

March 25, 2002

*Livermore-Pleasanton Fire Department  
4550 East Avenue  
Livermore, CA 94550*

MAR 27 2002

**RE: EQUILON ENTERPRISES LLC / Equiva Services LLC dba SHELL OIL PRODUCTS US**

Dear Sir or Madam:

The Shell purchase of Texaco's interest in Equilon Enterprises LLC and Equiva Services LLC has been approved by government authorities and was completed in early February.

Please be advised that effective March 1, 2002, Equilon Enterprises LLC and Equiva Services LLC will begin doing business as (DBA) "Shell Oil Products US." Since Equilon Enterprises LLC will remain the owner and/or the responsible Party of remediation activities at **318 South Livermore Avenue, Livermore, California**, no changes are needed or requested for permits.

If you have any questions please contact Ms. Karen Petryna at 559.645.9306.

Yours truly,

T.L. RIPP FOR

Karen Petryna  
Sr. Environmental Engineer



**IT Corporation**

1921 Ringwood Avenue  
San Jose, CA 95131-1721  
Tel. 408.453.7300  
Fax. 408.437.9526

A Member of The IT Group

March 25, 2002

Ms. Julie Wyman  
Livermore-Pleasanton Fire Department  
4550 East Avenue  
Livermore, CA 94550

Shell Oil Products US GRASP Site Report  
318 South Livermore Avenue, Livermore, California

Dear Ms. Wyman:

Enclosed, please find the site report for the site investigation conducted at 318 South Livermore Avenue, Livermore, California, on September 13, 14, 17, and 18, 2001 in association with the Groundwater Assessment Program (GRASP) initiated by Shell Oil Products US (Shell). The purpose of the investigation was to obtain the site data necessary to develop a site conceptual model, including the depth to groundwater, direction of groundwater flow, potential release sources, and the distance to and direction of the nearest water supply well.

Groundwater was encountered at approximately 40 feet below ground surface at the site. The direction of groundwater flow based on the groundwater contour map generated from site data is to the northwest. Four monitoring wells (MW-5 through MW-8) were installed during the investigation, as indicated on the attached boring logs/well completion diagrams.

Groundwater grab samples were collected and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), and for fuel oxygenates (including methyl-tertiary-butyl ether [MTBE], ethyl tert-butyl ether [ETBE], diisopropyl ether [DIPE], tert butyl alcohol [TBA], tertiary amyl methyl ether [TAME]) by U.S. EPA Method 8260B. As indicated on the attached certified analytical reports, MTBE was detected in the groundwater sample from well MW-7. Soil samples were also collected for analysis from selected intervals. MTBE was not detected in any of the soil samples.

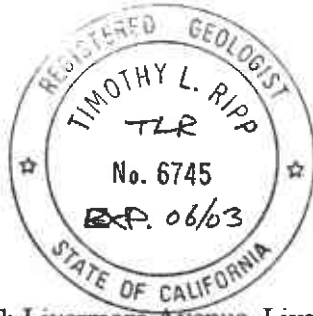
Based on information provided in the "Geotracker" database maintained by the California State Water Resources Control Board, the nearest active water supply well is located 1192 feet northeast of the site (California Water Service Co. Well 12-01 - 03S/02E-09P01 M), as shown on the attached map and printouts from the database.

Please call if you have any questions or comments concerning the enclosed report.

Sincerely,  
**IT Corporation**



Timothy L. Ripp, R.G. 6745  
Project Geologist



Enclosure – Site Report – 318 South Livermore Avenue, Livermore, California

Distribution

Ms. Isabel Mejia  
Shell Oil Products US  
2255 N. Ontario Street  
Burbank, California 91504

Chuck Headlee  
Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

Mr. Scott Seery  
Alameda County  
Environmental Health Services  
1131 Harbor Bay Parkway  
Alameda, CA 94502-6577

IT Corporation Project Files – Job No. 830053.00000002

# Shell Oil Products US GRASP Site Report

**LOCATION INFORMATION**

SHELL PROJECT MANAGER: **Karen Petryna**

INCIDENT NUMBER: **97306783**

SITE ADDRESS: **318 South Livermore Avenue**

CITY / ST / ZIP: **Livermore, CA 94550**

**SITE ASSESSMENT INFORMATION**

**Contractor/Pre-mob Check List**

Discussed anticipated field conditions

Performed utility clearance

Discussed safety issues, protocols

Discussed typical/special conditions

Checked applicable regulations

Prepared basemap

Drilling Contractor: **Watermark Drilling for Water Development Corporation**

**CONSULTANT INFORMATION**

CONSULTANT COMPANY: **IT Corporation**

CONSULTANT ADDRESS: **1921 Ringwood Avenue**

CITY / ST / ZIP: **San Jose, CA 95131**

CONSULTANT PROJECT NUMBER: **830053.00000002**

TELEPHONE: 408-**350-5690** FAX: 408-437-9526 E-MAIL: **rbussard@thelgroup.com**

GEOLOGIST (Print): **Regina Bussard (RMB)**

**Geology/Groundwater/Hydrocarbon Information**

Number of: Soil borings: \_\_\_ Wells: **4** Cores: \_\_\_ Stratigraphy: **L** Predominant geology: **mixed layers (gravels, silts, clays)**

Hydrocarbons indicated in soil:  No  Yes Description: **gray streaks, occasional very faint odor (32' bgs); likely old contamination**

Groundwater depth: **40 ft.** Groundwater flow direction: **NW** Is NAPL present?  No  Yes

Comments: \_\_\_\_\_

**SITE REVIEW INFORMATION**

**GSRE/FSI**

	Original	Post Site Review	Post Assessment
GSRE Score:	<b>71</b>	_____	_____
Date:	<b>4/17/01</b>	_____	_____
FSI Score	_____	_____	_____

Engineer: \_\_\_\_\_

GRASP Eligibility  Eligible  Not eligible, Explain below: \_\_\_\_\_

**Well Completion Information**

Well ID:	MW-5	MW-6	MW-7	MW-8				
Well location (latitude)	37.68091469	37.68077680	37.68068407	37.68081090				
Well location (longitude)	-121.766181	-121.765767	-121.766044	-121.766257				
Total depth	55.5 ft.	53.5 ft.	53.5 ft.	51.5 ft.				
Depth to top of screen	40.5 ft.	38.5 ft.	36.5 ft.	36.5 ft.				
Depth to bottom of screen	55.5 ft.	53.5 ft.	51.5 ft.	51.5 ft.				
Survey Ref. (TOC/ GS)	TOC	TOC	TOC	TOC				
Survey Ref. Elevation	495.47 ft.	497.57 ft.	495.58 ft.	494.90 ft.				

**Water Supply Well Information** Distance (ft): **1,299 ft./1,192 ft.** Direction: **NE**

Data Source/Method: **Equiva DataBase/Geotracker (PTOOL)**

Description: **California Water Service Co. Well 12-01 (03S/02E-09P01 M) residential**

**Preliminary Site Conceptual Model Established**

Basis (check all that apply and describe each used)

Site Data **closure summary, quarterlies, soil investigation rpt.**

Nearby Site Data \_\_\_\_\_

Regional Data **Zone 7 GW Level Contour Map (Fall 1996)**

Is current and/or available data enough to initiate Tier II? Explain below:  Yes  No

Fulfilled all aspects of the preliminary site conceptual model with data collected.

Anticipated geology: **GP/GC/GM(0'-15'); ML(15'-35'); CL (35'-55')**

Anticipated groundwater depth and gradient: **\_30' bgs; SW-NW**

Comment: \_\_\_\_\_

**Groundwater Analytical Information (ug/l)**

Well / Boring ID	MW-5	MW-6	MW-7	MW-8				
Date	9/18/01	9/18/01	9/18/01	9/18/01				
Method	EPA 8260B	EPA 8260B	EPA 8260B	EPA 8260B				
Benzene	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50				
Toluene	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50				
Ethylbenzene	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50				
Xylene	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50				
MTBE	ND < 0.50	ND < 0.50	<b>1.2</b>	ND < 0.50				
TAME	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0				
DIPE	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0				
ETBE	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0				
TBA	ND < 50	ND < 50	ND < 50	ND < 50				
Other:								

**Comments**

See attached GeoTracker sheets for more water supply well information.

Base map attached?

Field notes attached?

Electronic file submitted?

Work Start Date: **8/24/01** Completion Date: **9/18/01** Form Submittal Date: \_\_\_\_\_ Environmental Engineer Signature: \_\_\_\_\_

## **Certification/Disclaimer**

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## **List of Tables**

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- 1 Summary of Survey and Depth-to-Water Data

## **List of Figures**

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- 1 Site Location Map
- 2 Site Map
- 3 Groundwater Contour Elevation Map

## **List of Attachments**

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- Attachment A - Receptor Survey Findings
- Attachment B - Excerpts from Adjacent Facility File Reviews
- Attachment C - Boring Logs/Well Completion Diagrams
- Attachment D - Well Development Information
- Attachment E - Analytical Data for Groundwater Samples
- Attachment F - Analytical Data for Soil Samples
- Attachment G - Well Survey Data
- Attachment H - Permits

**CERTIFICATION/DISCLAIMER**

## **CERTIFICATION/DISCLAIMER**

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This report is intended for the sole and exclusive use of Equiva Services LLC and not for the benefit of others and should not be used or relied upon by others. The findings set forth in this report are limited to those specifically expressed in the report. No other representations or warranties are given by IT Corporation (IT) and no additional conclusions should be reached or representations relied upon other than those expressly stated in the report and as limited by the IT Terms and Conditions.

The statement, opinions, and conclusions presented in this report are based solely on the services performed by IT and its subcontractors, as described in this report, and the scope of work established for the report by the Equiva Services LLC budgetary and time constraints and the terms and conditions of IT's agreement with Equiva Services LLC. In performing these services and preparing this report, IT relied upon work and information provided by others, including public agencies, whose information is not guaranteed by IT.



SUMMARY OF SURVEY AND DEPTH-TO-WATER DATA  
Shell-Branded Service Station  
318 South Livermore Avenue  
Livermore, California

<b>WELL DESIGNATION</b>	<b>GAUGING DATE</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>	<b>ELEVATION TOC (FT.)</b>	<b>DEPTH TO WATER (FT.)</b>	<b>GW ELEVATION (FT.)</b>
MW-5	12/08/2001	37.68091469	-121.7661814	495.47	38.95	456.52
MW-6	12/08/2001	37.68077680	-121.7657671	497.57	38.90	458.67
MW-7	12/08/2001	37.68068407	-121.7660437	495.58	38.05	457.53
MW-8	12/08/2001	37.68081090	-121.7662568	494.90	38.35	456.55

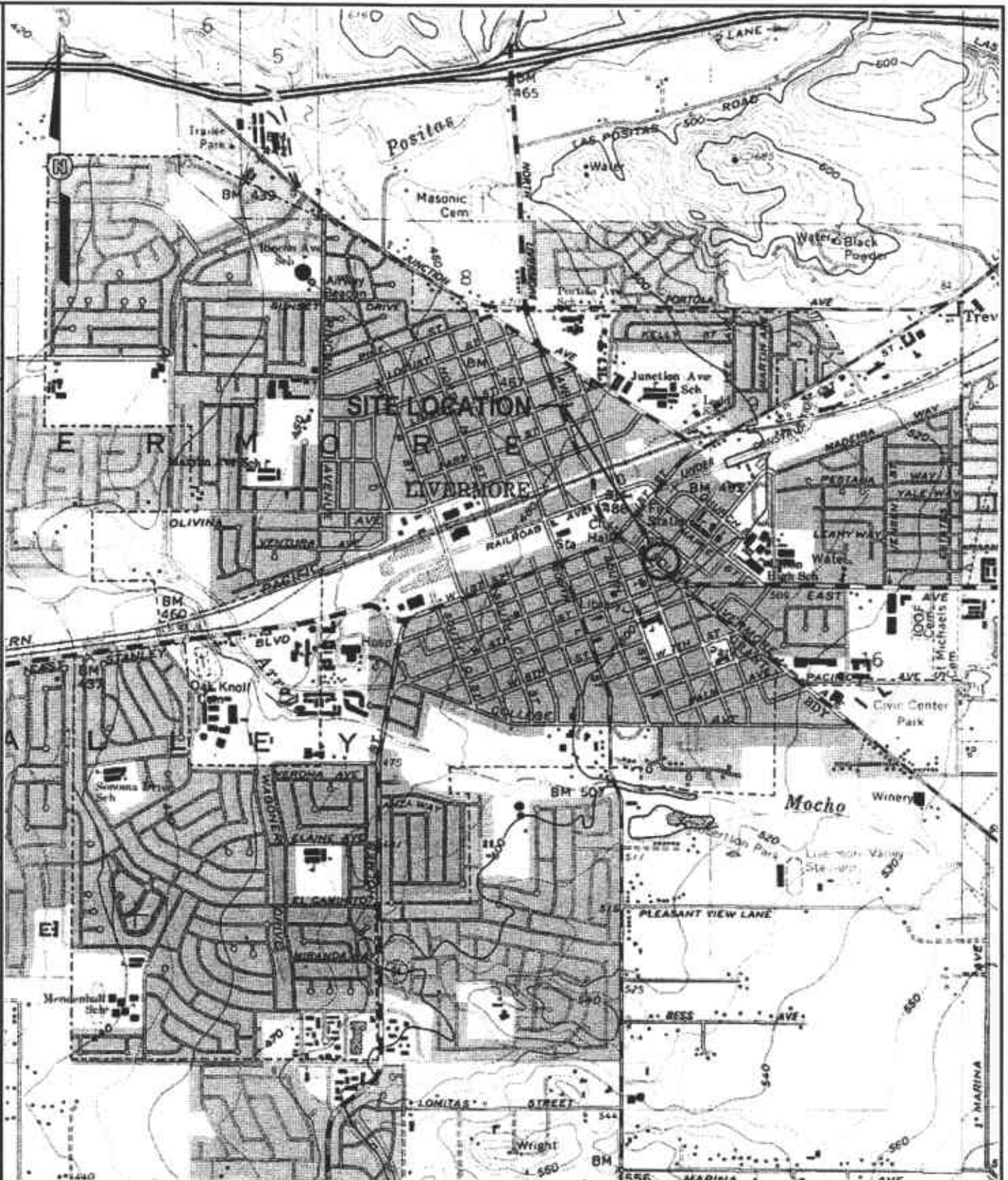
PROJECT NUMBER 830053

APPROVED BY

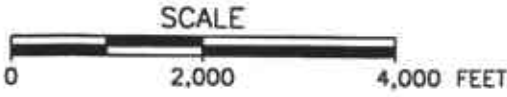
CHECKED BY

DRAWN BY

K. Black 2-5-02



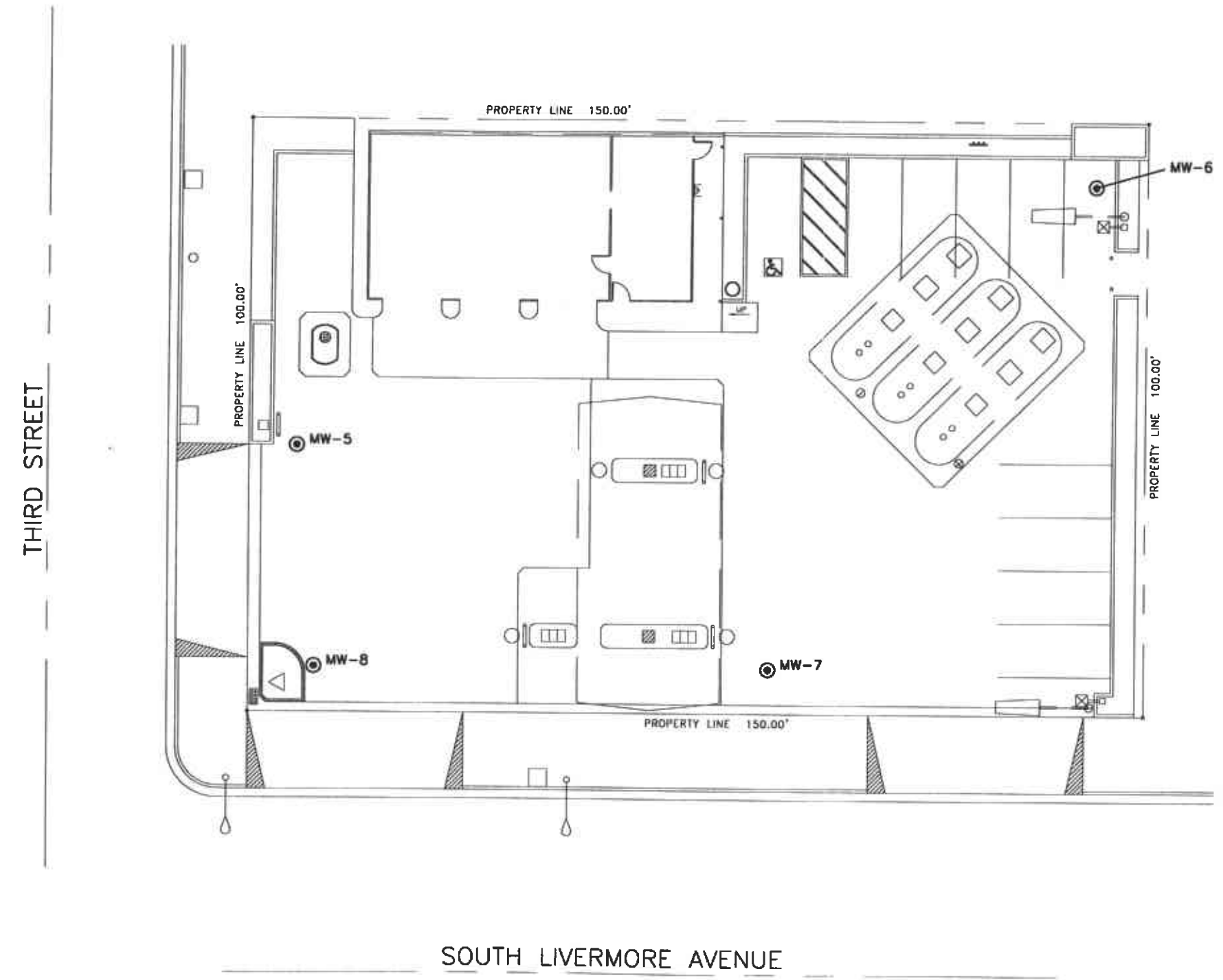
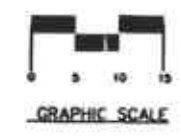
Printed from TOPO! ©2001 National Geographic Holdings (www.topo.com)



SHELL OIL PRODUCTS US

FIGURE 1  
SITE LOCATION MAP

318 SOUTH LIVERMORE AVENUE  
LIVERMORE, CALIFORNIA



**LEGEND**

- ⊙ MONITORING WELL

VICINITY MAP

NOTES

PROJECT SCOPE OF WORK

SITE INFORMATION

REVISIONS



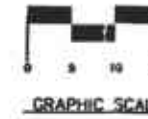
SHELL OIL COMPANY  
HOUSTON, TEXAS

PROPOSED SITE PLAN

318 SOUTH LIVERMORE AVENUE & THIRD STREET  
LIVERMORE, CALIFORNIA

SCALE: 1" = 10'-0"	DRAWING # 41-1
DATE: 1/25/95	WIC # 204-4380-0303
DWN. BY: S. LEE/MD	
CHKD. BY: VP	

THESE DRAWINGS AND SPECIFICATIONS ARE THE CONFIDENTIAL AND PROPRIETARY PROPERTY OF SHELL OIL COMPANY AND SHALL NOT BE COPIED OR REPRODUCED WITHOUT SHELL'S WRITTEN AUTHORIZATION. THEY ARE INTENDED AS CONTRACT DOCUMENTS FOR USE ON THIS SPECIFIC PROJECT IN CONJUNCTION WITH ITS ISSUE DATE AND ARE NOT SUITABLE FOR USE ON A DIFFERENT PROJECT OR AT A LATER DATE.



VICINITY MAP

NOTES

PROJECT SCOPE OF WORK

SITE INFORMATION

REVISIONS



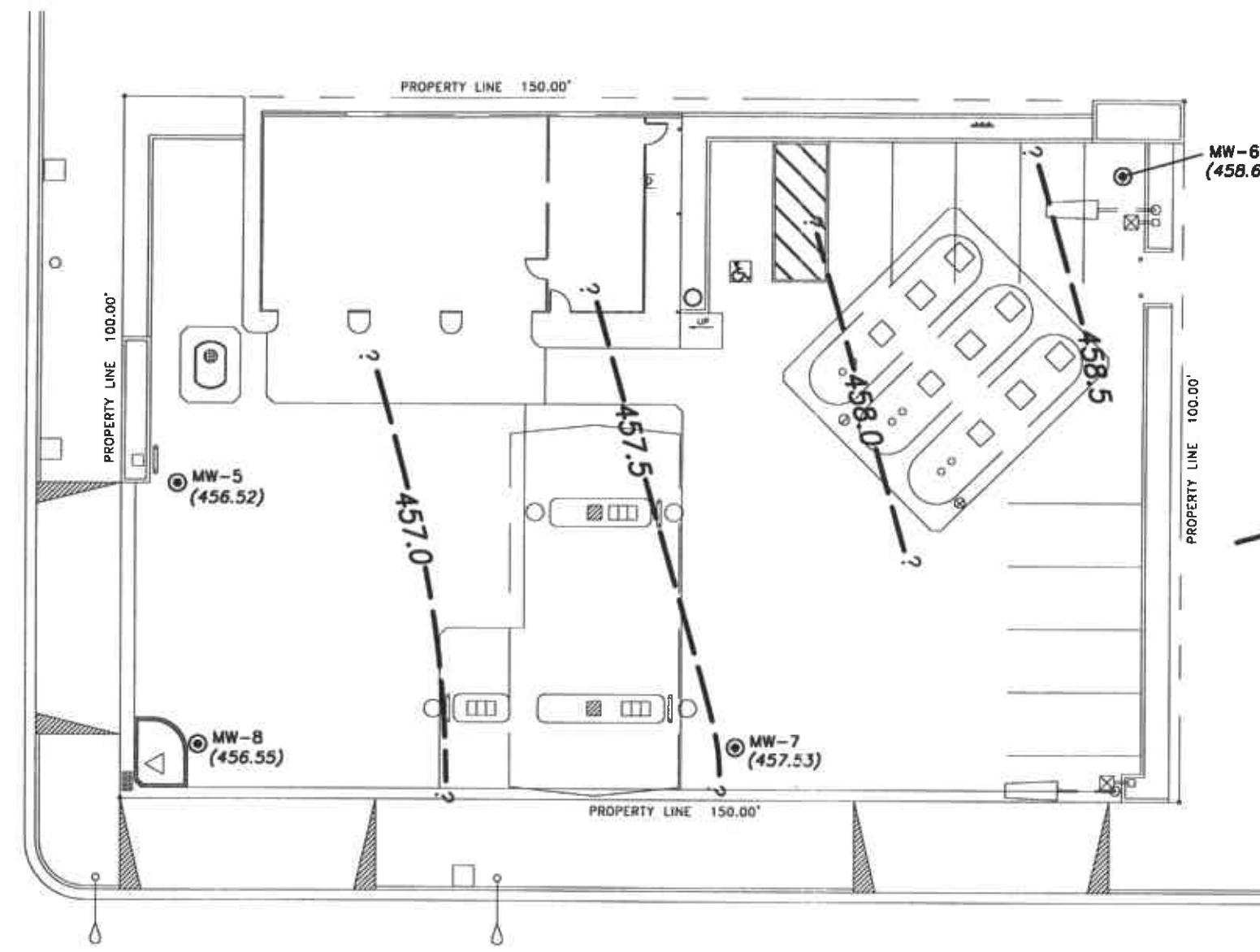
SHELL OIL COMPANY  
HOUSTON, TEXAS

PROPOSED SITE PLAN

318 SOUTH LIVERMORE AVENUE & THIRD STREET  
LIVERMORE, CALIFORNIA

SCALE: 1" = 10'-0"	DRAWING # P-1
DATE: 1/25/95	WIC # 204-4360-0303
OWN. BY: S. LEE/MD	
CHKD. BY: VP	

THIRD STREET



LEGEND

⊙ MONITORING WELL

(456.52) GROUNDWATER ELEVATION  
(FT.-MSL); MEASURED  
12-8-01

--- GROUNDWATER ELEVATION  
CONTOUR (FT.-MSL)

←  
APPROXIMATE DIRECTION  
OF GROUNDWATER FLOW

APPROXIMATE GRADIENT=0.015

SOUTH LIVERMORE AVENUE

THESE DRAWINGS AND SPECIFICATIONS ARE THE CONFIDENTIAL AND PROPRIETARY PROPERTY OF SHELL OIL COMPANY AND SHALL NOT BE COPIED OR REPRODUCED WITHOUT SHELL'S WRITTEN AUTHORIZATION. THEY ARE INTENDED AS CONTRACT DOCUMENTS FOR USE ON THIS SPECIFIC PROJECT IN CONJUNCTION WITH ITS ISSUE DATE AND ARE NOT SUITABLE FOR USE ON A DIFFERENT PROJECT OR AT A LATER DATE.

**ATTACHMENT A**  
**RECEPTOR SURVEY FINDINGS**



ZoomIn 2X ZoomOut 2X Pan Identify LUFT Sites

Layers

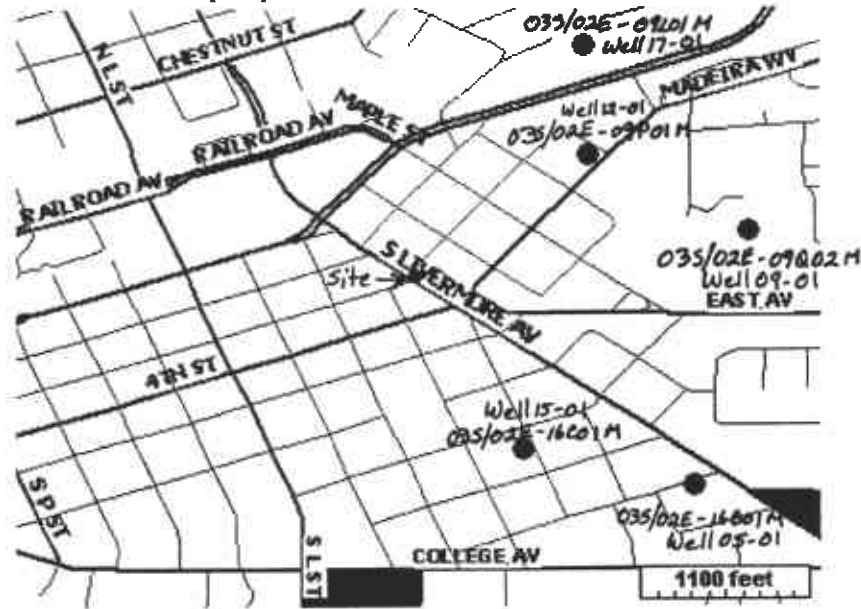
- LUFT Sites
- UST Sites
- Public Wells
- Highways
- Major Roads
- Minor Roads
- USGS Quads
- Surface Water
- Watersheds
- GW Basins
- Vulnerability

Map Size: 1X



Show Open sites within Any of public wells.

Click on the map to perform the selected action.



Street: 318 S. Livermore Avenue

City: Livermore Zip:

GeoTracker Home | Contact Site Administrator | Road Maps by ETAK  
Well and LUFT site positions are approximate. Locational accuracy will improve as state agencies and responsible parties obtain and report new information.

**Regulatory History**

**SHELL (LIVERMORE)**  
 318 LIVERMORE AVE S  
 LIVERMORE , CA 94550  
 (Show this Site on Map)

**Regional Board - Case #: 01-1354**  
 SAN FRANCISCO BAY RWQCB (REGION 2) - (CTH)  
**Local Agency (lead agency) - Case #: 1976**  
 ALAMEDA DEPT OF ENVIR. HEALTH - (UNK)

<u>Water System Name</u>	<u>Water System ID</u>	<u>Well Name</u>	<u>Common Well Name</u>	<u>Dist To</u>
CALIFORNIA WATER SERVICE	0110003	<u>03S/02E-09P01 M</u>	WELL 12-01	1192 Feet
CALIFORNIA WATER SERVICE	0110003	<u>03S/02E-16C01 M</u>	WELL 15-01	1306 Feet
CALIFORNIA WATER SERVICE	0110003	<u>03S/02E-09Q02</u>	WELL 09-01	1674 Feet
CALIFORNIA WATER SERVICE	0110003	<u>03S/02E-09L01 M</u>	WELL 17-01	1961 Feet
CALIFORNIA WATER SERVICE	0110003	<u>03S/02E-16B01 M</u>	WELL 05-01	2043 Feet

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

**Well Report****CALIFORNIA WATER SERVICE CO (LIVERMORE)****WELL 12-01**

State Well Number: 03S/02E-09P01 M

[\(Show This Well on Map\)](#)[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)**Local Name**

WELL 12-01 (03S/02E-09P01 M)

**Source Origin**

Groundwater

**Status**

Unknown

**Treatment Method**

No Treatment/Non Applicable

**Treatment Phase**

Water

**16 LUFT Site(s) Estimated to be Within 1/2 Mile Proximity of this Well**

- [List These LUFT Sites](#)

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)



**Geographic Information**

CALIFORNIA WATER SERVICE CO (LIVERMORE)

WELL 12-01

State Well Number: 03S/02E-09P01 M

(Show This Well on Map)

[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)**Nearest Physical Address:**

Unknown

**Elevation of well:**

Unknown

**Geographic Information****Latitude:**

37.683334685

**Longitude:**

-121.7626142

**Projection:**

Geographic Projection

**Datum:**

North American Datum 1983

**Estimated error in Location:**

96 feet

**Method:**

PTOOL

**Source of Data:**

ETAK Geocoding Class 1 Block Match - Street Segment Exact Address Match

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

**Public Water System Information****CALIFORNIA WATER SERVICE CO (LIVERMORE)****WELL 12-01**

State Well Number: 03S/02E-09P01 M

[\(Show This Well on Map\)](#)[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)**Public Water System**

CALIFORNIA WATER SERVICE CO

**Water System Address:**195 S N ST  
LIVERMORE, CA 94550-4350**PWS Class:**

Community Water System (CWS)

**Ownership/Regulation****Ownership:**

Private - Investor Owned, Mutual Water Company, Cooperative, Association.

**Regulating Entity:**

State

**Service Area:**

Residential Area

**Date Entered System:**

3/24/1992

**System Status:**

Active

**Deactivation Date:****Last Revised:**

4/8/1998

**Connection Information****Number of Service Connections:**

15792

**Population Served:**

53540

- [List all wells for this Public Water System](#)

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

<b>Well Report</b>	
CALIFORNIA WATER SERVICE CO (LIVERMORE)	
WELL 15-01	
State Well Number: 03S/02E-16C01 M - (Associated GAMA Information)	
<a href="#">(Show This Well on Map)</a>	
<a href="#">Well Details</a>   <a href="#">Geographic Information</a>   <a href="#">DHS Water Quality Data</a>   <a href="#">PWS Detailed Information</a>	
<hr/>	
<b>Local Name</b>	
WELL 15-01 (03S/02E-16C01 M)	
<b>Source Origin</b>	<b>Status</b>
Groundwater	Unknown
<b>Treatment Method</b>	<b>Treatment Phase</b>
No Treatment/Non Applicable	Water
<b>9 LUFT Site(s) Estimated to be Within 1/2 Mile Proximity of this Well</b>	
• <a href="#">List These LUFT Sites</a>	

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

**Geographic Information****CALIFORNIA WATER SERVICE CO (LIVERMORE)****WELL 15-01**

State Well Number: 03S/02E-16C01 M - (Associated GAMA Information)

[\(Show This Well on Map\)](#)[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)**Nearest Physical Address:**

Unknown

**Elevation of well:**

Unknown

**Geographic Information****Latitude:**

37.677044885

**Longitude:**

-121.7640043

**Projection:**

Geographic Projection

**Datum:**

North American Datum 1983

**Estimated error in Location:**

96 feet

**Method:**

PTOOL

**Source of Data:**

ETAK Geocoding Class 1 Block Match - Street Segment Exact Address Match

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

## Public Water System Information

### CALIFORNIA WATER SERVICE CO (LIVERMORE)

#### WELL 15-01

State Well Number: 03S/02E-16C01 M - (Associated GAMA Information)

([Show This Well on Map](#))

[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)

#### Public Water System

CALIFORNIA WATER SERVICE CO

#### Water System Address:

195 S N ST  
LIVERMORE, CA 94550-4350

#### PWS Class:

Community Water System (CWS)

### Ownership/Regulation

#### Ownership:

Private - Investor Owned, Mutual Water Company, Cooperative, Association.

#### Regulating Entity:

State

#### Service Area:

Residential Area

#### Date Entered System:

3/24/1992

#### System Status:

Active

#### Deactivation Date:

#### Last Revised:

4/8/1998

### Connection Information

#### Number of Service Connections:

15792

#### Population Served:

53540

- [List all wells for this Public Water System](#)

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

<b>Well Report</b>	
CALIFORNIA WATER SERVICE CO (LIVERMORE) WELL 09-01 State Well Number: 03S/02E-09Q02 M ( <a href="#">Show This Well on Map</a> )	
<a href="#">Well Details</a>   <a href="#">Geographic Information</a>   <a href="#">DHS Water Quality Data</a>   <a href="#">PWS Detailed Information</a>	
<b>Local Name</b> WELL 09-01 (03S/02E-09Q02 M)	
<b>Source Origin</b> Groundwater	<b>Status</b> Unknown
<b>Treatment Method</b> No Treatment/Non Applicable	<b>Treatment Phase</b> Water
13 LUFT Site(s) Estimated to be Within 1/2 Mile Proximity of this Well	
• <a href="#">List These LUFT Sites</a>	

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

**Geographic Information****CALIFORNIA WATER SERVICE CO (LIVERMORE)****WELL 09-01**

State Well Number: 03S/02E-09Q02 M

[\(Show This Well on Map\)](#)[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)**Nearest Physical Address:**

Unknown

**Elevation of well:**

Unknown

**Geographic Information****Latitude:**

37.681686874

**Longitude:**

-121.759191

**Projection:**

Geographic Projection

**Datum:**

North American Datum 1983

**Estimated error in Location:**

730 feet

**Method:**

PTOOL

**Source of Data:**

ETAK Geocoding Class 1 Block Match - Street Segment Exact Address Match

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

### Public Water System Information

#### CALIFORNIA WATER SERVICE CO (LIVERMORE)

#### WELL 09-01

State Well Number: 03S/02E-09Q02 M

([Show This Well on Map](#))

[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)

#### Public Water System

CALIFORNIA WATER SERVICE CO

#### Water System Address:

195 S N ST  
LIVERMORE, CA 94550-4350

#### PWS Class:

Community Water System (CWS)

#### Ownership/Regulation

##### Ownership:

Private - Investor Owned, Mutual Water Company, Cooperative, Association.

##### Regulating Entity:

State

##### Service Area:

Residential Area

##### Date Entered System:

3/24/1992

##### System Status:

Active

##### Deactivation Date:

##### Last Revised:

4/8/1998

#### Connection Information

##### Number of Service Connections:

15792

##### Population Served:

53540

- [List all wells for this Public Water System](#)

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)



**Geographic Information****CALIFORNIA WATER SERVICE CO (LIVERMORE)****WELL 17-01**

State Well Number: 03S/02E-09L01 M - (Associated GAMA Information)

[\(Show This Well on Map\)](#)[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)**Nearest Physical Address:**

Unknown

**Elevation of well:**

Unknown

**Geographic Information****Latitude:**

37.685685315

**Longitude:**

-121.7627092

**Projection:**

Geographic Projection

**Datum:**

North American Datum 1983

**Estimated error in Location:**

96 feet

**Method:**

PTOOL

**Source of Data:**

ETAK Geocoding Class 1 Block Match - Street Segment Exact Address Match

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

**Well Report****CALIFORNIA WATER SERVICE CO (LIVERMORE)****WELL 17-01**

State Well Number: 03S/02E-09L01 M - (Associated GAMA Information)

(Show This Well on Map)

[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)**Local Name**

WELL 17-01 (03S/02E-09L01 M)

**Source Origin**

Groundwater

**Status**

Unknown

**Treatment Method**

No Treatment/Non Applicable

**Treatment Phase**

Water

12 LUFT Site(s) Estimated to be Within 1/2 Mile Proximity of this Well

- [List These LUFT Sites](#)

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

**Public Water System Information****CALIFORNIA WATER SERVICE CO (LIVERMORE)****WELL 17-01**

State Well Number: 03S/02E-09L01 M - (Associated GAMA Information)

[\(Show This Well on Map\)](#)[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)**Public Water System**

CALIFORNIA WATER SERVICE CO

**Water System Address:**195 S N ST  
LIVERMORE, CA 94550-4350**PWS Class:**

Community Water System (CWS)

**Ownership/Regulation****Ownership:**

Private - Investor Owned, Mutual Water Company, Cooperative, Association.

**Regulating Entity:**

State

**Service Area:**

Residential Area

**Date Entered System:**

3/24/1992

**System Status:**

Active

**Deactivation Date:****Last Revised:**

4/8/1998

**Connection Information****Number of Service Connections:**

15792

**Population Served:**

53540

- [List all wells for this Public Water System](#)

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

<b>Well Report</b>	
CALIFORNIA WATER SERVICE CO (LIVERMORE)	
WELL 05-01	
State Well Number: 03S/02E-16B01 M - (Associated GAMA Information)	
(Show This Well on Map)	
Well Details   <a href="#">Geographic Information</a>   <a href="#">DHS Water Quality Data</a>   <a href="#">PWS Detailed Information</a>	
<b><u>Local Name</u></b>	
WELL 05-01 (03S/02E-16B01 M)	
<b><u>Source Origin</u></b>	<b><u>Status</u></b>
Groundwater	Unknown
<b><u>Treatment Method</u></b>	<b><u>Treatment Phase</u></b>
No Treatment/Non Applicable	Water
<b>4 LUFT Site(s) Estimated to be Within 1/2 Mile Proximity of this Well</b>	
• <a href="#">List These LUFT Sites</a>	

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

<b>Geographic Information</b>	
<b>CALIFORNIA WATER SERVICE CO (LIVERMORE)</b>	
<b>WELL 05-01</b>	
State Well Number: 03S/02E-16B01 M - (Associated GAMA Information) ( <a href="#">Show This Well on Map</a> )	
<a href="#">Well Details</a>   <a href="#">Geographic Information</a>   <a href="#">DHS Water Quality Data</a>   <a href="#">PWS Detailed Information</a>	
<b><u>Nearest Physical Address:</u></b>	<b><u>Elevation of well:</u></b>
Unknown	Unknown
<b>Geographic Information</b>	
<b><u>Latitude:</u></b>	<b><u>Longitude:</u></b>
37.676229822	-121.7603392
<b><u>Projection:</u></b>	<b><u>Datum:</u></b>
Geographic Projection	North American Datum 1983
<b><u>Estimated error in Location:</u></b>	<b><u>Method:</u></b>
96 feet	PTOOL
<b><u>Source of Data:</u></b>	
ETAK Geocoding Class 1 Block Match - Street Segment Exact Address Match	

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

## Public Water System Information

### CALIFORNIA WATER SERVICE CO (LIVERMORE)

#### WELL 05-01

State Well Number: 03S/02E-16B01 M - (Associated GAMA Information)  
([Show This Well on Map](#))

[Well Details](#) | [Geographic Information](#) | [DHS Water Quality Data](#) | [PWS Detailed Information](#)

#### Public Water System

CALIFORNIA WATER SERVICE CO

#### Water System Address:

195 S N ST  
LIVERMORE, CA 94550-4350

#### PWS Class:

Community Water System (CWS)

### Ownership/Regulation

#### Ownership:

Private - Investor Owned, Mutual Water Company, Cooperative, Association.

#### Regulating Entity:

State

#### Service Area:

Residential Area

#### Date Entered System:

3/24/1992

#### System Status:

Active

#### Deactivation Date:

#### Last Revised:

4/18/1998

### Connection Information

#### Number of Service Connections:

15792

#### Population Served:

53540

- [List all wells for this Public Water System](#)

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

**ATTACHMENT B**  
**EXCERPTS FROM ADJACENT FACILITY FILE REVIEWS**

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

**I. AGENCY INFORMATION**

Date: August 10, 1995

Agency name: Alameda County-HazMat      Address: 1131 Harbor Bay Pkwy  
 City/State/Zip: Alameda, CA 94502      Phone: (510) 567-6700  
 Responsible staff person: Eva Chu      Title: Hazardous Materials Spec.

**II. CASE INFORMATION**

Site facility name: Livermore Ave. Shell  
 Site facility address: 318 S. Livermore Ave, Livermore 94550  
 RB LUSTIS Case No: N/A      Local Case No./LOP Case No.: 1976  
 URF filing date: 12/15/89      SWEEPS No: N/A

Responsible Parties:      Addresses:      Phone Numbers:

Shell Oil Co.      P.O. Box 5278      510/675-6168  
 Attn. Dan Kirk      Concord, CA 94520

<u>Tank No:</u>	<u>Size in gal.:</u>	<u>Contents:</u>	<u>Closed in-place or removed?:</u>	<u>Date:</u>
1	500	Waste Oil	Removed	August 1987
2	5,000	Gasoline	Removed	12/5/89
3	5,000	Gasoline	Removed	12/5/89
4	8,000	Gasoline	Removed	12/5/89
5	8,000	Gasoline	Removed	12/5/89

**III. RELEASE AND SITE CHARACTERIZATION INFORMATION**

Cause and type of release: Possible piping leak.  
 Site characterization complete? YES  
 Date approved by oversight agency: 5/25/95  
 Monitoring Wells installed? Yes      Number: 4  
 Proper screened interval? Yes, at the time of installation (36.0 to 51' bgs)  
 Highest GW depth below ground surface: 28.10'      Lowest depth: below screen  
 Flow direction: SW to NW  
 Most sensitive current use: Residential  
 Are drinking water wells affected? No      Aquifer name: Mocho Subbasin  
 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) filed? Alameda County  
 1131 Harbor Bay Pkwy  
 Alameda, CA 94502



**Treatment and Disposal of Affected Material:**

<u>Material</u>	<u>Amount (include units)</u>	<u>Action (Treatment or Disposal w/destination)</u>	<u>Date</u>
Tank Piping Free Product Soil	5 USTs 404 cy 40 cy	Erickson, in Richmond W. Contra Costa L.F. in Richmond Aerated and left onsite	8/89, 12/5/98 12/89 to 1/90

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

<u>Contaminant</u>	<u>Soil (ppm)</u>		<u>Water (ppb)</u>	
	<u>Before</u>	<u>After<sup>1</sup></u>	<u>Before</u>	<u>After</u>
TPH (Gas)	870	13	ND	90
TPH (Diesel)				
Benzene	ND	.11	ND	7.4
Toluene	1.3 <sup>2</sup>	ND	ND	ND
Ethylbenzene	.87	ND	ND	.6
Xylenes	16	.41	ND	1.2
Oil & Grease	87			
Heavy metals	Total Pb	69 <sup>3</sup>	3.3	ND
	Soluble Pb	6.1 <sup>3</sup>		
Other	1,1,1 TCA	.140	NA	

NOTE: 1 from sample A, taken Dec 15, 1989  
2 from piping sample  
3 from stockpile soil

**Comments (Depth of Remediation, etc.):**

See Section VII, Additional Comments, etc...

**IV. CLOSURE**

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? **YES**  
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? **YES**  
Does corrective action protect public health for current land use? **YES**  
Site management requirements: **None**  
Should corrective action be reviewed if land use changes? **YES**  
Monitoring wells Decommissioned: **0, pending site closure**  
Number Decommissioned: **0** Number Retained: **4**  
List enforcement actions taken: **None**  
List enforcement actions rescinded: **NA**

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Eva Chu Title: Haz Mat Specialist

Signature: *[Signature]* Date: 8/11/95

Reviewed by

Name: Jennifer Eberle Title: Haz Mat Specialist

Signature: *[Signature]* Date: 8-11-95

Name: Juliet Shin Title: Sr. Haz Mat Specialist

Signature: *[Signature]* Date: 8/11/95

VI. RWQCB NOTIFICATION

Date Submitted to RB: 8/14/95 RB Response: *Approved*

RWQCB Staff Name: Kevin Graves Title: AWRCE

Signature: *[Signature]* Date: 8/21/95

VII. ADDITIONAL COMMENTS, DATA, ETC.

This site is currently an active service station with three 12,000 gallon gasoline USTs, and one 550-gallon waste oil UST.

A 550-gallon steel waste oil UST was removed in August 1987 and replaced with a 550-gallon fiberglass tank. See Fig 1. The steel UST was rusted and pitted, but no obvious holes were noted. Two soil samples collected in native soil at 8 and 11' depths detected up to 87 ppm TOG and 140 ppb 1,1,1-TCA. (1,1,1-TCA detected in soil is below EPA's PRG level, and should pose no human health risk). See Table 1. TPH-D, BTEX, and other chlorinated hydrocarbons were not detected. Analysis for semi-volatile compounds were not conducted. The stockpiled soil was only analyzed for total and soluble lead, detecting 69 ppm and 6.1 ppm, respectively. However, there is no documentation available as to the disposition of the stockpiled soil, or whether the pit was overexcavated.

On February 27, 1989 four soil borings, S-A thru S-D, were advanced around the tank gasoline complex. See Fig 2. Soil collected from each boring did not detect TPH-G or BTEX. See Table 2. In March 1989 soil was collected from the backfill material around the fill pipe of the regular leaded gasoline tank, detecting 37,000 ppm TPH-G, 320, 2,300, 700, and 5,400 ppm BTEX, respectively, 550 ppm total lead and 42 ppm soluble lead.



Table ~~X~~ 4 Analytic Results for Ground Water - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California

Well ID & Sampling Frequency	Date	Depth to Water	TPH-G	B	E	T	X	Lead
			←————— parts per billion (µg/L) —————→					
MW-1 (2nd & 4th Quarters)	06/21/90	42.69	<30	<0.3	<0.3	<0.3	<0.3	---
	10/02/90	44.75	<30	<0.3	<0.3	<0.3	<0.3	---
	09/02/92	---	---	---	---	---	---	---
	11/13/92	---	---	---	---	---	---	---
	01/25/93	47.47	<50	<0.5	<0.5	<0.5	<0.5	<3
	05/27/93	31.09	<50	<0.5	<0.5	<0.5	<0.5	---
	05/27/93 <sup>dup</sup>	31.09	<50	<0.5	<0.5	<0.5	<0.5	---
	09/21/93	33.67	<50	<0.5	<0.5	<0.5	<0.5	---
	12/09/93	33.84	<50	<0.5	<0.5	<0.5	<0.5	---
	06/20/94	37.81	<50	<0.5	<0.5	<0.5	<0.5	---
02/28/95	28.82	<50	<0.5	<0.5	<0.5	<0.5	---	
MW-2 (2nd & 4th Quarters)	06/21/90	42.15	<30	<0.3	<0.3	<0.3	<0.3	---
	10/02/90	44.18	<30	<0.3	<0.3	<0.3	<0.3	---
	09/02/92	Dry	---	---	---	---	---	---
	11/13/92	Dry	---	---	---	---	---	---
	01/25/93	47.14	<50	<0.5	<0.5	<0.5	<0.5	<3
	05/27/93	31.48	<50	<0.5	<0.5	<0.5	<0.5	---
	09/21/93	33.31	<50	<0.5	<0.5	<0.5	<0.5	---
	12/09/93	32.82	<50	<0.5	<0.5	<0.5	<0.5	---
	06/20/94	35.88	<50	<0.5	<0.5	<0.5	<0.5	---
	02/28/95	28.20	<50	<0.5	<0.5	<0.5	<0.5	---
MW-3 (2nd & 4th Quarters)	06/21/90	42.07	<30	<0.3	<0.3	<0.3	<0.3	---
	10/02/90	44.15	<30	<0.3	<0.3	<0.3	<0.3	---
	09/02/92	Dry	---	---	---	---	---	---
	11/13/92	Dry	---	---	---	---	---	---
	01/25/93	47.02	<50	<0.5	<0.5	<0.5	<0.5	<3
	05/27/93	29.58	50	6.8	5	1.9	5.7	---

— Table 2 continues on next page —



Table ~~X~~ 4 Analytic Results for Ground Water - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California (continued)

Well ID & Sampling Frequency	Date	Depth to Water	TPH-G	B	E	T	X	Lead
			←————— parts per billion (µg/L) —————→					
	09/21/93	33.79	80	2.3	0.9	1.0	0.9	---
	09/21/93 <sup>dup</sup>	33.79	90	2.3	0.9	0.9	4.0	---
	12/09/93	32.85	90	<0.5	<0.5	<0.5	<0.5	---
	12/09/93 <sup>dup</sup>	32.85	80	<0.5	<0.5	<0.5	<0.5	---
	06/20/94	35.81	90	7.4	<0.5	<0.5	<0.5	---
	06/20/94 <sup>dup</sup>	35.81	90	6.4	0.6	<0.5	1.2	---
	02/28/95	28.10	<50	<0.5	<0.5	<0.5	<0.5	---
	02/28/95 <sup>dup</sup>	28.10	<50	<0.5	<0.5	<0.5	<0.5	---
MW-4 (2nd & 4th Quarters)	06/21/90	42.21	<30	<0.3	<0.3	<0.3	<0.3	---
	10/02/90	44.27	<30	<0.3	<0.3	<0.3	<0.3	---
	09/02/92	50.61	63	<0.5	<0.5	<0.5	<0.5	3.3
	09/02/92 <sup>dup</sup>	50.61	67	<0.5	<0.5	<0.5	<0.5	---
	11/13/92	Dry	---	---	---	---	---	---
	01/25/93	47.40	<50	<0.5	<0.5	<0.5	<0.5	<3
	01/25/93 <sup>dup</sup>	47.40	<50	<0.5	<0.5	<0.5	<0.5	<3
	05/27/93	32.54	<50	<0.5	<0.5	<0.5	<0.5	---
	09/21/93	33.55	<50	<0.5	<0.5	<0.5	<0.5	---
	12/09/93	33.65	<50	<0.5	<0.5	<0.5	<0.5	---
	06/20/94	35.46	<50	<0.5	<0.5	<0.5	<0.5	---
	02/28/95	29.31	<50	<0.5	<0.5	<0.5	<0.5	---
Trip Blank	09/02/92		<50	<0.5	<0.5	<0.5	<0.5	---
	01/25/93		<50	<0.5	<0.5	<0.5	<0.5	<3
	05/27/93		<50	<0.5	<0.5	<0.5	<0.5	---
	09/21/93		<50	<0.5	<0.5	<0.5	<0.5	---
	12/09/93		<50	<0.5	<0.5	<0.5	<0.5	---
	06/20/94		<50	<0.5	<0.5	<0.5	<0.5	---
	02/28/95		<50	<0.5	<0.5	<0.5	<0.5	---

— Table 2 continues on next page —

Weiss Associates



PROJECT NAME/LOCATION: Shell Station 318 S Livermore Ave. Livermore, CA.	PROJECT NUMBER: 89-042	BORING NUMBER: MW-3	SHEET 1 OF 2
	CONTRACTOR: PC Exploration Inc.		DRILLING METHOD: 6.5" HSA
	DRILLER: Joe		DRILLING RIG: Mobile B 80
LAND OWNER: Don Osche	START DATE: 5/30/90 TIME:		COMPLETED: 5/30/90 TIME:

ST AY N P E P L E	S N A U M P L E R	B C L O U M P L E S	S I A N P V L A E L	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
					Surface: Asphalt		
ctg				0	Gravel: brown, course, silty, dry.	0	NO PETROLEUM ODOR
SS	MW3 /A	25 29 44	5.0 to 7.0	5	Gravel: brown, course, poorly graded, dry. GP	0	"
ctg				10	Silty Gravel: brown, moderately graded, dry. GM	0	"
SS	MW3 /C	6 9 13	15.0 to 17.0	15	Silt: brown, stiff, clayey, slightly moist.	0	"
ctg				20	Silt: brown, stiff, clayey, slightly moist.	0	"
SS	MW3 /E	6 15 20	25.0 to 27.0	25	Silt: brown, stiff, clayey, moist.	0	"
SS	MW3 /F	7 13 22	30.0 to 32.0	30	Silt: brown, stiff, clayey, moist. ML	5	FAINT PETROLEUM ODOR

Field Notes:

SS = Split Spoon Sampler, 2.5 OD  
 \* = Sample Analyzed by Laboratory  
 ctg = Cuttings sample

Aegis  
 Environmental  
 Consultants

Loaded By: L. Braybrooks

PROJECT NAME/LOCATION: Shell Station 318 S. Livermore Ave. Livermore, CA.	PROJECT NUMBER: 89-041	BORING NUMBER: MW3	SHEET 2 OF 2
	CONTRACTOR: PC Exploration Inc.		DRILLING METHOD: 6.5" HSA
	DRILLER: Joe		DRILLING RIG: Mobile B 80
LAND OWNER: Don Osche	START DATE: 5/30/90 TIME:	COMPLETED: 5/30/90 TIME:	

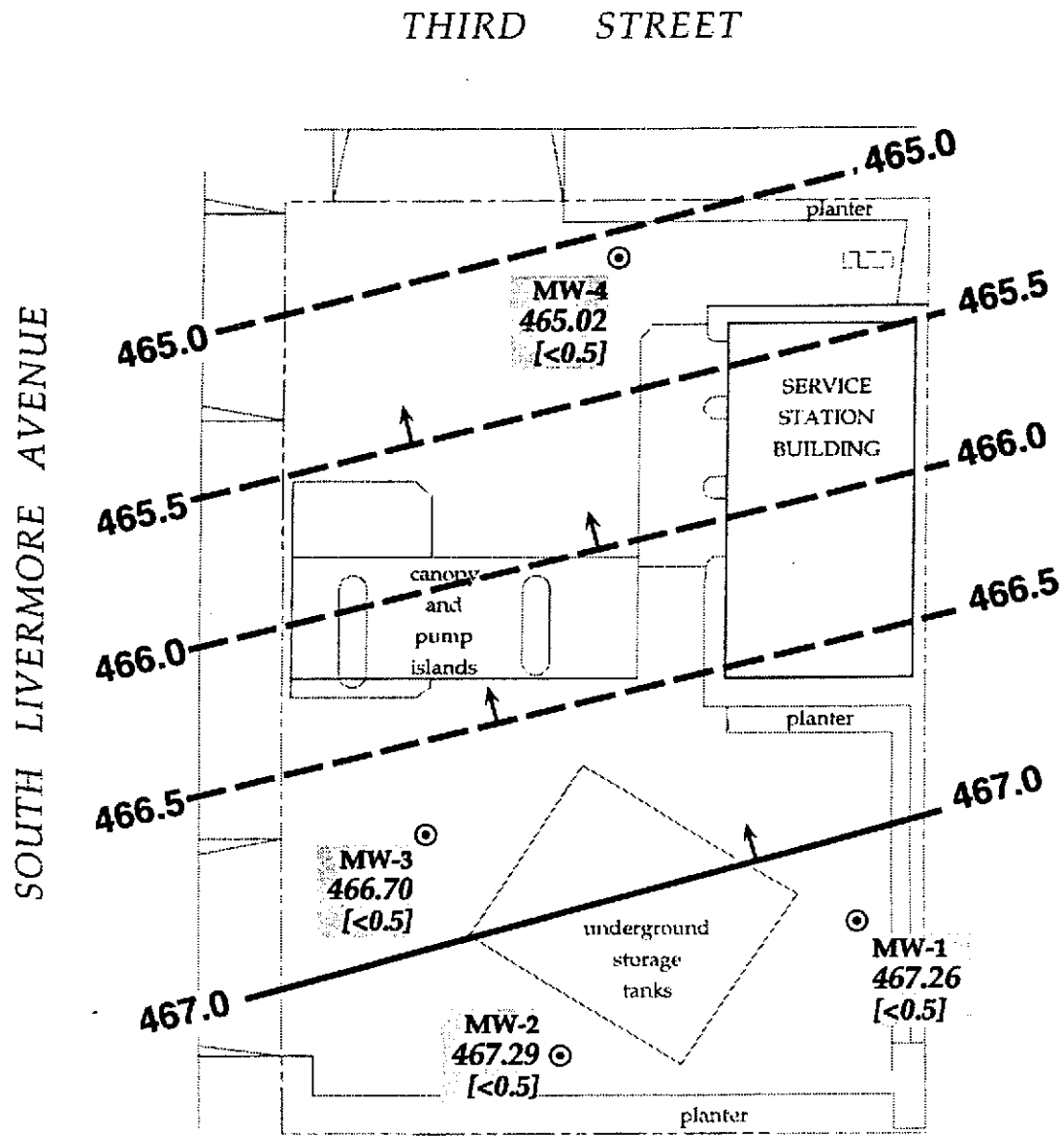
STAYPEL	SNAMPEL	BCLOUWTS	SIANMTPVEL	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
SS				30	Silt: brown, stiff, clayey, moist.	5	FAINT PETROLEUM ODOR
SS	MW3 /G	5 8 12	35.0 to 37.0	35	Silt: brown, stiff, clayey, moist. ML	5	"
ctg				40	Clay: brown, stiff, silty, moist.	0	NO PETROLEUM ODOR
* SS	MW3 /I	10 15 22	45.0 to 47.0	45	Clay: brown, stiff, silty, wet.	0	"
ctg				50	Clay: brown, stiff, silty, saturated. CL	0	"
SS	MW3 /K	12 23 28	55.0 to 57.0	55	Silt: brown, sandy, saturated. ML	0	"
TOTAL DEPTH 55 FT.							
				60			

Field Notes:

Split Spoon Sampler, 2.5 OD  
 \* = sample Analyzed by Laboratory  
 ctg = Cuttings sample  
 First water encountered @ 45 ft.  
 soil description after USCS

Aegis  
Environmental  
Consultants

Logged By: L. Braybrooks



EXPLANATION	
⊙ MW-1	Monitoring well
467.26	Ground water elevation, ft above mean sea level
[<0.5]	Benzene concentration in parts per billion (ppb)
- 467.0	Ground water elevation contour, ft above mean sea level, approximately located, dashed where inferred
→	Inferred ground water flow direction

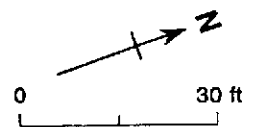


Figure 2. Monitoring Well Locations, Ground Water Elevation Contours, Benzene Concentrations in Ground Water - February 28, 1995 - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California



Table 1. Ground Water Elevations - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-1	06/21/90	496.08	42.69	453.39
	09/28/90		44.75	451.33
	11/06/90		45.61	450.47
	12/07/90		45.82	450.26
	09/02/92		Dry	Dry
	11/13/92		Dry	Dry
	01/25/93		47.47	448.61
	05/27/93		31.09	464.99
	09/21/93		33.67	462.41
	12/09/93		33.84	462.24
	06/20/94		37.81	458.27
	02/28/95		28.82	467.26
MW-2	06/21/90	495.49	42.15	453.34
	09/28/90		44.18	451.31
	11/06/90		44.98	450.51
	12/07/90		45.32	450.17
	09/02/92		Dry	Dry
	11/13/92		Dry	Dry
	01/25/93		47.14	448.35
	05/27/93		31.48	464.01
	09/21/93		33.31	462.18
	12/09/93		32.82	462.67
	06/20/94		35.88	459.61
	02/28/95		28.20	467.29
MW-3	06/21/90	494.80	42.07	452.73
	09/28/90		44.15	450.65
	11/06/90		44.93	449.87
	12/07/90		45.56	449.24
	09/02/92		Dry	Dry
	11/13/92		Dry	Dry
	01/25/93		47.02	447.78
	05/27/93		29.58	465.22
	09/21/93		33.79	461.01
	12/09/93		32.85	461.95
	06/16/94		35.81	458.99
	02/28/95		28.10	466.70
MW-4	06/21/90	494.33	42.21	452.12
	09/28/90		44.27	450.06
	11/06/90		45.12	449.21
	12/07/90		45.97	448.36

— Table 1 continues on next page —



Table 1. Ground Water Elevations - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
	09/02/92		50.61	443.72
	11/13/92		Dry	Dry
	01/25/93		47.40	446.93
	05/27/93		32.54	461.79
	09/21/93		33.55	460.78
	12/19/93		33.65	460.68
	06/20/94		35.46	458.87
	02/28/95		29.31	465.02

Table 2. Analytic Results for Ground Water - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California

Well ID & Sampling Frequency	Date	Depth to Water	TPH-G	B	E	T	X	Lead
			←————— parts per billion (µg/L) —————→					
MW-1 (2nd & 4th Quarters)	06/21/90	42.69	<30	<0.3	<0.3	<0.3	<0.3	---
	10/02/90	44.75	<30	<0.3	<0.3	<0.3	<0.3	---
	09/02/92	---	---	---	---	---	---	---
	11/13/92	---	---	---	---	---	---	---
	01/25/93	47.47	<50	<0.5	<0.5	<0.5	<0.5	<3
	05/27/93	31.09	<50	<0.5	<0.5	<0.5	<0.5	---
	05/27/93 <sup>dup</sup>	31.09	<50	<0.5	<0.5	<0.5	<0.5	---
	09/21/93	33.67	<50	<0.5	<0.5	<0.5	<0.5	---
	12/09/93	33.84	<50	<0.5	<0.5	<0.5	<0.5	---
	06/20/94	37.81	<50	<0.5	<0.5	<0.5	<0.5	---
	<b>02/28/95</b>	<b>28.82</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>---</b>
MW-2 (2nd & 4th Quarters)	06/21/90	42.15	<30	<0.3	<0.3	<0.3	<0.3	---
	10/02/90	44.18	<30	<0.3	<0.3	<0.3	<0.3	---
	09/02/92	Dry	---	---	---	---	---	---
	11/13/92	Dry	---	---	---	---	---	---
	01/25/93	47.14	<50	<0.5	<0.5	<0.5	<0.5	<3
	05/27/93	31.48	<50	<0.5	<0.5	<0.5	<0.5	---
	09/21/93	33.31	<50	<0.5	<0.5	<0.5	<0.5	---
	12/09/93	32.82	<50	<0.5	<0.5	<0.5	<0.5	---
	06/20/94	35.88	<50	<0.5	<0.5	<0.5	<0.5	---
	<b>02/28/95</b>	<b>28.20</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>---</b>
	MW-3 (2nd & 4th Quarters)	06/21/90	42.07	<30	<0.3	<0.3	<0.3	<0.3
10/02/90		44.15	<30	<0.3	<0.3	<0.3	<0.3	---
09/02/92		Dry	---	---	---	---	---	---
11/13/92		Dry	---	---	---	---	---	---
01/25/93		47.02	<50	<0.5	<0.5	<0.5	<0.5	<3
05/27/93	29.58	50	6.8	5	1.9	5.7	---	

— Table 2 continues on next page —



Table 2. Analytic Results for Ground Water - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California (continued)

Well ID & Sampling Frequency	Date	Depth to Water	TPH-G	B	E	T	X	Lead
			←————— parts per billion (µg/L) —————→					
	09/21/93	33.79	80	2.3	0.9	1.0	0.9	---
	09/21/93 <sup>dup</sup>	33.79	90	2.3	0.9	0.9	4.0	---
	12/09/93	32.85	90	<0.5	<0.5	<0.5	<0.5	---
	12/09/93 <sup>dup</sup>	32.85	80	<0.5	<0.5	<0.5	<0.5	---
	06/20/94	35.81	90	7.4	<0.5	<0.5	<0.5	---
	06/20/94 <sup>dup</sup>	35.81	90	6.4	0.6	<0.5	1.2	---
	02/28/95	28.10	<50	<0.5	<0.5	<0.5	<0.5	---
	02/28/95 <sup>dup</sup>	28.10	<50	<0.5	<0.5	<0.5	<0.5	---
MW-4	06/21/90	42.21	<30	<0.3	<0.3	<0.3	<0.3	---
(2nd & 4th	10/02/90	44.27	<30	<0.3	<0.3	<0.3	<0.3	---
Quarters)	09/02/92	50.61	63	<0.5	<0.5	<0.5	<0.5	3.3
	09/02/92 <sup>dup</sup>	50.61	67	<0.5	<0.5	<0.5	<0.5	---
	11/13/92	Dry	---	---	---	---	---	---
	01/25/93	47.40	<50	<0.5	<0.5	<0.5	<0.5	<3
	01/25/93 <sup>dup</sup>	47.40	<50	<0.5	<0.5	<0.5	<0.5	<3
	05/27/93	32.54	<50	<0.5	<0.5	<0.5	<0.5	---
	09/21/93	33.55	<50	<0.5	<0.5	<0.5	<0.5	---
	12/09/93	33.65	<50	<0.5	<0.5	<0.5	<0.5	---
	06/20/94	35.46	<50	<0.5	<0.5	<0.5	<0.5	---
	02/28/95	29.31	<50	<0.5	<0.5	<0.5	<0.5	---
Trip	09/02/92		<50	<0.5	<0.5	<0.5	<0.5	---
Blank	01/25/93		<50	<0.5	<0.5	<0.5	<0.5	<3
	05/27/93		<50	<0.5	<0.5	<0.5	<0.5	---
	09/21/93		<50	<0.5	<0.5	<0.5	<0.5	---
	12/09/93		<50	<0.5	<0.5	<0.5	<0.5	---
	06/20/94		<50	<0.5	<0.5	<0.5	<0.5	---
	02/28/95		<50	<0.5	<0.5	<0.5	<0.5	---

— Table 2 continues on next page —

Table 2. Analytic Results for Ground Water - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California (continued)

Well ID & Sampling Frequency	Date	Depth to Water	TPH-G	B	E	T	X	Lead
			←————— parts per billion (µg/L) —————→					
DTSC MCLs			NE	1	680	100 <sup>a</sup>	1,750	50

**Abbreviations:**

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015  
 B = Benzene by EPA Method 8020  
 E = Ethylbenzene by EPA Method 8020  
 T = Toluene by EPA Method 8020  
 X = Xylenes by EPA Method 8020  
 Lead = Lead by EPA Method 7421  
 NE = Not established  
 --- = Not analyzed  
 <n = Not detected at detection limits of n ppb  
 DTSC MCLs = California Department of Toxic Substances Control maximum  
 contaminant levels for drinking water  
 dup = Duplicate sample

**Notes:**

a = DTSC recommended action level; MCL not established

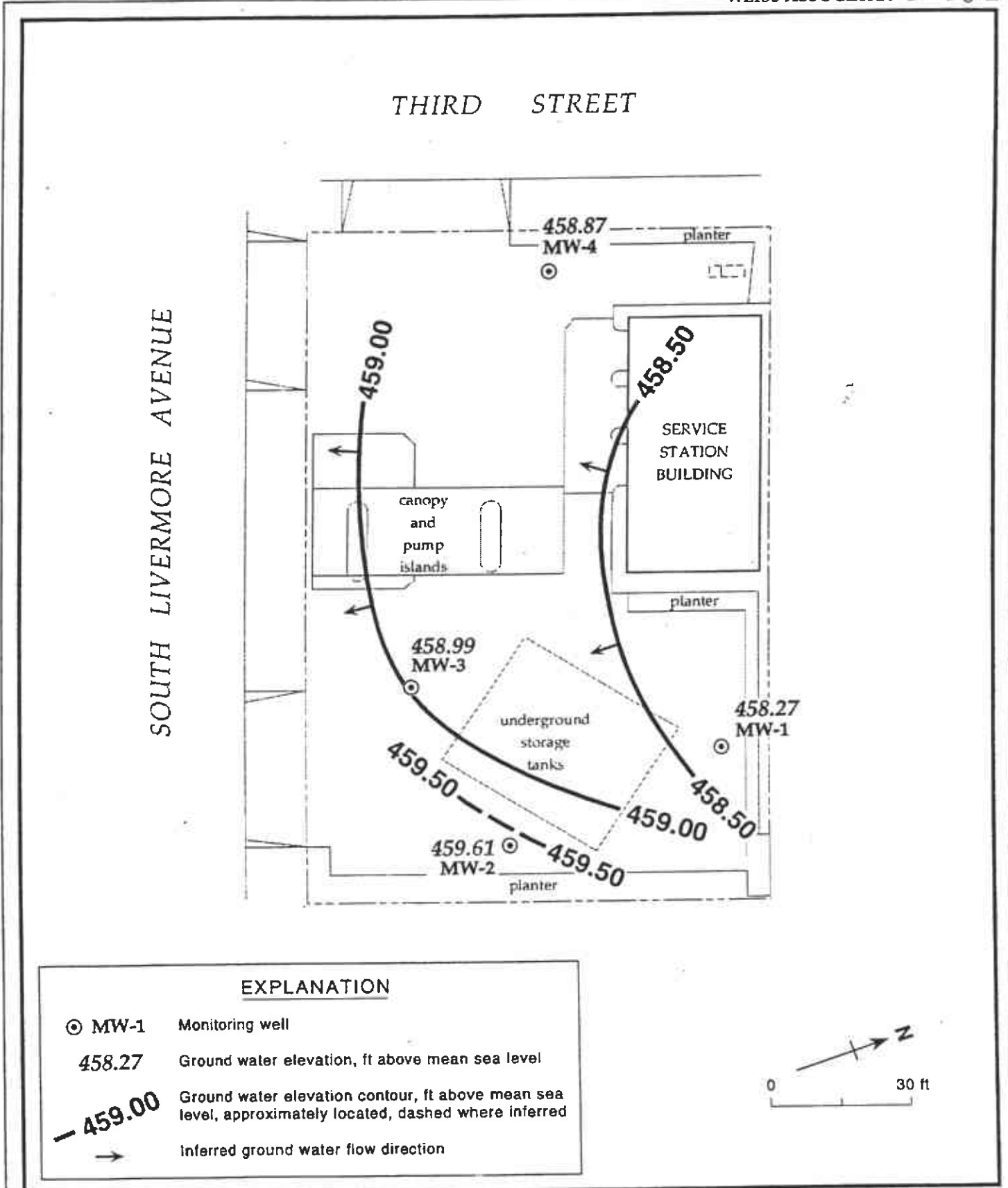
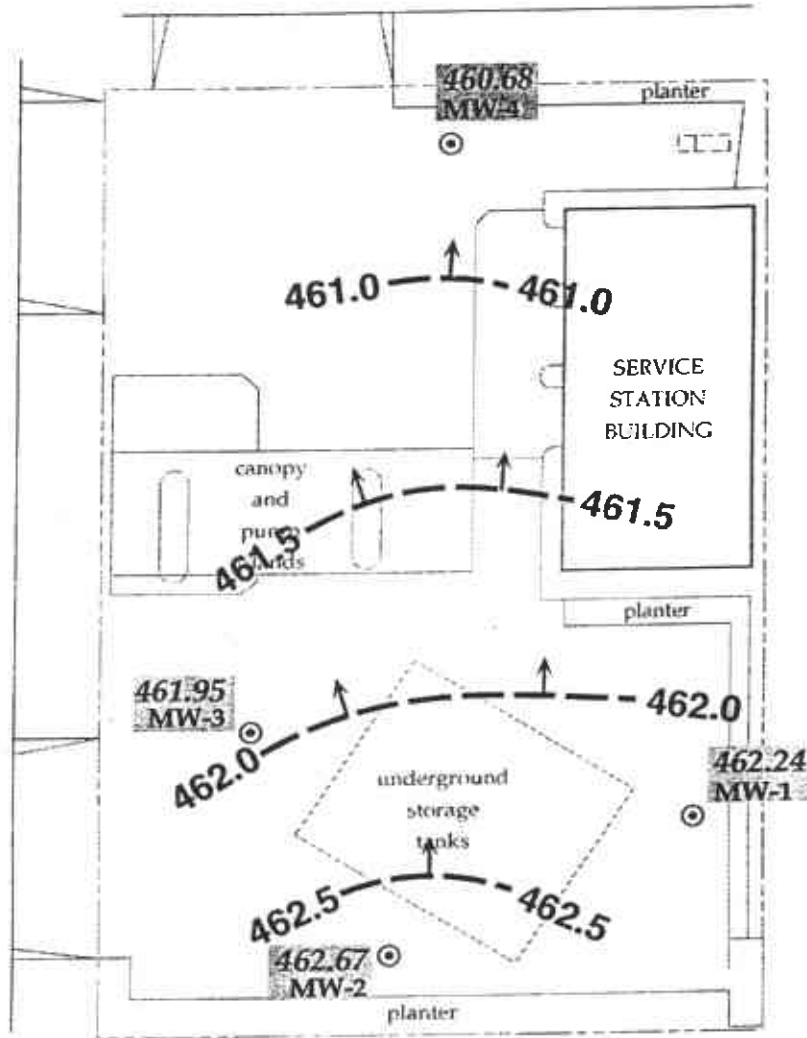


Figure 2. Monitoring Well Locations and Ground Water Elevations - June 20, 1994 - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California

THIRD STREET

SOUTH LIVERMORE AVENUE



**EXPLANATION**

- ⊙ MW-1    Monitoring well
- 461.95    Ground water elevation, ft above mean sea level
- 462.0    Ground water elevation contour, ft above mean sea level, approximately located, dashed where inferred
- Inferred ground water flow direction

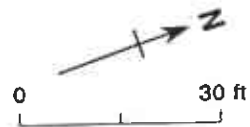
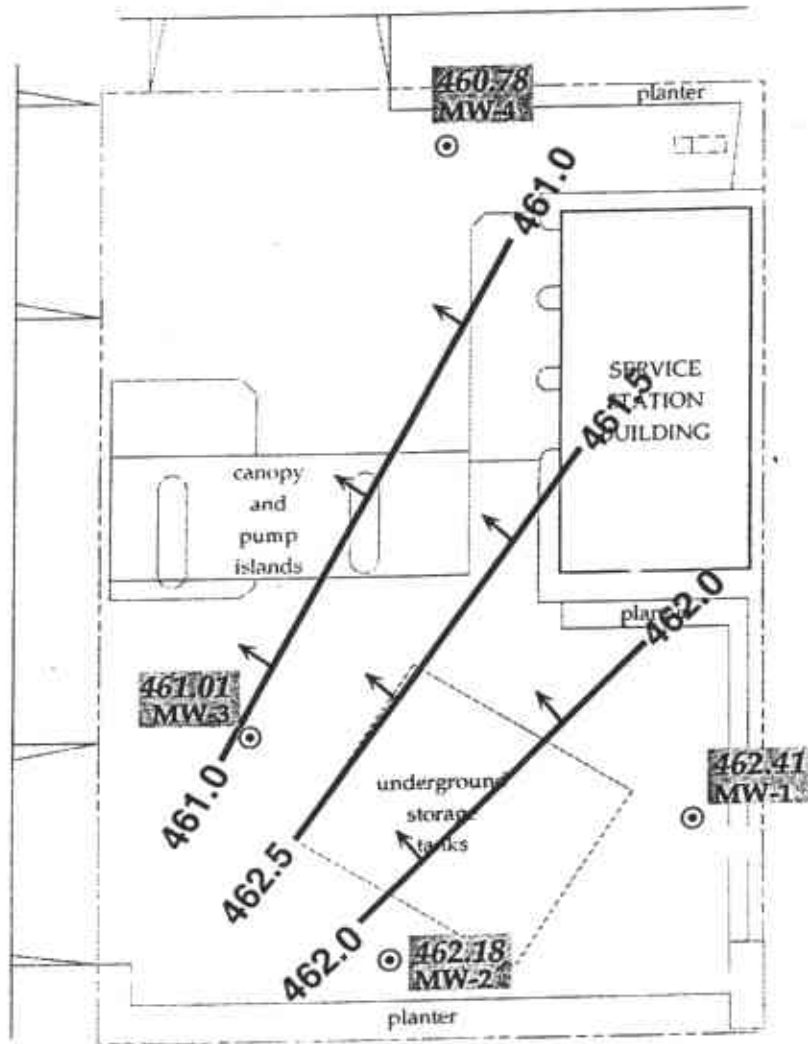


Figure 2. Monitoring Well Locations and Ground Water Elevations - December 9, 1993 - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California

SOUTH LIVERMORE AVENUE

THIRD STREET



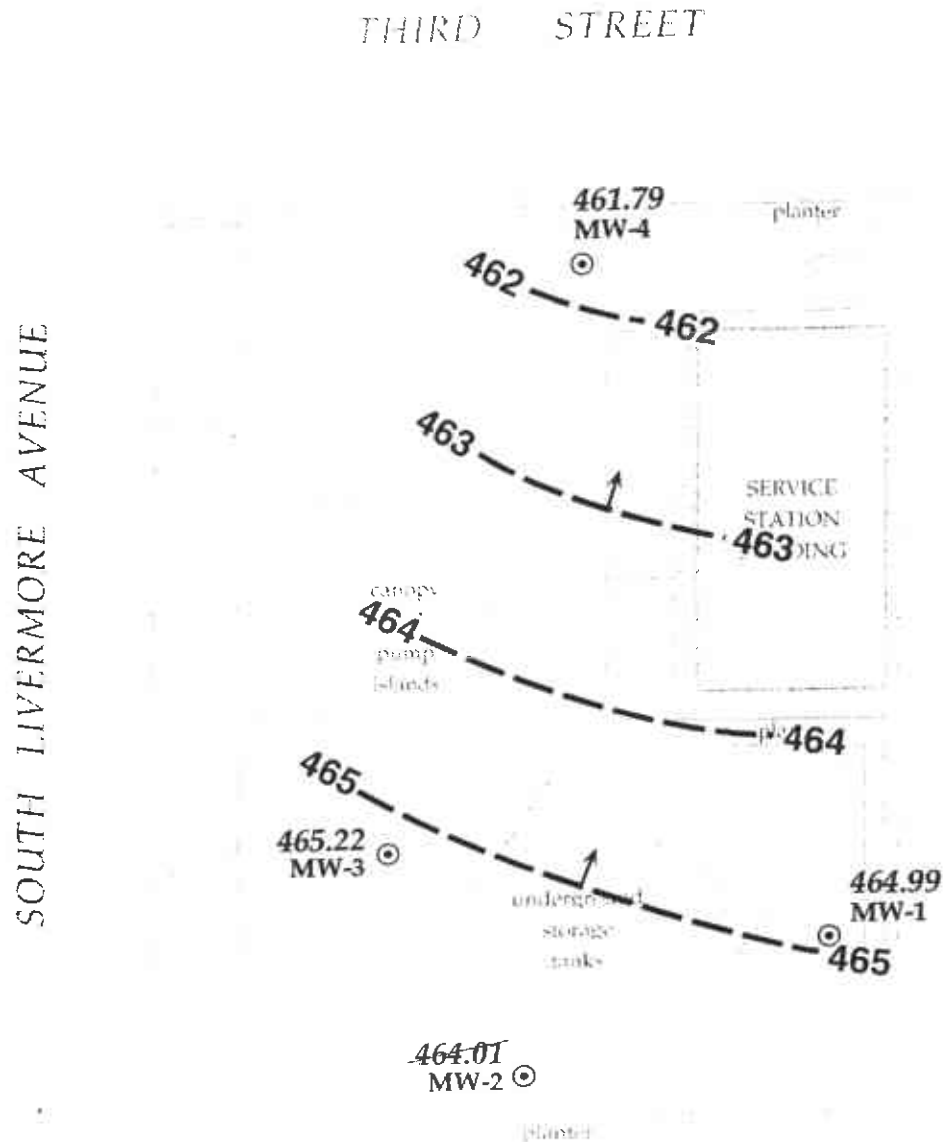
**EXPLANATION**

- ⊙ MW-1 Monitoring well
- 462.18 Ground water elevation, ft above mean sea level
- 462.0 Ground water elevation contour, ft above mean sea level, approximately located, dashed where inferred
- Inferred ground water flow direction



Figure 2. Monitoring Well Locations and Ground Water Elevations - September 21, 1993 - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California





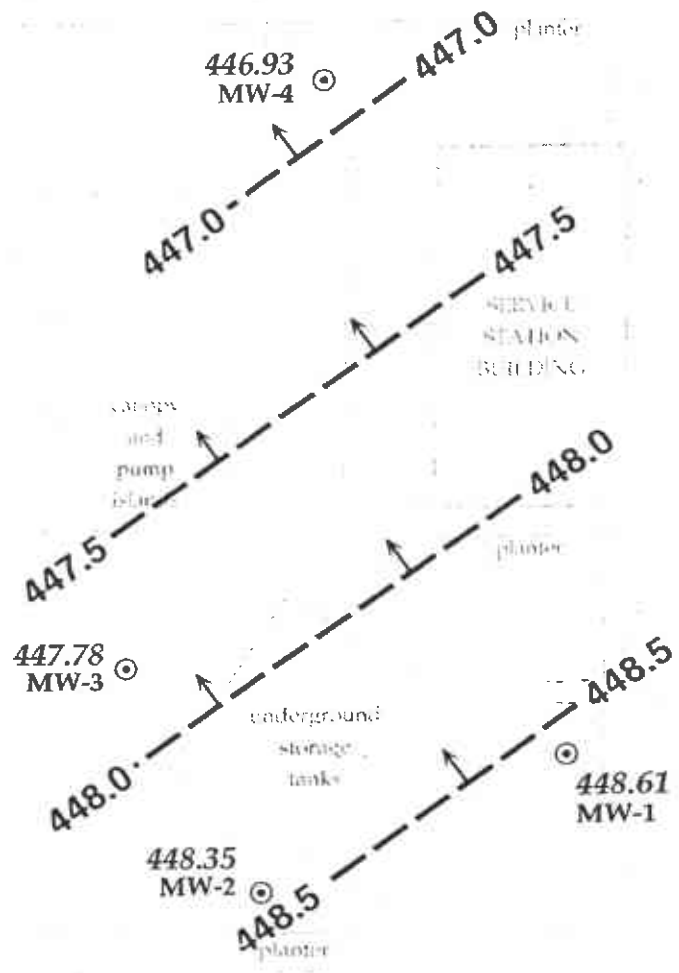
EXPLANATION	
⊙ MW-1	Monitoring well
464.99	Ground water elevation, ft above mean sea level
<del>464.01</del>	Ground water elevation anomalous, not used for contouring
- 464	Ground water elevation contour, ft above mean sea level, approximately located, dashed where inferred
→	Inferred ground water flow direction



Figure 2. Monitoring Well Locations and Ground Water Elevations - May 27, 1993 - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California

SOUTH LIVERMORE AVENUE

THIRD STREET



**EXPLANATION**

- ⊙ MW-1 Monitoring well
- 447.78 Ground water elevation, ft above mean sea level
- 447.5 Ground water Elevation contour, ft above mean sea level, approximately located, dashed where inferred
- Inferred ground water flow direction

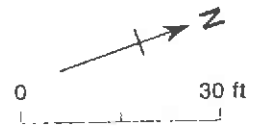
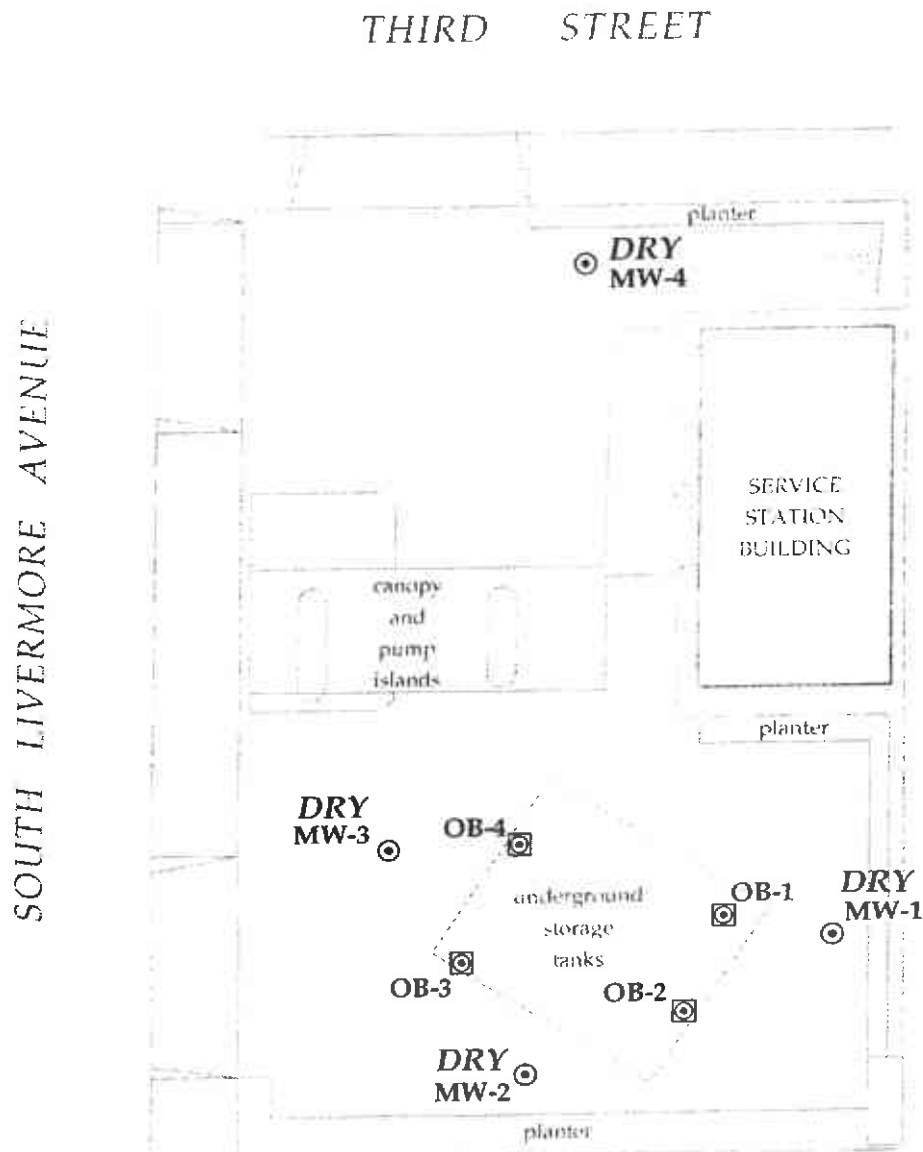


Figure 2. Monitoring Well Locations and Ground Water Elevations - January 25, 1993 - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California



EXPLANATION	
⊙ MW-1	Monitoring well
⊗ OB-1	Tank backfill well
<b>DRY</b>	Ground water elevation (all wells are dry)

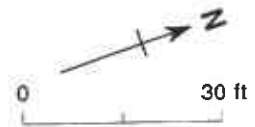


Figure 2. Monitoring Well Locations and Ground Water Elevations - November 13, 1992 - Shell Service Station WIC #204-4380-0303, 318 South Livermore Avenue, Livermore, California




BORING LOCATION <u>S-A SHELL STATION 318 S. LINDEN</u>		ELEVATION AND DATUM	
DRILLING AGENCY <u>BAY LAND</u>	DRILLER <u>CURT</u>	DATE STARTED <u>2-27-89</u>	DATE FINISHED
DRILLING EQUIPMENT <u>C-76</u>		COMPLETION DEPTH <u>16 1/2</u>	SAMPLER <u>CAL MOD</u>
DRILLING METHOD <u>8" Hollow</u>	DRILL BIT <u>8"</u>	NO. OF SAMPLES	DIST. <u>3</u>
SIZE AND TYPE OF CASING		WATER ELEV.	FIRST <u>16</u> ~ COMPL. <u>1 1/2</u> 24 HRS
TYPE OF PERFORATION	FROM <u>   </u> TO <u>   </u> FT.	LOGGED BY <u>C. PARTEN</u>	
SIZE AND TYPE OF PACK	FROM <u>   </u> TO <u>   </u> FT.	CHECKED BY:	
TYPE OF SEAL	FROM <u>   </u> TO <u>   </u> FT.		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG		Wire Comp	Penetration Data	SAMPLES			REMARKS (Drill Rate, Fluid loss, Odor, etc.)
		Lithology	Permeability			Type No	Recovery %	Pressure (lb/sq in)	
1	2" Asphalt ; base rock fill								
2									
3									
4	clayey gravel w/sand, dense, brown, damp, w/ 1/2" gravel fill? (GL)								push to 450 psi No Odor Open HNU
5								450 psi	
6	clayey gravel fill gravel to 4" + } slow drilling								Open HNU
7									
8									
9	clayey gravel w/sand, dense, brown, damp, sand gravel to 2" + (GL)								No Odor Open HNU
10								15 32 24	
11									
12									
13									
14									

DEPTH FEET	DESCRIPTION	GRAPHIC LOG		Water Content	Permeability Data	SAMPLES			REMARKS (Color, Moist. Field, etc.)
		Lithology	Parameter Indication			Type No.	Number	Particle Size (mm)	
15	clayey gravel, (GL), dense damp, brown, w/ angular rock fragments to 2" <sup>φ</sup> , native soil, free water noted around gravel  bottom of boring 16 1/2"	?	▽	3				16	
16								20	
17								26	
18									
19									
20									

NO ODR  
0 ppm  
HNU



DEPTH FEET	DESCRIPTION	GRAPHIC LOG		Water Content	Permeability Data	SAMPLES				REMARKS <small>(Drill Rate, Found Items, Odor, etc.)</small>
		Lithology	Penetration Resistance			Type No.	Depth in Feet	Permeability Direction (ft/min)	Other	
15	silty clay (Cl) damp, medium fatty brown mottled tan no gravel			3					3 7 10	No odor 0 ppm HNU
16										
17	bottom of hole 16 1/2									







DEPTH (ft)	DESCRIPTION	GRAPHIC LOG		Pipe Diameter	Penetration Data	SAMPLES			REMARKS (Drift Rate, Found Items, Odor, etc.)
		Lithology	Penetration Resistance			Type No.	Depth	Quantity	
15	clayey gravel to gravelly clay (CL-GC) damp, brown, gravel to 1/2" φ, bottom of hole 16 1/2"			3			10		No Odor 0 ppm HNU
16							19		
17						12			

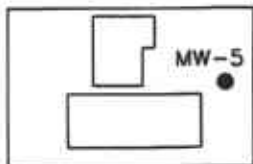
BORING LOCATION SHELL SERVICE / 38 LIVER MORE AVE.		ELEVATION AND DATUM	
DRILLING AGENCY RAY LANDS	DRILLER	DATE STARTED 2-27-89	DATE FINISHED
DRILLING EQUIPMENT C-75 "		COMPLETION DEPTH	SAMPLER
DRILLING METHOD HOLLOW STEM	DRILL BIT & FAUCER	NO. OF SAMPLES	DIST.
SIZE AND TYPE OF CASING		WATER ELEV.	FIRST ~ 16
TYPE OF PERFORATION	FROM TO FT.	LOGGED BY C. PARTEN	CHECKED BY:
SIZE AND TYPE OF PACK	FROM TO FT.		
TYPE OF SEAL	FROM TO FT.		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG		SAMPLES				REMARKS (Drill Rate, Fluid loss, Odor, etc.)
		Lithology	Perforation	Water Content	Permeability Data	Type No	Section In	
1	3" asphalt, base rock full,							
2	clayey gravel $\phi$ 3" (GC)							
3								
4								
5	clayey gravel of sand, dense, damp, brown, gravel to 2" $\phi$ fill.			1			500 PSI	500 psi push No Odor Open HNU
6								
7								
8								
9	clayey gravel (GC) w/ sand dense, damp, brown, gravel rounded, 1" $\phi$ ; native soil.							
10				2			19	No odor Open HNU
11							19	
12								
13								
14								

DEPTH FEET	DESCRIPTION	GRAPHIC LOG			SAMPLES			REMARKS (Drill Rate, Found loss, Color, etc.)
		Lithology	Penetration Resistance	Blow Count	Penetration Data	Type No	Size No.	
15	clayey gravel (GC) & sand mass, brown, rounded gravel; 2" φ			3			22	No odor Open HNU
16							24	
17							20	
	bottom of hole 16 1/2							

**ATTACHMENT C**  
**BORING LOGS/WELL COMPLETION DIAGRAMS**

S. LIVERMORE



THIRD STREET



BORING NO. MW-5  
PAGE 1 OF 3

PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD: HSA  
 SAMPLING METHOD: CAL MOD  
 CASING TYPE: SCH 40 PVC  
 SLOT SIZE: 0.02"  
 GRAVEL PACK: NO.3

CLIENT: EQUIVA  
 DATE DRILLED: 9-13-01 and 9-14-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER: 8"  
 HOLE DEPTH: 56.5'  
 WELL DIAMETER: 2"  
 WELL DEPTH: 55.5'  
 CASING STICKUP: NA

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT	PENETRATION (BLOWS/6')	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
	No	0.0		0		Asphalt	GM	Asphalt
				2				SANDY SILTY GRAVEL: medium brown; 15% fines; 35-40% coarse to fine gravel; 25% medium sand; 15% coarse sand; 5-10% cobbles; loose
				4				
	No	Dry	6	6				
	No	Dry	8	8				
	No	Mst	0.0	10				
	No	Mst	0.0	6				
	No	Mst	0.0	19				
	No	Dmp	0.0	24				
	No	Dry	0.0	18				
	No	Dmp	0.0	25				
	No	Dmp	0.0	30				
				41				
	No	Dmp	0.0	18	10			
	No	Dmp	0.0	24				
	No	Mst	0.0	35				
	No	Dry	0.0	18	12			
	No	Dmp/Mst	0.0	26				
	No	Dmp/Mst	0.0	20				
				6				
				8				
	No	Dry	0.0	13	14		ML	CLAYEY SILT: medium to dark brown; low plasticity; trace coarse sand; minor iron oxide staining; 10-15% fine sand; stiff
	No	Mst	0.0	14				
	No	Mst	0.0	8				
	No	Mst	0.0	13	16		ML	CLAYEY SILT: light to medium brown; low plasticity; 15-20% fine sand; firm to stiff
	No	Mst	0.0	15				
	No	Mst	0.0	4				
	No	Mst	0.0	8			ML	CLAYEY SILT: medium brown; low plasticity; 10-15% fine sand; firm to stiff
	No	Mst	0.0	10	18			
				7				
				9				
	No	Mst	0.0	10				
	No	Mst	0.0	10	20		ML	CLAYEY SANDY SILT: medium brown; low plasticity; 20-25% fine sand; trace coarse sand; firm
	No	Mst	0.0	5				
	No	Mst	0.0	6				
	No	Mst	0.0	7				
	No	Mst	0.0	5	22			
	No	Mst	0.0	5				





PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD:  
 SAMPLING METHOD:  
 CASING TYPE:  
 SLOT SIZE:  
 GRAVEL PACK:

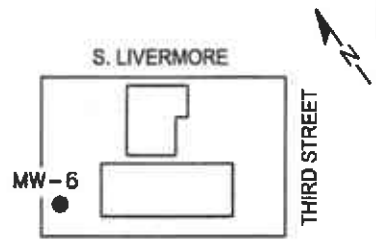
CLIENT: EQUIVA  
 DATE DRILLED: 9-13-01 and 9-14-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER:  
 HOLE DEPTH:  
 WELL DIAMETER:  
 WELL DEPTH:  
 CASING STICKUP:

LOCATION MAP

See page 1

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS	
No. 3 Sand	No	Mst		7			CL	As above	
	No	Mst		9			CL		
	No	Wet		5					
	No	Wet		9					
	No	Wet		14	46				
	No	Wet		3					
	No	Wet		6					
	No	Sat		8					
	No	Wet		7	48			CL	GRAVELLY SANDY CLAY: dark brown; low plasticity; 25% coarse to fine gravel; 20% coarse to medium sand; stiff
	No	Wet		10					
	No	Wet		16					
	No	Sat	0.0	17	50			CL	SILTY SANDY CLAY: medium brown; low plasticity; 20-25% fine sand; 10-15% medium sand; trace to 10% coarse sand; trace fine gravel; trace coarse gravel; firm to stiff
	No	Sat		9					
	No	Sat	0.0	10					
	No	Sat		12					
	No	Wet	0.0	4	52				
	No	Wet		5					
	No	Sat	0.0	6					
	No	Wet		8				CL	SANDY CLAY: gray-brown to yellow-brown; low plasticity; 25-35% fine sand; 5-15% coarse to medium sand; trace fine to coarse gravel; firm to stiff
	No	Wet	0.0	7	54				
No	Sat		12						
No	Wet	0.0	14						
No	Wet		6			CL	SANDY CLAY (55'): gray-brown; low plasticity; 15-20% fine sand; 15% medium sand; 10-15% coarse sand; trace to 10% fine gravel; trace coarse gravel; firm to stiff		
No	Wet	0.0	9	56					
Bentonite				12					
								BOTTOM OF HOLE=56.5'	
				58					





PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD: HSA  
 SAMPLING METHOD: CAL MOD  
 CASING TYPE: SCH 40 PVC  
 SLOT SIZE: 0.02"  
 GRAVEL PACK: NO.3

CLIENT: EQUIVA  
 DATE DRILLED: 9-17-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER: 8"  
 HOLE DEPTH: 53.5'  
 WELL DIAMETER: 2"  
 WELL DEPTH: 53.5'  
 CASING STICKUP: NA

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT	PENETRATION (BLOWS/6')	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
				0				Asphalt
				2				Fill
				2			GM	SANDY SILTY GRAVEL: medium brown to gray-brown; 15-20% fines; 30% fine gravel; 10-15% coarse gravel; 30-35% sand; trace to 10% cobbles; medium dense
				4				
	No	Dry	0.0	8				
	No	Dry		15				
	No	Dry		17				
				8				
	No	Dry	0.0	18				
	No	Dmp		19				Iron oxide staining
	No	Dmp		20				
				12				
	No	Dmp	0.0	13				
	No	Dmp		18				
	No	Dmp		19				
				16				
				18			ML	CLAYEY SANDY SILT: medium to dark brown; low plasticity; 15-20% fine sand; trace coarse sand; firm
	No	Dmp	0.0	7				
	No	Dmp		8				
	No	Dmp		8				
				20				
				22			ML	CLAYEY SANDY SILT: orange-brown; low plasticity; 20-25% fine sand; firm



PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD:  
 SAMPLING METHOD:  
 CASING TYPE:  
 SLOT SIZE:  
 GRAVEL PACK:

CLIENT: EQUIVA  
 DATE DRILLED: 9-17-01  
 LOCATION: 318 S. LIVERMORE AVE.  
 HOLE DIAMETER:  
 HOLE DEPTH:  
 WELL DIAMETER:  
 WELL DEPTH:  
 CASING STICKUP:

LOCATION MAP

See page 1

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS	
Neat Cement Grout *	No	Mst	0.0	5			ML	CLAYEY SANDY SILT: orange-brown; low plasticity; 20-25% fine sand; firm	
	No	Mst		5					
	No	Mst		5					
					24				
					26				
					27			GC	CLAYEY SANDY GRAVEL: gray-brown; low plasticity; 25-30% fines; 30-35% fine gravel; 5-10% coarse gravel; 20% medium to fine sand; 10-15% coarse sand; trace cobbles; medium dense
					32				
					30			CL	SANDY CLAY: medium to dark brown; low plasticity; 25% coarse sand; 10% fine to medium sand; trace to 10% gravel
					38				
					32				
					34			CL	SILTY CLAY: medium brown; low plasticity; 20% fine sand; trace medium sand; firm
					40				
				36					
				38					
				40			CL	SANDY SILTY CLAY: yellow-brown; low plasticity; 30% fine to medium sand; trace to 10% coarse sand	
				42					
				44			CL	SILTY CLAY: yellow-brown to gray-brown; low plasticity; 10-15% fine sand; trace to 5% medium sand; firm	
				5					
				6					



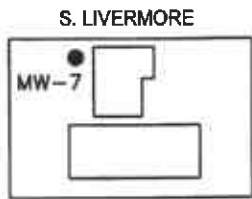
PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD:  
 SAMPLING METHOD:  
 CASING TYPE:  
 SLOT SIZE:  
 GRAVEL PACK:

CLIENT: EQUIVA  
 DATE DRILLED: 9-13-01 and 9-14-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER:  
 HOLE DEPTH:  
 WELL DIAMETER:  
 WELL DEPTH:  
 CASING STICKUP:

LOCATION MAP

See page 1

WELL COMPLETION		PRODUCT ODOR	MOISTURE CONTENT		PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
		No	Mst	0.0	6	46			CL	SILTY CLAY: yellow-brown to gray-brown; low plasticity; 10-15% fine sand; trace to 5% medium sand; firm
		No	Mst		8	48				
		No	Wet	0.0		50			As above	
		No	Wet			52				
		No	Wet			54				
										BOTTOM OF HOLE=53.5'



PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD: HSA  
 SAMPLING METHOD: CAL MOD  
 CASING TYPE: SCH 40 PVC  
 SLOT SIZE: 0.02"  
 GRAVEL PACK: NO.3

CLIENT: EQUIVA  
 DATE DRILLED: 9-17-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER: 8"  
 HOLE DEPTH: 53.5'  
 WELL DIAMETER: 2"  
 WELL DEPTH: 51.5'  
 CASING STICKUP: NA

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
	No	Dmp	0.0	2			GM	Asphalt and fill
	No	Dmp		4				SANDY SILTY GRAVEL: medium brown; 15-20% fines; 30% fine gravel; 10% coarse gravel; 30% sand; trace to 10% cobbles; loose
	No	Dmp		6				
				8				
				10				Hit cobble
				12				
				14				Cobble still blocking sampler; No product odor in cuttings
				16				
	No	Mst	0.0	18			ML	CLAYEY SANDY SILT: medium brown; low plasticity; 10-15% fine sand; trace coarse sand; stiff
				20				
				22			ML	CLAYEY SANDY SILT: medium to dark brown; low plasticity; 10-15% medium to fine sand; 10% coarse sand; trace to 10% gravel; stiff



PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD:  
 SAMPLING METHOD:  
 CASING TYPE:  
 SLOT SIZE:  
 GRAVEL PACK:

CLIENT: EQUIVA  
 DATE DRILLED: 9-17-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER:  
 HOLE DEPTH:  
 WELL DIAMETER:  
 WELL DEPTH:  
 CASING STICKUP:

LOCATION MAP

See page 1

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS	
Neat Cement Grout	No	Mst	0.0	8 12 21			ML	CLAYEY SANDY SILT: medium to dark brown; low plasticity; 10-15% medium to fine sand; 10% coarse sand; trace to 10% gravel; stiff	
	No	Mst	0.0	20			GC	CLAYEY SANDY GRAVEL: gray-brown; low plasticity; 25-30% fines; 30-35% fine gravel; 5-10% coarse gravel; 20% medium to fine sand; 10-15% coarse sand; trace cobbles; medium dense	
	No	Mst		22					
	No	Mst		30					
	Bentonite	No	Mst	0.0	4 7 9			CL	SILTY CLAY: medium brown; low plasticity; 15% fine sand; gray streaks indicative of old contamination; very faint odor in some areas; trace to 10% medium to coarse sand; firm
		Silt	Mst						
		Silt	Mst						
	No. 3 Sand	No	Mst	0.0	3 4 6				As above
		No	Mst						
		No	Mst						
	No	Mst	0.0	4 7				As above	



PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD:  
 SAMPLING METHOD:  
 CASING TYPE:  
 SLOT SIZE:  
 GRAVEL PACK:

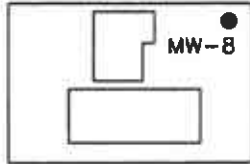
CLIENT: EQUIVA  
 DATE DRILLED: 9-17-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER:  
 HOLE DEPTH:  
 WELL DIAMETER:  
 WELL DEPTH:  
 CASING STICKUP:

LOCATION MAP

See page 1

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT		PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
No No	No No	Mst Mst	0.0	7 12					
					46			CL	SILTY CLAY: medium brown; low plasticity; 15% fine sand; gray streaks indicative of old contamination; very faint odor in some areas; trace to 10% medium to coarse sand; firm
No No No	No No No	Wet Wet Wet	0.0	4 7 10				CL	SANDY CLAY: yellow-brown; low plasticity; 25% medium to fine sand; 5-10% coarse sand; 10-15% fine gravel; trace coarse gravel; firm to stiff
					50				
					52				
					54				BOTTOM OF HOLE=53.5'

S. LIVERMORE



THIRD STREET



BORING NO. MW-8  
PAGE 1 OF 3

PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD: HSA  
 SAMPLING METHOD: CAL MOD  
 CASING TYPE: SCH 40 PVC  
 SLOT SIZE: 0.02"  
 GRAVEL PACK: NO.3

CLIENT: EQUIVA  
 DATE DRILLED: 9-18-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER: 8"  
 HOLE DEPTH: 51.5'  
 WELL DIAMETER: 2"  
 WELL DEPTH: 51.5'  
 CASING STICKUP: NA

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
								Logged from cuttings
				0				Asphalt
				2			GM	SANDY SILTY GRAVEL: medium brown to gray-brown; 15-20% fines; 30% fine gravel; 15% coarse gravel; 30% sand; 5-10% cobbles
				4				
				6				As above
				8				
				10				As above
				12				
				14				
				16			ML	CLAYEY SANDY SILT: medium brown; low plasticity; 15-20% fine sand; trace coarse sand; dry to damp; no product odor
				18				
				20				As above; damp to moist; no product odor; PID=0.0
				22				



PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD:  
 SAMPLING METHOD:  
 CASING TYPE:  
 SLOT SIZE:  
 GRAVEL PACK:

CLIENT: EQUIVA  
 DATE DRILLED: 9-18-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER:  
 HOLE DEPTH:  
 WELL DIAMETER:  
 WELL DEPTH:  
 CASING STICKUP:

LOCATION MAP

See page 1

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
				24			ML	As above; moist; no product odor; PID=0.0
				26				
				28			GC	Gravel present; indicative of GC layer; found in the other three borings
				30				
				32			CL	SILTY CLAY: light brown; low plasticity; 15% fine sand; trace fine gravel; trace to 10% medium coarse sand; moist; no product odor; PID=0.0
	No Sit	Mst Mst	0.0 0.0	34			CL	SILTY CLAY: medium brown to light brown; low plasticity; gray streaks; 15-20% fine sand
				36				
	No No No	Mst Mst Mst	0.0 0.0 0.0	38				
				40				As above; medium brown; no gray streaks
				42				
				44				





PROJECT NO: 830053  
 LOGGED BY: RMB  
 DRILLER: WDC  
 DRILLING METHOD:  
 SAMPLING METHOD:  
 CASING TYPE:  
 SLOT SIZE:  
 GRAVEL PACK:

CLIENT: EQUIVA  
 DATE DRILLED: 9-18-01  
 LOCATION: 318 S. LIVERMORE AVE..  
 HOLE DIAMETER:  
 HOLE DEPTH:  
 WELL DIAMETER:  
 WELL DEPTH:  
 CASING STICKUP:

LOCATION MAP

See page 1

WELL COMPLETION	PRODUCT ODOR	MOISTURE CONTENT	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
				46			CL	As above; no gray streaks; moist; no product odor; PID=0.0
				48				
				50				
				52				BOTTOM OF HOLE=51.5'
				54				

**ATTACHMENT D**  
**WELL DEVELOPMENT INFORMATION**



# WELL DEVELOPMENT DATA SHEET

Project#: 830053

Well #: MW-5

Development Method Used: 2"

Site Address: 318

DTW (feet): 38.75 (TOC) 39.35 (TOB)

SURGE BLOCK

S. LIVERMORE AVE  
LIVERMORE CA

DTL (feet):      (TOC)      (TOB)

Purge Vol (10 Casings): 2363 (gal)

DATE: 12801

Time		Depth		Gallons		Measurements				Comments: (odor, clarity, grain size, etc.) activity
begin	end	to water	to bottom	pumped	total	pH	cond	temp	turbidity	
8:43	8:54	38.75	28.5	4.5	4.72	6.67	1590	56.8	200	Brown Heavy silt w/od 2000000
8:55		45.10	↓	↓	↓	6.87	1510	58.4	200	Brown Heavy silt w/od 2000000
9:15		48.20	↓	↓	↓	6.85	1610	59.1	200	Brown Heavy silt w/od 2000000
9:26		51.40	↓	↓	↓	6.86	1610	61.1	200	Brown Heavy silt w/od 2000000
9:36		52.20	55.15	20	20	6.87	1600	61.5	200	Brown Heavy silt w/od 2000000

Completed by: [Signature] date: 12801



### WELL DEVELOPMENT DATA SHEET

Project#: 830053 Well #: MW-C Development Method Used: 2" SURGE Block  
 Site Address: 318 S. LIVERMORE AVE DTV\* (feet): 38.90 (TOC) 3900 (TOB)  
LIVERMORE CA DTL (feet): \_\_\_\_\_ (TOC) \_\_\_\_\_ (TOB)  
 Purge Vol (10 Casings): 2261 (gal) DATE: 12-8-01

Time		Depth		Gallons		Measurements				Comments: (odor, clarity, grain size, etc.) activity
begin	end	to water	to bottom	pumped	total	pH	cond	temp	turbidity	
11:15	11:24	3890	5220	4.5	4.52	6.90	1000	59.2	2000	Brown Heavy Silt Heavy NO odor
	11:33	4440	↓	↓	↓	6.88	1210	61.4	2000	Brown Heavy Silt Heavy NO odor
	11:43	4590	↓	↓	↓	6.85	1210	62.6	2000	Brown Heavy Silt Heavy NO odor
	11:54	4910	↓	↓	↓	6.81	1220	62.5	2000	Brown Heavy Silt Heavy NO odor
	12:05	4990	5350	22.5	22.5	6.82	1200	64.1	2000	Brown Heavy Silt Heavy NO odor

Completed by: [Signature] date: 12-8-01





WELL DEVELOPMENT DATA SHEET

Project#: 830053 Well #: MW-8 Development Method Used: 2"  
 Site Address: 3/8 DTW (feet): 38.35 (TOC) 38.07 (TOB) SURGE BLOCK  
S. LIVERMORE AVE DTL (feet):      (TOC)      (TOB)  
LIVERMORE CA Purge Vol (10 Casings): 2105 (gal) DATE: 12.8.01

Time		Depth		Gallons		Measurements				Comments: (odor, clarity, grain size, etc.) activity
begin	end	to water	to bottom	pumped	total	pH	cond	temp	turbidity	
9:39	9:49	38.35	50.8	4	4.23	6.63	1450	57.5	200	Brn Heavy silt / Mod / No odor
	10:00	40.95				6.64	1480	60.1	200	Brn Heavy silt / Mod / No odor
	10:10	43.95				6.61	1500	61.6	200	Brn Heavy silt / Mod / No odor
	10:21	45.10				6.62	1500	61.9	200	Brn Heavy silt / Mod / No odor
	10:31	46.40	51.10	20	20	6.63	1490	63.1	200	Brn Heavy silt / Mod / No odor

Completed by [Signature] date: 12.8.01

**ATTACHMENT E**  
**ANALYTICAL DATA FOR GROUNDWATER SAMPLES**



Report Number : 22513

Date : 10/9/2001

Regina Bussard  
IT Corporation  
1921 Ringwood Avenue  
San Jose CA 95131

Subject : 4 Water Samples  
Project Name : 318 S. Livermore Avenue Livermore, CA  
Project Number : 830053-00000002  
P.O. Number : 97306783

Dear Ms. Bussard,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink that reads "Joel Kiff". The signature is stylized with a large initial "J" and a long, sweeping underline.

Joel Kiff





Report Number : 22513

Date : 10/9/2001

Project Name : 318 S. Livermore Avenue Livermore, CA

Project Number : 830053-00000002

Sample : MW-5

Matrix : Water

Lab Number : 22513-01

Sample Date :9/18/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	10/1/2001
Toluene	< 0.50	0.50	ug/L	EPA 8260B	10/1/2001
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	10/1/2001
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	10/1/2001
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	10/1/2001
Diisopropyl ether (DIPE)	< 2.0	2.0	ug/L	EPA 8260B	10/1/2001
Ethyl-t-butyl ether (ETBE)	< 2.0	2.0	ug/L	EPA 8260B	10/1/2001
Tert-amyl methyl ether (TAME)	< 2.0	2.0	ug/L	EPA 8260B	10/1/2001
Tert-Butanol	< 50	50	ug/L	EPA 8260B	10/1/2001
Toluene - d8 (Surr)	98.6		% Recovery	EPA 8260B	10/1/2001
4-Bromofluorobenzene (Surr)	95.3		% Recovery	EPA 8260B	10/1/2001

Approved By:  Joel Kiff



Report Number : 22513

Date : 10/9/2001

Project Name : 318 S. Livermore Avenue Livermore, CA

Project Number : 830053-00000002

Sample : MW-6

Matrix : Water

Lab Number : 22513-02

Sample Date :9/18/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Toluene	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Diisopropyl ether (DIPE)	< 2.0	2.0	ug/L	EPA 8260B	10/2/2001
Ethyl-t-butyl ether (ETBE)	< 2.0	2.0	ug/L	EPA 8260B	10/2/2001
Tert-amyl methyl ether (TAME)	< 2.0	2.0	ug/L	EPA 8260B	10/2/2001
Tert-Butanol	< 50	50	ug/L	EPA 8260B	10/2/2001
Toluene - d8 (Surr)	98.9		% Recovery	EPA 8260B	10/2/2001
4-Bromofluorobenzene (Surr)	97.6		% Recovery	EPA 8260B	10/2/2001

Approved By:  Joel Kiff



Report Number : 22513

Date : 10/9/2001

Project Name : 318 S. Livermore Avenue Livermore, CA

Project Number : 830053-00000002

Sample : MW-7

Matrix : Water

Lab Number : 22513-03

Sample Date : 9/18/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	10/1/2001
Toluene	< 0.50	0.50	ug/L	EPA 8260B	10/1/2001
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	10/1/2001
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	10/1/2001
Methyl-t-butyl ether (MTBE)	1.2	0.50	ug/L	EPA 8260B	10/1/2001
Diisopropyl ether (DIPE)	< 2.0	2.0	ug/L	EPA 8260B	10/1/2001
Ethyl-t-butyl ether (ETBE)	< 2.0	2.0	ug/L	EPA 8260B	10/1/2001
Tert-amyl methyl ether (TAME)	< 2.0	2.0	ug/L	EPA 8260B	10/1/2001
Tert-Butanol	< 50	50	ug/L	EPA 8260B	10/1/2001
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	10/1/2001
4-Bromofluorobenzene (Surr)	97.6		% Recovery	EPA 8260B	10/1/2001

Approved By:  Joel Kiff



Report Number : 22513

Date : 10/9/2001

Project Name : 318 S. Livermore Avenue Livermore, CA

Project Number : 830053-00000002

Sample : MW-8

Matrix : Water

Lab Number : 22513-04

Sample Date :9/18/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Toluene	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
Diisopropyl ether (DIPE)	< 2.0	2.0	ug/L	EPA 8260B	10/2/2001
Ethyl-t-butyl ether (ETBE)	< 2.0	2.0	ug/L	EPA 8260B	10/2/2001
Tert-amyl methyl ether (TAME)	< 2.0	2.0	ug/L	EPA 8260B	10/2/2001
Tert-Butanol	< 50	50	ug/L	EPA 8260B	10/2/2001
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	10/2/2001
4-Bromofluorobenzene (Surr)	93.4		% Recovery	EPA 8260B	10/2/2001

Approved By:  Joel Kiff

Report Number : 22513

Date : 10/9/2001

Project Name : **318 S. Livermore Avenue**

Project Number : **830053-00000002**

22513 Quality Control Data - Method Blank

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
<b>Methyl-t-butyl ether (MTBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	10/2/2001
<b>Diisopropyl ether (DIPE)</b>	< 2.0	2.0	ug/L	EPA 8260B	10/2/2001
<b>Ethyl-t-butyl ether (ETBE)</b>	< 2.0	2.0	ug/L	EPA 8260B	10/2/2001
<b>Tert-amyl methyl ether (TAME)</b>	< 2.0	2.0	ug/L	EPA 8260B	10/2/2001
<b>Tert-Butanol</b>	< 50	50	ug/L	EPA 8260B	10/2/2001
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	10/2/2001
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	10/2/2001

Approved By:  Joel Kiff

Report Number : 22513

Date : 10/9/2001

**QC Report : Matrix Spike/ Matrix Spike Duplicate**

Project Name : **318 S. Livermore Avenue**

Project Number : **830053-00000002**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Spike Recovery Data														
Benzene	22447-01	<0.50	20.0	19.7	21.0	21.0	ug/L	EPA 8260B	10/1/2001	105	106	1.30	70-130	25
Toluene	22447-01	<0.50	20.0	19.7	21.3	21.2	ug/L	EPA 8260B	10/1/2001	107	108	0.839	70-130	25
Tert-Butanol	22447-01	<5.0	99.9	98.7	99.7	98.8	ug/L	EPA 8260B	10/1/2001	199.8	100	0.275	70-130	25
Methyl-t-Butyl Ether	22447-01	3.3	20.0	19.7	17.8	17.9	ug/L	EPA 8260B	10/1/2001	172.3	74.0	2.39	70-130	25

Approved By:  Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 22513

Date : 10/9/2001

**QC Report : Laboratory Control Sample (LCS)**

Project Name : **318 S. Livermore Avenue**

Project Number : **830053-00000002**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	20.0	ug/L	EPA 8260B	10/1/2001	102	70-130
Toluene	20.0	ug/L	EPA 8260B	10/1/2001	104	70-130
Tert-Butanol	100	ug/L	EPA 8260B	10/1/2001	97.6	70-130
Methyl-t-Butyl Ether	20.0	ug/L	EPA 8260B	10/1/2001	93.0	70-130

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Approved By:

  
Joel Kiff

720 Olive Drive, Suite D  
Davis, CA 95616

(530) 297-4800 (530) 297-4803 fax

Equiva Project Manager to be Invoiced: **22513**

- SCIENCE & ENGINEERING
- TECHNICAL SERVICES
- CRMT HOUSTON

*Denis Brown*

INCIDENT NUMBER (SEE ONLY)

9 7 3 0 6 7 8 3

SAP or CRMT NUMBER (TS/CRMT)

DATE: **9-22-01**

PAGE: **1** of **1**

CONSULTANT COMPANY:  
**IT Corporation**  
ADDRESS:  
**1921 Ringwood Avenue**  
CITY:  
**San Jose, CA 95131**  
TELEPHONE:  
**408-453-7300** FAX:  
**408-437-9526** E-MAIL:  
**rbussard@heitgroup.com**

SITE ADDRESS (Street and City):  
**318 S. Livermore Avenue Livermore, CA**  
PROJECT CONTACT (Report to):  
**Regina Bussard** CONSULTANT PROJECT NO.:  
**930053-00000002**  
SAMPLER NAME(S) (PRINT):  
**Regina Bussard (RMB)** LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS):  
 10 DAYS  5 DAYS  72 HOURS  48 HOURS  24 HOURS  LESS THAN 24 HOURS

REQUESTED ANALYSIS

LA - RWQCB REPORT FORMAT  LIST AGENCY: \_\_\_\_\_  
GC/MS MTBE CONFIRMATION: HIGHEST \_\_\_\_\_ HIGHEST per BORING \_\_\_\_\_ ALL \_\_\_\_\_  
SPECIAL INSTRUCTIONS OR NOTES: \_\_\_\_\_ TEMPERATURE ON RECEIPT C° \_\_\_\_\_

TPH - Pumpable (8260B)	BTEX (8260B)	MTBE (5ppb RL)	MTBE (0.5ppb RL)	5 Oxy's (8260B)	1,2-DCA / EDB (8260B)	Vol Halocarbons (8260B)	Ethanol / Methanol (8260B)	TPH - Diesel (8015)	Metals (Specify)	TRPH (418.1)	Vapor VOCs BTEX / MTBE (TO-15)	Vapor VOCs Full List (TO-15)	Vapor TPH (ASTM 3466m)	Vapor Fixed Gases (ASTM D1946)	Test for Disposal (4B-)
✓	✓	✓	✓	✓	✓	✓									

FIELD NOTES:  
Container/Preservative  
or PID Readings  
or Laboratory Notes

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.
		DATE	TIME		
	MW-5	9/18/01	17:50	W	3
	MW-6	↓	17:20	↓	↓
	MW-7	↓	17:30	↓	↓
	MW-8	↓	18:00	↓	↓

01  
02  
03  
04

Relinquished by: (Signature)  
*Denis Brown*  
Received by: (Signature)  
*storage*

Relinquished by: (Signature)  
Received by: (Signature)  
*Harold Brewer KIFF*

Date: **9-22-01**  
Date: \_\_\_\_\_  
Date: **092401**

Time: **21:15**  
Time: \_\_\_\_\_  
Time: **1120**



**ATTACHMENT F**  
**ANALYTICAL DATA FOR SOIL SAMPLES**



Report Number : 22579

Date : 10/10/2001

Mike Hurd  
IT Corporation  
1921 Ringwood Ave  
San Jose, CA 95131

Subject : 1 Soil Sample  
Project Name : 318 S. Livermore Avenue Livermore, CA  
Project Number : 830053-00000002  
P.O. Number : 97306783

Dear Mr. Hurd,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink that reads "Joel Kiff". The signature is written in a cursive style with a large, looped "J" and "K".

Joel Kiff



Report Number : 22579

Date : 10/10/2001

Project Name : 318 S. Livermore Avenue Livermore, CA

Project Number : 830053-00000002

Sample : MW-7 (35'-35.5')

Matrix : Soil

Lab Number : 22579-01

Sample Date :9/17/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	10/1/2001
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	10/1/2001
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	10/1/2001
Total Xylenes	< 0.010	0.010	mg/Kg	EPA 8260B	10/1/2001
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	mg/Kg	EPA 8260B	10/1/2001
Diisopropyl ether (DIPE)	< 0.50	0.50	mg/Kg	EPA 8260B	10/1/2001
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	mg/Kg	EPA 8260B	10/1/2001
Tert-amyl methyl ether (TAME)	< 0.50	0.50	mg/Kg	EPA 8260B	10/1/2001
Tert-Butanol	< 0.50	0.50	mg/Kg	EPA 8260B	10/1/2001
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	10/1/2001
Toluene - d8 (Surr)	98.6		% Recovery	EPA 8260B	10/1/2001
4-Bromofluorobenzene (Surr)	96.0		% Recovery	EPA 8260B	10/1/2001

Approved By:  Joel Kiff

Report Number : 22579

Date : 10/10/2001

Project Name : **318 S. Livermore Avenue**

Project Number : **830053-00000002**

22579 Quality Control Data - Method Blank

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.0050	0.0050	mg/Kg	EPA 8260B	10/2/2001
<b>Toluene</b>	< 0.0050	0.0050	mg/Kg	EPA 8260B	10/2/2001
<b>Ethylbenzene</b>	< 0.0050	0.0050	mg/Kg	EPA 8260B	10/2/2001
<b>Total Xylenes</b>	< 0.0050	0.0050	mg/Kg	EPA 8260B	10/2/2001
<b>Methyl-t-butyl ether (MTBE)</b>	< 0.50	0.50	mg/Kg	EPA 8260B	10/2/2001
<b>Diisopropyl ether (DIPE)</b>	< 0.50	0.50	mg/Kg	EPA 8260B	10/2/2001
<b>Ethyl-t-butyl ether (ETBE)</b>	< 0.50	0.50	mg/Kg	EPA 8260B	10/2/2001
<b>Tert-amyl methyl ether (TAME)</b>	< 0.50	0.50	mg/Kg	EPA 8260B	10/2/2001
<b>Tert-Butanol</b>	< 0.50	0.50	mg/Kg	EPA 8260B	10/2/2001
<b>TPH as Gasoline</b>	< 1.0	1.0	mg/Kg	EPA 8260B	10/2/2001
Toluene - d8 (Surr)	97.7		% Recovery	EPA 8260B	10/2/2001
4-Bromofluorobenzene (Surr)	94.1		% Recovery	EPA 8260B	10/2/2001

Approved By:  Joel Kiff

Report Number : 22579

Date : 10/10/2001

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 318 S. Livermore Avenue

Project Number : 830053-00000002

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Spike Recovery Data														
Benzene	22428-03	<0.0050	0.0391	0.0393	0.0376	0.0392	mg/Kg	EPA 8260B	10/2/2001	96.3	99.8	3.62	70-130	25
Toluene	22428-03	<0.0050	0.0391	0.0393	0.0372	0.0387	mg/Kg	EPA 8260B	10/2/2001	95.4	98.4	3.17	70-130	25
Tert-Butanol	22428-03	<0.0050	0.195	0.196	0.183	0.199	mg/Kg	EPA 8260B	10/2/2001	93.7	101	7.86	70-130	25
Methyl-t-Butyl Ether	22428-03	<0.0050	0.0391	0.0393	0.0379	0.0393	mg/Kg	EPA 8260B	10/2/2001	97.1	100	2.97	70-130	25

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Approved By:  Joel Kiff

Report Number : 22579

Date : 10/10/2001

**QC Report : Laboratory Control Sample (LCS)**

Project Name : **318 S. Livermore Avenue**

Project Number : **830053-00000002**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	0.0398	mg/Kg	EPA 8260B	10/2/2001	96.0	70-130
Toluene	0.0398	mg/Kg	EPA 8260B	10/2/2001	93.8	70-130
Tert-Butanol	0.199	mg/Kg	EPA 8260B	10/2/2001	90.4	70-130
Methyl-t-Butyl Ether	0.0398	mg/Kg	EPA 8260B	10/2/2001	96.4	70-130

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Approved By:  \_\_\_\_\_  
Joel Kiff



**ATTACHMENT G**  
**WELL SURVEY DATA**





**Mid Coast Engineers**  
**Civil Engineers and Land Surveyors**

70 Penny Lane, Suite A - Watsonville, CA 95076  
phone: (831) 724-2580  
fax: (831) 724-8025  
e-mail: lv@mce1.com

**Richard A. Wadsworth**  
Civil Engineer

**Stanley O. Nielsen**  
Land Surveyor

**Lee D. Vaage**  
Land Surveyor

**Jeff S. Nielsen**  
Land Surveyor

March 11, 2002

Regina Bussard  
IT Corporation  
1921 Ringwood Avenue  
San Jose, CA 95131

Re: **Shell, 318 South Livermore Avenue at Third Street, Livermore, California; SAP 135440, MCE Job No. 02070**

Dear Ms. Bussard,

As you requested, on January 17, we surveyed four new monitoring wells located at the referenced site. Our findings are listed on the attached sheets, expressed in State Plane Coordinates and Latitude/Longitude.


A notch was cut in the north rim of the PVC casing (TOC) and a cross chiseled in the north rim of the box (TOB).

Measurements were obtained from conventional survey techniques in combination with GPS techniques (Code CGPS), using control points AA3815 (HPGN D CA 04 FK) and AA3816 (HPGN D CA 04 FL) as published by NGS/NOAA, and listed on their web site. Latitude and Longitude as shown were determined from the California Coordinate System, Zone 3, NAD 83 Datum. The accuracy range of the reported information is +/- 5mm. GPS equipment is the Trimble 5700 system (Code T57).

The benchmark is City of Livermore No. D 30, a city monument at East Avenue and Fifth Street. Elevation = 501.361 feet, NGVD 29.

Please let me know if you have questions or need additional information.

Yours truly,

  
Lee D. Vaage



**SHELL**  
**318 South Livermore Avenue at Third Street**  
**Livermore, California**

**IT GRASP SAP 135440**

Project : 02070

User name MCE      Date & Time 2:57:37 PM 3/11/02  
Coordinate System US State Plane 1983      Zone California Zone 3 0403  
Project Datum NAD 1983 (Conus)  
Vertical Datum NGVD 29  
Coordinate Units US survey feet  
Distance Units US survey feet  
Elevation Units US survey feet

Point listing

Name	Northing	Easting	Elevation	Description
203	2072792.97	6195299.51	495.58	MW7toc
204	2072793.21	6195299.68	495.91	MW7tob
205	2072839.98	6195238.48	494.90	MW8toc
206	2072840.12	6195238.73	495.24	MW8tob
207	2072877.47	6195260.80	495.47	MW5toc
208	2072877.74	6195260.90	495.84	MW5tob
218	2072825.65	6195380.00	497.57	MW6toc
219	2072825.80	6195380.22	497.83	MW6tob
221	2072524.49	6195902.17	501.36	BM-D30

SHELL  
318 South Livermore Avenue at Third Street  
Livermore, California

IT GRASP SAP 135440

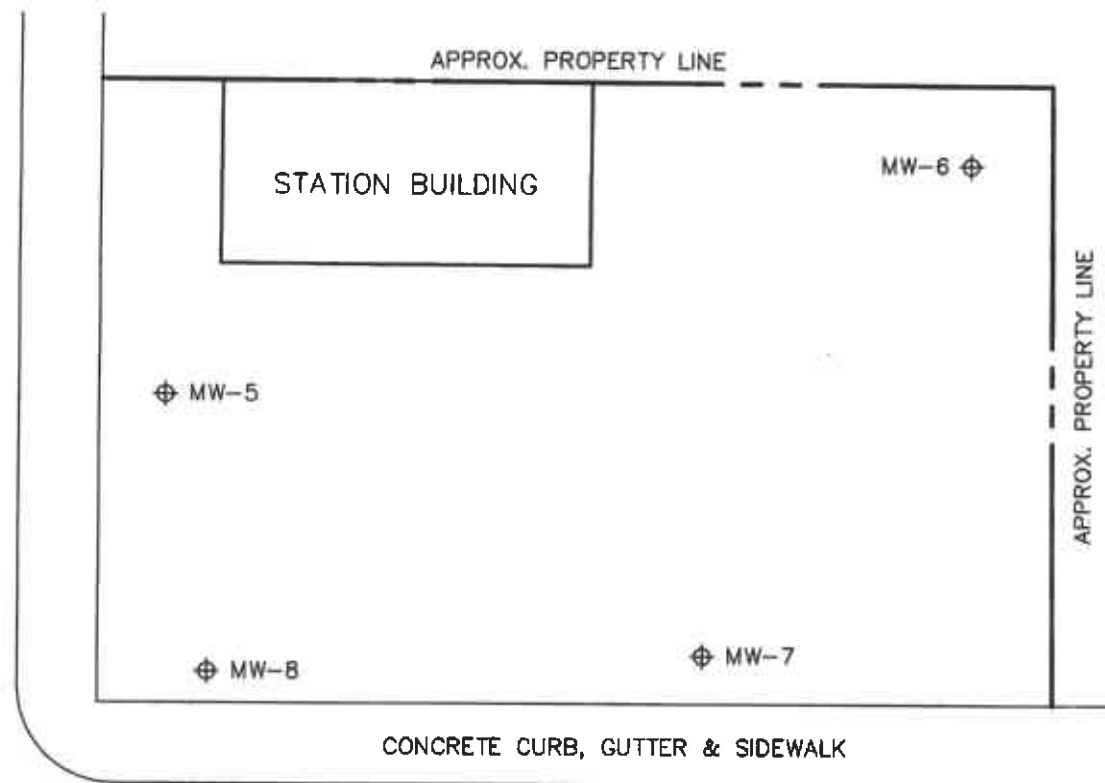
Project : 02070

User name MCE Date & Time 2:57:37 PM 3/11/02  
Coordinate System US State Plane 1983 Zone California Zone 3 0403  
Project Datum NAD 1983 (Conus)  
Vertical Datum NGVD 29  
Coordinate Units US survey feet  
Distance Units US survey feet  
Elevation Units US survey feet

Point listing

Name	Latitude	Longitude	Elevation	Description
203	37.680684067°N	121.766043697°W	495.58	MW7toc
204	37.680684733°N	121.766043118°W	495.91	MW7tob
205	37.680810896°N	121.766256757°W	494.90	MW8toc
206	37.680811295°N	121.766255880°W	495.24	MW8tob
207	37.680914693°N	121.766181403°W	495.47	MW5toc
208	37.680915438°N	121.766181069°W	495.84	MW5tob
218	37.680776801°N	121.765767092°W	497.57	MW6toc
219	37.680777227°N	121.765766329°W	497.83	MW6tob
221	37.679969163°N	121.763948828°W	501.36	BM-D30

THIRD STREET



SOUTH LIVERMORE AVENUE

MONITORING WELL	NORTHING AT NORTH RIM PVC (TOC)	EASTING AT NORTH RIM PVC (TOC)	ELEVATION AT NORTH RIM PVC (TOC)	ELEVATION AT NORTH RIM BOX (TOB)
MW-5	2072877.47	6195260.80	495.47	495.84
MW-6	2072825.65	6195380.00	497.57	497.83
MW-7	2072792.97	6195299.51	495.58	495.91
MW-8	2072839.98	6195238.48	494.90	495.24



NOTES:

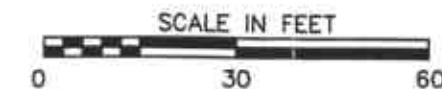
- COORDINATES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE III, NAD 83.
- BENCHMARK IS CITY OF LIVERMORE NO. D 30, A CITY MONUMENT AT EAST AVENUE AND FIFTH STREET.  
ELEVATION = 501.361, NGVD '29.
- SURVEYED AT THE REQUEST OF THE IT GROUP IN JANUARY 2002, SAP 135440.

MONITORING WELL LOCATION MAP FOR  
SHELL STATION

318 South Livermore Avenue at Third Street  
Livermore, California



**MID COAST ENGINEERS**  
CIVIL ENGINEERS AND LAND SURVEYORS  
70 PENNY LANE SUITE A WATSONVILLE, CA 95078  
(831) 724-2580



SCALE:	1"=30'
JOB NO.	02070
DATE:	MAR. 11, 2002
SHEET:	1 OF 1

**ATTACHMENT H  
PERMITS**

# ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588-5127

VOICE (925) 484-2600 X235  
FAX (925) 462-3914



## DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 318 S. Livermore Ave  
at Third Street  
Livermore, CA 94550-4654

PERMIT NUMBER 21158  
WELL NUMBER 3S/2E 9N4 to 9N7  
APN 097 0108 009 03

California Coordinates Source \_\_\_\_\_ ft. Accuracy \_\_\_\_\_ ft.  
CCN \_\_\_\_\_ ft. GCE \_\_\_\_\_ ft.  
APN 97-108-9-3

### PERMIT CONDITIONS

Circled Permit Requirements Apply

CLIENT  
Name Equiva Services LLC  
Address P.O. Box 7869 Phone 925-706-1539  
City Burbank, CA Zip 91510-7869

- A. GENERAL**
  1. A permit application should be submitted so as to arrive at Zone 7 office five days prior to proposed starting date.
  2. Submit to Zone 7 within 80 days after completion of permit work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs a location sketch for geotechnical projects.
  3. Permit is void if project not begun within 90 days of approval date.

APPLICANT  
Name IT Corporation  
Regina Bussard Fax 408-437-9526  
Address 1921 Ringwood Ave. Phone 408-453-7300  
City San Jose, CA Zip 95131

- B. WATER SUPPLY WELLS**
  1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
  2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
  3. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
  4. A sample port is required on the discharge pipe near the wellhead.

TYPE OF PROJECT

Well Construction	<input type="checkbox"/>	Geotechnical Investigation	<input type="checkbox"/>
Cathodic Protection	<input type="checkbox"/>	General	<input type="checkbox"/>
Water Supply	<input checked="" type="checkbox"/>	Contamination	<input checked="" type="checkbox"/>
Monitoring	<input checked="" type="checkbox"/>	Well Destruction	<input type="checkbox"/>

- C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS**
  1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
  2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

PROPOSED WATER SUPPLY WELL USE

New Domestic	<input type="checkbox"/>	Replacement Domestic	<input type="checkbox"/>
Municipal	<input type="checkbox"/>	Irrigation	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	Other	<input type="checkbox"/>

DRILLING METHOD:

Mud Rotary	<input type="checkbox"/>	Air Rotary	<input type="checkbox"/>	Auger	<input checked="" type="checkbox"/>
Cable	<input type="checkbox"/>	Other	<input type="checkbox"/>		

DRILLER'S LICENSE NO. 283326

WELL PROJECTS

Drill Hole Diameter	<u>8</u> in.	Maximum	
Casing Diameter	<u>2</u> in.	Depth	<u>40-50</u> ft.
Surface Seal Depth	<u>0.5-1</u> ft.	Number	<u>4 (HW-5-HW-8)</u>

- D. GEOTECHNICAL.** Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In area of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.
- E. CATHODIC.** Fill hole above anode zone with concrete placed by tremie.
- F. WELL DESTRUCTION.** See attached.
- G. SPECIAL CONDITIONS**

GEOTECHNICAL PROJECTS

Number of Borings	<u>4</u>	Maximum	
Hole Diameter	<u>8</u> in.	Depth	<u>30-50</u> ft.

ESTIMATED STARTING DATE 9-10-01 ESTIMATED COMPLETION DATE \_\_\_\_\_

Approved Wyman Hong Date 8/28/01  
Wyman Hong

hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Regina Bussard Date 8/28/01