 inch in diameter, medium dense, wet, dark olive gray, grades to dark yellowish brown. |
| 7/11/14 | | 20 | ML | Sandy silt, estimated at 10-15% gravel, sand is predominantly fine-grained, very stiff, wet, olive brown. |
| 11/ | | | SM | Silty sand, estimated at 10-15% gravel, medium dense, wet, cohesive, olive brown. |

BORING LOG

| | | |
|---|--|---|
| Project No. KEI-P91-1201 | Boring Diameter 8" Casing Diameter 2" | Logged By JGG D.L. CEG 1633 |
| Project Name Wells Fargo Bank 490 43rd. Street, Oakland | Well Cover Elevation | Date Drilled April 12, 1993 |
| Boring No. MW1 | Drilling Method Hollow-stem Auger | Drilling Company Great Sierra Exploration |

| Penetration blows/6" | G. W. level | Depth (feet) Samples | Stratigraphy USCS | Description |
|----------------------|-------------|-------------------------|----------------------|---|
| 17/23 | | | SM | Silt with fine-grained sand, trace gravel to 3/8 inch in diameter, very stiff, moist, olive brown and dark yellowish brown, mottled. <p style="text-align: center;">TOTAL DEPTH: 23'</p> |

BORING LOG

| | | |
|--|---|---|
| Project No. KEI-P91-1201 | Boring Diameter 8" | Logged By <i>JGG</i> D.L. <i>LEG 1633</i> |
| | Casing Diameter 2" | |
| Project Name Wells Fargo Bank 490 43rd. Street, Oakland | Well Cover Elevation | Date Drilled April 12, 1993 |
| Boring No. MW2 | Drilling Method Hollow-stem Auger | Drilling Company Great Sierra Exploration |

| Penetration blows/6" | G. W. level | Depth (feet) Samples | Strati- graphy USCS | Description |
|-------------------------|----------------|----------------------------|---------------------------|---|
| | | 0 | | Asphalt pavement over sand and gravel base. |
| | | | ML | Clayey silt, trace sand and gravel, very stiff, moist, black. |
| | | | CL | Silty clay, estimated at 10-15% sand, trace gravel, very stiff, moist, dark brown, with iron oxide staining. |
| 7/8/11 | | 5 | ML | Clayey silt, esimtated at 10-15% sand, very stiff, moist, dark brown, with iron oxide staining. |
| | | | CL | Silty clay, very stiff, moist, dark brown, mottled, dark gray. |
| | | | ML | Silt with fine-grained sand, stiff, moist, olive gray. |
| 7/9/11 | | | GC | Clayey gravel with sand, estimated at 5-10% silt, gravel to 1-1/2 inches in diameter, medium dense, moist, dark olive gray. |
| 14/9/15 | | 10 | | Clayey gravel as above, except very moist to wet. |
| 7/12/13 | ▼ | | GM | Silty gravel with sand, medium dense, very moist, dark olive gray. |
| | | | SM | Silty sand, estimated at 15-20% silt and trace gravel to 1/2 inch in diameter, medium dense, moist, dark greenish gray. |
| 12/14/13 | | 15 | GM | Silty gravel with sand, trace clay, medium dense, very moist to wet, olive to olive gray. |
| | | | ML | Silt with clay, estimated at 10-15% fine-grained sand, very stiff, moist, yellowish brown. |
| 10/10/10 | | | GM | Silty gravel with sand, medium dense, wet, dark yellowish brown. |
| | | | | Silt with sand, estimated at 5-10% clay, very stiff, moist, yellowish brown. |
| 8/10/12 | | 20 | ML | Silt with clay, estimated at 10-15% fine-grained sand, very stiff, moist yellowish brown. |

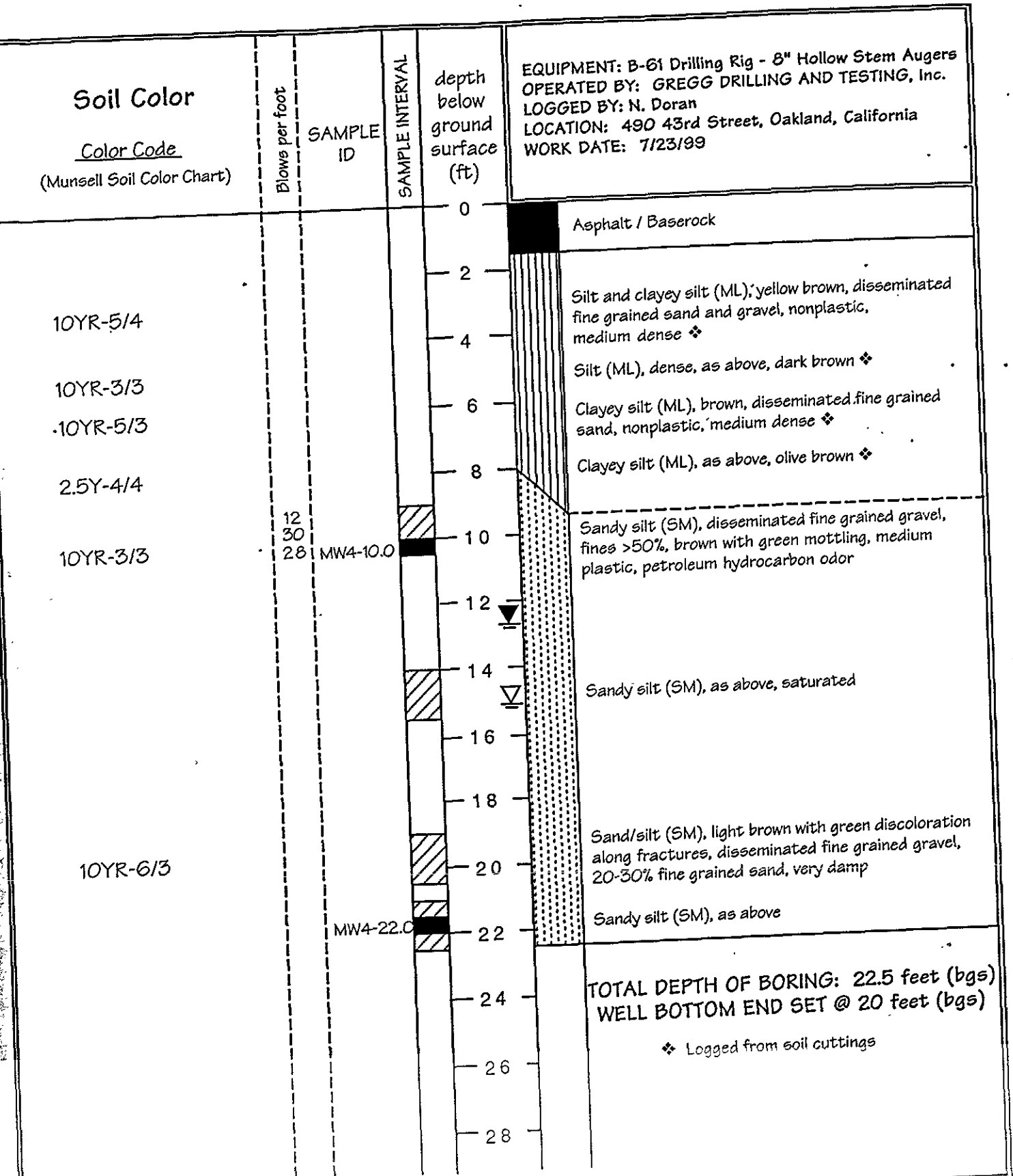
TOTAL DEPTH: 22'

BORING LOG

| | | |
|--|---|--|
| Project No. KEI-P91-1201 | Boring Diameter 8" | Logged By <i>JGG</i> D.L. <i>LEG 1633</i> |
| | Casing Diameter 2" | |
| Project Name Wells Fargo Bank 490 43rd. Street, Oakland | Well Cover Elevation | Date Drilled April 12, 1993 |
| Boring No. MW3 | Drilling Method Hollow-stem Auger | Drilling Company Great Sierra Exploration |

| Penetration blows/6" | G. W. level | Depth (feet) Samples | Strati- graphy USCS | Description |
|-------------------------|----------------|----------------------------|---------------------------|---|
| | | 0 | | Asphalt pavement over sand and gravel base. |
| | | | | Clayey silt, trace sand and gravel, very stiff, moist, very dark grayish brown and black, mottled (fill). |
| 6/7/8 | | 5 | CL | Silty clay, estimated at 10-15% sand and trace gravel, very stiff, moist, dark brown with iron oxide staining, disturbed soil. |
| | | | SC | Clayey sand, estimated at 10-15% silt and trace gravel, medium dense, moist, dark brown with iron oxide staining, poor recovery. |
| 9/11/14 | | 10 | SM | Silty sand with gravel, trace clay, medium dense, moist to wet, cohesive, dark greenish gray. |
| 6/11/14 | ▼ | | ML | Gravelly silt, estimated at 10-15% fine-grained sand, very stiff, moist, olive gray and deep greenish gray, mottled. Sandy silt, very stiff, moist, dark greenish gray and olive, mottled, sand is fine-grained. |
| 9/14/26 | | 15 | SM | Silty sand with gravel, estimated at 15-25% silt, gravel to 1-1/2 inch in diameter, olive brown, trace clay below 15.5 feet. |
| 8/8/8 | | | ML | Silt with sand, trace gravel, stiff, moist, light yellowish brown. Clayey silt, trace fine-grained sand, stiff, moist, light yellowish brown. |
| 14/36/30 | | 20 | | Silt with fine-grained sand, trace gravel to 3/8 inch in diameter, very stiff, moist, olive brown and dark yellowish brown, mottled. |

TOTAL DEPTH: 22'



ACC Environmental Consultants, Inc.
7977 Capwell Drive, Suite 100
Oakland, California 94621
(510)638-8400 FAX: (510)638-8404

Project No:
6305-001.01
Date: 7/23/99

LOG OF BORING MW-4
Blumert Paint Company
490 43rd Street
Oakland, California

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Date: March 22, 2001

Agency name: Alameda County-HazMat Address: 1131 Harbor Bay Parkway
Room 250
City/State/Zip: Alameda, CA 94502-6577 Phone: (510) 567-6700
Responsible staff person: Barney Chan Title: Hazardous Materials Spec.

II. CASE INFORMATION

Site facility name: Walter Blumert Company
Site facility address: 490 43rd St. Oakland CA 94609
RB LUSTIS Case No: N/A Local Case No./LOP Case No.: 4252 *RD# 272*
ULR filing date: 1/24/92 SWEEPS No: N/A

| <u>Responsible Parties:</u> | <u>Addresses:</u> | <u>Phone Numbers:</u> |
|--|---|-----------------------|
| Wells Fargo Trust c/o Mr. John Ward | P.O. Box 63939 San Francisco, CA 94613 | 415-396-3019 |

| <u>Tank No:</u> | <u>Size in gal.:</u> | <u>Contents:</u> | <u>Closed in-place or removed?:</u> | <u>Date:</u> |
|-----------------|----------------------|------------------|-------------------------------------|--------------|
| 1 | 1000 | UL gasoline | removed | 12/11/91 |
| 2 | 350 | paint thinner | removed | 12/11/91 |

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: unknown, however, the paint thinner tank was partially deteriorated on the top.

Site characterization complete? Yes

Date approved by oversight agency:

Monitoring Wells installed? YES Number: 4

Proper screened interval? Yes, from 6-22' and 10-20' in MW-4

Highest GW depth: 8.5 feet bgs Lowest depth: 13 feet bgs

Flow direction: southwest

Leaking Underground Fuel Storage Program

Most sensitive current use: mixed commercial/residential

Are drinking water wells affected? No Aquifer name:

Is surface water affected? No Nearest affected SW name:

Off-site beneficial use impacts (addresses/locations): NA

Report(s) on file? Yes Where are report(s) filed?

| | | |
|--|-----|-------------------------------|
| Alameda County EHS | and | City of Oakland Fire Services |
| 1131 Harbor Parkway, 2 nd Floor | | 1605 MLK Jr. Dr. |
| Alameda CA 94502 | | Oakland CA 94612 |

Treatment and Disposal of Affected Material:

| <u>Material</u> | <u>Amount (include units)</u> | <u>Action (Treatment of Disposal w/destination)</u> | <u>Date</u> |
|-----------------|-----------------------------------|---|-------------|
| USTs | 1-1000, 1-380 gal | disposed @ H&H Shipping | 12/11/91 |
| Soil | 100 cy | disposed @ Redwood Landfill Novato, CA | ? |

| <u>Contaminant</u> | Maximum Documented Contaminant Concentrations - - Before and After Cleanup | | | |
|--------------------|--|----------------|--------------------|----------------|
| | <u>Soil (ppm)</u> | | <u>Water (ppb)</u> | |
| | <u>1 Before</u> | <u>After 2</u> | <u>3 Before</u> | <u>After 4</u> |
| TPPH | 490 | 720 | 7000 | 3200 |
| Benzene | 0.88 | 1.4 | 990 | 240 |
| Toluene | 6.5 | 1.3 | 29 | ND |
| Ethylbenzene | 19 | 7.2 | 280 | 18 |
| Xylenes | 18 | 30 | 130 | 5 |
| TPHd | 76 | 190 | | |
| MTBE | | | | <25 |

Comments (Depth of Remediation, etc.):

- 1 soil samples from original tank removal, 12/11/91
- 2 soil samples after over-excavation on 3/31/92
- 3 grab groundwater sample from borings EB-1 and EB-2, 6/1/94
- 4 most recent monitoring event from MW-4, 12/28/00

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? unknown

Leaking Underground Fuel Storage Tank Program

IV. CLOSURE

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? unknown

Does corrective action protect public health for current land use? YES

Site management requirements: site should be included in the City of Oakland Permit Tracking System

Should corrective action be reviewed if land use changes? yes

Monitoring wells Decommissioned: NO

Number Decommissioned: no Number Retained: 4

List enforcement actions taken:

List enforcement actions rescinded:

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Barney M. Chan

Title: Hazardous Materials Specialist

Signature: *Barney M. Chan*

Date: 6/15/01

Reviewed by

Name: eva chu

Title: Hazardous Material Specialist

Signature: *eva chu*

Date: 4/3/01

Name: Susan Hugo

Title: Acting Supervisor

Signature: *Susan Z. Hugo*

Date: 6/14/01

VI. RWQCB NOTIFICATION

Date Submitted to RB:

RB Response:

RWQCB Staff Name: C. Headlee

Title: AEG

Signature:

Date:

VII. ADDITIONAL COMMENTS, DATA, ETC. see site summary

Site Summary for 490 43rd Street, Oakland CA 94609
Walter Blumert Paint Company, aka Blumert Trust

This site is located at the northeastern corner of Telegraph Ave. and 43rd St., see **Figure 1**. The facility formerly operated one 1000 gallon gasoline UST and one 350 gallon paint thinner UST. On December 11, 1991 the two USTs were removed from the sidewalk, in front of an existing onsite building. The tanks laid side to side. Three soil samples were collected from the base of the excavation pit from beneath ~~the~~ each end of the gasoline tank and from beneath the paint thinner tank. These samples were taken from a depth of 10' bgs and were labeled A1, A2 and B1. Based upon the observed visual contamination, lateral and vertical over-excavation was performed on March 31, 1992. One soil sample was collected from the center of the gasoline tank, A(11.5) and one from beneath the paint thinner tank labeled B(11.5). Four additional soil samples were collected from the sidewalls of the pit at a depth of 10' and labeled SW-N, SW-S, SW-E and SW-W. See **Table 1 and Figure 2 for results and a site plan**. TPH as diesel was also analyzed in these samples. Significant residual TPH was left in place. The over-excavation was limited in the north and south directions because of the presence of the building and the street, respectively.

Gasoline and paint thinner are typically in the boiling range of C4-C12 and C7-C9, respectively, therefore to quantify one product in the presence of the other, the laboratory must be careful not to "double count" the overlapping constituents in the C7-C9 range. It is assumed that TPHg concentrations reported without reporting TPH as paint thinner includes both fractions. When both TPHg and TPHpt are reported, the lab attempted to distinguish the two and therefore not "double count".

On April 12, 1993, three two inch diameter monitoring wells were installed in close proximity to the former tank pit. Soil samples were taken from each well at varying depths. See **Figure 3, Table 3 and the respective boring logs**. Groundwater was encountered at 12-12.5' below grade and contamination appeared to be mostly in the saturated capillary fringe zone. The first water bearing unit consisted of sandy or clayey silt with lesser amounts of silty gravel and silty sand. As would be revealed in future monitoring events, little change in contaminant concentration could be seen in the down-gradient wells, MW-2 and MW-3 because they were located too close, approximately 10-15', to the former tanks.

Three additional down-gradient wells were proposed for installation, however, while preparing the site for drilling, an underground tank was found on the other side of 43rd St. adjacent to the location of proposed MW5. The installation of MW5 was put on hold pending the removal of the off-site UST located at 489 43rd St.. This property is owned by Mr. Ronn Simpson. On June 1, 1994 the two cross-gradient borings formerly proposed as MW-4 and MW-6 were completed as borings only and labeled EB1 and EB2. Soil and grab groundwater samples were collected from these borings. See **Figure 5 and Tables 4 and 5**. Significant soil contamination was found in EB-2, while significant groundwater contamination was found in both borings. The petroleum release had obviously migrated well beneath 43rd St. in a diffuse pattern.

In September 1995, the underground tank at 489 43rd St. was removed. Up to 1900 ppm TPHg, 1300 ppm TPHd and low levels of BTEX and MTBE were exhibited in the soil sample from beneath the tank. This data did not clarify this situation, since it appeared that there had been two separate fuel releases. It would eventually be clear that the two site releases were so connected that a concerted investigation approach would be necessary. On May 29, 1998 a boring, (SB-01), was advanced approximately 15' down-gradient of Mr. Simpson's tank. The soil sample from SB-01 did not detect any contaminants of concern, however, the grab groundwater sample exhibited 18,000 ppb TPHg, 2400 ppb benzene and 8800 ppb paint thinner. See **Figure 8**.

On April 16, 1996 two exploratory borings, SB1 and SB2, were advanced immediately adjacent to the former tank excavation and six exploratory borings, B-3 through B-8, were drilled up and down-gradient of the former USTs to further characterize the extent of the release. Low levels of paint thinner and ND TPHg and BTEX was found in the 9' bgs samples in the borings immediately adjacent to the tank pit indicating that residual soils in these areas should not be of concern. However, elevated TPHg and TPH as paint thinner concentrations were exhibited in the grab groundwater samples from borings B4 through B7. This indicated down-gradient and possibly preferential migration along utility lines of the contaminant plume had occurred. See **Figure 6 and Tables 6 and 7**.

Groundwater monitoring continued to exhibit relatively elevated TPHg, TPH paint thinner (also called mineral spirits at times). Biannual groundwater monitoring was started in December 1996. Because the majority of the petroleum plume was within and perhaps beyond 43rd St., an enhanced bio-remediation approach was proposed and approved. In addition, **on July 23, 1999 an additional well, MW-4 was installed down-gradient of the three original wells, but up-gradient of the former UST at 489 43rd St. See Figure 7 and boring log form MW-4.** The 10' soil sample from MW-4, exhibited low levels of TPHg, (30 ppm) and TPH as mineral spirits (48 ppm) and ND for BTEX and MTBE. The groundwater sample was slightly lower than that exhibited in MW2, the up-gradient well close to the former tank pit. On July 26 and 27, 350 pounds of ORC was injected in the form of an approximate 25% solids slurry into 25 exploratory borings within 43rd St. See **Figure 9**. Although attempts were made to collect additional grab groundwater samples from up to six of the borings, only one boring, OB-1 was successful in obtaining a water sample. This sample was located immediately adjacent to the former tank pit. A small amount of free product was encountered on the water. Up to 130,000 ppb mineral spirits and 41, 000 ppb gasoline was reported in the grab groundwater sample from OB-1 indicating considerable residual contamination at the source. See **Table 8**.

Subsequent groundwater monitoring to the ORC injection did not see a significant improvement in groundwater quality or dissolve oxygen concentration. On October 29, 1999, a monitoring well (MWA-1) was installed approximately 90' down-gradient of the former UST on 489 43rd St, making it approximately 140' down-gradient of the former tanks on 490 43rd St. This well would be used to determine the extent of contamination from both sites. Groundwater was sampled for four consecutive quarters from this well. See **Figure 8 and Table 9**. Low levels of TPHg and TPH as paint thinner has been detected in this well, while BTEX and MTBE have been ND.

As part of a Case Closure Summary report for this site, the following additional information and interpretation was provided for the site:

- The shallow groundwater quality beneath this site is most likely not considered of drinking water quality because during the 7/99 investigation, only one of six shallow borings yielded enough water for sampling, let alone enough to be considered as a drinking water source.
- A well survey within a 500' radius was performed by the Public Works Agency. No down-gradient wells were identified. In addition, a door-to-door survey was performed looking for wells and basements. One irrigation well was identified approximately 150' cross-gradient from the former USTs at 480 42nd St. Given the relative low concentrations found in MWA-1, approximately 150' down-gradient of the former USTs, the likelihood of this well being impacted is remote.
- A risk assessment was performed for the site. The only complete pathways identified were utility workers working in 43rd St. and occupational exposure at 489 43rd St. across the street. The chemicals of concern were BTEX. The highest residual BTEX in soil was compared to the Region 9 PRG for soil in a residential setting. Xylene at 0.54ppm was the only residual COC in soil and this concentration is less than the PRG of 210 ppm. Farmer's Simplified Indoor and Box Models were used to evaluate potential risk of volatilization from groundwater. The excess lifetime cancer risk (ELCR) for occupational exposure using a benzene concentration of 250 ppb (similar to that in MW-4, 12/28/00) is 2.1 E-05. See Table G-1. However, the concentration beneath the building at 489 43rd St. is likely much less since the concentration of benzene in MWA-1, the down-gradient well on 489 43rd St., has always been ND. The TPHg and TPHms have stabilized at concentrations less than the nuisance concentration of 5000 ppb.
- The site is recommended to be included in the City of Oakland Permit Tracking System to warn and protect utility workers.

Site closure is recommended based upon:

- Removal of the majority of impacted soil contamination and the former underground tanks
- The absence of sensitive receptors identified in a well survey and door-to-door questionnaire
- The release to soil and groundwater has been defined
- No unacceptable risk to human health was determined in a risk assessment
- The application of oxygen releasing compound should continue to enhance bio-remediation.
- Groundwater monitoring has been performed for up to 7 years and contaminant concentrations have stabilized. See attached monitoring results.

StID # 4252/RO0000272
 Evaluation of need for deed restriction for:
 Walter Blumert Company
 490 43rd St.
 Oakland CA 94609

Highest Residual Concentrations in:

| <u>Analyte</u> Conc. in ppm | <u>Soil mg/kg</u> | <u>Groundwater mg/l</u> | <u>Tier 1 Residential Oakland RBSL</u> | | <u>Residential RWQCB RBSL</u> | |
|--------------------------------|-------------------|-------------------------|--|------|-------------------------------|-------|
| | | | Soil | GW | Soil | GW |
| TPPH | 720 | 3.2 | | | 500 | .640 |
| Benzene | 1.4 | 0.24 | *0.069 | 0.11 | 0.39 | .046 |
| Toluene | 1.3 | ND | 360 | 210 | 2.6 | 0.04 |
| Ethylbenzene | 7.2 | 0.018 | SAT | >sol | 2.5 | 0.03 |
| Xylenes | 30 | 0.005 | SAT | >sol | 1.4 | 0.018 |
| TPHd | 190 | | | | 1000 | .640 |
| MTBE | | | 4400 | >sol | 1.0 | .18 |

Assumptions: Shallow groundwater in Oakland is not considered potable
 GW encountered at approximately 10' bgs.

For soils, Table B-2 and for groundwater, Table F-2 of the RWQCB document used

The only analyte exceeding the Tier 1 City of Oakland RBSL is benzene. Boring logs indicate that soils are typically sandy silt. The Tier 2 RBSL for sandy silt is 1.1 ppm benzene in soil and 3.4 mg/l in groundwater for the exposure pathway of inhalation of **indoor air, residential**. Although the highest residual benzene concentration in soil, 1.4 ppm slightly exceeds the Oakland Tier 2 RBSL for sandy silt, this concentration represents the highest soil result taken on 3/31/92. An average of six soil samples taken after the over-excavation in 3/92 is 0.48 ppm, less than the Tier 2 RBSL. One would also expect that these concentrations have attenuated since this time.

The RWQCB RBSLs are more conservative than the City of Oakland. These RBSLs are taken as the most conservative of the potential exposure pathways. They are often based upon aquatic life protection, which is not a viable exposure pathway at this site. In addition, the City of Oakland RBSLs are more pertinent for Oakland sites since site specific data was used to derive them. It would appear that a deed restriction is not necessary for this site. However, if land use changes to residential, the site should be re-evaluated to determine if this land use is still acceptable with the residual contamination at the site. Any future subsurface excavation or trenching at the site will require a risk management plan.

KEI-J91-1201.R1

June 29, 1992

TABLE 1

SUMMARY OF LABORATORY ANALYSES
SOIL

| <u>Date</u> | <u>Sample</u> | <u>Depth (feet)</u> | <u>TPH as Diesel</u> | <u>TPH as Gasoline</u> | <u>Benzene</u> | <u>Toluene</u> | <u>Xylenes</u> | <u>Ethylbenzene</u> |
|-------------|------------------|---------------------|----------------------|------------------------|----------------|----------------|----------------|---------------------|
| 12/11/91 | A1 | 10.0 | 7.8 | [REDACTED] | 0.88 | 6.5 | 22 | 1.9 |
| | A2 | 10.0 | 37 | [REDACTED] | 0.050 | 0.12 | 4.6 | 0.48 |
| | B1 | 10.0 | 76 | [REDACTED] | 0.43 | 0.48 | 18 | 19 |
| 3/31/92 | A(11.5) | 11.5 | 10* | [REDACTED] | 1.4 | 1.3 | 9.9 | 7.2 |
| | B(11.5) | 11.5 | 25* | [REDACTED] | 0.55 | ND | 16 | 3.3 |
| | SW-N | 10.0 | ND* | 3.6 | ND | ND | 0.050 | 0.0072 |
| | SW-S | 10.0 | 7.6* | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| | SW-E | 10.0 | 190* | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| | SW-W | 10.0 | ND* | ND | ND | ND | ND | ND |
| | Detection Limits | | | 1.0 | 1.0 | 0.0050 | 0.0050 | 0.0050 |

* The sample was analyzed for TPH as paint thinner.

ND = Non-detectable.

Results are in parts per million (ppm), unless otherwise indicated.

KEI-P91-1201.R3
 June 2, 1993

TABLE 3

SUMMARY OF LABORATORY ANALYSES
 SOIL

| <u>Sample Number</u> | <u>TPH as Diesel</u> | <u>TPH as Gasoline</u> | <u>Benzene</u> | <u>Toluene</u> | <u>Xylenes</u> | <u>Ethyl-benzene</u> | <u>TPH as Paint Thinner</u> |
|--------------------------------------|----------------------|------------------------|----------------|----------------|----------------|----------------------|-----------------------------|
| (Collected on April 12 and 13, 1993) | | | | | | | |
| MW1 (5) | ND | ND | ND | ND | ND | ND | ND |
| MW1 (9.5) | 2.2* | 20 | 0.069 | 0.019 | 0.090 | 0.030 | ND |
| MW1 (11.5) | 6.9* | 210 | 1.2 | 0.90 | 2.6 | 1.2 | 11+ |
| MW2 (5) | ND | ND | ND | ND | ND | ND | ND |
| MW2 (7.5) | 9.3** | 66† | 0.24 | ND | 0.35 | 0.026 | 15 |
| MW2 (10) | 190** | 1,000† | 3.4 | ND | 20 | ND | 320 |
| MW2 (11.5) | 180** | 710† | 3.0 | 0.71 | 14 | 0.68 | 310 |
| MW3 (5) | 4.7** | ND | ND | ND | ND | ND | 7.6 |
| MW3 (10) | 590** | 2,000† | 2.6 | 0.88 | 28 | 0.74 | 1,000 |
| MW3 (12) | 53** | 630† | 0.86 | 0.12 | 2.3 | 1.1 | 89 |

NOTE: The soil samples were collected at the depths below grade indicated in the () of the respective sample number.

* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

** Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be diesel.

† Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

‡ Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a paint thinner and non-paint thinner mixture.

D = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

TABLE 3 - GROUNDWATER SAMPLE ANALYTICAL RESULTS

| Well / Date | Mineral Spirits (µg/L) | TPHg (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl- Benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|-------------------------|------------------------------|-----------------------|-------------------|-------------------|-----------------------------|----------------------------|---------------------|
| MW-1 | | | | | | | |
| 04/29/93 | 600 | 290 | 31 | 1.9 | 2.7 | 5.4 | - |
| 12/13/93 | 820 | 1,700 | 170 | 22 | 19 | 48 | - |
| 03/15/94 | 1,200 | 2,100 | 250 | 12 | 27 | 38 | - |
| 06/16/94 | 430 | 700 | 35 | 6.8 | 8.7 | 10 | - |
| 09/13/94 | 73 | 170 | 6.6 | 1.6 | 2.4 | 3.3 | - |
| 12/08/94 | 170 | 420 | 16 | 3.0 | 2.9 | 2.7 | - |
| 03/14/95 | 65 | 630 | 39 | ND | 7.0 | 8.6 | - |
| 06/28/95 | 130 | 720 | 100 | 7.8 | 23 | 32 | - |
| 10/13/95 | 900 | 290 | 8.6 | 0.55 | 2.8 | 1.4 | - |
| 12/05/95 | 70 | 94 | 5.6 | ND | 0.67 | 0.53 | - |
| 05/30/96 | <50 | 1,700 ⁽¹⁾ | 62 | <0.5 | 16 | 18 | <5 |
| 09/03/96 | <50 | 570 | 1.8 | 0.61 | 8.5 | 7.3 | <5 |
| 12/06/96 | <51 | 2,600 | 84 | 2.8 | 30 | 23 | - |
| 06/12/97 | <51 | 580 | 9.4 | 1.3 | 5.0 | 4.0 | 8.1 |
| 12/16/97 | 490 ⁽⁴⁾ | 840 | 12 | 2.5 | 8.0 | 4.4 | 17 |
| 06/19/98 | 480 | 130 | 0.80 | <0.50 | 1.8 | 0.52 | <5.0 |
| 12/17/98 | 300 ⁽⁴⁾ | 89 | 1.9 | <0.50 | <0.50 | 0.69 | <5.0 |
| 06/22/99 | <50 | 220 | 6.7 | <0.50 | 4.5 | <0.50 | <5.0 |
| 12/20/99 | <50 | 130 | 1.5 | <0.50 | 0.71 | <0.50 | <5.0 |
| 03/29/00 | <50 | 360 | 7.0 | 2.0 | 4.7 | 3.5 | <5.0 |
| 07/05/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 |
| 10/11/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 |
| MW-2 | | | | | | | |
| 04/29/93 | 4,100 | 11,000 | 2,400 | 51 | 76 | 160 | - |
| 12/13/93 | 2,600 | 11,000 | 1,400 | 66 | 150 | 94 | - |
| 06/16/94 | 11,000 | 18,000 | 2,100 | ND | 200 | 70 | - |
| 09/13/94 | 5,400 | 12,000 | 1,400 | 50 | 200 | 89 | - |
| 12/08/94 | 3,200 | 11,000 | 1,700 | 34 | 200 | 86 | - |
| 03/14/95 | 670 | 14,000 | 1,500 | 41 | 160 | 66 | - |
| 06/28/95 | 8,700 | 11,000 | 1,700 | ND | 230 | 78 | - |
| 10/13/95 | 1,500 | 9,400 | 1,200 | 41 | 200 | 61 | - |
| 12/05/95 | 24,000 | 150,000 | 890 | 200 | 720 | 500 | - |
| 05/30/96 | <50 | 10,000 ⁽¹⁾ | 61 | 5.1 | 28 | 11 | <5 ⁽²⁾ |
| 09/03/96 | <50 | 7,400 | 960 | 19 | 130 | 37 | <100 ⁽²⁾ |
| 09/03/96 ⁽³⁾ | 2,800 | 7,800 | 1,400 | <0.5 | 210 | 91 | 300 |
| 12/06/96 | <54 | 12,000 | 850 | 8 | 140 | 36 | - |
| 06/12/97 | <50 | 5,100 | 810 | 25 | 6.8 | 13 | <5 |
| 12/16/97 | 3,600 ⁽⁴⁾ | 3,000 | 400 | 9.2 | 26 | 10 | 44 |
| 06/19/98 | 7,200 | 5,900 | 760 | 15 | 100 | 33 | <25 |
| 12/17/98 | 3,400 ⁽⁴⁾ | 7,300 | 850 | 33 | 200 | 22 | <25 |
| 06/22/99 | 1,200 | 7,800 | 660 | <10 | 140 | <10 | <100 |
| 12/20/99 | 4,600 ⁽⁴⁾ | 9,400 | 650 | 24 | 92 | 21 | <100 |
| 03/29/00 | 3,600 | 11,000 | 590 | 130 | 250 | 440 | <250 |
| 07/05/00 | 6,200 | 6,500 | 360 | 56 | 130 | 170 | <250 |
| 10/11/00 | 2,800 | 1,100 | 63 | 2.7 | 15 | 2.8 | <5.0 |

| Well/ Date | Mineral Spirits (µg/L) | TPH _g (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl- Benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|-------------------------|------------------------------|----------------------------|-------------------|-------------------|-----------------------------|----------------------------|--------------------|
| MW-3 | | | | | | | |
| 04/29/93 | 5,800 | 8,500 | 840 | 17 | 40 | 42 | -- |
| 12/13/93 | 3,500 | 6,200 | 580 | 120 | 65 | 120 | -- |
| 06/16/94 | 4,700 | 7,700 | 910 | ND | 86 | 50 | -- |
| 09/13/94 | 8,700 | 6,800 | 430 | 14 | 45 | 37 | -- |
| 12/08/94 | 2,100 | 1,500 | 820 | ND | 52 | 28 | -- |
| 03/14/95 | 480 | 5,600 | 250 | 11 | 25 | 30 | -- |
| 06/28/95 | 2,100 | 14,000 | 650 | 18 | 70 | 54 | -- |
| 10/13/95 | 430 | 2,500 | 270 | 1.9 | 15 | 10 | -- |
| 12/05/95 | 5,400 | 4,200 | 250 | ND | 26 | ND | -- |
| 05/30/96 | <50 | 5,300 ⁽¹⁾ | 65 | 1.5 | 9.0 | 5.1 | <5 ⁽²⁾ |
| 09/03/96 | <50 | 8,900 | 460 | 17 | 51 | 77 | <25 ⁽²⁾ |
| 09/03/96 ⁽³⁾ | 7,100 | 4,800 | 800 | 14 | 39 | 39 | 120 |
| 12/06/96 | <100 | 7,000 | 740 | <5 | 60 | 17 | -- |
| 06/12/97 | <50 | 2,800 | 460 | 14 | 59 | 28 | <50 |
| 12/16/97 | 4,000 ⁽⁴⁾ | 4,900 | 1,700 | 17 | 52 | 20 | 92 |
| 06/19/98 | 10,000 | 3,800 | 470 | 19 | 49 | 21 | <25 |
| 12/17/98 | 240 ⁽⁴⁾ | 5,000 | 450 | 18 | 100 | 4.8 | <25 |
| 06/22/99 | 790 | 3,100 | 190 | <1.0 | 52 | <1.0 | <10 |
| 12/20/99 | 6,400 ⁽⁴⁾ | 4,500 | 230 | 12 | 47 | 38 | <100 |
| 03/29/00 | 2,900 | 7,900 | 330 | <2.5 | 58 | 30 | <25 |
| 07/05/00 | 2,300 | 3,400 | 190 | 15 | 29 | 12 | <25 |
| 10/11/00 | 2,000 | 4,100 | 230 | <10 | 37 | 18 | <100 |
| MW-4 | | | | | | | |
| 06/22/99 | 1,900 | 3,200 | 410 | <2.5 | 54 | 12 | 90 |
| 12/20/99 | 2,000 ⁽⁴⁾ | 2,000 | 160 | 7.4 | 8.0 | 7.0 | 25 |
| 03/29/00 | <50 | 4,200 | 600 | 15 | 26 | 24 | 74 |
| 07/05/00 | <50 | 2,900 | 410 | 23 | 19 | 18 | 56 |
| 10/11/00 | 860 | 3,200 | 190 | 11 | 14 | 13 | <25 |
| 12/28/00 | 590 ⁽⁴⁾ | 3,100 | 240 | <2.5 | 18 | 5.0 | <25 |

Notes: All water results are reported in µg/L, approximately equal to ppb

< = Not detected at laboratory reporting limit indicated

-- = Analysis not performed

⁽¹⁾ Value revised by Chromalab from May 1996, submission 9605835

⁽²⁾ Confirmed by gas chromatography/mass spectrometry (GC/MS)

⁽³⁾ Duplicate sample analysis by Sequoia Analytical

⁽⁴⁾ Quantitation for this analyte is based on the response factor of diesel. Hydrocarbons reported do not match the pattern of the mineral spirit standard.

5.0 DISCUSSION

Groundwater gradient and flow direction were calculated at 0.031 foot/foot to the south-southwest in December 2000. These values are consistent with previous sampling events.

Analytical results from the October 2000 sampling event indicate that concentrations of TPH_g, BTEX and mineral spirits were not detected in well MW-1. Concentrations of mineral spirits decreased in wells MW-2 and MW-3, and increased to above the laboratory detection limit in

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TABLE 4
SUMMARY OF LABORATORY ANALYSES
SOIL

| <u>Date</u> | <u>Sample Number</u> | <u>TPH as Paint Thinner</u> | <u>Gasoline</u> | <u>Benzene</u> | <u>Toluene</u> | <u>Ethyl-benzene</u> | <u>Xylenes</u> |
|-------------|----------------------|-----------------------------|-----------------|----------------|----------------|----------------------|----------------|
| 6/01/94 | EB1(5) | ND | ND | ND | ND | ND | ND |
| | EB1(10) | ND | ND | ND | ND | ND | ND |
| | EB1(11.5) | ND | ND | ND | ND | ND | ND |
| | EB2(5) | ND | ND | ND | ND | ND | ND |
| | EB2(10) | 28 | 65* | 0.53 | 0.13 | 0.50 | 1.9 |
| | EB2(12) | 45 | 180* | 0.42 | 0.26 | 0.81 | 2.9 |

NOTE: The soil samples were collected at the depths below grade indicated in the () of the respective sample number.

* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

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TABLE 5

SUMMARY OF LABORATORY ANALYSES
 WATER

| <u>Date</u> | <u>Sample Number</u> | <u>TPH as Paint Thinner</u> | <u>TPH as Gasoline</u> | <u>Benzene</u> | <u>Toluene</u> | <u>Ethyl-benzene</u> | <u>Xylenes</u> |
|-------------|----------------------|-----------------------------|------------------------|----------------|----------------|----------------------|----------------|
| 6/01/94 | EB1 | 7,000 | 3,400 | 26 | 6.7 | 5.9 | 8.5 |
| | EB2 | 3,700 | 9,200 | 990 | 29 | 280 | 130 |

NOTE: Water samples were collected during drilling. The results of the analyses may not be representative of formation water, and should be used for comparative informational purposes only.

Results in parts per billion (ppb), unless otherwise indicated.

4.0 FINDINGS

4.1 Subsurface Conditions

The investigation area was covered with concrete sidewalks and asphalt roadway above approximately 1 to 2 feet of baserock and fill material consisting of silt. Below the baserock/fill, the encountered native soil consisted of dark brown to dark olive gray silty clay (CL). Disseminated, very fine to fine grained sand was observed in both borings in which only soil samples were collected (SB1 and SB2). Sand content appeared to increase with depth. Soil borings were completed to a depth of 9 feet bgs; however, the borings where water samples were collected were completed to a depth of approximately 15 to 19 feet bgs. Lithologic logs and the USCS of the borings in which soil samples were collected (SB1 and SB2) are included as Appendix 2. Soils were not evaluated in borings B3 through B8. The borings were completed to a total depth of approximately 15 to 19 feet bgs. Some lithology information could be inferred from the rate of penetration, type of soil remaining on the sampling probes upon removal, ability to develop the boring with compressed air, and the ability to collect water samples.

During the investigation, water was encountered at a depth of approximately 15 feet bgs. Water samples were collected from selected borings with the use of precleaned stainless steel bailers. The water was immediately transferred to laboratory-supplied 40-milliliter VOA vials (without head space) and 1-liter amber bottles, which were placed in a pre-chilled, insulated container pending transport to Chromalab, Inc., a state-certified analytical laboratory.

4.2 Analytical Results

Soil samples collected from borings SB1 and SB2 were analyzed for TPHg, BTEX, and TPH as paint thinner. No TPHg and BTEX concentrations were detected in the two soil samples analyzed with the exception of 0.54 milligram per kilogram (mg/kg) or parts per million (ppm) total xylenes. TPH as paint thinner concentrations were detected in sample SB1-9.0 at 52 ppm and in sample SB2-9.0 at 78 ppm. Due to sample interference, the TPHg reporting limit in soil sample SB2-9.0 was raised to 500 mg/kg. However, the lack of detectable BTEX concentrations indicates that TPHg was probably not present, which is similar to the analytical results reported in sample SB1-9.0. Results of the soil sample analyses are summarized in Table 1. A copy of the analytical results and chain of custody record is included in Appendix 3.

TABLE 6 - SOIL SAMPLE ANALYTICAL RESULTS

| Boring/ Sample Depth | Paint Thinner (ppm) | TPHg (ppm) | Benzene (ppm) | Toluene (ppm) | Ethyl- benzene (ppm) | Total Xylenes (ppm) |
|----------------------------|---------------------------|---------------|------------------|------------------|----------------------------|---------------------------|
| SB1-9.0 | 52 | <100 | <0.10 | <0.10 | <0.10 | 0.54 |
| SB2-9.0 | 78 | <500 | <0.50 | <0.50 | <0.50 | <0.5 |

Grab groundwater samples were collected from borings B3 through B8 and analyzed for TPHg, BTEX, and TPH as paint thinner. Concentrations of TPHg ranged from nondetect in samples collected from borings B3 and B8 to 46,000 micrograms per liter ($\mu\text{g/L}$) or parts per billion (ppb) in boring B6. Concentrations of TPH as paint thinner ranged from nondetect in samples collected from borings B3 and B8 to 16,000 ppb in boring B7.

Analytical results for grab groundwater samples at this site are suspect due to overlapping fuel patterns. Respective sample fuel patterns overlap for both TPHg and TPH as paint thinner analyses and analytical fuel patterns resembles a gasoline and paint thinner mix. Sample results for the water analysis are presented in Table 2. Analytical results for TPH as paint thinner are illustrated on Figure 3 and TPHg analytical results are illustrated on Figure 4. A copy of the analytical results and chain of custody forms is attached as Appendix 3.

TABLE 7 - GROUNDWATER SAMPLE ANALYTICAL RESULTS

| Boring/ Sample Number | TPHg (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl- benzene (ppb) | Total Xylenes (ppb) | Paint Thinner (ppb) |
|-----------------------------|---------------|------------------|------------------|----------------------------|---------------------------|---------------------------|
| B3-W | <50 | 0.89 | 1.6 | <0.50 | 0.91 | <500 |
| B4-W | 11,000* | 200 | 66 | 220 | 96 | 6,800* |
| B5-W | 5,300* | 18 | 18 | 32 | 56 | 12,000* |
| B6-W | 46,000* | 880 | <0.50 | 160 | 180 | <800 |
| B7-W | 4,400* | 190 | 14 | 130 | 100 | 16,000* |
| B8-W | <50 | <0.50 | 0.97 | <0.50 | 1.8 | <500 |

Notes: $\mu\text{g/L}$ = micrograms per Liter, approximately equal to ppb

*Estimated concentration for gasoline and paint thinner due to overlapping fuel patterns. Fuel pattern resembles gasoline and paint thinner mix.

5.0 DISCUSSION

Previous soil samples collected in the northeastern corner of the excavation pit indicated an impact from contents of the former USTs. However, analytical results from the additional subsurface investigation conducted on April 16, 1996, indicated no concentrations of TPHg in soil samples SB1-9.0 and SB2-9.0, which were collected at a depth of 9 feet bgs in the northeastern corner of the previous excavation. Minor concentrations of TPH as paint thinner were detected in soil samples SB1-9.0 and SB2-9.0 at 52 and 78 ppm, respectively. These results indicate minor soil impact is probably confined to soils immediately adjacent to the former paint thinner UST.

The April 1996 investigation indicated elevated levels of TPHg and TPH as paint thinner in groundwater samples collected from exploratory soil borings drilled downgradient from the former UST excavation. Groundwater downgradient of the former USTs has been impacted from the

The borings were advanced using a hydraulically-driven Geoprobe® with 2-inch-diameter, hollow-stem direct-push augers operated under the supervision of a C-57 licensed contractor. An ACC geologist observed the advancement of each probe. No drill cuttings were generated using the pneumatic process.

The Geoprobe® was driven approximately 6 feet into the saturated zone. After completion of drilling, an ORC® and water mixture consisting of approximately 14 pounds of ORC® to 5 gallons of water was injected into each boring. This mixture represents a slurry with approximately 25% solids, and was disseminated at a rate of approximately 1 gallon of ORC® grout per one foot of boring while removing the probes. Each of 25 soil borings received approximately 14 pounds of ORC®, resulting in the introduction of 350 pounds of ORC® into the saturated zone. After installation of the ORC® slurry, portland cement was poured into each boring above the ORC® to complete each hole to just below the surface. The surface of each probe location was capped with concrete to match existing grade.

During installation of ORC®, one grab groundwater sample was obtained from a soil boring adjacent to the UST excavation. ACC attempted to collect grab groundwater samples from several of the soil borings located near the center of the street and downgradient of the former USTs. Attempted and completed grab groundwater sample locations are illustrated on Figure 3. Analytical results from the grab groundwater sample obtained from boring OB-1 indicate that mineral spirits are present at a concentration of 130,000 ppb, TPHg at 41,000 ppb, and benzene at 790 ppb. Toluene, ethylbenzene, total xylenes, and MTBE were not detected above the laboratory reporting limit. Analytical results are summarized in Table 3, and copies of the chain of custody record and laboratory analytical results are included in Appendix 3.

TABLE 3 - GRAB GROUNDWATER SAMPLE ANALYTICAL RESULTS

| Sample Number | TPHg (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethylbenzene (µg/l) | Total Xylenes (µg/l) | MTBE (µg/l) | Mineral Spirits (µg/l) |
|---------------|-------------|----------------|----------------|---------------------|----------------------|-------------|------------------------|
| OB-1 | 41,000 | 790 | < 13 | < 13 | < 13 | < 130 | 130,000 |

Notes: µg/l = micrograms per liter, equivalent to parts per billion (ppb)
< sample falls below indicated laboratory reporting limit

↑
higher than what found in OB-1.

Table 9. Ground Water Sampling and Analyses, Quarterly Well Sampling on December 28, 2000—489 43rd Street, Bucate Plata

| Sample Location | Sample Date | Matrix Sampled | TPH-D µg/L | TPH-G µg/L | Benzene µg/L | Toluene µg/L | Ethyl benzene µg/L | Xylenes µg/L | MTBE µg/L | Lead µg/L | Paint Thinner µg/L |
|---|-------------|----------------|---------------|---------------|-----------------|-----------------|-----------------------|-----------------|--------------|--------------|-----------------------|
| MWA-1 | 12/20/99 | Water | 57 | 110 | ND | 0.79 | ND | ND | ND | ND | ND |
| MWA-1 | 3/27/00 | Water | ND | 84 | ND | ND | ND | ND | ND | ND | 75 |
| MWA-1 | 6/29/00 | Water | ND | 97 | ND | ND | ND | ND | ND | ND | 51 |
| MWA-1 | 9/22/00 | Water | ND | 64 | ND | ND | ND | ND | ND | ND | 160 |
| MWA-1 | 12/28/00 | Water | ND | 80 | ND | ND | ND | ND | ND | ND | ND |
| Laboratory Detection Limit | | Water | 50 | 50 | 0.50 | 0.50 | 0.50 | 0.50 | 5.0 | 5.0 | 50 |
| Maximum Contaminant Level (drinking water standard set by the California Dept of Health Services) | | | N/A | N/A | 1.0 | 150 | 700 | 1750 | N/A | N/A | N/A |

Legend

All results are expressed in µg/L unless otherwise noted

N/A = Not available

ND = at or below laboratory detection limit.

TPH-D = total petroleum hydrocarbons as diesel

TPH-G = total petroleum hydrocarbons as gasoline

Paint Thinner = total petroleum hydrocarbons as paint thinner

Note 1: The State of California has not yet developed a final MCL for MTBE. The State is proposing a primary MCL of 13 µg/L for MTBE and a secondary MCL of 5 µg/L.

Note 2: The State of California has not established an MCL for lead, but the USEPA has established a lead MCL of 15 µg/L.

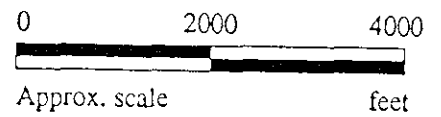
Table G-1

Calculation of Emission Rate and Concentration of Benzene from Groundwater in Indoor and Ambient Air Using Farmer's Simplified Indoor and Box Models and Estimation of Cancer and Non-Cancer Risks for Residential and Occupational Inhalation Exposure Only

| Basic Data | Conc. in Water (mg/L) | Depth to Groundwater (ft) | Emission Rate (mg/m ² -sec) | | Indoor Air Conc. (mg/m ³) | | Ambient Air Conc. (mg/m ³) | | Residential Inhalation Exposure Risk ELCR | | Occupational Inhalation Exposure Risk ELCR | | Occupational Inhalation Exposure Risk HQ | | | | |
|------------------------------|-----------------------|---------------------------|--|-----------|---------------------------------------|-----------|--|-----------|---|-----------|--|-----------|--|-----------|-----------|-----------|----|
| | | | Clay Soil | Sand Soil | Clay Soil | Sand Soil | Clay Soil | Sand Soil | Clay Soil | Sand Soil | Clay Soil | Sand Soil | Clay Soil | Sand Soil | Clay Soil | Sand Soil | |
| Chemical <i>Benzene</i> | 0.005 | 1 | 1.12E-03 | 6.49E-04 | 2.63E-01 | 1.53E-01 | 5.92E-03 | 3.45E-03 | 1.22E-03 | 7.11E-04 | NA | NA | 7.20E-06 | 4.19E-06 | NA | NA | |
| Henry's Law Constant | | 5 | 2.23E-04 | 1.30E-04 | 5.27E-02 | 3.07E-02 | 1.18E-03 | 6.90E-04 | 2.44E-04 | 1.42E-04 | NA | NA | 1.44E-06 | 8.39E-07 | NA | NA | |
| 0.228 Unitless | | 10 | 1.12E-04 | 6.49E-05 | 2.63E-02 | 1.53E-02 | 5.92E-04 | 3.45E-04 | 1.22E-04 | 7.11E-05 | NA | NA | 7.20E-07 | 4.19E-07 | NA | NA | |
| Air Diffusion Coefficient | | 15 | 7.43E-05 | 4.33E-05 | 1.76E-02 | 1.02E-02 | 3.95E-04 | 2.30E-04 | 8.13E-05 | 4.74E-05 | NA | NA | 4.80E-07 | 2.80E-07 | NA | NA | |
| 0.08715 cm ² /sec | | 20 | 5.58E-05 | 3.25E-05 | 1.32E-02 | 7.67E-03 | 2.96E-04 | 1.72E-04 | 6.10E-05 | 3.55E-05 | NA | NA | 3.60E-07 | 2.10E-07 | NA | NA | |
| Water Content | | 25 | 4.46E-05 | 2.60E-05 | 1.05E-02 | 6.14E-03 | 2.37E-04 | 1.38E-04 | 4.88E-05 | 2.84E-05 | NA | NA | 2.88E-07 | 1.68E-07 | NA | NA | |
| 0.15 for sand soil | | 30 | 3.72E-05 | 2.16E-05 | 8.78E-03 | 5.11E-03 | 1.97E-04 | 1.15E-04 | 4.07E-05 | 2.37E-05 | NA | NA | 2.40E-07 | 1.40E-07 | NA | NA | |
| 0.225 for clay soil | | 50 | 2.23E-05 | 1.30E-05 | 5.27E-03 | 3.07E-03 | 1.18E-04 | 6.90E-05 | 2.44E-05 | 1.42E-05 | NA | NA | 1.44E-07 | 8.39E-08 | NA | NA | |
| Indoor Area | | 0.05 | 1 | 1.12E-02 | 6.49E-03 | 2.63E+00 | 1.53E+00 | 5.92E-02 | 3.45E-02 | 1.22E-02 | 7.11E-03 | NA | NA | 7.20E-05 | 4.19E-05 | NA | NA |
| 2000 ft ² | | | 5 | 2.23E-03 | 1.30E-03 | 5.27E-01 | 3.07E-01 | 1.18E-02 | 6.90E-03 | 2.44E-03 | 1.42E-03 | NA | NA | 1.44E-05 | 8.39E-06 | NA | NA |
| Box Area | | | 10 | 1.12E-03 | 6.49E-04 | 2.63E-01 | 1.53E-01 | 5.92E-03 | 3.45E-03 | 1.22E-03 | 7.11E-04 | NA | NA | 7.20E-06 | 4.19E-06 | NA | NA |
| 105300 ft ² | | | 15 | 7.43E-04 | 4.33E-04 | 1.76E-01 | 1.02E-01 | 3.95E-03 | 2.30E-03 | 8.13E-04 | 4.74E-04 | NA | NA | 4.80E-06 | 2.80E-06 | NA | NA |
| Average Wind Speed | | | 20 | 5.58E-04 | 3.25E-04 | 1.32E-01 | 7.67E-02 | 2.96E-03 | 1.72E-03 | 6.10E-04 | 3.55E-04 | NA | NA | 3.60E-06 | 2.10E-06 | NA | NA |
| 13.71 ft/sec | | | 25 | 4.46E-04 | 2.60E-04 | 1.05E-01 | 6.14E-02 | 2.37E-03 | 1.38E-03 | 4.88E-04 | 2.84E-04 | NA | NA | 2.88E-06 | 1.68E-06 | NA | NA |
| Cross-wind Width | | | 30 | 3.72E-04 | 2.16E-04 | 8.78E-02 | 5.11E-02 | 1.97E-03 | 1.15E-03 | 4.07E-04 | 2.37E-04 | NA | NA | 2.40E-06 | 1.40E-06 | NA | NA |
| 357 ft | 50 | | 2.23E-04 | 1.30E-04 | 5.27E-02 | 3.07E-02 | 1.18E-03 | 6.90E-04 | 2.44E-04 | 1.42E-04 | NA | NA | 1.44E-06 | 8.39E-07 | NA | NA | |
| Down-wind Length | 0.1 | | 1 | 2.23E-02 | 1.30E-02 | 5.27E+00 | 3.07E+00 | 1.18E-01 | 6.90E-02 | 2.44E-02 | 1.42E-02 | NA | NA | 1.44E-04 | 8.39E-05 | NA | NA |
| 295 ft | | | 5 | 4.46E-03 | 2.60E-03 | 1.05E+00 | 6.14E-01 | 2.37E-02 | 1.38E-02 | 4.88E-03 | 2.84E-03 | NA | NA | 2.88E-05 | 1.68E-05 | NA | NA |
| Roughness Height | | | 10 | 2.23E-03 | 1.30E-03 | 5.27E-01 | 3.07E-01 | 1.18E-02 | 6.90E-03 | 2.44E-03 | 1.42E-03 | NA | NA | 1.44E-05 | 8.39E-06 | NA | NA |
| 0.16 ft | | | 15 | 1.49E-03 | 8.66E-04 | 3.51E-01 | 2.05E-01 | 7.90E-03 | 4.60E-03 | 1.63E-03 | 9.48E-04 | NA | NA | 9.60E-06 | 5.59E-06 | NA | NA |
| Mixing Height | | | 20 | 1.12E-03 | 6.49E-04 | 2.63E-01 | 1.53E-01 | 5.92E-03 | 3.45E-03 | 1.22E-03 | 7.11E-04 | NA | NA | 7.20E-06 | 4.19E-06 | NA | NA |
| 26.6 ft | | | 25 | 8.92E-04 | 5.20E-04 | 2.11E-01 | 1.23E-01 | 4.74E-03 | 2.76E-03 | 9.76E-04 | 5.69E-04 | NA | NA | 5.76E-06 | 3.36E-06 | NA | NA |
| Attenuation Factor | | | 30 | 7.43E-04 | 4.33E-04 | 1.76E-01 | 1.02E-01 | 3.95E-03 | 2.30E-03 | 8.13E-04 | 4.74E-04 | NA | NA | 4.80E-06 | 2.80E-06 | NA | NA |
| 0.1 | | 50 | 4.46E-04 | 2.60E-04 | 1.05E-01 | 6.14E-02 | 2.37E-03 | 1.38E-03 | 4.88E-04 | 2.84E-04 | NA | NA | 2.88E-06 | 1.68E-06 | NA | NA | |
| Building Height | | 0.25 | 1 | 5.58E-02 | 3.25E-02 | 1.32E+01 | 7.67E+00 | 2.96E-01 | 1.72E-01 | 6.10E-02 | 3.55E-02 | NA | NA | 3.60E-04 | 2.10E-04 | NA | NA |
| 10 ft | | | 5 | 1.12E-02 | 6.49E-03 | 2.63E+00 | 1.53E+00 | 5.92E-02 | 3.45E-02 | 1.22E-02 | 7.11E-03 | NA | NA | 7.20E-05 | 4.19E-05 | NA | NA |
| Air Exchange Rate | | | 10 | 5.58E-03 | 3.25E-03 | 1.32E+00 | 7.67E-01 | 2.96E-02 | 1.72E-02 | 6.10E-03 | 3.55E-03 | NA | NA | 3.60E-05 | 2.10E-05 | NA | NA |
| 12 times/day | | | 15 | 3.72E-03 | 2.16E-03 | 8.78E-01 | 5.11E-01 | 1.97E-02 | 1.15E-02 | 4.07E-03 | 2.37E-03 | NA | NA | 2.40E-05 | 1.40E-05 | NA | NA |
| Porosity | | | 20 | 2.79E-03 | 1.62E-03 | 6.39E-01 | 3.84E-01 | 1.48E-02 | 8.62E-03 | 3.05E-03 | 1.78E-03 | NA | NA | 1.80E-05 | 1.05E-05 | NA | NA |
| 0.45 for clay soil | | | 25 | 2.23E-03 | 1.30E-03 | 5.27E-01 | 3.07E-01 | 1.18E-02 | 6.90E-03 | 2.44E-03 | 1.42E-03 | NA | NA | 1.44E-05 | 8.39E-06 | NA | NA |
| 0.3 for sand soil | | | 30 | 1.86E-03 | 1.08E-03 | 4.39E-01 | 2.56E-01 | 9.87E-03 | 5.75E-03 | 2.03E-03 | 1.18E-03 | NA | NA | 1.20E-05 | 6.99E-06 | NA | NA |



Base modified from 7.5 minute U.S.G.S. Oakland West Quadrangle
 (photorevised 1980)



KE
 KAPREALIAN ENGINEERING
 INCORPORATED

WELLS FARGO BANK
 (WALTER BLUMERT CO, INC.)
 490 43RD STREET
 OAKLAND, CA

LOCATION
 MAP

Figure 1

Walter Blumert Co.
Painting and Decorating



TELEGRAPH AVENUE

Parking

Building

ND for TPH, BTEX

*3.6 ppm TPH
ND B*

*TPH 490 ppm
B - 0.43 ppm*

Former Gasoline Storage Tank

Former Paint Thinner Storage Tank

Sidewalk

SW-W

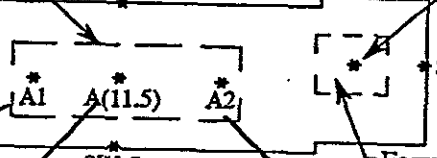
SW-N

B1

B(11.5)

*440 ppm TPH
0.58 ppm B*

*720 ppm TPH
0.76 ppm B*



SW-E

SW-S

43RD STREET

*110 ppm TPH
0.88 ppm B*

*480 ppm TPH
1.4 ppm B*

*190 ppm TPH
0.20 ppm B*

*(10 to)
220 ppm TPH
0.05 ppm B*

LEGEND

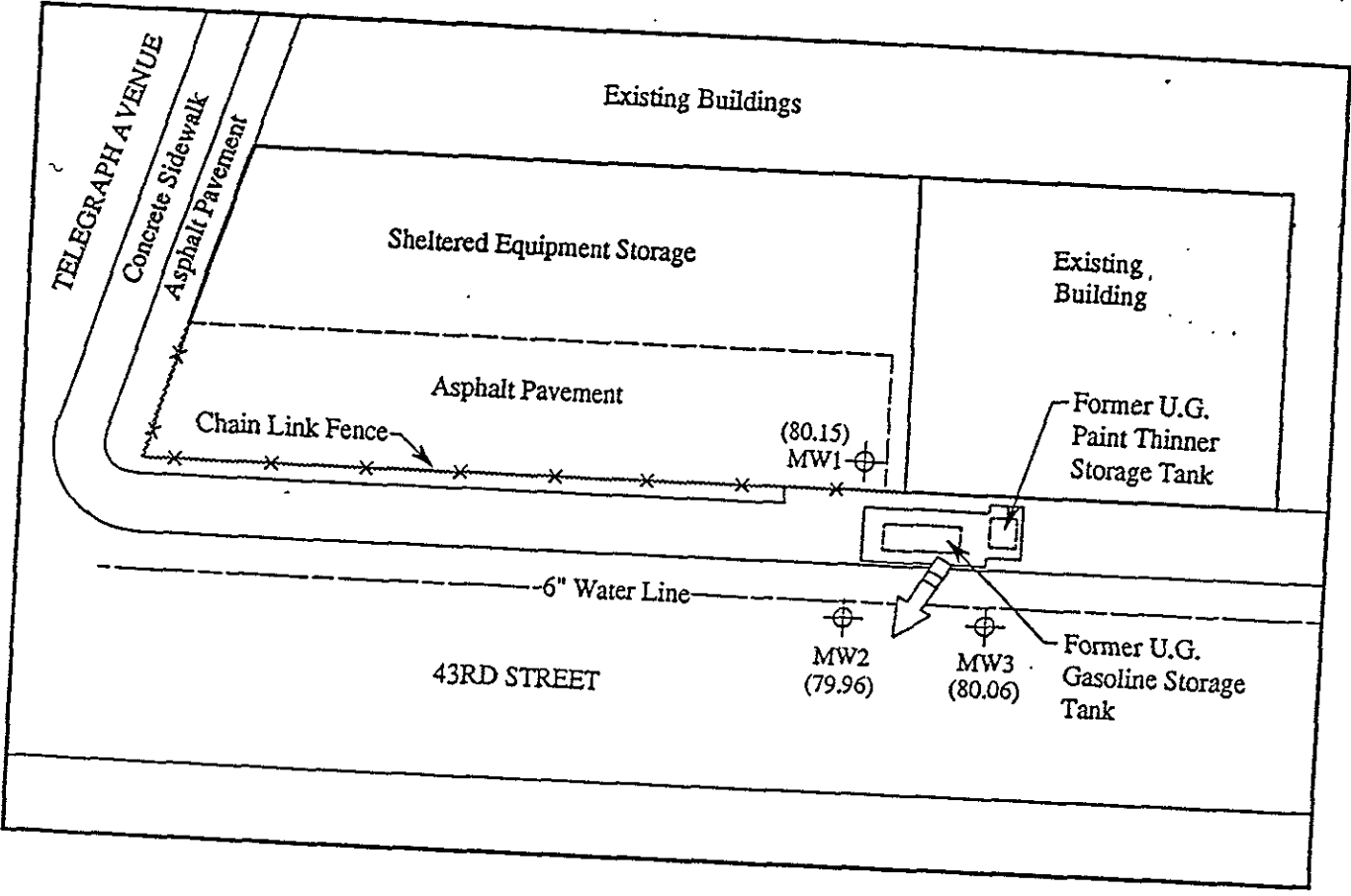
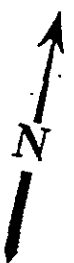
* Sample point location

NOT TO SCALE






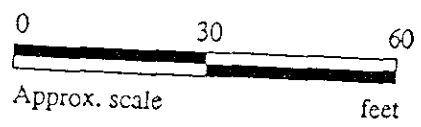
WELLS FARGO BANK
(WALTER BLUMERT CO, INC.)
490 43RD STREET
OAKLAND, CA

SITE PLAN
Fig. 2



LEGEND

-  Monitoring well
-  Ground water elevation in feet above Mean Sea Level
-  Direction of ground water flow

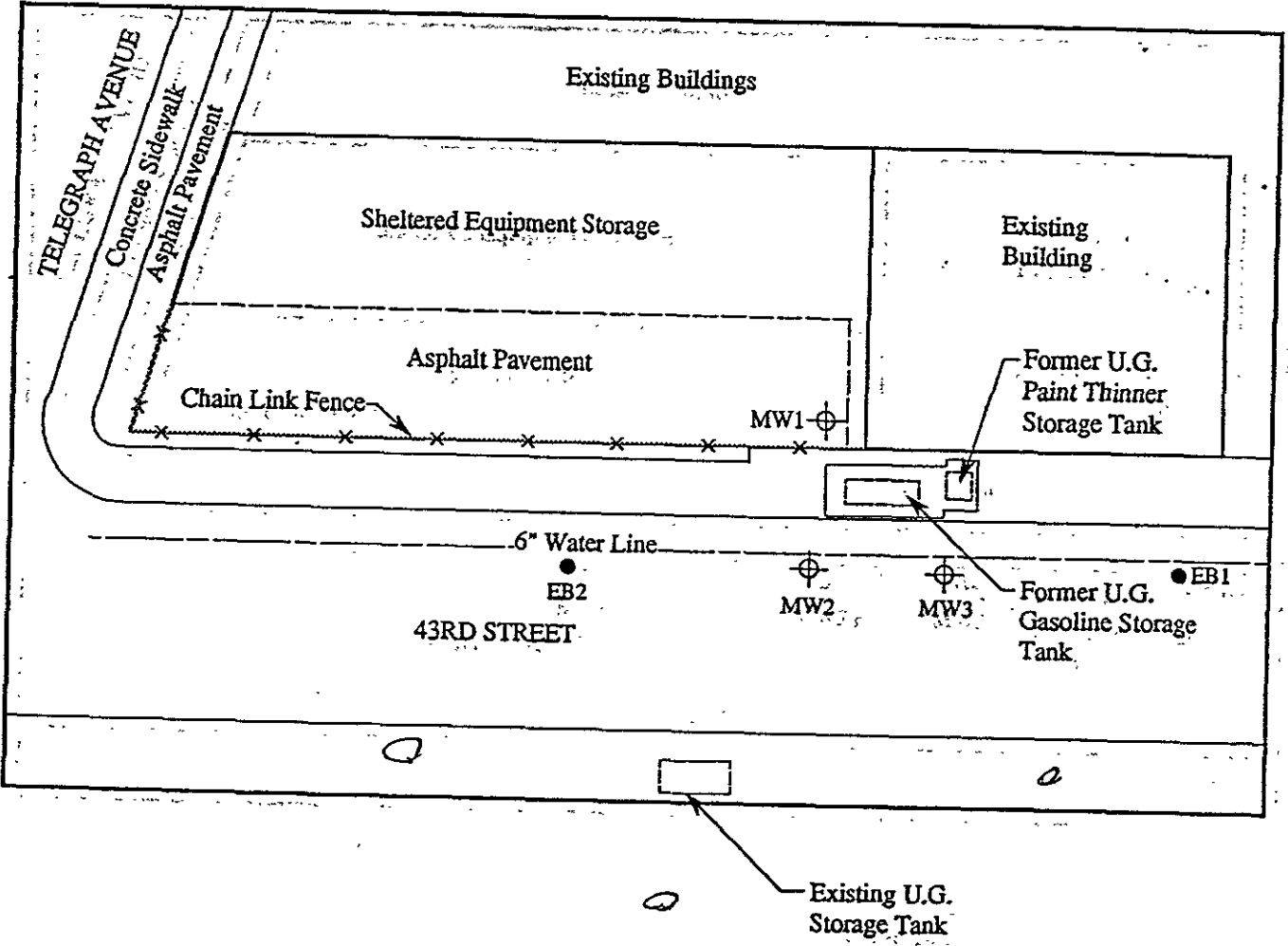


GROUND WATER FLOW DIRECTION MAP FOR THE APRIL 29, 1993 MONITORING EVENT


KAPREALIAN ENGINEERING
INCORPORATED

WELLS FARGO BANK
(WALTER BLUMERT CO, INC.)
490 43RD STREET
OAKLAND, CALIFORNIA

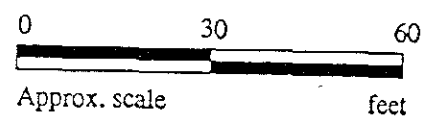
FIGURE 3



GEND

⊕ Monitoring well (existing)

● Exploratory boring

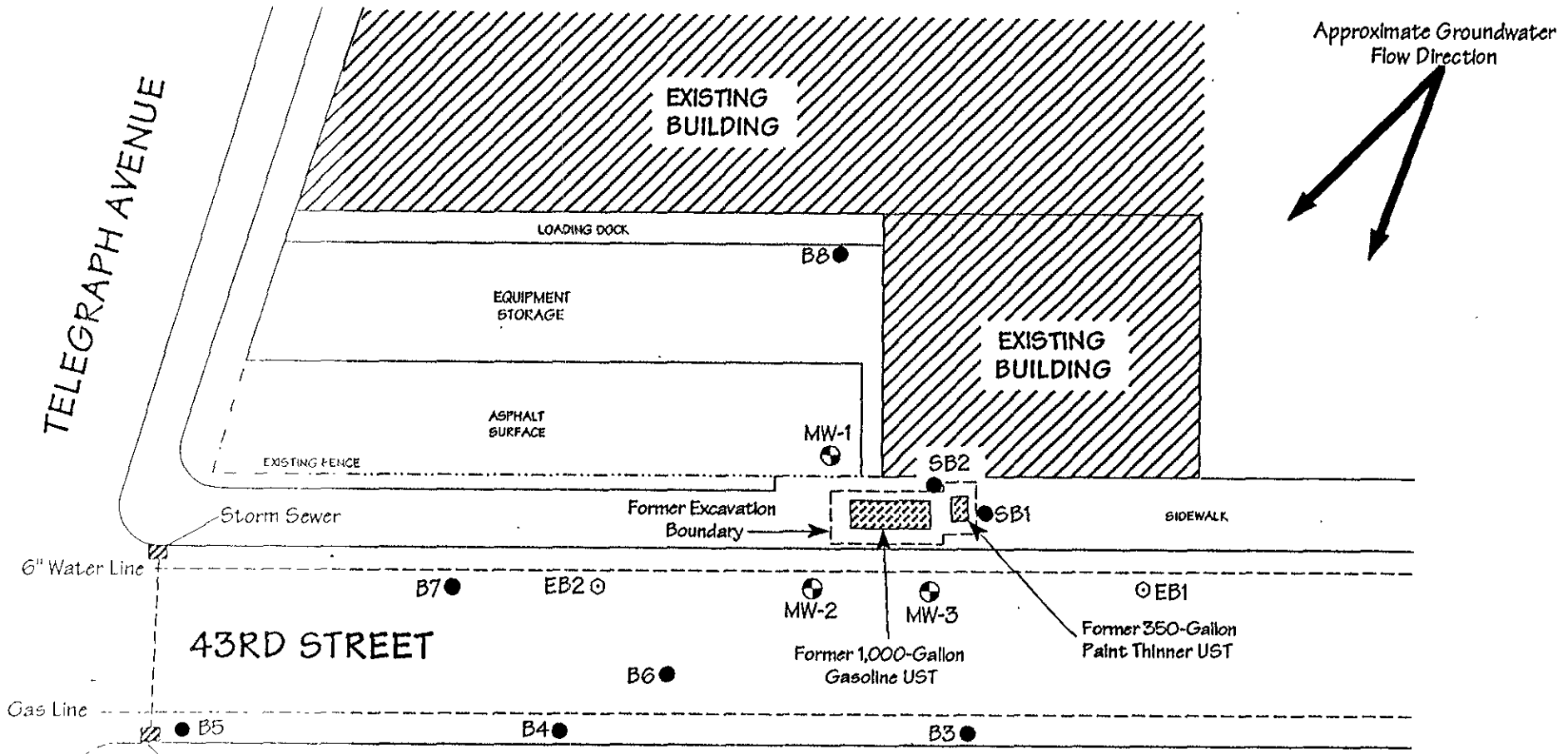



MONITORING WELL AND EXPLORATORY BORING LOCATION MAP

KAPREALIAN ENGINEERING
INCORPORATED





WELLS FARGO BANK
(WALTER BLUMERT CO, INC.)
490 43RD STREET
OAKLAND, CALIFORNIA

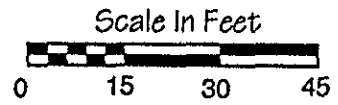
FIGURE
5


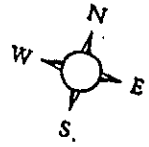


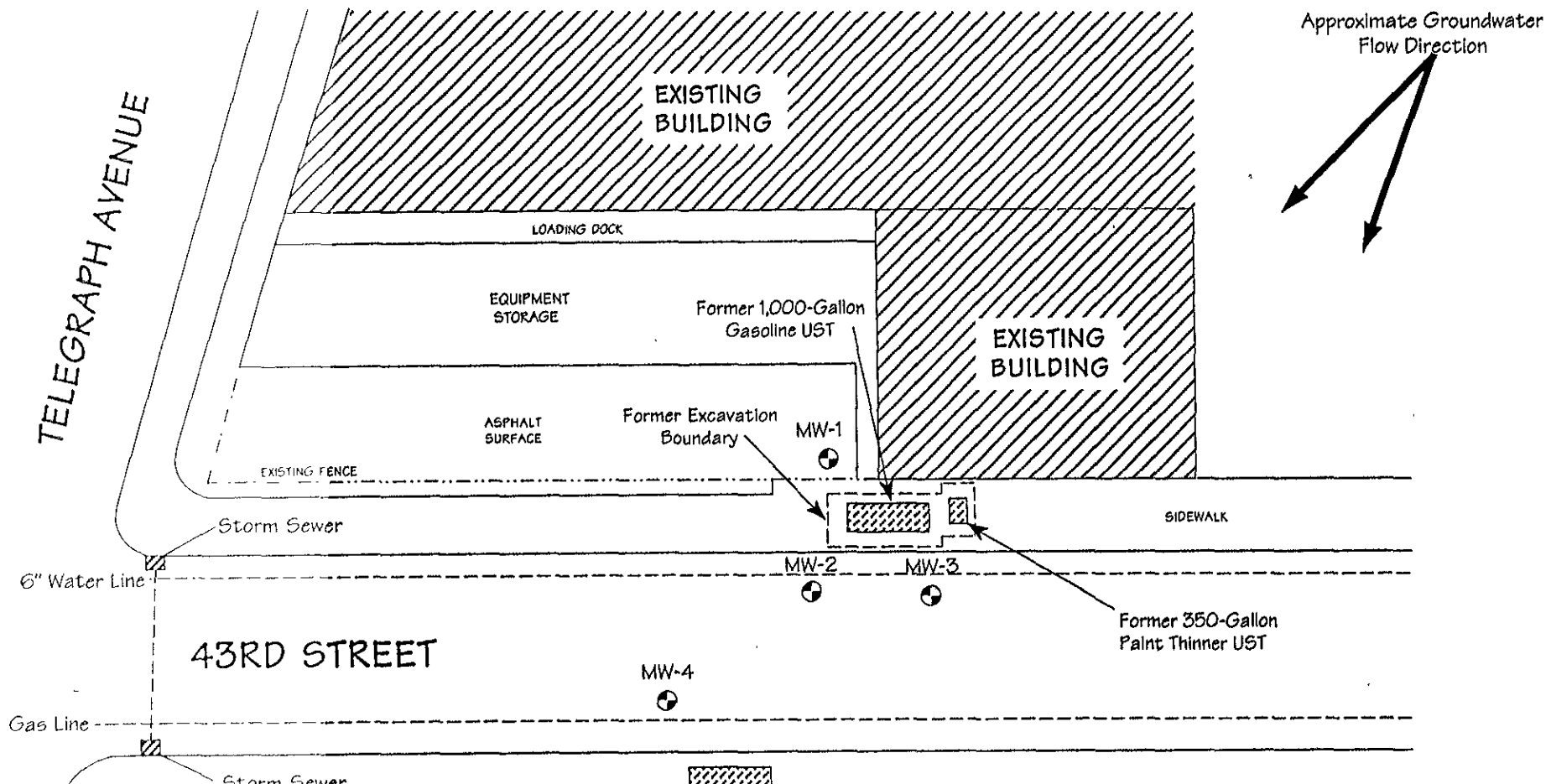
 Former 1,000-Gallon Gasoline UST (489 43rd Street)

Legend



- MW-2  - Existing Groundwater Monitoring Well
- B4  - ACC Soil Boring Location (April 16, 1996)
- EB2  - Kaprealian Engineering Boring Location
-  - Former Underground Storage Tank

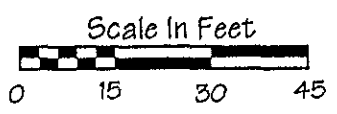


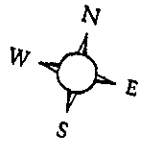
| | |
|--|------------------------|
| Title: Site Plan 490 43rd Street Oakland, California | |
| Figure Number: 6  | Scale: 1" = 30" |
| Drawn By: JVC | Date: 4/17/96 |
| Project Number: 6305-1.1 | |
| ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404 | |
|  | |



Legend

- MW-2  - Existing Groundwater Monitoring Well
-  - Former Underground Storage Tank



| | |
|--|------------------------|
| Title: Site Plan 490 43rd Street Oakland, California | |
| Figure Number: 7 | Scale: 1" = 30" |
| Drawn By: NHD | Date: 6/10/99 |
| Project Number: 6305-001.01 | |
| ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404 | |
|  | |

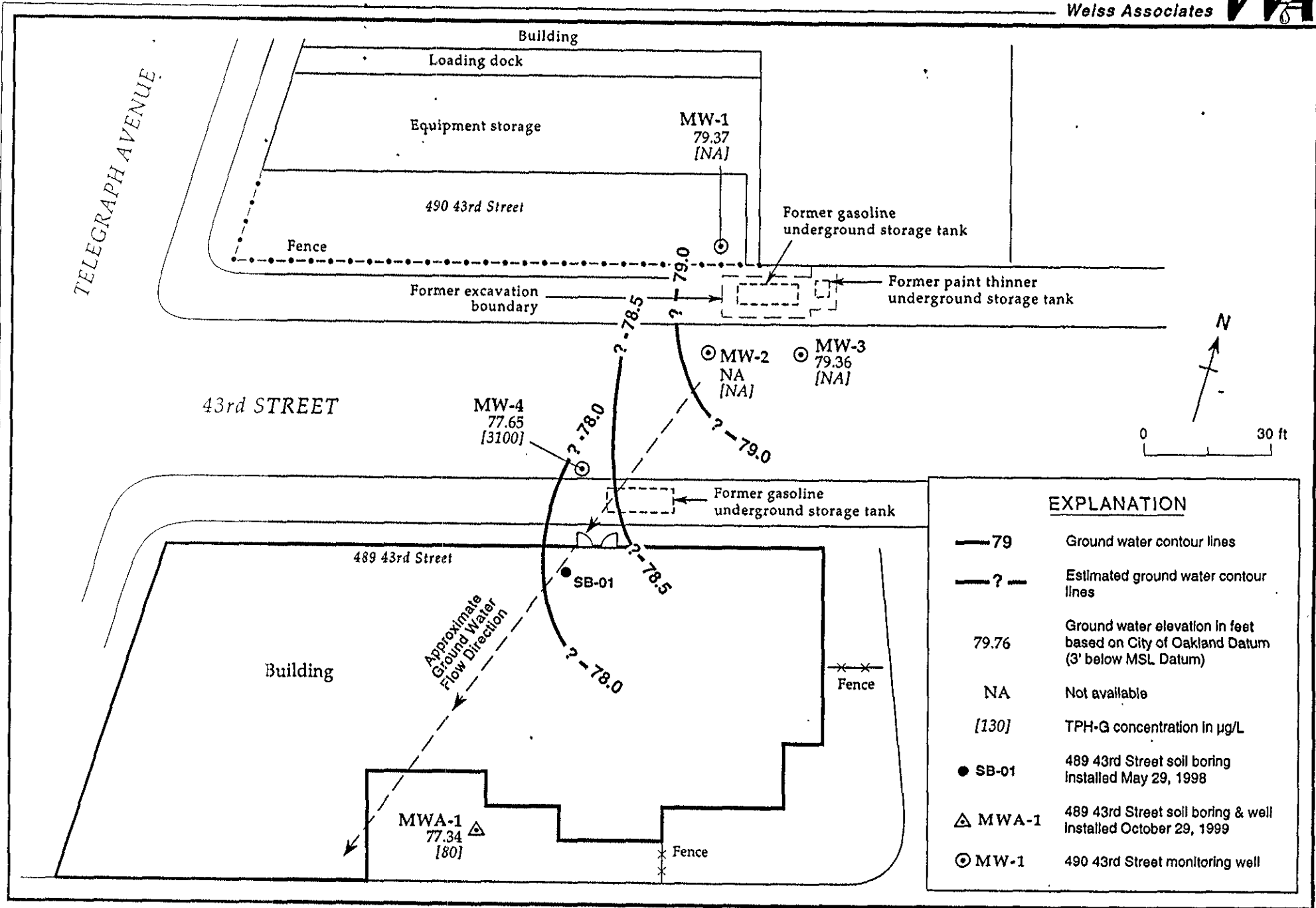
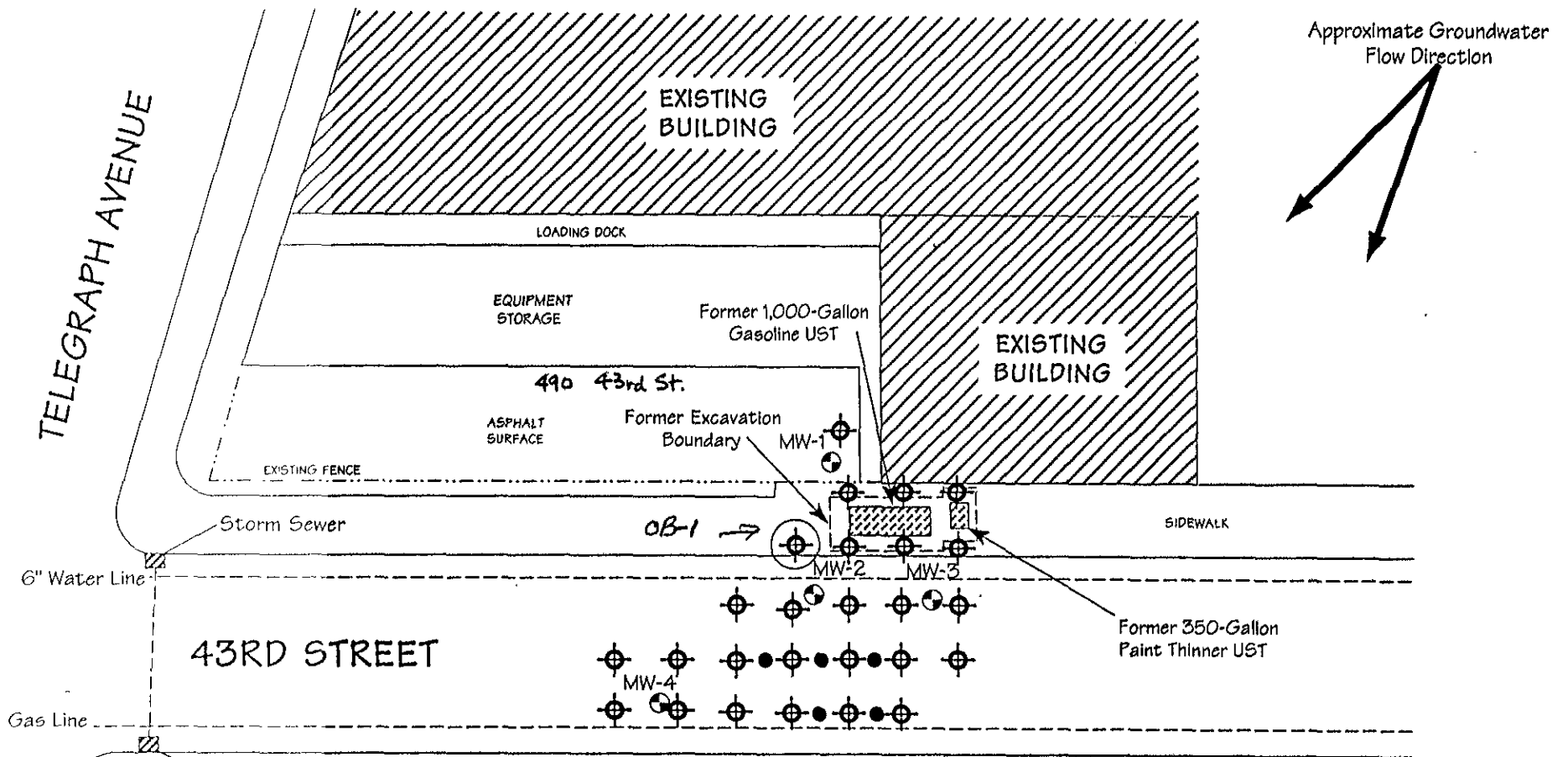


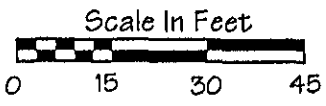
Figure 8. Quarterly Sampling Data, December 28, 2000 - 489 43rd Street, Oakland, California



Legend

- Soil Boring and ORC Injection Location
- Soil Boring, ORC Injection, and Grab Groundwater Sample Location
- Attempted Grab Groundwater Sample Location
- MW-2 - Existing Groundwater Monitoring Well
- Former Underground Storage Tank

Former 1,000-Gallon Gasoline UST (489 43rd Street)



| | |
|--|------------------------|
| Title: Soil Boring Locations 490 43rd Street Oakland, California | |
| Figure Number: 9 | Scale: 1" = 30" |
| Drawn By: NHD | Date: 6/10/99 |
| Project Number: 6305-001.01 | |
| ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404 | |
| | |

BORING LOG

| | | |
|---|--|---|
| Project No. KEI-P91-1201 | Boring Diameter 8" Casing Diameter 2" | Logged By JEG D.L. LEG1633 |
| Project Name Wells Fargo Bank 490 43rd. Street, Oakland | Well Cover Elevation | Date Drilled April 12, 1993 |
| Boring No. MW1 | Drilling Method Hollow-stem Auger | Drilling Company Great Sierra Exploration |

| Penetration blows/6" | G. W. level | Depth (feet) Samples | Strati- graphy USCS | Description |
|-------------------------|----------------|----------------------------|---------------------------|--|
| | | 0 | | Asphalt pavement over sand and gravel base. |
| | | | ML | Clayey silt, trace fine-grained sand, stiff, moist, black. |
| | | | CL | Silty clay, estimated at 10-15% sand and trace gravel, very stiff, moist, dark brown with iron oxide staining. |
| 6/11/13 | | 5 | ML | Silt with sand, estimated at 10-15% clay and trace gravel, very stiff, moist, brown. |
| | | | GC | Clayey gravel with sand, gravel to 2 inches in diameter, dense to very dense, moist, dark greenish gray and olive brown, mottled. |
| 14/23/35 | | 10 | GM | Silty gravel with sand, trace clay, gravel to 5/8 inch in diameter, very dense, very moist, olive gray. |
| 15/28/42 | ▼ | | ML | Gravelly silt, estimated at 10-15% sand, gravel to 1 inch in diameter, hard, friable, moist to very moist, dark greenish gray and olive brown. |
| 16/33/41 | | | | Gravelly silt as above, except olive brown only. |
| | | 15 | | Sandy silt, estimated at 10-15% gravel to 1 inch in diameter, hard, moist, olive gray and dark greenish gray, mottled. |
| 7/11/14 | | | GM | Silty gravel with sand, estimated at 15% silt and 5% clay, gravel to 1 inch in diameter, medium dense, wet, dark olive gray, grades to dark yellowish brown. |
| 7/11/14 | | 20 | ML | Sandy silt, estimated at 10-15% gravel, sand is predominantly fine-grained, very stiff, wet, olive brown. |
| 11/ | | | SM | Silty sand, estimated at 10-15% gravel, medium dense, wet, cohesive, olive brown. |

BORING LOG

| | | |
|--|--------------------------------------|--|
| Project No. KEI-P91-1201 | Boring Diameter 8" | Logged By <i>JGG</i> D.L. <i>LEG 1633</i> |
| | Casing Diameter 2" | |
| Project Name Wells Fargo Bank 490 43rd. Street, Oakland | Well Cover Elevation | Date Drilled April 12, 1993 |
| Boring No. MW2 | Drilling Method Hollow-stem Auger | Drilling Company Great Sierra Exploration |

| Penetration blows/6" | G. W. level | Depth (feet) Samples | Strati- graphy USCS | Description |
|----------------------|-------------|-------------------------|---------------------------|---|
| | | 0 | | Asphalt pavement over sand and gravel base. |
| | | | ML | Clayey silt, trace sand and gravel, very stiff, moist, black. |
| | | | CL | Silty clay, estimated at 10-15% sand, trace gravel, very stiff, moist, dark brown, with iron oxide staining. |
| 7/8/11 | | 5 | ML | Clayey silt, esimated at 10-15% sand, very stiff, moist, dark brown, with iron oxide staining. |
| | | | CL | Silty clay, very stiff, moist, dark brown, mottled, dark gray. |
| | | | ML | Silt with fine-grained sand, stiff, moist, olive gray. |
| 7/9/11 | | | GC | Clayey gravel with sand, estimated at 5-10% silt, gravel to 1-1/2 inches in diameter, medium dense, moist, dark olive gray. |
| 14/9/15 | | 10 | | Clayey gravel as above, except very moist to wet. |
| 7/12/13 | ▼ | | GM | Silty gravel with sand, medium dense, very moist, dark olive gray. |
| | | | SM | Silty sand, estimated at 15-20% silt and trace gravel to 1/2 inch in diameter, medium dense, moist, dark greenish gray. |
| 12/14/13 | | 15 | GM | Silty gravel with sand, trace clay, medium dense, very moist to wet, olive to olive gray. |
| | | | ML | Silt with clay, estimated at 10-15% fine-grained sand, very stiff, moist, yellowish brown. |
| 10/10/10 | | | GM | Silty gravel with sand, medium dense, wet, dark yellowish brown. |
| | | | ML | Silt with sand, estimated at 5-10% clay, very stiff, moist, yellowish brown. |
| 8/10/12 | | 20 | ML | Silt with clay, estimated at 10-15% fine-grained sand, very stiff, moist yellowish brown. |

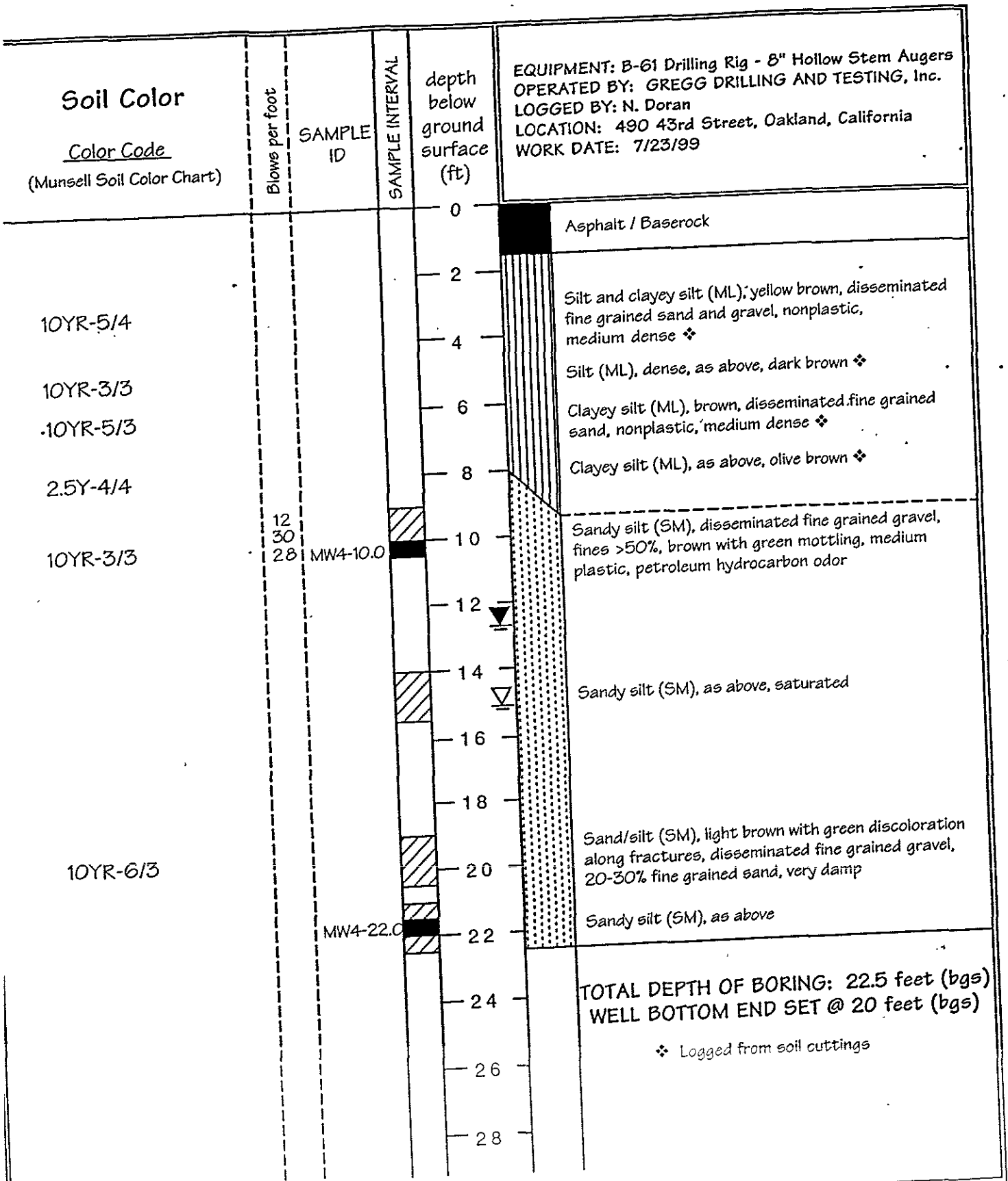
TOTAL DEPTH: 22'

BORING LOG

| | | |
|--|---|--|
| Project No. KEI-P91-1201 | Boring Diameter 8" | Logged By <i>JGG</i> D.L. <i>CEG 1633</i> |
| | Casing Diameter 2" | |
| Project Name Wells Fargo Bank 490 43rd. Street, Oakland | Well Cover Elevation | Date Drilled April 12, 1993 |
| Boring No. MW3 | Drilling Method Hollow-stem Auger | Drilling Company Great Sierra Exploration |

| Penetration blows/6" | G. W. level | Depth (feet) Samples | Strati- graphy USCS | Description |
|-------------------------|----------------|----------------------------|---------------------------|---|
| | | 0 | | Asphalt pavement over sand and gravel base. |
| | | | | Clayey silt, trace sand and gravel, very stiff, moist, very dark grayish brown and black, mottled (fill). |
| 6/7/8 | | 5 | CL | Silty clay, estimated at 10-15% sand and trace gravel, very stiff, moist, dark brown with iron oxide staining, disturbed soil. |
| | | | SC | Clayey sand, estimated at 10-15% silt and trace gravel, medium dense, moist, dark brown with iron oxide staining, poor recovery. |
| 9/11/14 | | 10 | SM | Silty sand with gravel, trace clay, medium dense, moist to wet, cohesive, dark greenish gray. |
| 6/11/14 | ▼ | | ML | Gravelly silt, estimated at 10-15% fine-grained sand, very stiff, moist, olive gray and deep greenish gray, mottled. Sandy silt, very stiff, moist, dark greenish gray and olive, mottled, sand is fine-grained. |
| 9/14/26 | | 15 | SM | Silty sand with gravel, estimated at 15-25% silt, gravel to 1-1/2 inch in diameter, olive brown, trace clay below 15.5 feet. |
| 8/8/8 | | 20 | ML | Silt with sand, trace gravel, stiff, moist, light yellowish brown. Clayey silt, trace fine-grained sand, stiff, moist, light yellowish brown. |
| 14/36/30 | | | | Silt with fine-grained sand, trace gravel to 3/8 inch in diameter, very stiff, moist, olive brown and dark yellowish brown, mottled. |

TOTAL DEPTH: 22'



TOTAL DEPTH OF BORING: 22.5 feet (bgs)
WELL BOTTOM END SET @ 20 feet (bgs)

❖ Logged from soil cuttings

ACC Environmental Consultants, Inc.
7977 Capwell Drive, Suite 100
Oakland, California 94621
(510)638-8400 FAX: (510)638-8404

Project No:
6305-001.01

Date: 7/23/99

LOG OF BORING MW-4
Blumert Paint Company
490 43rd Street
Oakland, California

6/10/01 Susan -

Evaluation unmodified, see attachment in text.

Be

Evaluation of need for deed restriction for:

Walter Blumert Company

490 43rd St.

Oakland CA 94609

ST10 4252 RO# 272

Residual Concentrations in:

| Analyte Conc. in ppm | Soil mg/kg | Groundwater mg/l | Tier 1 Residential Oakland RBSL | | Residential RWQCB RBSL | |
|-------------------------|------------|------------------|---------------------------------------|------|---------------------------|-------|
| | | | Soil | GW | Soil | GW |
| TPPH | 720 | 3.2 | | | 500 | .640 |
| Benzene | 1.4 | 0.24 | *0.069 | 0.11 | 0.39 | .046 |
| Toluene | 1.3 | ND | 360 | 210 | 2.6 | 0.04 |
| Ethylbenzene | 7.2 | 0.018 | SAT | >sol | 2.5 | 0.03 |
| Xylenes | 30 | 0.005 | SAT | >sol | 1.4 | 0.018 |
| TPHd | 190 | | | | 1000 | .640 |
| MTBE | | | 4400 | >sol | 1.0 | .18 |

Assumptions: Shallow groundwater in Oakland is not considered potable

GW encountered at approximately 10' bgs.

For soils, Table B-2 and for groundwater, Table F-2 of the RWQCB document used

The only analyte exceeding the Tier 1 City of Oakland RBSL is benzene. Boring logs indicate that soils are typically silty clay. The Tier 2 RBSL for silty clays is 3.3 ppm benzene in soil and 0.6 mg/l in groundwater for the exposure pathway of inhalation of indoor air, residential.

Therefore, the residual soil and groundwater concentrations are less than the Tier 2 Oakland RBSLs for residential exposure.

The RWQCB RBSLs are more conservative than the City of Oakland. These RBSLs are taken as the most conservative of the potential exposure pathways. They are often based upon aquatic life protection, which is not a viable exposure pathway at this site. In addition, the City of Oakland RBSLs are more pertinent for Oakland sites since site specific data was used to derive them. It would appear that a deed restriction is not necessary for this site. However, if land use changes to residential, the site should be re-evaluated to determine if this land use is still acceptable with the residual contamination at the site. Any future subsurface excavation or trenching at the site will require a risk management plan.

Report 11/10/00
Soil @ site is silty sand. 4.56
will it pass Tier 2 for silty sand?

Sandy silts

Sandy silt - 1.2

Questions:

1) ORC - applied in 1999/7-26; do you think that ORC will continue to enforce this remediation? No, but GW

Some are below Oakland Tier 2 RBSLs & below TPH nuisance conc in GW (1000 ppb).

RO# 272

Evaluation of need for deed restriction for:
Walter Blumert Company
490 43rd St.
Oakland CA 94609

Residual Concentrations in:

| <u>Analyte</u> Conc. in ppm | <u>Soil mg/kg</u> | <u>Groundwater mg/l</u> | <u>Tier 1 Residential Oakland RBSL</u> | | <u>Residential RWQCB RBSL</u> | |
|--------------------------------|-------------------|-------------------------|--|------|-------------------------------|-------|
| | | | Soil | GW | Soil | GW |
| TPPH | 720 | 3.2 | | | 500 | .640 |
| Benzene | 1.4 | 0.24 | *0.78 | 0.13 | 0.39 | .046 |
| Toluene | 1.3 | ND | 410 | 240 | 2.6 | 0.04 |
| Ethylbenzene | 7.2 | 0.018 | SAT | >sol | 2.5 | 0.03 |
| Xylenes | 30 | 0.005 | SAT | >sol | 1.4 | 0.018 |
| TPHd | 190 | | | | 1000 | .640 |
| MTBE | | | 5100 | >sol | 1.0 | .18 |

Assumptions: Shallow groundwater in Oakland is not considered potable
GW encountered at approximately 10' bgs.

For soils, Table B-2 and for groundwater, Table F-2 of the RWQCB document used

The only analyte exceeding the Tier 1 City of Oakland RBSL is benzene. Boring logs indicate that soils are typically silty clay. The Tier 2 RBSL for silty clays is 3.3 ppm benzene in soil and 6.6 mg/l in groundwater for the exposure pathway of inhalation of **indoor air, residential**. Therefore, the residual soil and groundwater concentrations are less than the Tier 2 Oakland RBSLs for residential exposure.

The RWQCB RBSLs are more conservative than the City of Oakland. These RBSLs are taken as the most conservative of the potential exposure pathways. They are often based upon aquatic life protection, which is not a viable exposure pathway at this site. In addition, the City of Oakland RBSLs are more pertinent for Oakland sites since site specific data was used to derive them.

As part of a Case Closure Summary report for this site, the following additional information and interpretation was provided for the site:

- The shallow groundwater quality beneath this site is most likely not considered of drinking water quality because during the 7/99 investigation, only one of six shallow borings yielded enough water for sampling, let ^{alone} enough to be considered as a drinking water source.
- A well survey within a 500' radius was performed by the Public Works Agency. No down-gradient wells were identified. In addition, a door-to-door survey was performed looking for wells and basements. One irrigation well was identified approximately 150' cross-gradient from the former USTs at 480 42nd St. Given the relative low concentrations found in MWA-1, approximately 150' down-gradient of the former USTs, the likelihood of this well being impacted is remote.
- A risk assessment was performed for the site. The only complete pathways identified were utility workers working in 43rd St. and occupational exposure at 489 43rd St. The chemicals of concern were BTEX. The highest residual BTEX in soil was compared to the Region 9 PRG for soil in a residential setting. Xylene at 0.54ppm was the only residual COC in soil and this concentration is less than the PRG of 210 ppm. Farmer's Simplified Indoor and Box Models were used to evaluate potential risk of volatilization from groundwater. The excess lifetime cancer risk (ELCR) for occupational exposure using a benzene concentration of 250 ppb (similar to that in MW-4, 12/28/00) is 2.1 E-05. See Table G-1. However, the concentration beneath the building at 489 43rd St. is likely much less since the concentration of benzene in MWA-1, the down-gradient well on 489 43rd St., has always been ND. The TPHg and TPHms has stabilized at concentrations less than the nuisance concentration of 5000 ppb.
- The site is recommended to be included in the City of Oakland Permit Tracking System to warn and protect utility workers.

I don't understand the meaning of this sentence

Why would you compare conc. beneath 489 with 490?

Site closure is recommended based upon:

- Removal of the majority of impacted soil contamination and the former underground tanks
- The absence of sensitive receptors identified in a well survey and door-to-door questionnaire
- The release to soil and groundwater has been defined
- No unacceptable risk to human health was determined in a risk assessment
- The application of oxygen releasing compound should continue to enhance bio-remediation.
- Groundwater monitoring has been performed for up to 7 years and contaminant concentrations have stabilized. See attached monitoring results.

In September 1995, the underground tank at 489 43rd St. was removed. Up to 1900 ppm TPHg, 1300 ppm TPHd and low levels of BTEX and MTBE were exhibited in the soil sample from beneath the tank. This data did not clarify this situation, since it appeared that there had been two separate fuel releases. It would eventually be clear that the two site releases were so connected that a concerted investigation approach would be necessary. On May 29, 1998 a boring, (SB-01), was advanced approximately 15' down-gradient of Mr. Simpson's tank. The soil sample from SB-01 did not detect any contaminants of concern, however, the grab groundwater sample exhibited 18,000 ppb TPHg, 2400 ppb benzene and 8800 ppb paint thinner. *See Fig. 8.*

On April 16, 1996 two exploratory borings, SB1 and SB2, were advanced immediately adjacent to the former tank excavation and six exploratory borings, B-3 through B-8, were drilled up and down-gradient of the former USTs to further characterize the extent of the release. Low levels of paint thinner and ND TPHg and BTEX was found in the 9' bgs samples in the borings immediately adjacent to the tank pit indicating that residual soils in these areas should not be of concern. However, elevated TPHg and TPH as paint thinner concentrations were exhibited in the grab groundwater samples from borings B4 through B7. This indicated down-gradient and possibly preferential migration along utility lines of the contaminant plume had occurred. *See Figure 6 and Tables 6 and 7.*

Groundwater monitoring continued to exhibit relatively elevated TPHg, TPH paint thinner (also called mineral spirits at times). Biannual groundwater monitoring was started in December 1996. Because the majority of the petroleum plume was within and perhaps beyond 43rd St., an enhanced bio-remediation approach was proposed and approved. In addition, **on July 23, 1999 an additional well, MW-4 was installed down-gradient of the three original wells,** but up-gradient of the former UST at 489 43rd St. *See Figure 7.* The 10' soil sample from MW-4, exhibited low levels of TPHg, (30 ppm) and TPH as mineral spirits (48 ppm) and ND for BTEX and MTBE. The groundwater sample was slightly lower than that exhibited in MW2, the up-gradient well close to the former tank pit. On July 26 and 27, 350 pounds of ORC was injected in the form of an approximate 25% solids slurry into 25 exploratory borings within 43rd St. *See Figure 8.* Although attempts were made to collect additional grab groundwater samples from up to six of the borings, only one boring, OB-1 was successful in obtaining a water sample. This sample was located immediately adjacent to the former tank pit. A small amount of free product was encountered on the water. Up to 130,000 ppb mineral spirits and 41,000 ppb gasoline was reported in the grab groundwater sample from OB-1 indicating considerable residual contamination at the source. *See Table 8.*

Subsequent groundwater monitoring to the ORC injection did not see a significant improvement in groundwater quality or dissolve oxygen concentration. On October 29, 1999, a monitoring well (MWA-1) was installed approximately 90' down-gradient of the former UST on 489 43rd St., making it approximately 140' down-gradient of the former tanks on 490 43rd St. This well would be used to determine the extent of contamination from both sites. Groundwater was sampled for four consecutive quarters from this well. *See Table 9.* Low levels of TPHg and TPH as paint thinner has been detected in this well, while BTEX and MTBE have been ND.