



December 18, 1992

Juliet Shin  
Alameda County Department of  
Environmental Health  
80 Swan Way, Room 200  
Oakland, CA 94621-1426

Re: Shell Service Station  
WIC #204-0072-0502  
2160 Otis Drive  
Alameda, California  
WA Job #81-429-201

Dear Ms. Shin:

This letter describes recently completed and anticipated activities at the Shell service station referenced above (Figure 1). This status report satisfies the quarterly reporting requirements prescribed by California Administrative Code Title 23 Waters, Chapter 3, Subchapter 16, Article 5, Section 265.d. Included below are descriptions and results of activities performed in the fourth quarter 1992 and proposed work for the first quarter 1993.

Fourth Quarter 1992 Activities:

- EMCON Associates (EMCON) of San Jose, California measured depths to ground water and collected ground water samples from the three site wells. EMCON's report describing these sampling activities and presenting analytic results for ground water is included as Attachment A.
- Weiss Associates (WA) used EMCON's ground water elevation calculations to prepare a ground water elevation contour map (Figure 2).

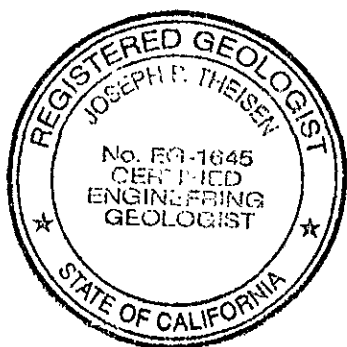
Anticipated First Quarter 1993 Activities:

WA will submit a report presenting the results of the first quarter 1993 ground water sampling and ground water depth measurements. The report will include tabulated chemical analytic results and a ground water elevation contour map. WA will also collect soil and ground water samples from four to six soil borings on and offsite as outlined in our September 2, 1992 workplan. The drilling objective is to define the extent of hydrocarbons in soil and

Juliet Shin  
December 18, 1992

ground water down gradient of the under ground storage tanks and pump islands. If hydrocarbon-bearing soil or ground water is detected in soil or ground water samples we will propose additional monitoring well locations in a future work plan. All necessary permits including City of Alameda Encroachment Permits have been issued and drilling will commence in mid-December. WA will prepare a subsurface investigation report presenting the results of the additional site investigation.


Please call if you have any questions.



Sincerely,  
Weiss Associates



J. Michael Asport  
Technical Assistant



Joseph P. Theisen, C.E.G.  
Senior Hydrogeologist

JMA/JPT:jma

E:\ALL\SHELL\400\429QMNO2.WP

Attachments: Figures  
A - EMCON's Ground Water Monitoring Report

cc: Dan Kirk, Shell Oil Company, P.O. Box 5278, Concord, CA 94520  
Tom Callaghan, Water Quality Control Board, San Francisco Bay Region, 2101 Webster Street, Suite 500, Oakland, CA 94612

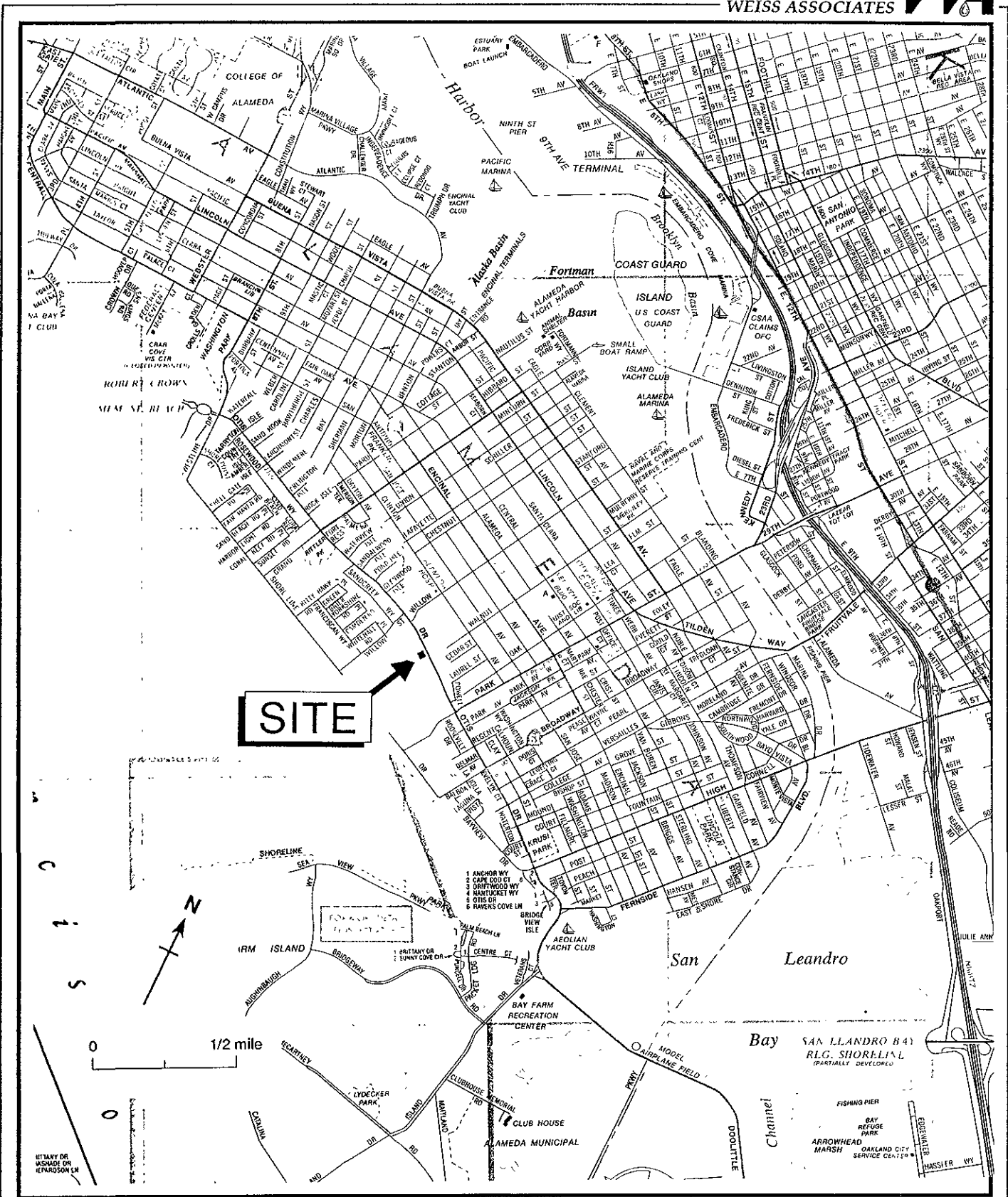


Figure 1. Site Location Map - Shell Service Station, WIC# 204-0072-0502, 2160 Otis Drive, Alameda, CA

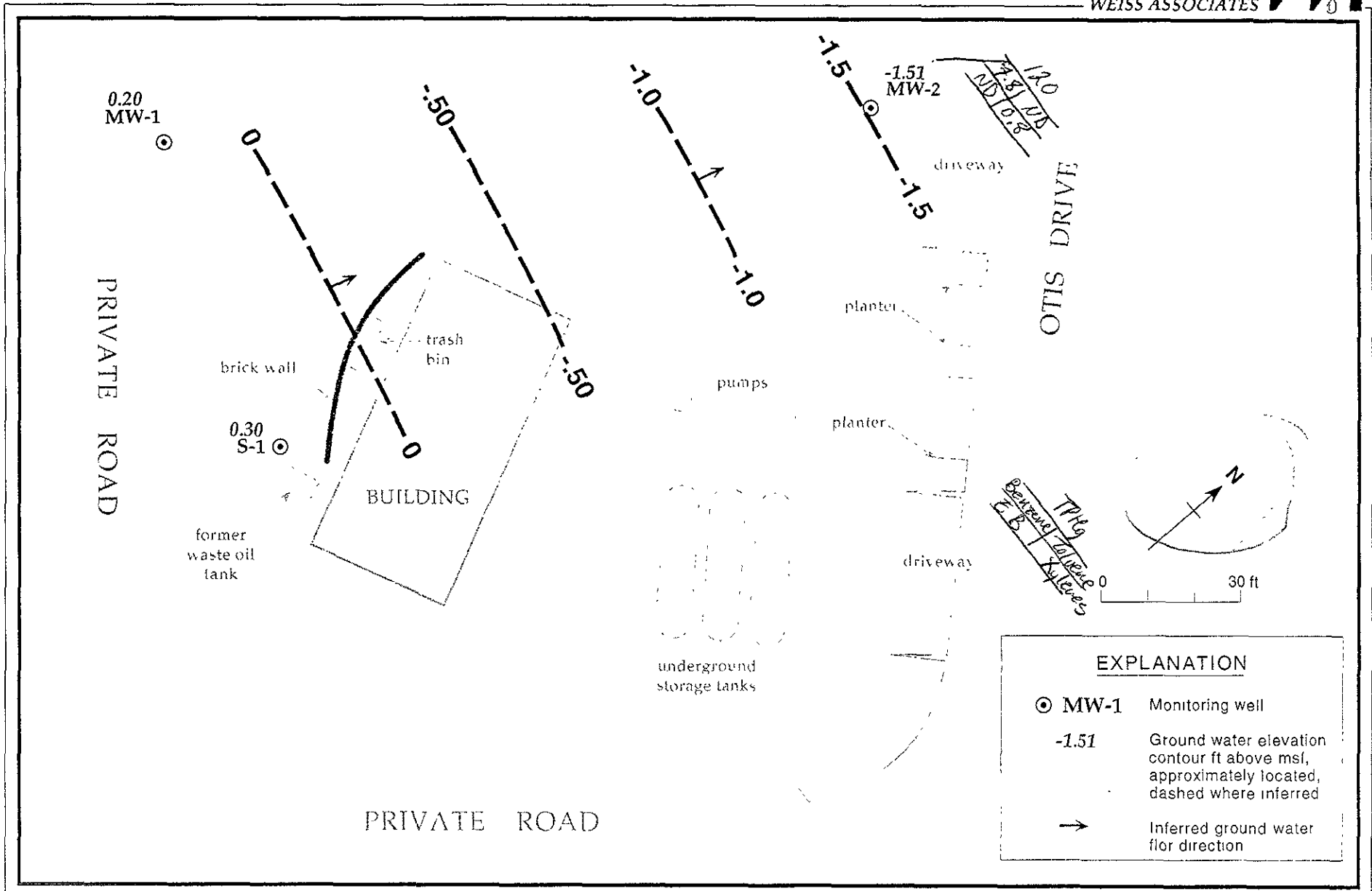


Figure 2. Ground Water Elevations- October 2, 1992 - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive. Alameda, California

**ATTACHMENT A**  
**GROUND WATER MONITORING REPORT AND ANALYTIC REPORT**



November 12, 1992  
Project: OG67-030.01  
WIC#: 204-0072-0502

Mr. David Elias  
Weiss Associates  
5500 Shellmound Street  
Emeryville, California 94608-2411

Re: Fourth quarter 1992 ground-water monitoring report, Shell Oil  
Company, 2160 Otis Drive, Alameda, California

Dear Mr. Elias:

This letter presents the results of the fourth quarter 1992 ground-water monitoring event for the Shell Oil Company (Shell) site located at 2160 Otis Drive, Alameda, California (figure 1). Fourth quarter monitoring was conducted on October 2, 1992. The site is monitored quarterly.

#### **GROUND-WATER LEVEL SURVEY**

A water-level survey preceded the purging and sampling of the monitoring wells. The wells included in the survey are identified in figure 2 (supplied by Weiss Associates). During the survey, wells MW-1, MW-2, and S-1 were measured for depth to water, floating product thickness, and total depth. Depth to water and floating product thickness were measured to the nearest 0.01 foot with an oil/water interface probe. No floating product was observed in any wells. Total depth was measured to the nearest 0.1 foot. Results of the fourth quarter water-level survey, and available data from four previous surveys, are summarized in table 1.

#### **SAMPLING AND ANALYSIS**

Ground-water samples were collected from wells MW-1, MW-2, and S-1 on October 2, 1992. Prior to sample collection, the wells were purged with polyvinyl chloride bailers. During the purging operation, ground water was monitored for pH, electrical conductivity, and temperature as a function of volume of water removed. Purging continued until these parameters were stable and a minimum of three casing volumes of ground water were removed. Well S-1 was evacuated to dryness before three casing volumes were removed. The well was allowed to recharge for up to 24 hours. Samples were collected after the well had recharged to a level sufficient for sample collection. Field measurements from fourth quarter monitoring, and available measurements from four previous monitoring events, are summarized in table 1. Purge water from the

OG6703001D.DOC



monitoring wells was contained in a 55-gallon drum. The drum was identified with a Shell-approved label and secured for on-site storage.

Ground-water samples were collected with a Teflon® bailer, labeled, placed on ice, and transported to Anamatrix Inc. for analysis. Shell chain-of-custody documents accompanied all samples to the laboratory.

All equipment that was placed down a well or that came in contact with ground water was steam cleaned with deionized water prior to use at each well.

Quality control samples for fourth quarter monitoring included a trip blank (TB), a field blank (FB), and a duplicate well sample (MW-2D) collect from well MW-2. All water samples collected during fourth quarter monitoring were analyzed for total petroleum hydrocarbons as gasoline (TPH-g), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Additional ground-water samples collected from well MW-2 were analyzed for halogenated volatile organic compounds (VOCs) by U.S. Environmental Protection Agency method 601.

## **ANALYTICAL RESULTS**

Analytical results for the fourth quarter 1992 monitoring event, and available results from four previous monitoring events, are summarized in table 2 (TPH-g and BTEX) and table 3 (VOCs). The original certified analytical report and the final chain-of-custody document are attached.


If you have any questions, please call.

Very truly yours,

EMCON Associates



David Larsen  
Environmental Sampling Coordinator



Orrin Childs  
Environmental Sampling Supervisor

DL/OC:dl

Attachments: Table 1 - Monitoring well field measurement data  
Table 2 - Summary of analytical results (TPH-g and BTEX)  
Table 3 - Summary of analytical results (VOCs)  
Figure 1 - Site location map  
Figure 2 - Monitoring well locations  
Certified analytical report  
Chain-of-custody document



Table 1  
Monitoring Well Field Measurement Data  
Fourth Quarter 1992

Shell Station: 2160 Otis Drive  
Alameda, California  
WIC #: 204-0072-0502

Date: 11/12/92  
Project Number: G67-30.01

Well Designation	Water Level Field Date	TOC Elevation (ft-MSL)	Depth to Water (feet)	Ground-water Elevation (ft-MSL)	Total Well Depth (feet)	Floating Product Thickness (feet)	Water Sample Field Date	pH (std. units)	Electrical Conductivity (micromhos/cm)	Temperature (degrees F)	Turbidity (NTU)
MW-1	10/09/91	6.00	5.70	0.30	NR	NR	10/09/91	NR	NR	NR	NR
MW-1	01/24/92	6.00	5.51	0.49	16.3	ND	01/24/92	7.27	13000	62.8	>200
MW-1	04/23/92	6.00	5.14	0.86	16.3	ND	04/23/92	7.49	12540	66.3	49.5
MW-1	07/01/92	6.00	4.48	1.52	16.3	ND	07/01/92	7.14	14680	70.4	>1000
MW-1	10/02/92	6.00	5.80	0.20	16.5	ND	10/02/92	7.16	>20000	73.7	>1000
MW-2	10/09/91	3.29	4.81	-1.52	NR	NR	10/09/91	NR	NR	NR	NR
MW-2	01/24/92	3.29	4.66	-1.37	17.0	ND	01/24/92	6.39	>20000	60.4	>200
MW-2	04/23/92	3.29	4.51	-1.22	17.0	ND	04/23/92	7.31	9490	66.0	12.6
MW-2	07/01/92	3.29	4.57	-1.28	17.0	ND	07/01/92	6.60	>20000	71.5	>1000
MW-2	10/02/92	3.29	4.80	-1.51	17.0	ND	10/02/92	6.58	>20000	68.6	>1000
S-1	10/09/91	5.10	4.87	0.23	NR	NR	10/09/91	NR	NR	NR	NR
S-1	01/24/92	5.10	4.90	0.20	18.7	ND	01/24/92	8.99	374	62.7	>200
S-1	04/23/92	5.10	4.66	0.44	18.8	ND	04/23/92	8.92	355	68.4	79.8
S-1	07/01/92	5.10	4.85	0.25	18.8	ND	07/01/92	8.74	3830	66.8	>1000
S-1	10/02/92	5.10	4.80	0.30	18.8	ND	10/02/92	8.68	412	71.0	>1000

TOC = top of casing

ft-MSL = elevation in feet, relative to mean sea level

std. units = standard pH units

micromhos/cm = micromhos per centimeter

degrees F = degrees Fahrenheit

NTU = nephelometric turbidity units

NR = Not reported; data not available

ND = None detected

Table 2  
 Summary of Analytical Results  
 Fourth Quarter 1992  
 milligrams per liter (mg/L) or parts per million (ppm)

Shell Station: 2160 Otis Drive  
 Alameda, California  
 WIC #: 204-0072-0502

Date: 11/12/92  
 Project Number: G67-30.01

Sample Designation	Water Sample Field Date	TPH-g (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl-benzene (mg/L)	Total Xylenes (mg/L)	TPH-d (mg/L)
MW-1	10/09/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-1	01/24/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-1	04/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-1	07/01/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-1	10/02/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-2	10/09/91	0.15	0.022	<0.0005	<0.0005	<0.0005	NA
MW-2	01/24/92	<0.05	0.0048	<0.0005	<0.0005	<0.0005	NA
MW-2	04/23/92	<0.05	0.0023	<0.0005	0.0015	<0.0005	NA
MW-2	07/01/92	0.13	0.019	<0.0005	<0.0005	<0.0005	NA
MW-2	10/02/92	0.12	0.0078	<0.0005	<0.0005	0.0008	NA
MW-2D	10/02/92	0.19	0.011	<0.0005	<0.0005	0.0008	NA
S-1	10/09/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
S-1	01/24/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
S-1	04/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
S-1	07/01/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
S-1	10/02/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
FB	07/01/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
FB	10/02/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA

TPH-g = total petroleum hydrocarbons as gasoline  
 TPH-d = total petroleum hydrocarbons as diesel  
 NA = Not analyzed

Table 2  
 Summary of Analytical Results  
 Fourth Quarter 1992  
 milligrams per liter (mg/l) or parts per million (ppm)

Shell Station: 2160 Otis Drive  
 Alameda, California  
 WIC #: 204-0072-0502

Date: 11/12/92  
 Project Number: G67-30.01

Sample Designation	Water Sample Field Date	TPH-g (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Total Xylenes (mg/l)	TPH-d (mg/l)
TB	10/09/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
TB	01/24/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
TB	04/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
TB	07/01/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
TB	10/02/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA

TPH-g = total petroleum hydrocarbons as gasoline  
 TPH-d = total petroleum hydrocarbons as diesel  
 NA = Not analyzed

Table 3  
 Summary of Analytical Results  
 Volatile Organic Compounds by EPA Method 601  
 Fourth Quarter 1992  
 milligrams per liter (mg/l) or parts per million (ppm)

Shell Station: 2160 Otis Drive  
 Alameda, California  
 WIC #: 204-0072-0502

Date: 11/12/92  
 Project Number: G67-30.01

Sample Designation	Water Sample Field Date	Benzene	TCE	TCA	PCE	Chloroform	cis-1,2-DCE	trans-1,2-DCE	1,2-DCA	Carbon Disulfide	Vinyl Chloride
		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
MW-2	10/09/91	NR	0.0019	NR	0.0128	0.0074	0.054	0.016	NR	NR	0.0017
MW-2	01/24/92	NA	0.0025	<0.0005	0.0070	0.0190	0.0160	0.0043	0.0006	NA	<0.0005
MW-2	04/23/92	NA	<0.003	<0.003	0.003	<0.003	0.084	0.018	<0.003	NA	<0.003
MW-2	07/01/92	NA	0.002	<0.001	0.002	<0.001	0.054	0.014	<0.001	NA	0.001
MW-2	10/02/92	NA	0.001	<0.001	<0.001	<0.001	0.061	0.012	<0.001	NA	<0.001

TCE = Trichloroethene  
 TCA = 1,1,1-Trichloroethane  
 PCE = Tetrachloroethene  
 cis-1,2-DCE = cis-1,2-Dichloroethene  
 trans-1,2-DCE = trans-1,2-Dichloroethene  
 1,2-DCA = 1,2-Dichloroethane  
 NR = Not reported; data not available  
 NA = Not analyzed

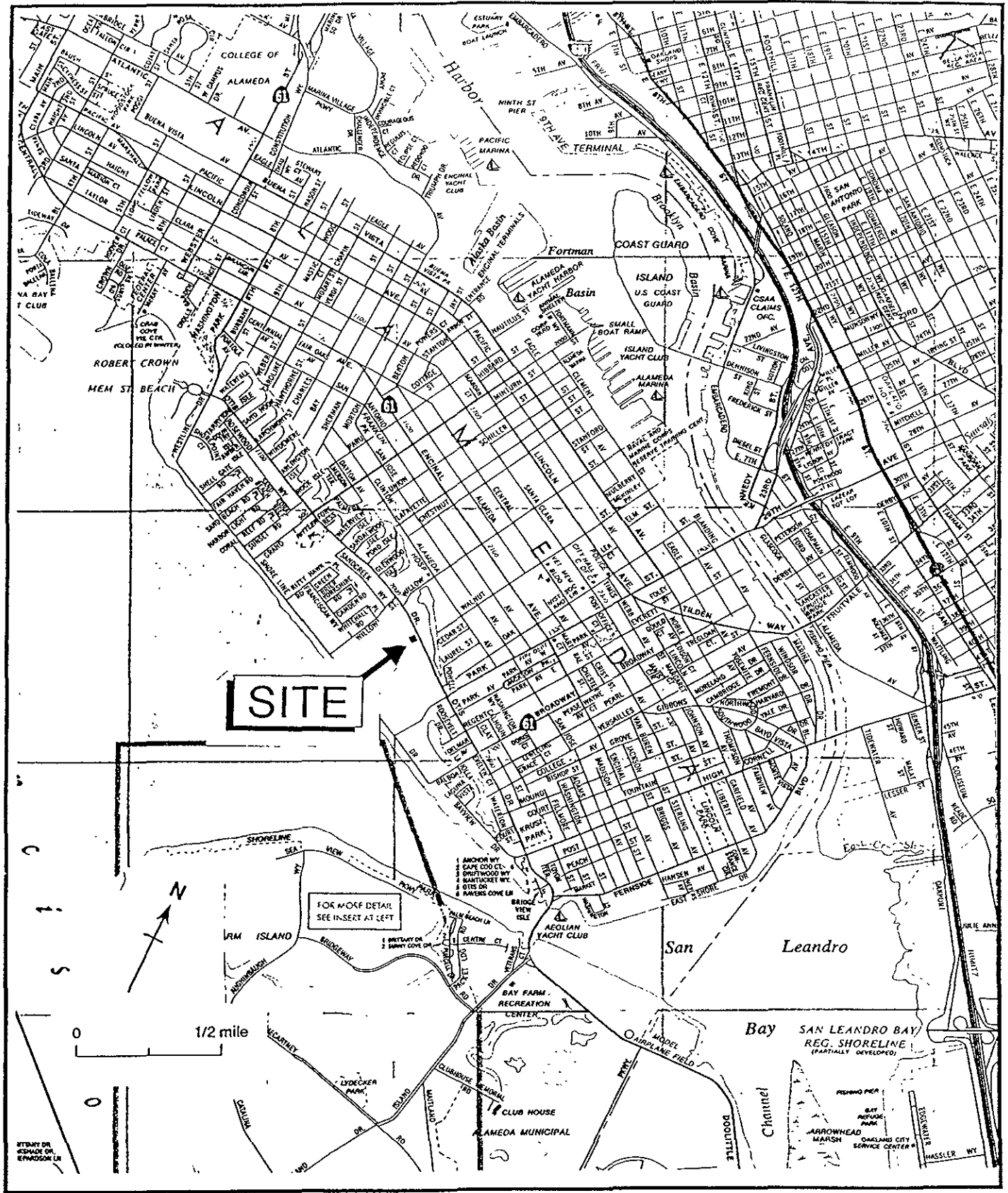


Figure 1. Site Location Map - Shell Service Station, WIC# 204-0072-0502, 2160 Otis Drive, Alameda, CA

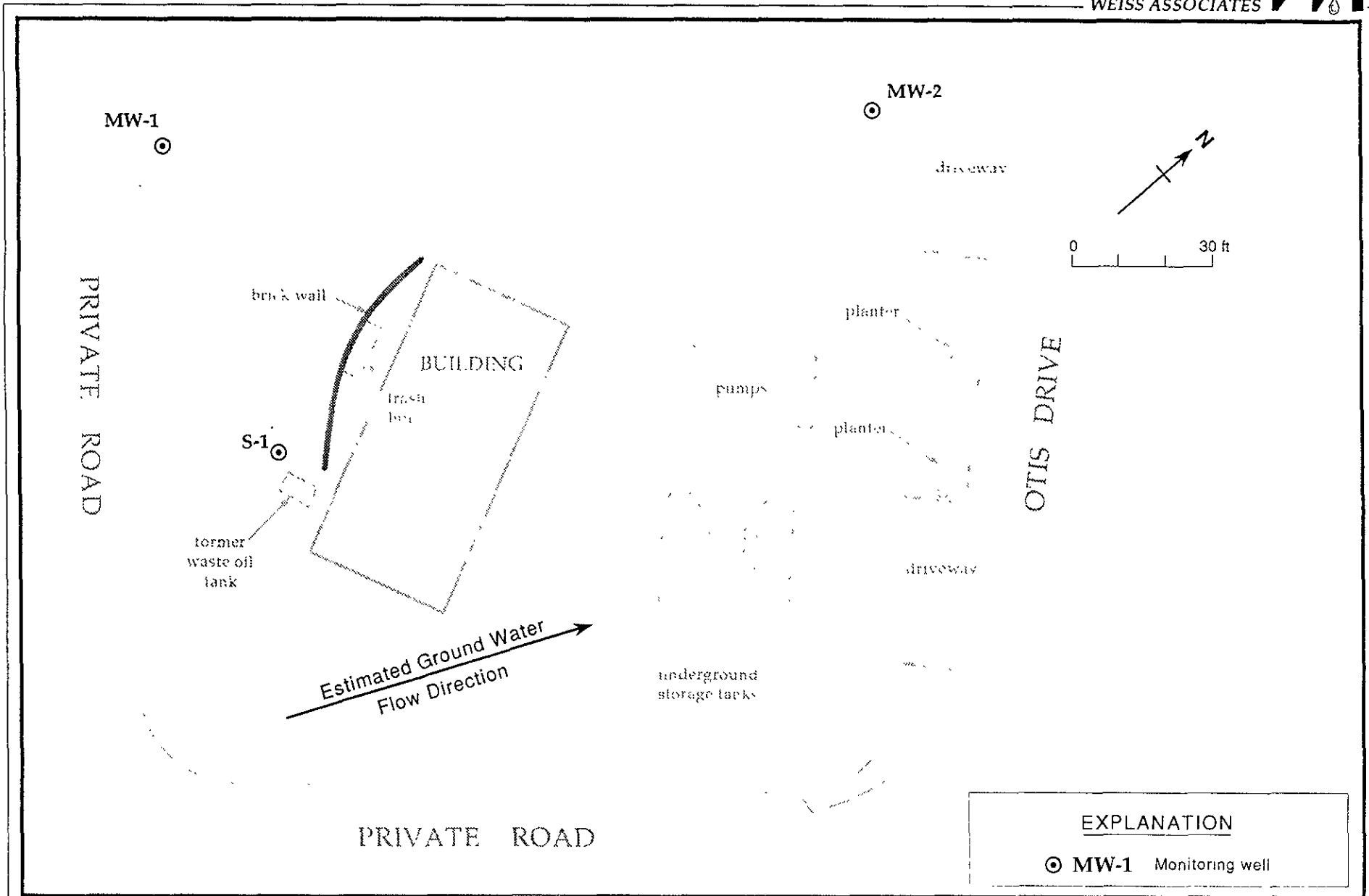


Figure 2. Monitoring Well Locations - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California



MR. DAVID LARSEN  
EMCON ASSOCIATES  
1938 JUNCTION AVE.  
SAN JOSE, CA 95131

Workorder # : 9210049  
Date Received : 10/05/92  
Project ID : 204-0072-0502  
Purchase Order: MOH-B813

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9210049- 1	MW-1
9210049- 2	S-1
9210049- 3	MW-2
9210049- 4	MW-2D
9210049- 5	TB
9210049- 6	FB

This report consists of 13 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.  
Laboratory Director

10-19-92

Date

EMCON ASSOCIATES

OCT 20 1992

RECEIVED

# ANAMETRIX REPORT DESCRIPTION

## GC

### Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anamatrix ID number.

### Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "\*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

### Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "\*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

### Qualifiers

Anamatrix uses several data qualifiers (Q) in its report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

### REPORTING CONVENTIONS

- ◆ Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- ◆ Amounts reported are gross values, i.e., not corrected for method blank contamination.



REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. DAVID LARSEN  
EMCON ASSOCIATES  
1938 JUNCTION AVE.  
SAN JOSE, CA 95131

Workorder # : 9210049  
Date Received : 10/05/92  
Project ID : 204-0072-0502  
Purchase Order: MOH-B813  
Department : GC  
Sub-Department: VOA

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9210049- 3	MW-2	WATER	10/02/92	8010

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. DAVID LARSEN  
EMCON ASSOCIATES  
1938 JUNCTION AVE.  
SAN JOSE, CA 95131

Workorder # : 9210049  
Date Received : 10/05/92  
Project ID : 204-0072-0502  
Purchase Order: MOH-B813  
Department : GC  
Sub-Department: VOA

QA/QC SUMMARY :

- No QA/QC problems encountered for sample.

Corinne Khan  
Department Supervisor

10/9/92  
Date

Kamel C. Kamel 10/9/92  
Chemist Date

**DESCRIPTIONS FOR SPECIFIC COMPOUNDS ANALYZED**  
EPA METHOD 601/8010

<u>CAS #</u>	<u>COMPOUND NAME</u>	<u>ABBREVIATED NAME</u>
74-87-3	Chloromethane	Chloromethane
74-83-9	Bromomethane	Bromoethane
75-71-8	Dichlorodifluoromethane	Freon 12
75-01-4	Vinyl Chloride	Vinyl Chloride
75-00-3	Chloroethane	Chloroethane
75-09-2	Methylene Chloride	Methylene Chlor
75-69-4	Trichlorofluoromethane	Freon 11
75-35-4	1,1-Dichloroethene	1,1-DCE
75-34-3	1,1-Dichloroethane	1,1-DCA
156-59-2	Cis-1,2-Dichloroethene	Cis-1,2-DCE
156-60-5	Trans-1,2-Dichloroethene	Trans-1,2-DCE
67-66-3	Chloroform	Chloroform
76-13-1	Trichlorotrifluoroethane	Freon 113
107-06-2	1,2-Dichloroethane	1,2-DCA
71-55-6	1,1,1-Trichloroethane	1,1,1-TCA
56-23-5	Carbon Tetrachloride	Carbon Tet
75-27-4	Bromodichloromethane	BromodichloroMe
78-87-5	1,2-Dichloropropane	1,2-DCPA
10061-02-6	Trans-1,3-Dichloropropene	Trans-1,3-DCPE
79-01-6	Trichloroethene	TCE
124-48-1	Dibromochloromethane	DibromochloroMe
79-00-5	1,1,2-Trichloroethane	1,1,2-TCA
10061-01-5	Cis-1,3-Dichloropropene	Cis-1,3-DCPE
110-75-8	2-Chloroethylvinylether	Chloroethylvinl
75-25-2	Bromoform	Bromoform
127-18-4	Tetrachloroethene	PCE
79-34-5	1,1,2,2-Tetrachloroethane	PCA
108-90-7	Chlorobenzene	Chlorobenzene
95-50-1	1,2-Dichlorobenzene	1,2-DCB
541-73-1	1,3-Dichlorobenzene	1,3-DCB
106-46-7	1,4-Dichlorobenzene	1,4-DCB
352-33-0	p-Chlorofluorobenzene	Chlorofluoroben

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 601/8010  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 204-0072-5502 MW-2  
 Matrix : WATER  
 Date sampled : 10/02/92  
 Date analyzed: 10/07/92  
 Dilution : 2

Anamatrix I.D. : 9210049-03  
 Analyst : *SH*  
 Supervisor : *CS*  
 Date released : 10/09/92  
 Instrument ID : HP14

CAS #	Compound Name	Reporting Limit (mg/L)	Amount Found (mg/L)
74-87-3	* Chloromethane	0.002	ND
74-83-9	* Bromomethane	0.001	ND
75-71-8	* Dichlorodifluoromethane	0.002	ND
75-01-4	* Vinyl Chloride	0.001	ND
75-00-3	* Chloroethane	0.001	ND
75-09-2	* Methylene Chloride	0.001	ND
79-69-4	* Trichlorofluoromethane	0.001	ND
75-35-4	* 1,1-Dichloroethene	0.001	ND
75-34-3	* 1,1-Dichloroethane	0.001	ND
156-59-2	# Cis-1,2-Dichloroethene	0.001	0.061
156-60-5	* Trans-1,2-Dichloroethene	0.001	0.012
67-66-3	* Chloroform	0.001	ND
76-13-1	# Trichlorotrifluoroethane	0.001	ND
107-06-2	* 1,2-Dichloroethane	0.001	ND
71-55-6	* 1,1,1-Trichloroethane	0.001	ND
56-23-5	* Carbon Tetrachloride	0.001	ND
75-27-4	* Bromodichloromethane	0.001	ND
78-87-5	* 1,2-Dichloropropane	0.001	ND
10061-02-6	* Trans-1,3-Dichloropropene	0.001	ND
79-01-6	* Trichloroethene	0.001	0.001
124-48-1	* Dibromochloromethane	0.001	ND
79-00-5	* 1,1,2-Trichloroethane	0.001	ND
10061-01-5	* cis-1,3-Dichloropropene	0.001	ND
110-75-8	* 2-Chloroethylvinylether	0.002	ND
75-25-2	* Bromoform	0.001	ND
127-18-4	* Tetrachloroethene	0.001	ND
79-34-5	* 1,1,2,2-Tetrachloroethane	0.001	ND
108-90-7	* Chlorobenzene	0.001	ND
95-50-1	* 1,2-Dichlorobenzene	0.002	ND
541-73-1	* 1,3-Dichlorobenzene	0.002	ND
106-46-7	* 1,4-Dichlorobenzene	0.002	ND
% Surrogate Recovery		51-136%	73%

ND : Not detected at or above the practical quantitation limit for the method.

\* A 601/8010 approved compound (Federal Register, 10/26/84).  
 # A compound added by Anamatrix, Inc.

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 601/8010  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : VBLANK  
 Matrix : WATER  
 Date sampled : N/A  
 Date analyzed: 10/07/92  
 Dilution : NONE

Anamatrix I.D. : 14B1007H01  
 Analyst :  
 Supervisor : *cf KK*  
 Date released : 10/09/92  
 Instrument ID : HP14

CAS #	Compound Name	Reporting Limit (mg/L)	Amount Found (mg/L)
74-87-3	* Chloromethane	0.001	ND
74-83-9	* Bromomethane	0.0005	ND
75-71-8	* Dichlorodifluoromethane	0.001	ND
75-01-4	* Vinyl Chloride	0.0005	ND
75-00-3	* Chloroethane	0.0005	ND
75-09-2	* Methylene Chloride	0.0005	ND
75-69-4	* Trichlorofluoromethane	0.0005	ND
75-35-4	* 1,1-Dichloroethene	0.0005	ND
75-34-3	* 1,1-Dichloroethane	0.0005	ND
156-59-2	# Cis-1,2-Dichloroethene	0.0005	ND
156-60-5	* Trans-1,2-Dichloroethene	0.0005	ND
67-66-3	* Chloroform	0.0005	ND
76-13-1	# Trichlorotrifluoroethane	0.0005	ND
107-06-2	* 1,2-Dichloroethane	0.0005	ND
71-55-6	* 1,1,1-Trichloroethane	0.0005	ND
56-23-5	* Carbon Tetrachloride	0.0005	ND
75-27-4	* Bromodichloromethane	0.0005	ND
78-87-5	* 1,2-Dichloropropane	0.0005	ND
10061-02-6	* Trans-1,3-Dichloropropene	0.0005	ND
79-01-6	* Trichloroethene	0.0005	ND
124-48-1	* Dibromochloromethane	0.0005	ND
79-00-5	* 1,1,2-Trichloroethane	0.0005	ND
10061-01-5	* cis-1,3-Dichloropropene	0.0005	ND
110-75-8	* 2-Chloroethylvinylether	0.001	ND
75-25-2	* Bromoform	0.0005	ND
127-18-4	* Tetrachloroethene	0.0005	ND
79-34-5	* 1,1,2,2-Tetrachloroethane	0.0005	ND
108-90-7	* Chlorobenzene	0.0005	ND
95-50-1	* 1,2-Dichlorobenzene	0.001	ND
541-73-1	* 1,3-Dichlorobenzene	0.001	ND
106-46-7	* 1,4-Dichlorobenzene	0.001	ND
	% Surrogate Recovery	51-136%	94%

ND : Not detected at or above the practical quantitation limit for the method.

\* A 601/8010 approved compound (Federal Register, 10/26/84).

# A compound added by Anamatrix, Inc.

LABORATORY CONTROL SAMPLE  
 EPA METHOD 601/8010  
 ANAMETRIX, INC. (408)432-8192

Project/Case : LABORATORY CONTROL SAMPLE  
 Matrix : WATER  
 SDG/Batch : N/A  
 Date analyzed : 10/07/92

Anamatrix I.D. : WO100792  
 Analyst :  
 Supervisor : *CK*  
 Instrument I.D. : HP14

COMPOUND	SPIKE AMOUNT (ug/L)	AMOUNT RECOVERED (ug/L)	PERCENT RECOVERY	%RECOVERY LIMITS
FREON 113	10	8.8	88%	34 - 128
1,1-DICHLOROETHENE	10	9.0	90%	63 - 133
trans-1,2-DICHLOROETHENE	10	8.9	89%	55 - 145
1,1-DICHLOROETHANE	10	9.6	96%	49 - 121
cis-1,2-DICHLOROETHENE	10	12.5	125%	66 - 168
1,1,1-TRICHLOROETHANE	10	9.8	98%	72 - 143
TRICHLOROETHENE	10	10.6	106%	63 - 147
TETRACHLOROETHENE	10	9.6	96%	60 - 133
CHLOROBENZENE	10	10.7	107%	70 - 148
1,3-DICHLOROBENZENE	10	7.5	75%	49 - 139
1,4-DICHLOROBENZENE	10	9.8	98%	70 - 133
1,2-DICHLOROBENZENE	10	9.9	99%	69 - 140

\* Limits based on data generated by Anamatrix, Inc., August, 1992.

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. DAVID LARSEN  
EMCON ASSOCIATES  
1938 JUNCTION AVE.  
SAN JOSE, CA 95131

Workorder # : 9210049  
Date Received : 10/05/92  
Project ID : 204-0072-0502  
Purchase Order: MOH-B813  
Department : GC  
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9210049- 1	MW-1	WATER	10/02/92	TPHg/BTEX
9210049- 2	S-1	WATER	10/02/92	TPHg/BTEX
9210049- 3	MW-2	WATER	10/02/92	TPHg/BTEX
9210049- 4	MW-2D	WATER	10/02/92	TPHg/BTEX
9210049- 5	TB	WATER	10/02/92	TPHg/BTEX
9210049- 6	FB	WATER	10/02/92	TPHg/BTEX

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. DAVID LARSEN  
EMCON ASSOCIATES  
1938 JUNCTION AVE.  
SAN JOSE, CA 95131

Workorder # : 9210049  
Date Received : 10/05/92  
Project ID : 204-0072-0502  
Purchase Order: MOH-B813  
Department : GC  
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Deena Stone      10/16/92  
Department Supervisor      Date

M. Hasselmann      10/16/92  
Chemist      Date



ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS  
(GASOLINE WITH BTEX)  
ANAMETRIX, INC. - (408) 432-8192

Anamatrix W.O.: 9210049  
Matrix : WATER  
Date Sampled : 10/02/92

Project Number : 204-0072-0502  
Date Released : 10/19/92

COMPOUNDS	Reporting Limit (mg/L)	Sample I.D.# MW-1	Sample I.D.# S-1	Sample I.D.# MW-2	Sample I.D.# MW-2D	Sample I.D.# TB
Benzene	0.0005	ND	ND	0.0078	0.011	ND
Toluene	0.0005	ND	ND	ND	ND	ND
Ethylbenzene	0.0005	ND	ND	ND	ND	ND
Total Xylenes	0.0005	ND	ND	0.0008	0.0008	ND
TPH as Gasoline	0.050	ND	ND	0.12	0.19	ND
% Surrogate Recovery		81%	94%	116%	95%	125%
Instrument I.D.		HP21	HP21	HP21	HP21	HP4
Date Analyzed		10/08/92	10/08/92	10/09/92	10/09/92	10/09/92
RLMF		1	1	1	1	1

- ND - Not detected at or above the practical quantitation limit for the method.  
 TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.  
 BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.  
 RLMF - Reporting Limit Multiplication Factor.

Anamatrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Thane Smith 10/19/92  
Analyst Date

Cheryl Balmer 10/19/92  
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS  
(GASOLINE WITH BTEX)  
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9210049  
Matrix : WATER  
Date Sampled : 10/02/92

Project Number : 204-0072-0502  
Date Released : 10/19/92

Reporting Limit	Sample I.D.# FB	Sample I.D.# BO0703E3	Sample I.D.# BO0803E3	Sample I.D.# BO0903E3
COMPOUNDS (mg/L)	-06	BLANK	BLANK	BLANK
Benzene	0.0005	ND	ND	ND
Toluene	0.0005	ND	ND	ND
Ethylbenzene	0.0005	ND	ND	ND
Total Xylenes	0.0005	ND	ND	ND
TPH as Gasoline	0.050	ND	ND	ND
% Surrogate Recovery	102%	86%	88%	89%
Instrument I.D.	HP21	HP4	HP21	HP21
Date Analyzed	10/09/92	10/07/92	10/08/92	10/09/92
RLMF	1	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.  
 TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GC/FID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.  
 BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.  
 RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Shirley Ann 10/19/92  
Analyst Date

Cheryl Balmer 10/19/92  
Supervisor Date

TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT  
 EPA METHOD 5030 WITH GC/FID  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 204-0072-0502 MW-2  
 Matrix : WATER  
 Date Sampled : 10/02/92  
 Date Analyzed : 10/09/92

Anamatrix I.D. : 9210049-03  
 Analyst : *JK*  
 Supervisor : *IS*  
 Date Released : 10/16/92  
 Instrument ID : HP21

COMPOUND	SPIKE AMT (mg/L)	SAMPLE AMT (mg/L)	REC MS (mg/L)	% REC MS	REC MD (mg/L)	% REC MD	RPD	% REC LIMITS
GASOLINE	0.25	0.12	0.36	96%	0.38	104%	5%	48-145
P-BFB				108%		96%		53-147

\* Limits established by Anamatrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT  
 EPA METHOD 5030 WITH GC/FID  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE  
 Matrix : WATER  
 Date Sampled : N/A  
 Date Analyzed : 10/09/92

Anamatrix I.D. : LCSW1009  
 Analyst : *dh*  
 Supervisor : *IS*  
 Date Released : 10/16/92  
 Instrument I.D.: HP21

COMPOUND	SPIKE AMT. (mg/L)	REC LCS (mg/L)	%REC LCS	% REC LIMITS
GASOLINE	0.25	0.23	92%	56-116
SURROGATE			88%	53-147

\* Quality control established by Anamatrix, Inc.



**SHELL OIL COMPANY**  
**RETAIL ENVIRONMENTAL ENGINEERING - WEST**

**CHAIN OF CUSTODY RECORD**

Serial No: 1135-C

Date: \_\_\_\_\_

Page 1 of 1

Site Address: 2160 Otis Drive  
Alameda, CA

WIC#: 204-0072-0502

Shell Engineer: Dan Kirk Phone No.: (510) 675-6168

Consultant Name & Address: 1938 Junction Avenue  
EMCON Associates San Jose, CA 95131

Consultant Contact: David Larsen Phone No.: (408) 453-2269

Comments: 3-VOAs (HCL) for gas, BTEX  
3-VOAs (NP) for EPA 601

Sampled by: \_\_\_\_\_

Printed Name: \_\_\_\_\_

**Analysis Required**

LAB: Anametrix

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input checked="" type="checkbox"/>	6441	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	6441	48 hours <input type="checkbox"/>
Soil Classify/Disposal <input type="checkbox"/>	6442	15 days <input checked="" type="checkbox"/> (Normal)
Water Classify/Disposal <input type="checkbox"/>	6443	Other <input type="checkbox"/>
Soil/Air Rem. or Sys. O & M <input type="checkbox"/>	6462	
Water Rem. or Sys. O & M <input type="checkbox"/>	6463	
Other <input type="checkbox"/>		

NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020 <small>gasoline</small>	EPA Method 601	Asbestos	Container Size	Preparation Used	Composite Y/N
					X			40 ml	HCL	NO
						X				

MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
2 VOAs received w/bubble	
1 VOA received w/bubble	

- ①
- ②
- ③
- ④
- ⑤
- ⑥

Relinquished By (signature): <u>[Signature]</u>	Printed Name: <u>Joe Williams</u>	Date: <u>10-5-92</u>	Received (signature): <u>[Signature]</u>	Printed Name: <u>MICHAEL AGUILAR</u>	Date: <u>10/5/92</u>
Relinquished By (signature): _____	Printed Name: _____	Date: <u>10/30</u>	Received (signature): _____	Printed Name: _____	Date: <u>10/10</u>
Relinquished By (signature): _____	Printed Name: _____	Date: _____	Received (signature): _____	Printed Name: _____	Date: _____

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS