



**TRANSMITTAL LETTER**

**FROM:** J. Michael Asport

**DATE:** May 20, 1992

*V Be*

**TO:** Richard Hiatt  
Water Quality Control Board  
San Francisco Bay Region  
2101 Webster Street, Suite 500  
Oakland, CA 94612

**VIA:**  X  First Class Mail  
\_\_\_\_\_ Fax \_\_\_\_\_ pages  
\_\_\_\_\_ UPS (Surface)  
\_\_\_\_\_ Federal Express  
\_\_\_\_\_ Courier

*570  
3737*

**SUBJECT:** Shell Service Station  
WIC #204-5508-5801  
630 High Street  
Oakland, California

*BC  
94601*

**JOB:** 81-602-01

**AS:** \_\_\_\_\_ We discussed on the telephone on \_\_\_\_\_  
\_\_\_\_\_ You requested \_\_\_\_\_  
\_\_\_\_\_ We believe you may be interested  
 X  Is required

**WE ARE SENDING:**  X  Enclosed  
\_\_\_\_\_ Under Separate Cover Via \_\_\_\_\_

Quarterly Status Report

**FOR:** \_\_\_\_\_ Your information  
 X  Your use  
\_\_\_\_\_ Your review & comments  
\_\_\_\_\_ Return to you

**PLEASE:**  X  Keep this material  
\_\_\_\_\_ Return within 2 weeks  
\_\_\_\_\_ Acknowledge receipt

**MESSAGE:** Please call if you have any questions.

cc: Dan Kirk, Shell Oil Company, P.O. Box 5278, Concord, California 94520-9998  
Rafat Shahid, Alameda County Department of Environmental Health, 80 Swan Way,  
Oakland, CA 94621-1426



May 13, 1992

Richard Hiett  
Water Quality Control Board  
San Francisco Bay Region  
2101 Webster Street, Suite 500  
Oakland, CA 94612

Re: Shell Service Station  
WIC #204-5508-5801  
630 High Street  
Oakland, California  
WA Job #81-602-01

Dear Mr. Hiett

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 first quarter 1992 and proposed work for the second quarter 1992.

First Quarter 1992 Activities:

- EMCON Associates (EMCON) of San Jose, California measured depths to ground water and collected ground water samples from the ten site wells. EMCON's report describing these activities and 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 Second Quarter 1992 Activities:

WA will submit a report presenting the results of the second quarter 1992 ground water sampling and ground water depth measurements. The report will include tabulated chemical

1  
Richard Hiatt  
May 13, 1992

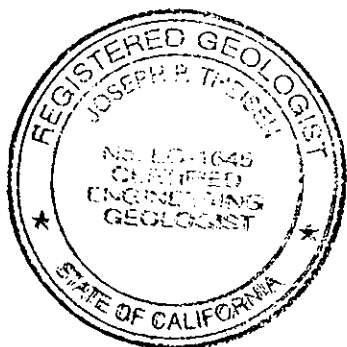
2

Weiss Associates



analytic results and a ground water elevation contour map.

Please call if you have any questions.



Sincerely,  
Weiss Associates

Jeni C. Martin  
Staff Geologist

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

JCM/JPT:jma

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

cc: Dan Kirk, Shell Oil Company, P.O. Box 5278, Concord, CA 94520  
Rafat Shahid, Alameda County Department of Environmental Health, 80 Swan  
Way, Room 200, Oakland, CA 94621

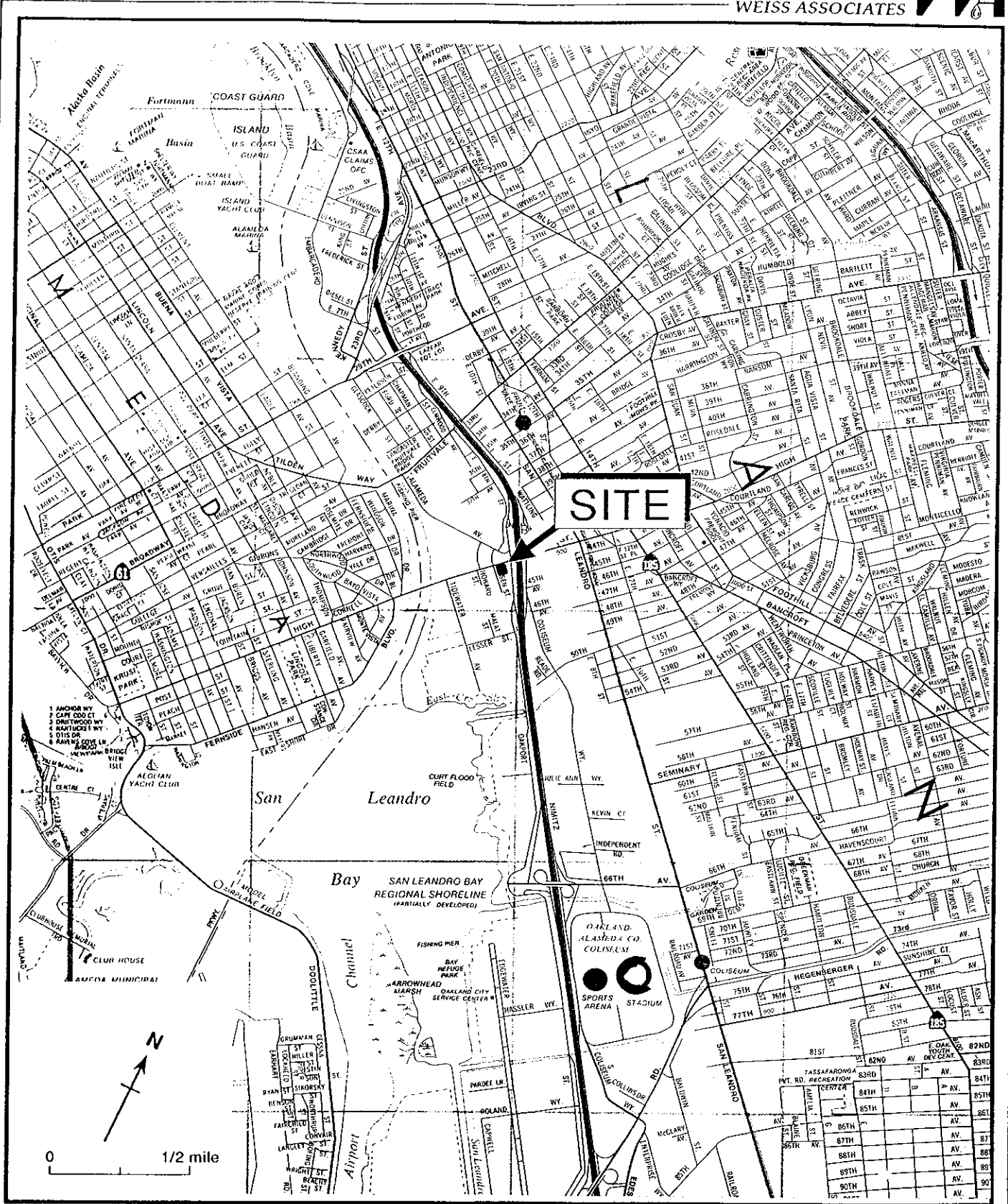


Figure 1. Site Location Map - Shell Service Station WIC #204-5508-5801, 630 High Street, Oakland, California

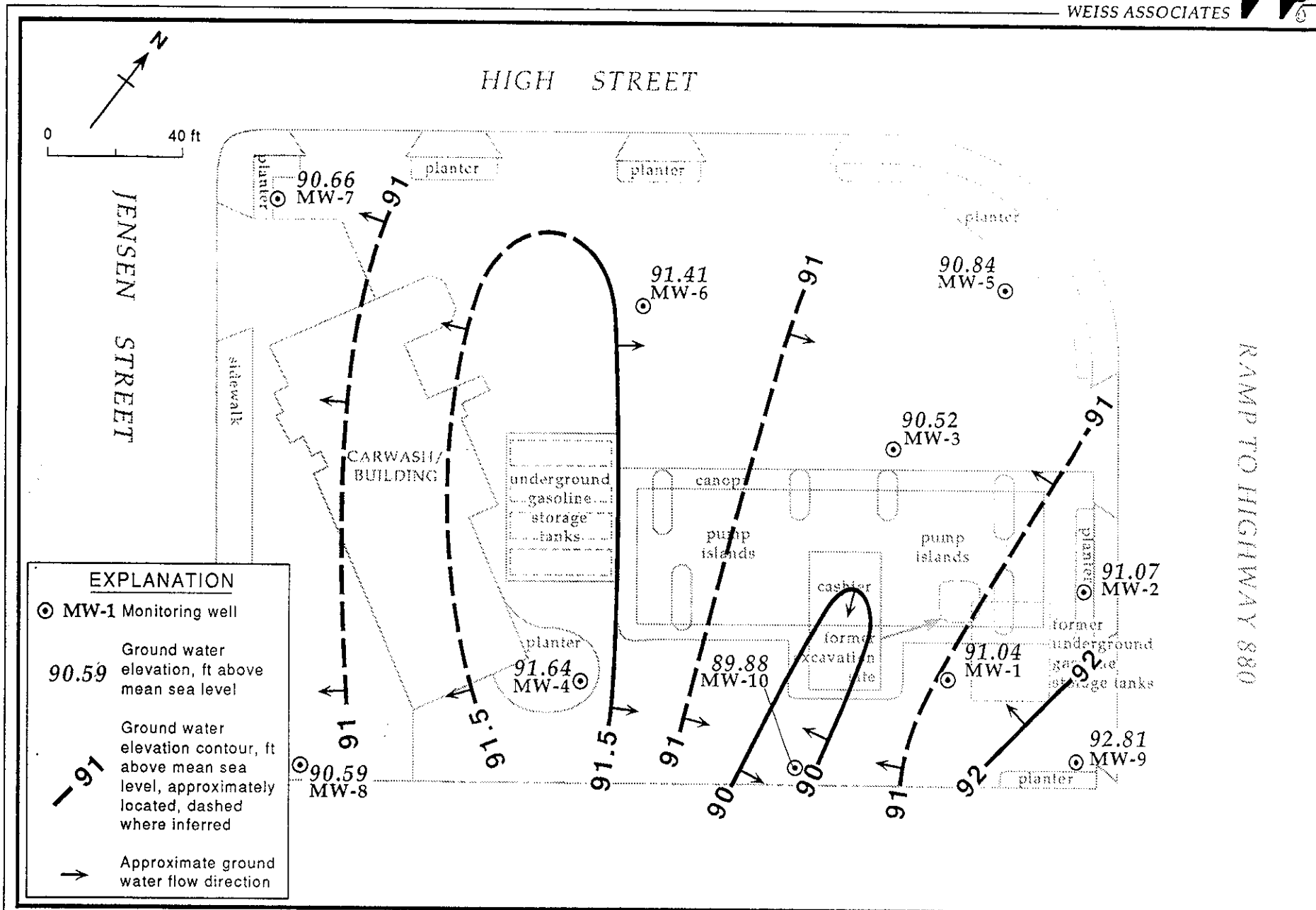


Figure 2. Ground Water Elevation Contours - February 21, 1992 - Shell Service Station WIC #204-5508-5801, 630 High Street, Oakland, California

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



**EMCON**  
ASSOCIATES

Consultants in Wastes  
Management and  
Environmental Control

March 23, 1992  
Project: G67-51.01  
WIC#: 204-5508-5801

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

Re: First quarter 1992 ground-water monitoring report, Shell Oil  
Company, 630 High Street, Oakland, California

Dear Mr. Elias:

This letter presents the results of the first quarter 1992 ground-water monitoring event for the Shell Oil Company (Shell) service station located at 630 High Street, Oakland, California. First quarter monitoring was conducted on February 21, 23, and 24, 1992. The site is monitored quarterly.

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

A water-level survey preceded the purging and sampling of the monitoring wells. The water-level survey was conducted on February 21, 1992. The wells included in the survey are identified in figure 1 (supplied by Converse Environmental West). During the survey, wells MW-1 through MW-10 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 first 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 through MW-10 on February 23 and 24, 1992. Prior to sample collection, the wells were purged with a polyvinyl chloride (PVC) bailer. 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. Wells MW-9 and MW-10 were evacuated to dryness before three casing volumes were removed. The wells were allowed to recharge for up to 24 hours. Samples were collected after the wells had recharged to a level sufficient for sample col-

G675101A.DOC



lection. Field measurements from first quarter monitoring, and available data from four previous monitoring events, are summarized in table 1. Purge water from the monitoring wells was contained in 55-gallon drums. The drums were identified with Shell-approved labels and secured for on-site storage.

Ground water samples were collected with a Teflon® bailer, labeled, placed on ice, and transported to a Shell-approved and state-certified analytical laboratory 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 on site with steaming hot deionized water prior to use at each well.

Quality control (QC) samples for first quarter monitoring included a trip blank (called MW-22). All water samples from first quarter monitoring were analyzed for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Additional samples collected from wells MW-1, MW-3 through MW-6, and MW-10 were analyzed for TPH as diesel.

#### **ANALYTICAL RESULTS**

Analytical results for the first quarter 1992 monitoring event, and available results from four previous monitoring events, are summarized in table 2. The original certified analytical reports and a copy of the final chain-of-custody documents are attached. Note that IT Analytical Services (IT) included results for TPH as motor oil for wells MW-1 and MW-5. These analyses were not requested, but have been left in this report for your information.

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



Table 1  
Monitoring Well Field Measurement Data  
First Quarter 1992

Shell Station: 630 High Street  
Oakland, California  
WIC #: 204-5508-5801

Date: 03/23/92  
Project Number: 207-1-01

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	10/18/90	99.35	11.02	88.33	NR	ND	10/18/90	NR	NR	NR	NR
MW-1	01/29/91	99.35	10.79	88.56	NR	ND	01/29/91	NR	NR	NR	NR
MW-1	04/30/91	99.35	9.48	89.87	NR	ND	04/30/91	NR	NR	NR	NR
MW-1	07/22/91	99.35	10.53	88.82	NR	ND	07/23/91	NR	NR	NR	NR
MW-1	02/21/92	99.35	8.31	91.04	13.8	ND	02/24/92	6.90	2170	68.4	>200
MW-2	10/17/90	101.15	12.96	88.19	NR	ND	10/18/90	NR	NR	NR	NR
MW-2	01/29/91	101.15	13.25	87.90	NR	ND	01/29/91	NR	NR	NR	NR
MW-2	04/30/91	101.15	10.94	90.21	NR	ND	04/30/91	NR	NR	NR	NR
MW-2	07/22/91	101.15	12.14	89.01	NR	ND	07/23/91	NR	NR	NR	NR
MW-2	02/21/92	101.15	10.08	91.07	19.2	ND	02/23/92	7.52	1306	61.8	>200
MW-3	10/17/90	99.49	11.13	88.36	NR	ND	10/18/90	NR	NR	NR	NR
MW-3	01/29/91	99.49	11.09	88.40	NR	ND	01/29/91	NR	NR	NR	NR
MW-3	04/30/91	99.49	9.57	89.92	NR	ND	05/01/91	NR	NR	NR	NR
MW-3	07/22/91	99.49	10.66	88.83	NR	ND	07/23/91	NR	NR	NR	NR
MW-3	02/21/92	99.49	8.97	90.52	17.3	ND	02/24/92	6.89	1587	65.5	>200
MW-4	10/17/90	99.24	11.35	87.89	NR	ND	10/18/90	NR	NR	NR	NR
MW-4	01/29/91	99.24	10.76	88.48	NR	ND	01/29/91	NR	NR	NR	NR
MW-4	04/30/91	99.24	9.45	89.79	NR	ND	05/01/91	NR	NR	NR	NR
MW-4	07/22/91	99.24	10.34	88.90	NR	ND	07/23/91	NR	NR	NR	NR
MW-4	02/21/92	99.24	7.60	91.64	18.3	ND	02/24/92	6.90	1311	65.2	>200

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 1  
Monitoring Well Field Measurement Data  
First Quarter 1992

Shell Station: 630 High Street  
Oakland, California  
WIC #: 204-5508-5801

Date: 03/23/92  
Project Number: G67-51.01

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-5	10/17/90	100.08	11.70	88.38	NR	ND	10/18/90	NR	NR	NR	NR
MW-5	01/29/91	100.08	11.72	88.36	NR	ND	01/28/91	NR	NR	NR	NR
MW-5	04/30/91	100.08	10.45	89.63	NR	ND	04/30/91	NR	NR	NR	NR
MW-5	07/22/91	100.08	11.43	88.65	NR	ND	07/23/91	NR	NR	NR	NR
MW-5	02/21/92	100.08	9.24	90.84	17.8	ND	02/23/92	6.71	1066	68.8	>200
MW-6	10/18/90	98.56	10.61	87.95	NR	ND	10/18/90	NR	NR	NR	NR
MW-6	01/28/91	98.56	10.23	88.33	NR	ND	01/28/91	NR	NR	NR	NR
MW-6	04/30/91	98.56	9.15	89.41	NR	ND	05/01/91	NR	NR	NR	NR
MW-6	07/22/91	98.56	10.10	88.46	NR	ND	07/23/91	NR	NR	NR	NR
MW-6	02/21/92	98.56	7.15	91.41	19.4	ND	02/23/92	6.97	1356	67.2	>200
MW-7	10/17/90	97.53	9.38	88.15	NR	ND	10/18/90	NR	NR	NR	NR
MW-7	01/28/91	97.53	8.91	88.62	NR	ND	01/28/91	NR	NR	NR	NR
MW-7	04/30/91	97.53	8.38	89.15	NR	ND	05/01/91	NR	NR	NR	NR
MW-7	07/22/91	97.53	9.13	88.40	NR	ND	07/23/91	NR	NR	NR	NR
MW-7	02/21/92	97.53	6.87	90.66	19.3	ND	02/23/92	7.69	1170	66.0	>200
MW-8	10/17/90	97.13	9.06	88.07	NR	ND	10/18/90	NR	NR	NR	NR
MW-8	01/28/91	97.13	8.47	88.66	NR	ND	01/28/91	NR	NR	NR	NR
MW-8	04/30/91	97.13	7.64	89.49	NR	ND	05/01/91	NR	NR	NR	NR
MW-8	07/22/91	97.13	8.36	88.77	NR	ND	07/23/91	NR	NR	NR	NR
MW-8	02/21/92	97.13	6.54	90.59	20.6	ND	02/23/92	7.06	1309	60.5	>200

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 1  
Monitoring Well Field Measurement Data  
First Quarter 1992

Shell Station: 630 High Street  
Oakland, California  
WIC #: 204-5508-5801

Date: 03/23/92  
Project Number: G67 51.01

Well Desig- nation	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-9	10/17/90	99.72	8.65	91.07	NR	ND	10/18/90	NR	NR	NR	NR
MW-9	01/29/91	99.72	8.27	91.45	NR	ND	01/29/91	NR	NR	NR	NR
MW-9	04/30/91	99.72	7.62	92.10	NR	ND	05/01/91	NR	NR	NR	NR
MW-9	07/22/91	99.72	8.48	91.24	NR	ND	07/23/91	NR	NR	NR	NR
MW-9	02/21/92	99.72	6.91	92.81	11.5	ND	02/23/92	8.09	606	61.1	>200
MW-10	10/17/90	98.99	10.83	88.16	NR	ND	10/18/90	NR	NR	NR	NR
MW-10	01/29/91	98.99	10.81	88.18	NR	ND	01/30/91	NR	NR	NR	NR
MW-10	04/30/91	98.99	8.79	90.20	NR	ND	05/01/91	NR	NR	NR	NR
MW-10	07/22/91	98.99	9.94	89.05	NR	ND	07/23/91	NR	NR	NR	NR
MW-10	02/21/92	98.99	9.11	89.88	12.5	ND	02/23/92	7.89	2040	63.0	>200

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  
 First Quarter 1992  
 milligrams per liter (mg/l) or parts per million (ppm)

Shell Station: 630 High Street  
 Oakland, California  
 WIC #: 204-5508-5801

Date: 03/23/92  
 Project Number: G57-51 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)	TPH-mo (mg/l)
MW-1	10/18/90	8.6	0.22	0.028	0.31	0.27	5.9	<0.5
MW-1	01/29/91	11.0	0.31	0.041	0.5	0.4	21.0&	<0.5
MW-1	04/30/91	8.3	0.25	0.032	0.310	0.3	2.1	<0.5
MW-1	07/23/91	11.0	0.31	0.036	0.29	0.28	3.8	<0.5
MW-1	02/24/92	7.3	0.20	0.036	0.34	0.27	8.9+	0.8
MW-2	10/18/90	NA	NA	NA	NA	NA	NA	NA
MW-2	01/29/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-2	04/30/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-2	07/23/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-2	02/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA
MW-3	10/18/90	2.5	0.042	0.0072	0.013	0.027	0.94	<0.5
MW-3	01/29/91	2.3	0.017	0.0041	0.01	0.023	0.41&	<0.5
MW-3	05/01/91	<0.05	0.022	0.004	0.007	0.017	0.26	<0.5
MW-3	07/23/91	2.0	0.051	<0.0005	<0.0005	<0.0005	0.31	<0.5
MW-3	02/24/92	2.8	0.015	0.0028	<0.0025	0.012	0.64@	NA
MW-4	10/18/90	3.4	0.21	0.019	0.013	0.032	1.9	<0.5
MW-4	01/29/91	2.6	0.083	<0.0005	<0.0005	0.011	1.3&	<0.5
MW-4	05/01/91	2.6	0.022	0.004	0.007	0.017	0.75	<0.5
MW-4	07/23/91	4.3	0.12	<0.0005	<0.0005	0.001	1.2	<0.5
MW-4	02/24/92	2.0	0.031	0.0063	0.0035	0.0066	8.3*	NA

TPH-g = total petroleum hydrocarbons as gasoline

TPH-d = total petroleum hydrocarbons as diesel

TPH-mo = total petroleum hydrocarbons as motor oil

& = compounds detected and calculated as diesel do not match the diesel standard; pattern is characteristic of weathered diesel

+ = results include compounds apparently due to gasoline as well as those due to diesel

NA = not analyzed

@ = compounds detected within the diesel range are not characteristic of the standard diesel chromatographic pattern

\* = compounds detected and calculated as diesel appear to be a lighter hydrocarbon

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

Shell Station: 630 High Street  
 Oakland, California  
 WIC #: 204-5508-5801

Date: 03/23/92  
 Project Number: 001-01-01

Sample Designation	Water Sample Field Date	TPH-g	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-d	TPH-mo
		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
MW-5	10/18/90	5.0	0.15	0.013	0.033	0.04	1.1	<0.5
MW-5	01/28/91	3.1	0.086	<0.0005	0.024	0.028	0.72	<0.5
MW-5	04/30/91	<0.05	0.046	<0.0005	0.009	0.009	0.09	<0.5
MW-5	07/23/91	1.7	0.023	<0.0005	6.7	10.	0.30	<0.5
MW-5	02/23/92	0.24	0.0010	<0.0005	<0.0005	0.0010	0.18#	<0.5
MW-6	10/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.96	<0.5
MW-6	01/28/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.86	<0.5
MW-6	05/01/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	1.1	<0.5
MW-6	07/23/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	1.2	<0.5
MW-6	02/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.06@	NA
MW-7	10/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-7	01/28/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-7	05/01/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-7	07/23/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-7	02/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA
MW-8	10/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-8	01/28/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-8	05/01/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-8	07/23/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-8	02/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA

TPH-g = total petroleum hydrocarbons as gasoline

TPH-d = total petroleum hydrocarbons as diesel

TPH-mo = total petroleum hydrocarbons as motor oil

# = compounds detected and calculated as diesel appear to be the less volatile constituents of gasoline

@ = compounds detected within the diesel range are not characteristic of the standard diesel chromatographic pattern

NA = not analyzed

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

Shell Station: 630 High Street  
 Oakland, California  
 WIC #: 204-5508-5801

Date: 03/23/92  
 Project Number: G67-51.01

Sample Desig- nation	Water Sample Field Date	TPH-g	Benzene	Toluene	Ethyl- benzene	Total Xylenes	TPH-d	TPH-mo
		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
MW-9	10/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005		
MW-9	01/29/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-9	05/01/91	<0.05	0.0006	0.0005	<0.0005	0.0011	<0.05	<0.5
MW-9	07/23/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	<0.5
MW-9	02/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	0.8
							NA	NA
MW-10	10/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005		
MW-10	01/30/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.24	<0.5
MW-10	05/01/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA
MW-10	07/23/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.46	<0.5
MW-10	02/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	0.9
							0.12 <sup>a</sup>	NA
MW-22	02/24/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA

TPH-g = total petroleum hydrocarbons as gasoline

TPH-d = total petroleum hydrocarbons as diesel

TPH-mo = total petroleum hydrocarbons as motor oil

NA = not analyzed

<sup>a</sup> = compounds detected within the diesel range are not characteristic of the standard diesel chromatographic pattern

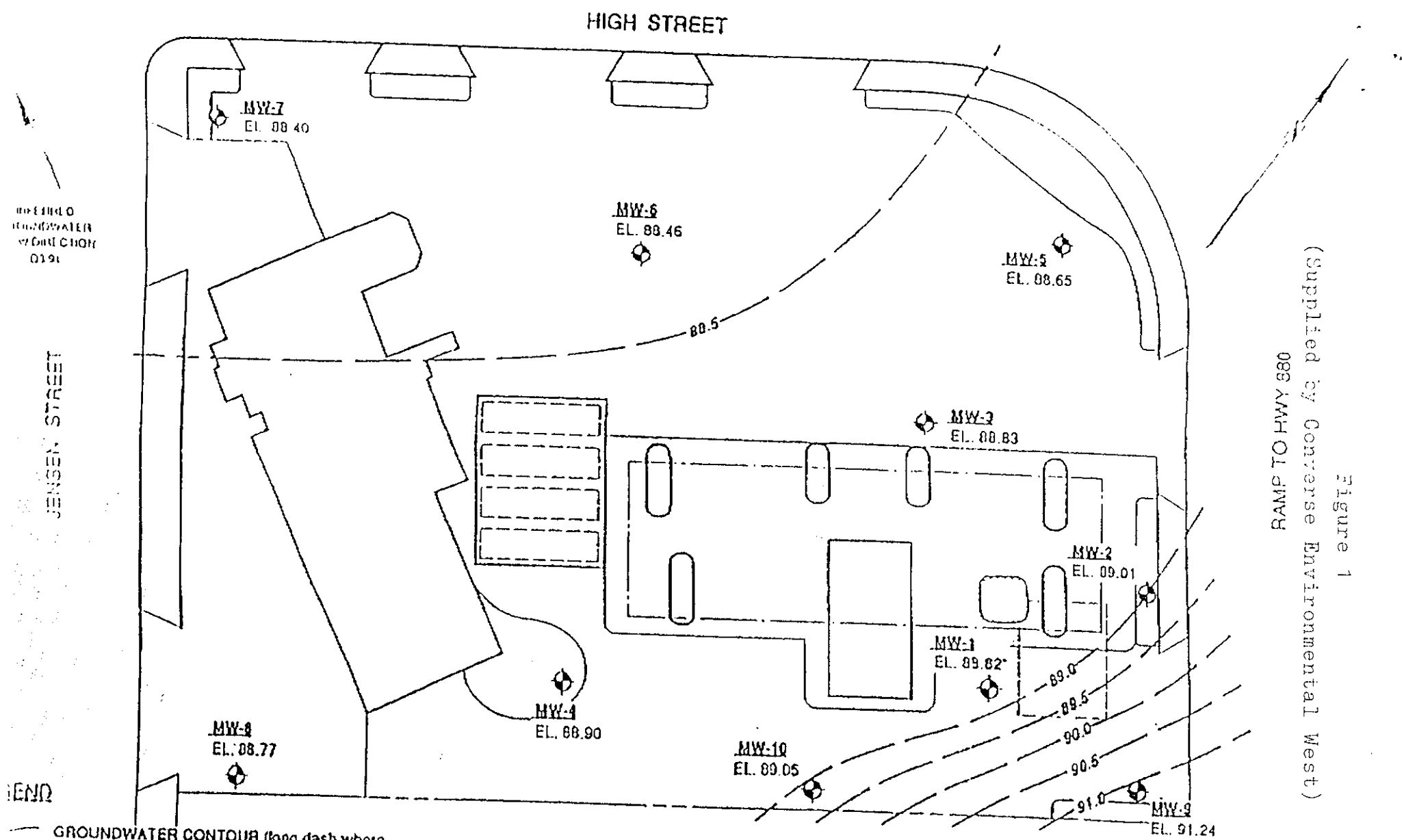
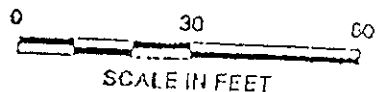


Figure 1  
 (Supplied by Converse Environmental West)  
 088 YHW 01 DWVR

- GROUNDWATER CONTOUR (long dash where approximate, short dash where Interred)
- ⊗ GROUNDWATER MONITORING WELL SHOWING GROUNDWATER ELEVATION
- IES GROUNDWATER ELEVATIONS GIVEN IN FEET ABOVE MEAN SEA LEVEL
- ANOMALOUS DATA, NOT USED IN CONSTRUCTING MAP

Base Map: Surveyed with EDM, Converse 1989.



## GROUNDWATER CONTOUR MAP Q3/91

SHELL OIL COMPANY  
 630 High Street  
 Oakland, California



Converse Environmental West

Scale	Project No.
AS SHOWN	88-44-360-20
Prepared by	Date
IQL	9/16/91
Checked by	Drawing No.
RMB	



# ANALYTICAL SERVICES

## CERTIFICATE OF ANALYSIS

Shell Oil Company  
Emcon Associates  
1938 Junction Ave.  
San Jose, CA 95131  
David Larsen

Date: 03/10/92

Work Order: T2-02-195

P.O. Number: MOH 880-021 Vendor #I0002402

This is the Certificate of Analysis for the following samples:

Client Work ID: G6751, 630 High St, Oakland  
Date Received: 02/24/92  
Number of Samples: 8  
Sample Type: aqueous

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

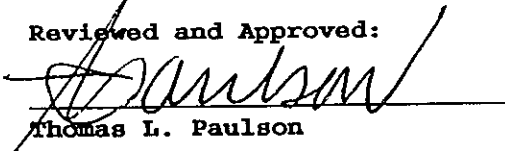
<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	T2-02-195-01	MW-2
3	T2-02-195-02	MW-7
4	T2-02-195-03	MW-8
5	T2-02-195-04	MW-9
6	T2-02-195-05	MW-10
7	T2-02-195-06	MW-6
8	T2-02-195-07	MW-3
9	T2-02-195-08	MW-4
11	T2-02-195-09	Quality Control

EMCON ASSOCIATES

MAR 11 1992

RECEIVED

Reviewed and Approved:



Thomas L. Paulson  
Project Manager

American Council of Independent Laboratories  
International Association of Environmental Testing Laboratories  
American Association for Laboratory Accreditation



Company: Shell Oil Company

Date: 03/10/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-195

## TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-2

SAMPLE DATE: 02/23/92

LAB SAMPLE ID: T202195-01

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

## RESULTS in Milligrams per Liter:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
BTEX	8020		02/27/92
Low Boiling Hydrocarbons	Mod.8015		02/27/92

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None.
BTEX		
Benzene	0.0005	None.
Toluene	0.0005	None.
Ethylbenzene	0.0005	None.
Xylenes (total)	0.0005	None.

<u>SURROGATES</u>	<u>% REC</u>
1,3-Dichlorobenzene (Gasoline)	101.
1,3-Dichlorobenzene (BTEX)	98.

Company: Shell Oil Company

Date: 03/10/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-195

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-7

SAMPLE DATE: 02/23/92

LAB SAMPLE ID: T202195-02

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/27/92
Low Boiling Hydrocarbons	Mod.8015		02/27/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None.
BTEX		
Benzene	0.0005	None.
Toluene	0.0005	None.
Ethylbenzene	0.0005	None.
Xylenes (total)	0.0005	None.

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	100.
1,3-Dichlorobenzene (BTEX)	100.

Company: Shell Oil Company

Date: 03/10/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-195

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-8

SAMPLE DATE: 02/23/92

LAB SAMPLE ID: T202195-03

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

RESULTS in Milligrams per Liter:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
BTEX	8020		02/27/92
Low Boiling Hydrocarbons	Mod.8015		02/27/92

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None.
BTEX		
Benzene	0.0005	None.
Toluene	0.0005	None.
Ethylbenzene	0.0005	None.
Xylenes (total)	0.0005	None.

<u>SURROGATES</u>	<u>% REC</u>
1,3-Dichlorobenzene (Gasoline)	108.
1,3-Dichlorobenzene (BTEX)	99.

Company: Shell Oil Company

Date: 03/10/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-195

## TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-9

SAMPLE DATE: 02/23/92

LAB SAMPLE ID: T202195-04

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

## RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/27/92
Low Boiling Hydrocarbons	Mod.8015		02/27/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None.
BTEX		
Benzene	0.0005	None.
Toluene	0.0005	None.
Ethylbenzene	0.0005	None.
Xylenes (total)	0.0005	None.

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	100.
1,3-Dichlorobenzene (BTEX)	99.

Company: Shell Oil Company  
 Date: 03/10/92  
 Client Work ID: G6751, 630 High St, Oakland

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T2-02-195

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-10  
 SAMPLE DATE: 02/23/92  
 LAB SAMPLE ID: T202195-05  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/28/92
Low Boiling Hydrocarbons	Mod.8015		02/28/92
High Boiling Hydrocarbons	Mod.8015	02/24/92	02/25/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None.
BTEX		
Benzene	0.0005	None.
Toluene	0.0005	None.
Ethylbenzene	0.0005	None.
Xylenes (total)	0.0005	None.
High Boiling Hydrocarbons calculated as Diesel	0.05	0.12 @

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	105.
1,3-Dichlorobenzene (BTEX)	99.
nC32 (Diesel)	110.

Comments:

@ Compounds detected and calculated as high boiling hydrocarbons consist of compounds eluting within the chromatographic range of diesel, but are not characteristic of the standard diesel chromatographic pattern.

Company: Shell Oil Company  
 Date: 03/10/92  
 Client Work ID: G6751, 630 High St, Oakland

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T2-02-195

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-6  
 SAMPLE DATE: 02/23/92  
 LAB SAMPLE ID: T202195-06  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
BTEX	8020		02/28/92
Low Boiling Hydrocarbons	Mod.8015		02/28/92
High Boiling Hydrocarbons	Mod.8015	02/24/92	02/25/92

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None.
BTEX		
Benzene	0.0005	None.
Toluene	0.0005	None.
Ethylbenzene	0.0005	None.
Xylenes (total)	0.0005	None.
High Boiling Hydrocarbons calculated as Diesel	0.05	0.06 @

<u>SURROGATES</u>	<u>% REC</u>
1,3-Dichlorobenzene (Gasoline)	108.
1,3-Dichlorobenzene (BTEX)	100.
nC32 (Diesel)	109.

Comments:

@ Compounds detected and calculated as high boiling hydrocarbons consist of compounds eluting within the chromatographic range of diesel, but are not characteristic of the standard diesel chromatographic pattern.

Company: Shell Oil Company

Date: 03/10/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-195

## TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-3

SAMPLE DATE: 02/24/92

LAB SAMPLE ID: T202195-07

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

## RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/28/92
Low Boiling Hydrocarbons	Mod.8015		02/28/92
High Boiling Hydrocarbons	Mod.8015	02/24/92	02/25/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.25	2.8
BTEX		
Benzene	0.0025	0.015
Toluene	0.0025	0.0028
Ethylbenzene	0.0025	None.
Xylenes (total)	0.0025	0.012
High Boiling Hydrocarbons calculated as Diesel	0.05	0.64 @

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	140*.
1,3-Dichlorobenzene (BTEX)	93.
nC32 (Diesel)	101.

## Comments:

@ Compounds detected and calculated as high boiling hydrocarbons consist of compounds eluting within the chromatographic range of diesel, but are not characteristic of the standard diesel chromatographic pattern.

\* Surrogate elevated due to hydrocarbon interferences.

Company: Shell Oil Company

Date: 03/10/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-195

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-4

SAMPLE DATE: 02/24/92

LAB SAMPLE ID: T202195-08

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/28/92
Low Boiling Hydrocarbons	Mod.8015		02/28/92
High Boiling Hydrocarbons	Mod.8015	02/24/92	02/26/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	2.0
BTEX		
Benzene	0.0005	0.031
Toluene	0.0005	0.0063
Ethylbenzene	0.0005	0.0035
Xylenes (total)	0.0005	0.0066
High Boiling Hydrocarbons calculated as Diesel	0.2	8.3 *

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	166*.
1,3-Dichlorobenzene (BTEX)	114*.
nC32 (Diesel)	124.

## Comments:

\* Chromatographic pattern of compounds detected and calculated as diesel is similar to but does not match that of the diesel standard used for calibration; pattern is characteristic of weathered diesel.

\* Surrogates elevated due to hydrocarbon interferences.



Company: Shell Oil Company  
 Date: 03/10/92  
 Client Work ID: G6751, 630 High St, Oakland

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T2-02-195

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control  
 SAMPLE DATE: not spec  
 LAB SAMPLE ID: T202195-09B  
 EXTRACTION DATE: 02/21/92  
 ANALYSIS DATE: 02/21/92  
 ANALYSIS METHOD: Mod.8015

QUALITY CONTROL REPORT

Laboratory Spike (LS) and Laboratory Spike Duplicate (LSD) Analyses

RESULTS in Micrograms per Liter

PARAMETER	Sample Amt	Spike Amt	LS Result	LSD Result	LS %Rec	LSD %Rec	RPD
Diesel	None	1000	1005	1085	100	108	8
SURROGATES					LS %Rec	LSD %Rec	
nC32					121	118	

Company: Shell Oil Company  
 Date: 03/10/92  
 Client Work ID: G6751, 630 High St, Oakland

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T2-02-195

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control  
 SAMPLE DATE: not spec  
 LAB SAMPLE ID: T202195-09A  
 EXTRACTION DATE:  
 ANALYSIS DATE: 02/26/92  
 ANALYSIS METHOD: Mod.8015

QUALITY CONTROL REPORT

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Analyses

RESULTS in Micrograms per Liter

PARAMETER	Sample Amt	Spike Amt	MS Result	MSD Result	MS %Rec	MSD %Rec	RPD
Gasoline	None	500	452	409	90	82	9

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	114	111

Company: Shell Oil Company  
Date: 03/10/92  
Client Work ID: G6751, 630 High St, Oakland

IT ANALYTICAL SERVICES  
SAN JOSE, CA

Work Order: T2-02-195

TEST CODE QC TEST NAME Quality Control

Quality control (QC) samples are analyzed and used to assess the laboratory control measures. Routine QC samples include method blanks, spikes and duplicates. The purpose of the method blank (MB) analysis is to demonstrate that artifacts of the test do not yield false positives. The laboratory control spike (LS) and /or matrix spike (MS) analysis is used to evaluate the ability of the test to recover analytes of interest, i.e. accuracy. Accuracy is expressed as percent (%) recovery. The laboratory spike duplicate (LSD), matrix spike duplicate (MSD), or duplicate sample (DUP) is used to determine the precision of the test, by comparing the result from the original spike (or sample) to the duplicate spike (or sample). Precision is expressed as relative percent difference (RPD).

The results of appropriate QC samples from QC batches associated with the listed samples are included in this report.

TEST CODE TPHN TEST NAME TPH High Boiling by 8015

The method of analysis for high boiling hydrocarbons is taken from the LUFT field manual. Samples are extracted with solvent and examined by gas chromatography using a flame ionization detector. Results in soils are corrected for moisture content and are reported on a dry soil basis unless otherwise noted.

TEST CODE TPHVB TEST NAME TPH Gas, BTEX by 8015/8020

The method of analysis for low boiling hydrocarbons is taken from EPA Methods modified 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector in series with a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline. Results in soils are corrected for moisture content and are reported on a dry soil basis unless otherwise noted.



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

**CHAIN OF CUSTODY RECORD**

Serial No.: 12-02-195

Date: \_\_\_\_\_  
Page / of 2

Site Address: 630 High Street, Oakland, CA

WIC#: 204-5508-5801

Shell Engineer: Kurt Miller Phone No. (510) \_\_\_\_\_  
Fax #: 685-3853

Consultant Name & Address: EMCON Assoc. 1938 Junction Ave.  
San Jose, CA 95131

Consultant Contact: David Larsen Phone No. (408) \_\_\_\_\_  
Fax #: 453-2269

Comments: 3 VOA's for G/BTEX  
1 VOA for TB  
1 liter for Diesel

Sampled By: Chris Phares  
Printed Name: Chris Phares

**Analysis Required**

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal																
-------------------------	----------------------------	---------------------	------------------------------	-------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**LAB: IT Analytical - San Jose**

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input checked="" type="checkbox"/> 5461	5461	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/> 5441	5441	48 hours <input type="checkbox"/>
Soil for disposal <input type="checkbox"/> 5442	5442	15 days <input checked="" type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/> 5443	5443	Other <input type="checkbox"/>
Air Sample- Sys O&M <input type="checkbox"/> 5452	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/> 5453	5453	
Other <input type="checkbox"/>		

1 BC  
2 ABC  
3 BC  
4 BC  
5  
3 CD  
6 BC  
7 BC  
8 BC

Sample ID	Date	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-2	2-23-92		X		3	X		X			40 ml	HCL	No		
MW-7	2-23-92					X		X							Cod 1015
MW-8	2-23-92					X		X							
MW-9	2-23-92				4	X		X							
MW-10	2-23-92					X	X	X							
MW-6	2-23-92					X	X	X							
MW-3	2-24-92					X	X	X							
MW-4	2-24-92					X	X	X							

Relinquished By (signature): \_\_\_\_\_  
Relinquished By (signature): \_\_\_\_\_  
Relinquished By (signature): \_\_\_\_\_

Printed name: Chris Phares  
Date: 2-24-92  
Time: 11:15

Received (signature): \_\_\_\_\_  
Received (signature): \_\_\_\_\_  
Received (signature): \_\_\_\_\_

Printed name: ASMUSEN  
Date: 2-24-92  
Time: 1:41 PM

# ANALYTICAL SERVICES

## CERTIFICATE OF ANALYSIS

Shell Oil Company  
Emcon Associates  
1938 Junction Ave.  
San Jose, CA 95131  
David Larsen

Date: 03/09/92

Work Order: T2-02-196

P.O. Number: MOH 880-021 Vendor #I0002402

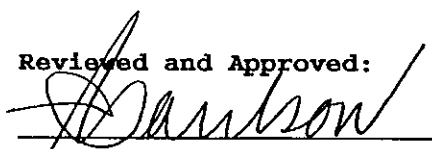
This is the Certificate of Analysis for the following samples:

Client Work ID: G6751, 630 High St, Oakland  
Date Received: 02/24/92  
Number of Samples: 3  
Sample Type: aqueous

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	T2-02-196-01	MW-1
3	T2-02-196-02	MW-5
4	T2-02-196-03	MW-22
6	T2-02-196-04	Quality Control

Reviewed and Approved:

  
Thomas L. Paulson  
Project Manager

EMCON ASSOCIATES

MAR 11 1992

RECEIVED

American Council of Independent Laboratories  
International Association of Environmental Testing Laboratories  
American Association for Laboratory Accreditation

Company: Shell Oil Company

Date: 03/09/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-196

## TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-1

SAMPLE DATE: 02/24/92

LAB SAMPLE ID: T202196-01

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

## RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/28/92
Low Boiling Hydrocarbons	Mod.8015		02/28/92
High Boiling Hydrocarbons	Mod.8015	02/24/92	02/26/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	2.5	7.3
BTEX		
Benzene	0.025	0.20
Toluene	0.025	0.036
Ethylbenzene	0.025	0.34
Xylenes (total)	0.025	0.27
High Boiling Hydrocarbons		
calculated as Diesel	0.2	8.9 +
calculated as Oil	0.5	0.8

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	110.
1,3-Dichlorobenzene (BTEX)	99.
nC32 (Diesel)	42.

## Comments:

+ Results include compounds apparently due to gasoline as well as those due to diesel.

Company: Shell Oil Company

Date: 03/09/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-196

## TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-5

SAMPLE DATE: 02/24/92

LAB SAMPLE ID: T202196-02

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

## RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/28/92
Low Boiling Hydrocarbons	Mod.8015		02/28/92
High Boiling Hydrocarbons	Mod.8015	02/24/92	02/25/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	0.24
BTEX		
Benzene	0.0005	0.0010
Toluene	0.0005	None.
Ethylbenzene	0.0005	None.
Xylenes (total)	0.0005	0.0010
High Boiling Hydrocarbons		
calculated as Diesel	0.05	0.18 #
calculated as Oil	0.5	None.

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	123.
1,3-Dichlorobenzene (BTEX)	104.
nC32 (Diesel)	80.

## Comments:

# Compounds detected and calculated as diesel appear to be the less volatile constituents of gasoline.

Company: Shell Oil Company

Date: 03/09/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-196

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-22

SAMPLE DATE: 02/24/92

LAB SAMPLE ID: T202196-03

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/28/92
Low Boiling Hydrocarbons	Mod.8015		02/28/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None.
BTEX		
Benzene	0.0005	None.
Toluene	0.0005	None.
Ethylbenzene	0.0005	None.
Xylenes (total)	0.0005	None.

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	106.
1,3-Dichlorobenzene (BTEX)	98.



Company: Shell Oil Company

Date: 03/09/92

Client Work ID: G6751, 630 High St, Oakland

Work Order: T2-02-196

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control

SAMPLE DATE: not spec

LAB SAMPLE ID: T202196-04B

EXTRACTION DATE: 02/21/92

ANALYSIS DATE: 02/21/92

ANALYSIS METHOD: Mod.8015

## QUALITY CONTROL REPORT

Laboratory Spike (LS) and Laboratory Spike Duplicate (LSD) Analyses

RESULTS in Micrograms per Liter

PARAMETER	Sample Amt	Spike Amt	LS Result	LSD Result	LS %Rec	LSD %Rec	RPD
Diesel	None	1000	1005	1085	100	108	8
SURROGATES					LS %Rec	LSD %Rec	
nC32					121	118	

Company: Shell Oil Company  
 Date: 03/09/92  
 Client Work ID: G6751, 630 High St, Oakland

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T2-02-196

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control  
 SAMPLE DATE: not spec  
 LAB SAMPLE ID: T202196-04A  
 EXTRACTION DATE:  
 ANALYSIS DATE: 02/27/92  
 ANALYSIS METHOD: 8020

QUALITY CONTROL REPORT

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Analyses

RESULTS in Micrograms per Liter

PARAMETER	Sample Amt	Spike Amt	MS Result	MSD Result	MS %Rec	MSD %Rec	RPD
Benzene	None	50.0	44.4	43.1	89	86	3
Toluene	None	50.0	44.7	43.1	89	86	3
Ethylbenzene	None	50.0	44.8	43.2	90	86	4
Total Xylenes	None	150	128	123	85	82	4

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	101	101



Site Address:  
630 High Street, Oakland, CA

WIC#: 204-5508-5801

Shell Engineer: Kurt Miller Phone No. (510)  
 Fax #: 685-3853

Consultant Name & Address:  
EMCON Assoc. 1938 Junction Ave.  
 San Jose, CA 95131

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

Comments: see page 1

Sampled By: Chris Chaco  
 Printed Name: Chris Chaco

**Analysis Required**

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal																
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LAB: IT Analytical - San Jose

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input checked="" type="checkbox"/>	5461	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	5441	48 hours <input type="checkbox"/>
Soil for disposal <input type="checkbox"/>	5442	15 days <input checked="" type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input type="checkbox"/>
Air Sample- Sys O&M <input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input type="checkbox"/>		

11 BCD  
 12 JCD  
 13 SA

Sample ID	Date	Soil	Water	Air	No. of conds.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-1	2-24-92		X		4	X	X	X			40 ml	HCl	No		Cool OK
MW-5	2-24-92				4	X	X	X							
MW-22	2-24-92		∇		1	X		X							∇

Relinquished By (signature): <u>Chris Chaco</u>	Printed name: <u>Chris Chaco</u>	Date: <u>2-24-92</u>	Time: <u>14:15</u>	Received (signature): <u>[Signature]</u>	Printed name: <u>ASWANSON</u>	Date: <u>2-24-</u>	Time: <u>14:1</u>
Relinquished By (signature):	Printed name:	Date:	Time:	Received (signature):	Printed name:	Date:	Time:
Relinquished By (signature):	Printed name:	Date:	Time:	Received (signature):	Printed name:	Date:	Time:

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