ALAMEDA COUNTY
**HEALTH CARE SERVICES**
AGENCY
DAVID J. KEARS, Agency Director

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

April 30, 1998
StID # 86

REMEDIAL ACTION COMPLETION CERTIFICATION

Mr. Alex Perez
Shell Oil Products Co.
P.O. Box 4023
Concord,CA 94524

**RE: Shell Service Station, 3750 E. 14th St., Oakland CA 94601**

Dear Mr. Perez:

This letter confirms the completion of site investigation and remedial action for the one 550 gallon waste oil tank and the three fuel tanks removed prior to 1981 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 upon the available information and with provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground tank releases is required.

This notice is issued pursuant to a regulation contained in Title 23, Division 3, Chapter 16, Section 2721 (e) of the California Code of Regulations.

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
Dave Deaner, SWRCB Cleanup Fund
Mr. L. Griffin, City of Oakland, OES, 505 14th St., Suite 702
Oakland CA 94612

RACC3750

ALAMEDA COUNTY
**HEALTH CARE SERVICES**
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May 1,1998
StID# 86

Mr. Alex Perez
Shell Products Co.
P.O. Box 4023
Concord CA 94524

**RE: Fuel Leak Site Case Closure- Shell Service Station, 3750 E. 14th St., Oakland CA 94601**

Dear Mr. Perez:

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. These documents confirm 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:

* 130 parts per million (ppm) Total Petroleum Hydrocarbons as gasoline (TPHg) and 0.032, 0.55, 0.73, 2.0 ppm, BTEX, respectively remain in the soil at the site.

* 1500 parts per billion (ppb) TPHg, 120 ppb TPHd and 4.1, ND, 1.9, ND, BTEX, 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 if you have any questions.

Sincerely,

Barney M. Chan

Barney M. Chan
Hazardous Materials Specialist

enclosures: Case Closure Letter, Case Closure Summary

c: Mr. L. Griffin, City of Oakland OES, 505 14th St., Suite

files

RO 867
CL

ALAMEDA COUNTY
**HEALTH CARE SERVICES**
AGENCY
DAVID J. KEARS, Agency Director

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

October 3, 1997
StID # 86

Mr. Alex Perez
Shell Products Co.
P.O. Box 4023
Concord, CA 94524

**Re: Closure of Monitoring Wells at Shell Service Station, 3750 E. 14th St., Oakland CA 94601**

Dear Mr. Perez:

This letter serves to inform you than our office has received Regional Water Quality Control Board (RWQCB) concurrence for site closure in regards to the underground fuel leak from the three fuel tanks removed prior to 1981 and the former 550 gallon waste oil tank at the above referenced site. Prior to issuing site closure, our office requests the proper closure of the four monitoring wells at this site. You may contact Mr. Andreas Godfrey of Alameda County Public Works at (510) 670-5575 for permit requirements.

I may be reached at (510) 567-6765 if you have any questions.

Sincerely,

Barney M. Chan
Hazardous Materials Specialist

c: B. Chan, files
**welcl3750**

**CASE CLOSURE SUMMARY**
**Leaking Underground Fuel Storage Tank Program**

**I. AGENCY INFORMATION** **Date:** 8/28/97

Agency name: **Alameda County-HazMat** Address: **1131 Harbor Bay Parkway Rm 250, Alameda CA 94502**

City/State/Zip: **Alameda** Phone: **(510) 567-6700**

Responsible staff person: Barney Chan Title: **Hazardous Materials Spec.**

**II. CASE INFORMATION**

Site facility name: Shell Service Station WIC # 204-5508-2709

Site facility address: 3750 E. 14th St., Oakland CA 94601

RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: 86

ULR filing date: 2/6/91 SWEEPS No: **N/A**

| Responsible Parties: | Addresses: | Phone Numbers: |
|---|---|---|
| Shell Products Co. | P.O. Box 4023 | |
| Mr. ~~Jeff Granberry~~ Alex Perez | Concord, CA 94524 | |

| Tank No: | Size in gal.: | Contents: | Closed in-place or removed?: | Date: |
|---|---|---|---|---|
| 1 | 550 | Waste Oil | Removed | 11/86 |
| 2-4 | 3 fuel tanks reportedly removed prior to 1981. Tank closure reports lacking for all removals. | | | |

**III RELEASE AND SITE CHARACTERIZATION INFORMATION**

Cause and type of release: unknown

Site characterization complete? Yes

Date approved by oversight agency:

Monitoring Wells installed? YES Number: 4

Proper screened interval? Yes, from approx. 5-25' bgs

Highest GW depth: 5.05'bgs Lowest depth: 15.7' bgs

Flow direction: Has varied from northwest to south, but predominantly southwesterly

Most sensitive current use: commercial

Are drinking water wells affected? No Aquifer name: NA

Is surface water affected? No Nearest affected SW name: NA

Off-site beneficial use impacts (addresses/locations): None

Report(s) on file? **Yes** Where is report(s)? Alameda County
1131 Harbor Bay Parkway,
Room 250, Alameda CA 94502-6577

**Treatment and Disposal of Affected Material:**

| Material | Amount (include units) | Action (Treatment of Disposal w/destination) | Date |
|---|---|---|---|
| Tanks | 1-550 gallon & 3 fuel tanks | Records of removals not available | 1986 pre-1981 |

**Maximum Documented Contaminant Concentrations - - Before and After Cleanup**

| Contaminant | Soil (ppm) [2] Before | Soil (ppm) After | Water (ppb) [3] Before | Water (ppb) After |
|---|---|---|---|---|
| TPH (Gas) | 130 | 130 | 12,000 | 1500 |
| TPH (Diesel) | | | 830 | 120 |
| Benzene | 0.032 | 0.032 | 210 | 4.1 |
| Toluene | 0.55 | 0.55 | 60 | <0.5 |
| Ethylbenzene | 0.73 | 0.73 | 290 | 1.9 |
| Xylenes | 2.0 | 2.0 | 95 | <0.5 |
| Oil and Grease | **1** 117 | 117 | ND | ND |
| Chlorinated HC: TCE | **4** ND | | 0.74 | ND |
| TCA | | | 0.6 | ND |

**Comments (Depth of Remediation, etc.):**
**1 sample from waste oil tank removal**
**2 results from 14.2' boring from MW-3**
**3 highest historic concentration detected**
**4 borings from MW1-3**

**IV. CLOSURE**

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

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

**Leaking Underground Fuel Storage Tank Program**

**IV. CLOSURE**

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

Site management requirements: NA

Should corrective action be reviewed if land use changes? Yes ✓

Monitoring wells Decommisioned: NO, pending closure

Number Decommisioned: 0 Number Retained: 4

List enforcement actions taken: None

List enforcement actions rescinded:None

**V. LOCAL AGENCY REPRESENTATIVE DATA**

Name: Barney M. Chan Title: Hazardous Materials Specialist

Signature: Barney M Chan Date: 8/28/97

**Reviewed by**

Name: Brian Oliva Title: Hazardous Materials Specialist

Signature: Brian Oliva Date: 8/13/97

Name: Tom Peacock Title: Manager

Signature: Tom Peacock Date: 8-21-97

**VI. RWQCB NOTIFICATION**

Date Submitted to RB: RB Response: Approved

RWQCB Staff Name: K. Graves Title: AWRCE Date: 9-29-97

**VII. ADDITIONAL COMMENTS, DATA, ETC.**

This property is owned by Shell Oil Products Co. and is used currently as a gasoline service station and automotive repair shop. One 550 gallon waste oil tank and three 10,000 gallon gasoline tanks currently exist at this site. Three fuel tanks and 1-550 gallon waste oil tank were removed from this site. The waste oil tank was removed in November 1986. No information is available regarding the fuel tanks removals.

**VII. ADDITIONAL COMMENTS (contd)**

Our office was informed of analytical results from the 1986 waste oil tank removal in an October 13, 1989 letter from Weiss Associates. The soil sample collected from beneath the tank at 10.2′ depth detected 117 ppm TOG. Due to the lack of information pertaining to the waste oil tank removal, Shell decided to install three (3) monitoring wells at the site in 4/5/90. Significant soil contamination was found only in the 14.2′ bg sample from MW-3 which exhibited 130 ppm TPHg and 0.032, 0.73, 0.55, 2.0 ppm BTEX, respectively. Groundwater monitoring occurred for several years during which TPHg, TPHd and BTEX was detected only in MW-3. Since MW-3 was located downgradient to both the current and former fuel USTs, Shell decided to install monitoring well MW-4 immediately downgradient of the former fuel USTs on 6/24/92. Very little petroleum contamination was detected in the borings from MW-4. Groundwater monitoring has continued for an additional 3.5 years yielding data which indicates that that the residual groundwater plume beneath this site has stabilized and remains in the area of the former and existing fuel USTs. A Tier 1 evaluation was performed by Weiss Associtates on the this site determining risk with the viable exposure pathways. The maximum historic soil concentration and the maximum groundwater concentration detected within the past year of monitoring was used to evaluate against the Tier 1 RBSL. No risk to human health was determined to exist in excess of $10^{-5}$.

No further work is recommended since:

1. Site the site has been adequately characterized;

2. The dissolved plume is confined within the property boundary;

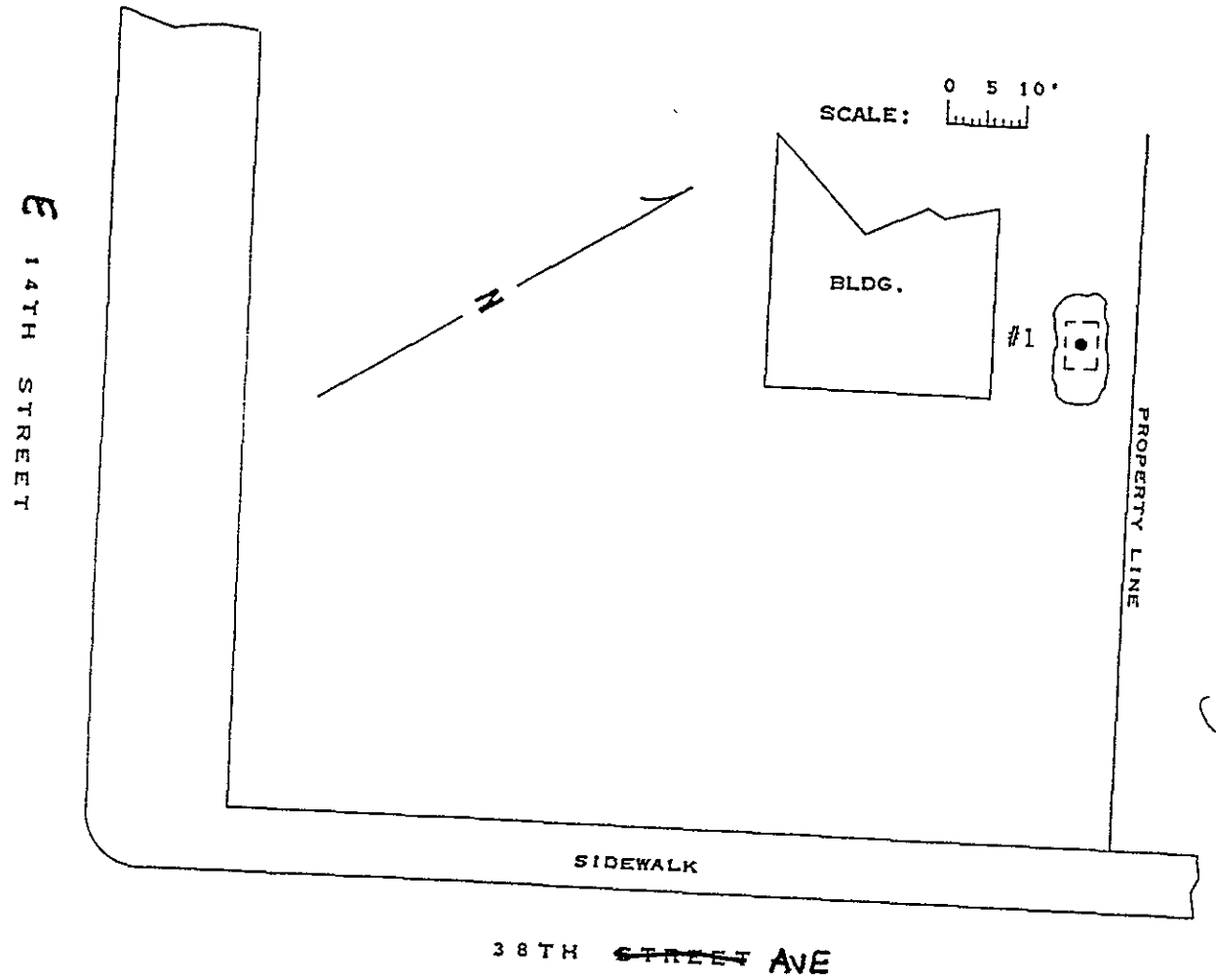
3. The site presents no significant risk to human health or the environment;

4. Long term monitoring has shown that the plume is stable and should continue to passively bioremediate.

CCL3750

SAMPLING REPORT 86306F1 11-2-86 SHELL OIL, 3750 EAST 14TH STREET, OAKLAND, CA

MAP REF: THOMAS BROS.
ALAMEDA COUNTY
P. 12 B-3




#1 SOIL FROM 10.2'
ANALYSIS FOR WASTE OIL
AT SOIL AND WATER LABORATORY
S & W LAB NO. 306B6.5

SAMPLING PERFORMED BY
FRANK A. CLINE

DIAGRAM PREPARED BY
TAMMIE STALLINGS

Tammie Stallings

SITE HISTORY SUMMARY

Shell Oil Company records indicate that a steel 550-gallon waste oil tank was removed from the site in November 1986 by Petroleum Engineering, of Santa Rosa, California, and was replaced with a 550-gallon fiberglass tank. The steel tank was apparently installed in 1982.

Following the tank removal, Blaine Tech Services of San Jose, California collected a soil sample from the pit beneath the former tank location. The native soil sample was submitted to Soil and Water Laboratories of Boulder Creek, California (S&W). The soil sample contained 117.4 ppm TOG. The S&W analytic methods and results are presented in Table 1, and laboratory analytic reports are included in Attachment B as part of the Blaine Tech sampling report.

Documentation reviewed by Weiss Associates does not describe the condition of the tank at the time of removal, the disposal of the backfill material excavated from the tank pit or indicate whether native soil was removed from the excavation following the tank removal.

TABLE 1. Analytic Results for Soil Samples, Shell Service Station WIC #204-550-827, 3750 East 14th Street, Oakland, California

| Sample ID | Sample Depth | Sample Type | Sampled By | Date Sampled | Analytic Lab | Analytic Method | TOG <----ppm----> |
|---|---|---|---|---|---|---|---|
| Soil #1 | 10.2 ft | Excavation Floor | BT | 11-7-86 | S&W | 3550/503E | 117.4 |

Abbreviations:

TOG = Total Oil and Grease
BT = Blaine Tech Services, San Jose California
S&W = Soil and Water Laboratories, Boulder Creek, California
NA = Not Analyzed
ppm = Parts Per Million

Analytic Methods:

3550 = EPA Standard Method 3550, Sonification Extraction
503E = American Public Health Association Standard Method 503E, Gravimetric Quantitation

Table 2. Results of Soil Analyses - Shell Service Station, WIC #204-5508-2709, 3750 East 14th Street, Oakland, California

| Soil Boring (Well ID) | Sample Depth (ft) | Date Sampled | Analytic Lab | Analytic Method | Sat/ Unsat | TPH-G | TPH-D[a] | B | E | T | X | HVOC | POG[b] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | <----------parts per million (mg/kg)----------> | | | | | | | |
| BH-A (MW-1) | 5.2 | 04/04/90 | NET | 8015/8020 | Unsat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |
| | 9.8 | 04/04/90 | NET | 8015/8020 | Unsat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |
| | 12.8 | 04/04/90 | NET | 8015/8020/8010/503 | Unsat | <1 | <1 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | ND[c] | <50 |
| | 20.2 | 04/04/90 | NET | 8015/8020 | Sat | <1 | --- | <0.0025 | <0.0025 | 0.0032 | 0.0031 | --- | --- |
| | 29.2 | 04/04/90 | NET | 8015/8020/8010/503 | Sat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | ND[c] | <50 |
| BH-B (MW-2) | 6.8 | 04/05/90 | NET | 8015/8020 | Unsat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |
| | 11.2 | 04/05/90 | NET | 8015/8020/8010/503 | Unsat | <1 | <1 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | ND[c] | <50 |
| | 19.2 | 04/05/90 | NET | 8015/8020 | Sat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |
| | 29.2 | 04/05/90 | NET | 8015/8020/8010/503 | Sat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | ND[c] | <50 |
| BH-C (MW-3) | 6.8 | 04/05/90 | NET | 8015/8020 | Unsat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |
| | 11.2 | 04/05/90 | NET | 8015/8020/8010/503 | Unsat | 3.5 | <1 | <0.0025 | 0.0077 | 0.0043 | 0.016 | ND[c] | <50 |
| | 14.2 | 04/05/90 | NET | 8015/8020 | Sat | 130 | --- | 0.032 | 0.73 | 0.55 | 2.0 | --- | --- |
| | 19.2 | 04/05/90 | NET | 8015/8020 | Sat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |
| | 24.2 | 04/05/90 | NET | 8015/8020 | Sat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |
| | 29.2 | 04/05/90 | NET | 8015/8020/8010/503 | Sat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | ND[c] | <50 |
| BH-D (MW-4) | 5.5 | 06/24/92 | NET | 8015/8020 | Unsat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |
| | 8.0 | 06/24/92 | NET | 8015/8020 | Unsat | 6.4 | --- | <0.0025 | <0.0025 | <0.0025 | 0.020 | --- | --- |
| | 10.5 | 06/24/92 | NET | 8015/8020 | Unsat | 2.5 | --- | <0.0025 | 0.0051 | 0.0074 | 0.024 | --- | --- |
| | 13.0 | 06/24/92 | NET | 8015/8020 | Unsat | 44 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |
| | 15.0 | 06/24/92 | NET | 8015/8020 | Sat | 9.1[d] | --- | <0.0025 | <0.0025 | <0.0025 | 0.039 | --- | --- |
| | 25.5 | 06/24/92 | NET | 8015/8020 | Sat | <1 | --- | <0.0025 | <0.0025 | <0.0025 | <0.0025 | --- | --- |

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline
TPH-D = Total petroleum hydrocarbons as diesel
B = Benzene
E = Ethylbenzene
T = Toluene
X = Xylenes
HVOCs = Halogenated volatile organic compounds
POG = Petroleum oil and grease (non-polar)
Sat = Saturated soil sample
Unsat = Unsaturated soil sample
<n = Not detected at detection limit of n ppm

Analytical Laboratory:

NET = National Environmental Testing Pacific, Inc., Santa Rosa, California

Analytic Methods:

503 = APHA Standard Methods 503D&E for TOG
8010 = EPA Method 8010 (GC/HALL) for HVOCs
8015 = Modified EPA Method 8015 (GC/FID) for TPH-G and TPH-D
8020 = EPA Method 8020 (GC/PID) for BETX

Notes:

a = Analytic results for total petroleum hydrocarbons as motor oil (TPH-MO) are reported with TPH-D results by the laboratory
b = Analytic results for petroleum oil and grease are reported with the hydrocarbon (non-polar) oil and grease by the laboratory
c = Not detected at detection limits of 0.002 to 0.05 parts per million (ppm)
d = The result for petroleum hydrocarbons as gasoline does not appear to have a typical gasoline pattern

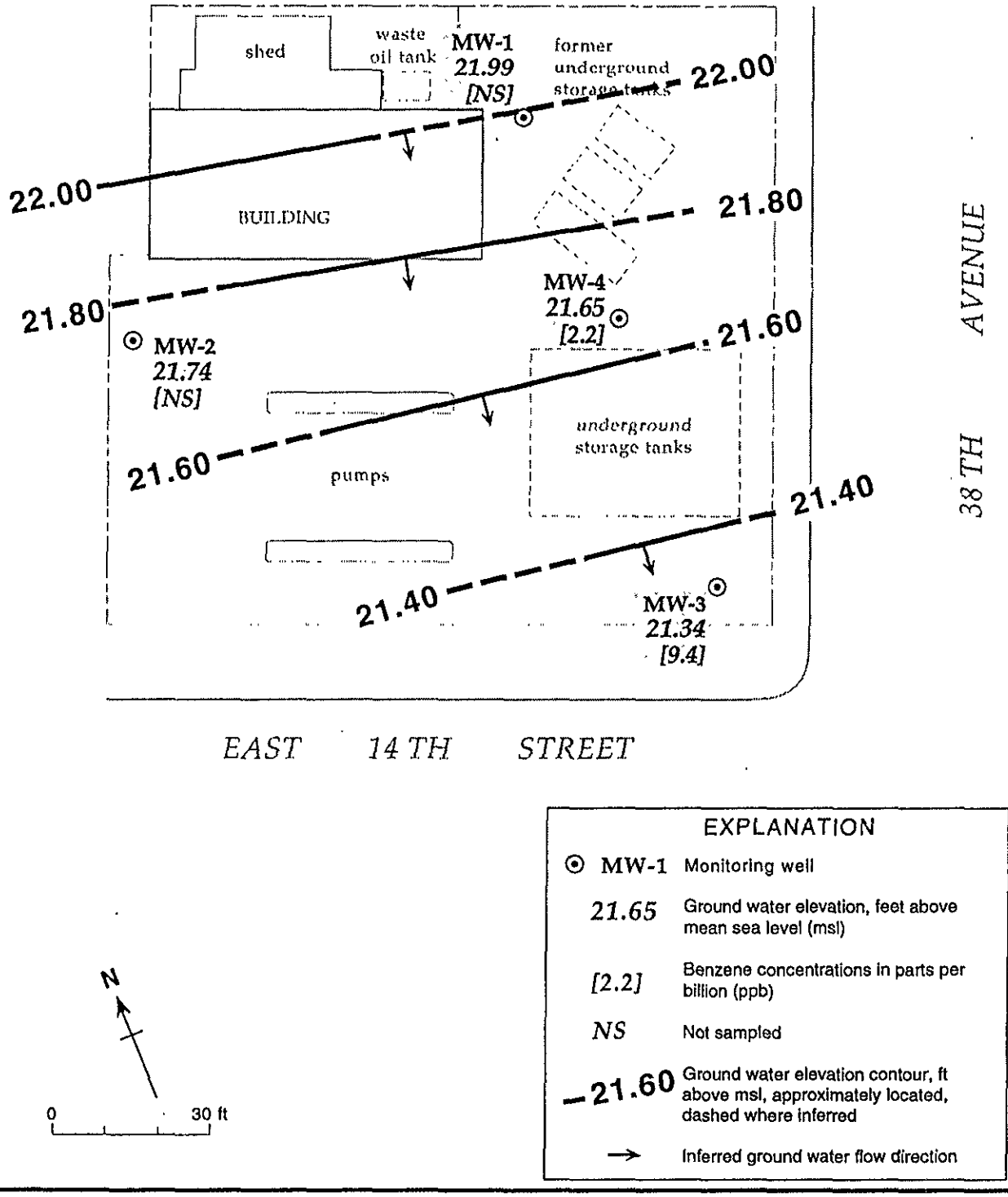



Figure 2. Monitoring Well Locations, Ground Water Elevation Contours, and Benzene Concentration in Ground Water - Oct. 4, 1995 - Shell Service Station WIC #204-5508-2709, 3750 East 14th Street, Oakland, California

Table 2. Analytic Results for Ground Water - Shell Service Station, WIC #204-5508-2709, 3750 East 14th Street, Oakland, California

| Sample | Date Sampled | Depth to Water (ft) | TPH-G | TPH-D | B | E | T | X | TCE | TCA | POG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ← parts per billion (µg/L) → | | | | | | | | |
| MW-1 | 04/11/90 | 12.01 | <50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <0.4 | <0.4 | <10 |
| (Annually, | 07/23/90 | 13.40 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1.0 | <5 |
| 2nd Qtr) | 10/23/90 | 15.71 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.5 | <5 |
| | 01/18/91 | 13.11 | 72 | — | 1.8 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | — |
| | 04/23/91 | 8.42 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | — |
| | 07/23/91 | 12.87 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | — |
| | 10/23/91 | 14.52 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | — |
| | 01/24/92 | 12.33 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | — |
| | 04/28/92 | 9.18 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | — |
| | 07/02/92 | 12.10 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 10/06/92 | 14.62 | <50 | — | <0.5 | 1.6 | 2.5 | 4.4 | — | — | — |
| | 01/05/93 | 8.36 | 180 | — | <0.5 | <0.5 | <0.5 | 0.5 | — | — | — |
| | 04/27/93 | 8.50 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 04/27/93[dup] | 8.50 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 04/25/94 | 9.83 | 99 | — | 0.83 | <0.5 | <0.5 | 1.1 | — | — | — |
| | 04/12/95 | 7.30 | <50 | — | <0.5 | 1.2 | 1.9 | 6.4 | — | — | — |
| MW-2 | 04/11/90 | 12.46 | <50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 0.74 | <0.4 | <10 |
| (Annually, | 07/23/90 | 13.84 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | 0.7 | <0.5 | <5 |
| 2nd Qtr) | 10/23/90 | 16.21 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | 0.8 | <0.5 | — |
| | 01/18/91 | 13.64 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | 0.5 | <0.5 | — |
| | 04/23/91 | 9.05 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | <0.5 | — |
| | 07/23/91 | 13.41 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | <0.5 | — |
| | 10/23/91 | 15.03 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | — |
| | 01/24/92 | 12.86 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | — |
| | 04/28/92 | 9.56 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | — |
| | 07/02/92 | 13.70 | — | — | — | — | — | — | — | — | — |
| | 10/06/92 | 15.21 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | — |
| | 01/05/93 | 8.90 | — | — | — | — | — | — | — | — | — |
| | 04/27/93 | 8.82 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 04/25/94 | 10.29 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 04/12/95 | 7.74 | <50 | — | 0.51 | 1.1 | 1.7 | 5.7 | — | — | — |

Table 2. Analytic Results for Ground Water - Shell Service Station, WIC #204-5508-2709, 3750 East 14th Street, Oakland, California (continued)

| Sample | Date Sampled | Depth to Water (ft) | TPH-G | TPH-D | B | E | T | X | TCE | TCA | POG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ← parts per billion (µg/L) → | | | | | | | | |
| MW-3 (Quarterly) | 04/11/90 | 11.20 | 290 | 330 | <0.5 | 0.6 | <0.5 | 0.9 | <0.4 | <0.4 | <10 |
| | 07/23/90 | 12.53 | 600 | — | 3.1 | 13 | 1.6 | 15 | <0.5 | 0.6 | <5 |
| | 10/23/90 | 14.92 | 120 | 130[a] | 0.6 | <0.5 | <0.5 | 1.1 | <0.5 | <0.5 | <5 |
| | 01/18/91 | 12.64 | 460 | 760 | 6.4 | 3.2 | 1.7 | 1.4 | <0.5 | <0.5 | — |
| | 04/23/91 | 8.13 | 530 | 730[a] | 7.1 | 17 | 11 | 18 | — | — | — |
| | 07/23/91 | 12.06 | 900 | 770[a] | 2.0 | <0.5 | 2.8 | 4.6 | — | — | — |
| | 10/23/91 | 13.79 | 800 | 570[a] | 5.6 | <0.5 | 0.7 | 4.6 | — | — | — |
| | 01/24/92 | 11.58 | 1,300 | 830 | 2.3 | 3.8 | 2.3 | 5.2 | — | — | — |
| | 04/28/92 | 8.55 | 520 | 300[a] | 0.6 | 1.2 | 0.9 | 3.4 | — | — | — |
| | 07/02/92 | 11.30 | 1,500 | 210[a] | 39.0 | 2.0 | 7.3 | 18.0 | — | — | — |
| | 10/06/92 | 13.96 | 950 | 120[a] | <0.5 | 16 | 29 | 37 | — | — | — |
| | 01/05/93 | 8.42 | 2,200 | — | <0.5 | <0.5 | <0.5 | 5.8 | — | — | — |
| | 04/27/93 | 7.90 | 2,000 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 07/22/93 | 10.84 | 2,500[b] | — | 120 | 65 | 60 | 95 | — | — | — |
| | 10/18/93 | 13.02 | 2,000[b] | — | 18 | <2.5 | <2.5 | 10 | — | — | — |
| | 01/25/94 | 10.83 | 11,000[c] | — | <12.5 | <12.5 | <12.5 | <12.5 | — | — | — |
| | 01/25/94[dup] | 10.83 | 12,000[c] | — | <12.5 | <12.5 | <12.5 | <12.5 | — | — | — |
| | 04/25/94 | 9.19 | 1,100 | — | <2 | <2 | <2 | <2 | — | — | — |
| | 04/25/94[dup] | 9.19 | 890 | — | <5 | <5 | <5 | <5 | — | — | — |
| | 07/20/94 | 11.02 | 5,000[c] | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 10/11/94 | 12.79 | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 01/13/95 | 5.05 | 590 | — | 3.7 | 0.8 | <0.5 | <0.5 | — | — | — |
| | 01/13/95[dup] | 5.05 | 750 | — | 3.0 | 1.3 | <0.5 | <0.5 | — | — | — |
| | 04/12/95 | 7.22 | 280 | — | <0.5 | <0.5 | 0.78 | 3.3 | — | — | — |
| | 07/25/95 | 10.06 | 950 | — | 6.2 | 9.8 | 4.1 | <0.5 | — | — | — |
| | 10/04/95 | 11.78 | 470 | — | 9.1 | 3.9 | 12 | 18 | — | — | — |
| | 10/04/95[dup] | 11.78 | 470 | — | 9.4 | 4.2 | 12 | 18 | — | — | — |
| | **01/10/96** | **8.58** | **1,400** | — | **3.8** | **5.1** | **<0.5** | **<0.5** | — | — | — |
| | **01/10/96[dup]** | **8.58** | **1,500** | — | **4.1** | **1.9** | **<0.5** | **<0.5** | — | — | — |
| MW-4 (Quarterly) | 07/02/92 | 11.90 | 580 | — | 210 | 290 | <0.5 | 6.3 | — | — | — |
| | 10/06/92 | 14.43 | 98 | — | 2.9 | 4.2 | 0.7 | 9.1 | — | — | — |
| | 10/06/92[dup] | — | 170 | — | 2.2 | 3.8 | 0.6 | 12 | — | — | — |
| | 01/05/93 | 8.64 | 740 | — | 28 | 53 | <0.5 | 4.0 | — | — | — |

Table 2. Analytic Results for Ground Water - Shell Service Station, WIC #204-5508-2709, 3750 East 14th Street, Oakland, California (continued)

| Sample | Date Sampled | Depth to Water (ft) | TPH-G | TPH-D | B | E | T | X | TCE | TCA | POG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ← parts per billion (µg/L) → | | | | | | | | |
| | 01/05/93[dup] | — | 840 | — | 29 | 52 | <0.5 | 5.0 | — | — | — |
| | 04/27/93 | 8.34 | 90 | — | 1.5 | 4.2 | <0.5 | 0.8 | — | — | — |
| | 07/22/93 | 11.48 | 400 | — | 20 | 32 | 3.3 | 9.4 | — | — | — |
| | 07/22/93 | 11.48 | 400 | — | 19 | 29 | 4.0 | 11 | — | — | — |
| | 10/18/93 | 13.54 | <50 | — | 1.9 | <0.5 | <0.5 | 0.7 | — | — | — |
| | 10/18/93[dup] | 13.54 | <50 | — | 1.8 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 01/25/94 | 11.18 | 2,200 | — | 39 | 55 | 9.0 | 45 | — | — | — |
| | 04/25/94 | 9.65 | 1,400 | — | 21 | 52 | <5 | 9.7 | — | — | — |
| | 07/20/94 | 11.60 | 1,100 | — | 21 | 30 | <0.5 | 6.7 | — | — | — |
| | 07/20/94[dup] | 11.60 | 880 | — | 20 | 30 | <0.5 | 6.5 | — | — | — |
| | 10/11/94 | 13.33 | 660 | — | <0.5 | 3.5 | <0.5 | 3.3 | — | — | — |
| | 10/11/94[dup] | 13.33 | 700 | — | <0.5 | 3.6 | <0.5 | 3.3 | — | — | — |
| | 01/13/95 | 5.08 | 3,900 | — | 30 | 100 | 0.9 | 5.3 | — | — | — |
| | 04/12/95 | 7.02 | 250 | — | 1.9 | 6.3 | 1.6 | 5.6 | — | — | — |
| | 04/12/95[dup] | 7.02 | 250 | — | 2.0 | 6.5 | 1.7 | 5.9 | — | — | — |
| | 07/25/95 | 10.30 | 210 | — | 7.2 | 16 | 1.0 | 1.4 | — | — | — |
| | 07/25/95[dup] | 10.30 | 200 | — | 7.0 | 16 | 1.0 | 1.4 | — | — | — |
| | 10/04/95 | 12.34 | 140 | — | 2.2 | 2.9 | <0.5 | <0.5 | — | — | — |
| | 01/10/96 | 9.03 | 620 | — | <0.5 | 35 | <0.5 | 5.3 | — | — | — |
| Bailer Blank | 07/02/92 | — | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 10/06/92 | — | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| Trip Blank | 04/11/90 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 07/23/90 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 10/23/90 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 01/18/91 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 04/23/91 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 07/23/91 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 10/23/91 | | — | — | — | — | — | — | — | — | — |
| | 01/24/92 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 04/28/92 | | — | — | — | — | — | — | — | — | — |
| | 07/02/92 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 10/06/92 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |



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Table 2. Analytic Results for Ground Water - Shell Service Station, WIC #204-5508-2709, 3750 East 14th Street, Oakland, California (continued)

| Sample | Date Sampled | Depth to Water (ft) | TPH-G | TPH-D | B | E | T | X | TCE | TCA | POG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ← parts per billion (µg/L) → | | | | | | | | |
| | 01/05/93 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 04/27/93 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 07/22/93 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 10/18/93 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 01/25/94 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 04/25/94 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 07/20/94 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 10/11/94 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 01/13/95 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 04/12/95 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 07/25/95 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | 10/04/95 | | <50 | — | <0.5 | <0.5 | <0.5 | <0.5 | — | — | — |
| | **01/10/96** | | **<50** | **—** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **—** | **—** | **—** |
| *DTSC MCLs* | | | NE | NE | 1.0 | 680 | 100[d] | 1,750 | 5.0 | 200 | NE |

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015
TPH-D = Total petroleum hydrocarbons as diesel by Modified EPA Method 8015
B = Benzene by EPA Method 602 or 8020
E = Ethylbenzene by EPA Method 602 or 8020
T = Toluene by EPA Method 602 or 8020
X = Xylenes by EPA Method 602 or 8020
TCE = Trichloroethene by EPA Method 8010/601
TCA = 1,1,1-Trichloroethane by EPA Method 8010/601
POG = Petroleum oil and grease by American Public Health Association Standard *Methods 503E*
DTSC MCLs = California Department of Toxic Substances Control maximum contaminant levels for drinking water
NE = Not established
— = Not analyzed
dup = Duplicate sample
<n = Not detected at detection limit of n ppb

Notes:

a = Results due primarily to low boiling hydrocarbons, possibly gasoline or kerosene
b = The concentration reported as gasoline is due to the presence of gasoline and a discrete peak not indicative of gasoline.
c = The concentrations reported as gasoline are primarily due to the presence of a discrete peak not indicative of gasoline.
d = DTSC recommended action level for drinking water, MCL not established

Table 1. **Commercial/Industrial Receptors** - Comparison of Site Characterization Data to Tier 1 Risk-Based Screening Levels - Shell Service Station, WIC #204-5508-2709, 3750 East 14th Street, Oakland, California

| Source Medium | Exposure Pathway | Potentially Complete Pathway? | Benzene | | Ethylbenzene | | Toluene | | Xylenes | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Maximum Detected Concentration[a] | RBSL[b] | Maximum Detected Concentration[a] | RBSL[c] | Maximum Detected Concentration[a] | RBSL[c] | Maximum Detected Concentration[a] | RBSL[c] |
| Soil (mg/kg) | **Volatilization to Outdoor Air** | **Yes** | 0.032 | 1.33 | 0.73 | RES | 0.55 | RES | 2.0 | RES |
| | **Vapor Intrusion to Buildings** | **Yes** | 0.032 | 0.032 | 0.73 | 1,100 | 0.55 | 54.5 | 2.0 | RES |
| | *Surficial Soil (0-3 ft depth):* Ingestion/Dermal/Inhalation | *No* | No Data | 29 | No Data | 11,500 | No Data | 18,700 | No Data | 208,000 |
| | Leachate to Ground Water for Ingestion | No | 0.032 | 0.17 | 0.73 | 1,610 | 0.55 | 361 | 2.0 | RES |
| Ground Water (mg/l) | **Volatilization to Outdoor Air** | **Yes** | 0.0094 | 53.4 | 0.035 | >S | 0.012 | >S | 0.018 | >S |
| | **Vapor Intrusion to Buildings** | **Yes** | 0.0094 | 0.21 | 0.035 | >S | 0.012 | 85 | 0.018 | >S |
| | Ingestion | No | 0.0094 | 0.029 | 0.035 | 10.2 | 0.012 | 20.4 | 0.018 | >S |

Notes:

RBSL = ASTM RBCA Tier 1 Risk-Based Screening Level
RES = Selected risk level is not exceeded for pure compound present at any concentration in soil.
>S = At pure compound solubility (mg/l), selected risk level is not exceeded.
a = *Maximum concentrations in soil* were detected in a sample collected on 4/05/90 from 14.2 ft depth in the soil boring for well MW-3. Maximum concentrations in ground water during the most recent four quarters of ground water sampling (April 1995 - January 1996) were detected in samples collected on 10/04/95 from well MW-3 (benzene, toluene and xylenes) and on 1/10/96 from well MW-4 (ethylbenzene).
b = The RBSLs used for benzene are based on a carcinogenic risk of 1 in 100,000 ($10^{-5}$) and California's standard cancer slope factor of 0.1 mg/kg-day.
c = The RBSLs used for non-carcinogenic compounds are based on a chronic hazard quotient of 1.0.