



October 9, 1992

92-001-11-001-11-00

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

Re: Shell Service Station
WIC #204-5508-5801
500 - 40th Street
Oakland, California
WA Job #81-601-201

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 third quarter 1992 and proposed work for the fourth quarter 1992.

Third Quarter 1992 Activities:

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

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

Richard Hiett
October 9, 1992

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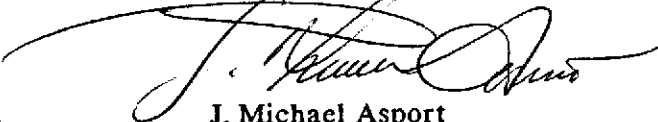
Weiss Associates 

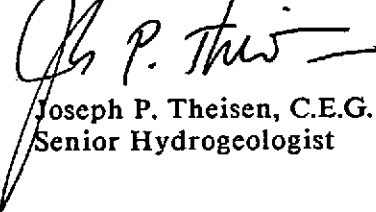
analytic results and a ground water elevation contour map.

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

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

cc: Paul Hayes, Shell Oil Company, P.O. Box 5278, Concord, CA 94520-9998
Larry Turner, Shell Oil Company, P.O. Box 4848, Anaheim, CA 92803
Brian Oliva, Alameda County Department of Environmental Health, 80 Swan Way,
Room 200, Oakland, CA 94621-1426

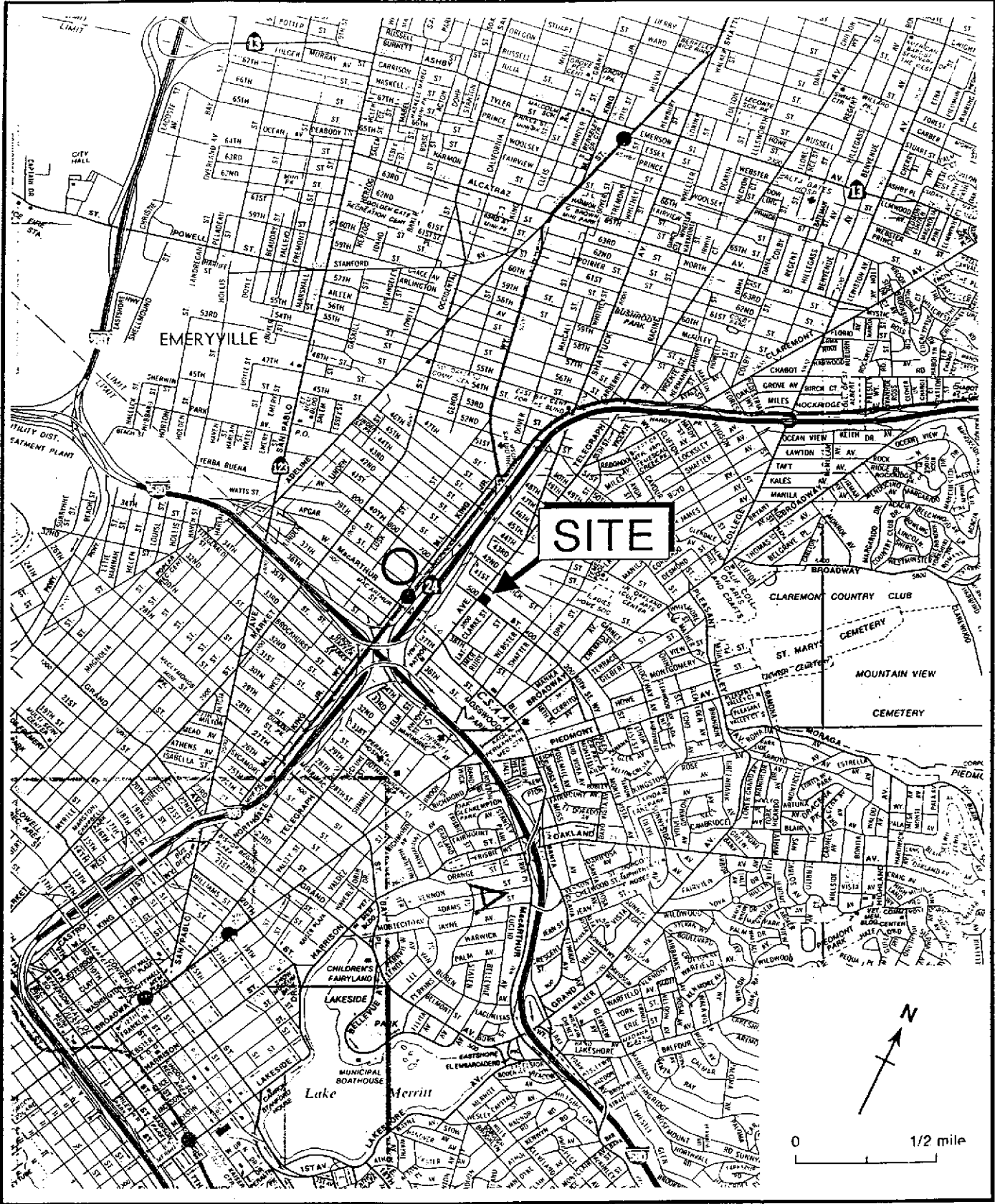


Figure 1. Site Location Map - Shell Service Station WIC #204-5508-4903, 500 40th Street, Oakland, California

EXPLANATION	
⊙ MW-1	Monitoring well
⊙ OMW-10	Offsite monitoring well
● EW-1	Extraction well
67.33	Ground water elevation, ft above mean sea level
65.22	Ground water elevation anomalous, not used for contouring
- 68	Ground water elevation contour, feet above mean sea level, approximately located, dashed where inferred
→	Inferred ground water flow direction

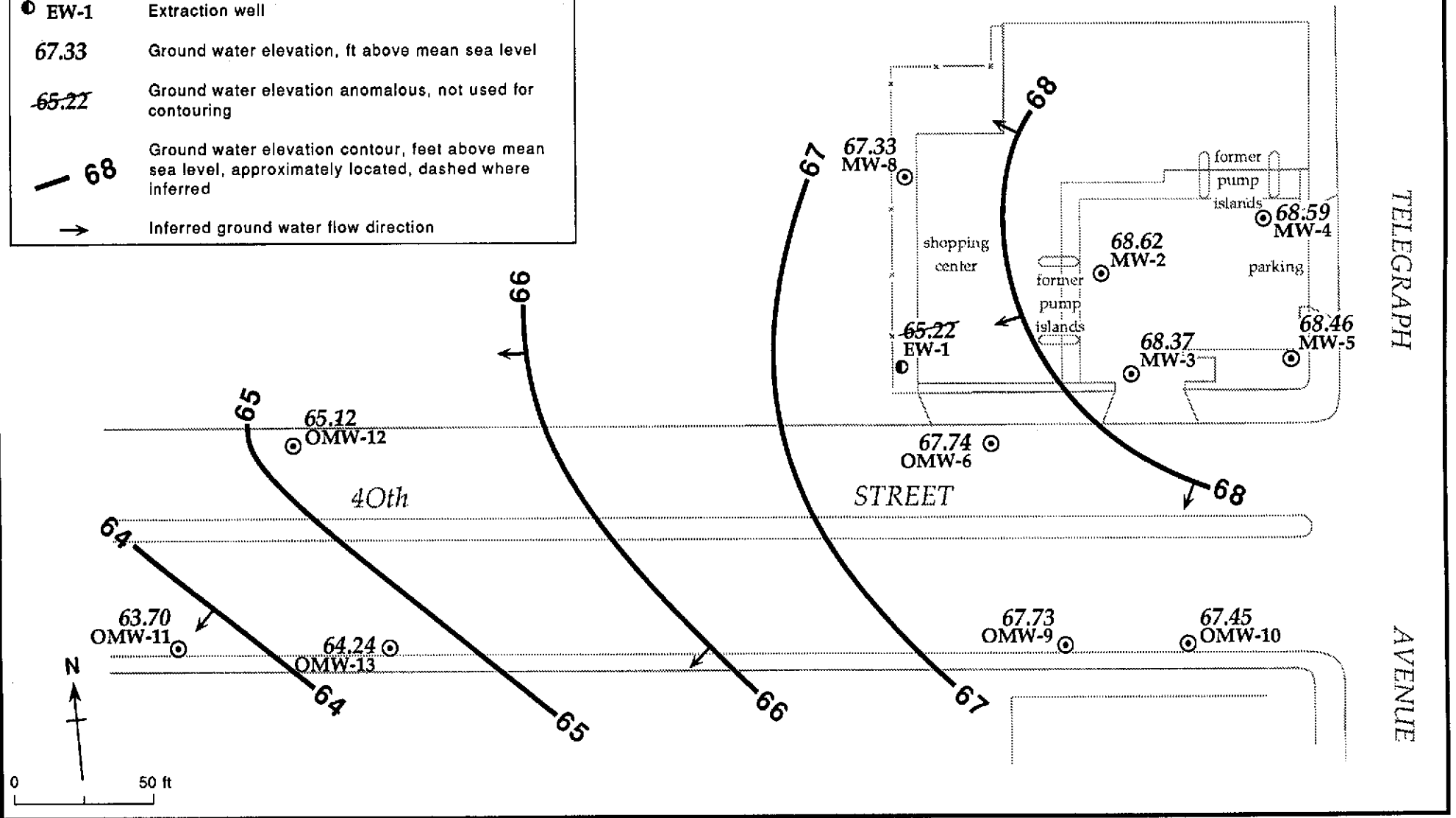


Figure 2. Monitoring Well Locations and Ground Water Elevation Contours - August 19, 1992 - Shell Service Station, WIC #204-5508-4903, 500 40th Street, Oakland, California

ATTACHMENT A
GROUND WATER MONITORING REPORT AND ANALYTIC REPORT



EMCON
ASSOCIATES

Consultants in Wastes
Management and
Environmental Control

September 15, 1992
Project: G67-49.01
WIC#: 204-5508-4903

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

Re: Third quarter 1992 ground-water monitoring report, Shell Oil
Company, 500 40th Street, Oakland, California

Dear Mr. Elias:

This letter presents the results of the third quarter 1992 ground-water monitoring event for the Shell Oil Company (Shell) site located at 500 40th Street, Oakland, California (figure 1). Third quarter monitoring was conducted on August 19, 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 EW-1, MW-2 through MW-5, OMW-6, MW-8, and OMW-9 through OMW-13 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 third 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 monitoring wells EW-1, MW-2 through MW-5, OMW-6, MW-8, and OMW-9 through OMW-13 on August 19, 1992. Prior to sample collection, the wells were purged with an electric submersible pump (well EW-1), a centrifugal pump (wells MW-8 and OMW-12), or polyvinyl chloride bailers (all other wells). 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 OMW-10 was evacuated to dryness before three casings 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 mea-

G674901C.DOC



surements from third quarter monitoring, and available measurements 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 Anametrix 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 third quarter monitoring included a trip blank (TB), a field blank (FB), and a duplicate well sample (MW-2D) collected from well MW-2. All water samples collected during third 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 wells OMW-9, OMW-11, and OMW-13 were analyzed for total petroleum hydrocarbons as diesel (TPH-d).

ANALYTICAL RESULTS

Analytical results for the third quarter 1992 monitoring event, and available results from four previous monitoring events, are summarized in table 2. The original certified analytical report and 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

Mr. David Elias
September 15, 1992
Page 3

Project G67-49.01
WIC# 204-5508-4903

Attachments: Table 1 - Monitoring well field measurement data
Table 2 - Summary of analytical results
Figure 1 - Site location
Figure 2 - Monitoring well locations
Certified analytical report
Chain-of-custody document

Table 1
Monitoring Well Field Measurement Data
Third Quarter 1992

Shell Station: 500 40th Street
Oakland, California
WIC #: 204-5508-4903

Date: 09/14/92
Project Number: G67-49.01

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)
EW-1	08/06/91	78.26	NR	NR	NR	ND	08/06/91	NR	NR	NR	NR
EW-1	10/30/91	78.26	12.72	65.54	NR	ND	10/30/91	NR	NR	NR	NR
EW-1	03/18/92	78.26	11.71	66.55	38.6	ND	02/15/92	6.56	575	62.5	24
EW-1	05/20/92	78.26	12.84	65.42	38.5	ND	05/22/92	6.64	676	66.3	6.0
EW-1	08/19/92	78.26	13.04	65.22	38.5	ND	08/19/92	6.62	570	68.7	5.58
MW-2	08/06/91	80.80	12.12	68.68	NR	ND	08/07/91	NR	NR	NR	NR
MW-2	10/30/91	80.80	11.70	69.10	NR	ND	10/30/91	NR	NR	NR	NR
MW-2	03/18/92	80.80	11.10	69.70	19.5	ND	02/15/92	6.25	401	64.7	130
MW-2	05/20/92	80.80	12.12	68.68	19.5	ND	05/21/92	6.50	465	69.9	>200
MW-2	08/19/92	80.80	12.18	68.62	19.4	ND	08/19/92	6.62	412	69.7	336
MW-3	08/06/91	79.60	11.12	68.48	NR	ND	08/07/91	NR	NR	NR	NR
MW-3	10/30/91	79.60	10.93	68.67	NR	ND	10/30/91	NR	NR	NR	NR
MW-3	03/18/92	79.60	10.54	69.06	18.7	ND	02/15/92	6.28	409	64.1	96
MW-3	05/20/92	79.60	10.79	68.81	18.7	ND	05/21/92	6.58	500	69.1	>200
MW-3	08/19/92	79.60	11.23	68.37	18.7	ND	08/19/92	6.40	450	71.4	36.1
MW-4	08/06/91	81.00	12.36	68.64	NR	ND	08/07/91	NR	NR	NR	NR
MW-4	10/30/91	81.00	12.02	68.98	NR	ND	10/30/91	NR	NR	NR	NR
MW-4	03/18/92	81.00	11.34	69.66	14.9	ND	02/15/92	6.26	339	66.2	40
MW-4	05/20/92	81.00	12.35	68.65	14.9	ND	05/21/92	6.27	394	70.7	>200
MW-4	08/19/92	81.00	12.41	68.59	14.7	ND	08/19/92	6.29	425	70.9	259

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
Third Quarter 1992

Shell Station: 500 40th Street
Oakland, California
WIC #: 204-5508-4903

Date: 09/14/92
Project Number: G87-49.01

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	08/06/91	81.50	13.02	68.48	NR	ND	08/07/91	NR	NR	NR	NR
MW-5	10/30/91	81.50	12.73	68.77	NR	ND	10/30/91	NR	NR	NR	NR
MW-5	03/18/92	81.50	12.52	68.98	20.1	ND	02/15/92	6.45	377	66.1	>200
MW-5	05/20/92	81.50	13.05	68.45	20.2	ND	05/20/92	6.43	367	67.3	>200
MW-5	08/19/92	81.50	13.04	68.46	20.1	ND	08/19/92	6.37	421	68.6	953
OMW-6	08/06/91	77.90	10.71	67.19	NR	ND	08/06/91	NR	NR	NR	NR
OMW-6	10/30/91	77.90	10.50	67.40	NR	ND	10/30/91	NR	NR	NR	NR
OMW-6	03/18/92	77.90	9.24	68.66	20.1	ND	02/15/92	6.57	957	61.9	144
OMW-6	05/20/92	77.90	10.13	67.77	20.2	ND	05/21/92	6.80	1249	68.1	>200
OMW-6	08/19/92	77.90	10.16	67.74	20.1	ND	08/19/92	6.59	1055	70.6	150
MW-8	08/06/91	79.91	13.08	66.83	NR	ND	08/06/91	NR	NR	NR	NR
MW-8	10/30/91	79.91	12.87	67.04	NR	ND	10/30/91	NR	NR	NR	NR
MW-8	03/18/92	79.91	11.54	68.37	38.7	ND	02/15/92	6.28	381	62.2	>200
MW-8	05/20/92	79.91	12.32	67.59	38.8	ND	05/20/92	6.69	372	68.2	>200
MW-8	08/19/92	79.91	12.58	67.33	38.7	ND	08/19/92	6.28	390	65.9	>200
OMW-9	08/06/91	77.71	10.38	67.33	NR	ND	08/06/91	NR	NR	NR	NR
OMW-9	10/30/91	77.71	NR	NR	NR	ND	10/30/91	NR	NR	NR	NR
OMW-9	03/18/92	77.71	8.76	68.95	17.2	ND	03/18/92	6.81	663	62.3	>200
OMW-9	05/20/92	77.71	IW	IW	IW	IW	05/20/92	IW	IW	IW	IW
OMW-9	08/19/92	77.71	9.98	67.73	17.2	ND	08/19/92	6.83	657	67.1	132

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
IW = Inaccessible well; well was inaccessible and was not sampled

Table 1
Monitoring Well Field Measurement Data
Third Quarter 1992

Shell Station: 500 40th Street
Oakland, California
WIC #: 204-5508-4903

Date: 09/14/92
Project Number: G67-49.01

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)
OMW-10	08/06/91	77.91	10.00	67.91	NR	ND	08/07/91	NR	NR	NR	NR
OMW-10	10/31/91	77.91	10.10	67.81	NR	ND	10/31/91	NR	NR	NR	NR
OMW-10	03/18/92	77.91	9.55	68.36	16.0	ND	02/15/92	6.61	469	59.3	>200
OMW-10	05/20/92	77.91	10.41	67.50	16.0	ND	05/21/92	6.93	543	70.3	>200
OMW-10	08/19/92	77.91	10.46	67.45	16.0	ND	08/19/92	6.93	558	67.9	755
OMW-11	11/22/91	75.76	11.90	63.86	NR	NR	11/22/91	NR	NR	NR	NR
OMW-11	02/15/92	75.76	IW	IW	IW	IW	02/15/92	IW	IW	IW	IW
OMW-11	03/18/92	75.76	IW	IW	IW	IW	03/18/92	IW	IW	IW	IW
OMW-11	05/20/92	75.76	IW	IW	IW	IW	05/20/92	IW	IW	IW	IW
OMW-11	08/19/92	75.76	12.06	63.70	19.7	ND	08/19/92	6.39	458	70.6	>1000
OMW-12	12/02/91	75.65	10.31	65.34	NR	NR	12/02/91	NR	NR	NR	NR
OMW-12	03/18/92	75.65	8.93	66.72	19.5	ND	03/18/92	6.23	458	65.0	>200
OMW-12	05/20/92	75.65	10.26	65.39	19.4	ND	05/20/92	6.55	434	65.9	>200
OMW-12	08/19/92	75.65	10.53	65.12	19.5	ND	08/19/92	6.58	459	69.0	570
OMW-13	11/22/91	76.36	11.96	64.40	NR	NR	11/22/91	NR	NR	NR	NR
OMW-13	03/18/92	76.36	10.84	65.52	21.0	ND	03/18/92	6.50	885	66.8	>200
OMW-13	05/20/92	76.36	IW	IW	IW	IW	05/20/92	IW	IW	IW	IW
OMW-13	08/19/92	76.36	12.12	64.24	21.0	ND	08/19/92	6.66	897	65.8	183

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

IW = Inaccessible well; well was inaccessible and was not sampled

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

Shell Station: 500 40th Street
 Oakland, California
 WIC #: 204-5508-4903

Date: 09/14/92
 Project Number: G67-49.01

Sample Designation	Water Sample Field Date	TPH-g (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Ethylbenzene (mg/l)	Total Xylenes (mg/l)	TPH-d (mg/l)
EW-1	08/06/91	0.18	0.0054	<0.0005	0.0009	0.0007	<0.05
EW-1	10/30/91	0.07	0.0026	<0.0005	<0.0005	<0.0005	<0.05
EW-1	02/15/92	<0.05	0.0021	<0.0005	<0.0005	<0.0005	NA
EW-1	05/22/92	0.099	0.0041	<0.0005	<0.0005	<0.0005	NA
EW-1	08/19/92	0.14	0.0066	<0.0005	<0.0005	<0.0005	NA
MW-2	08/07/91	1.2	0.059	0.0011	0.038	0.056	0.23
MW-2	10/30/91	0.52	0.056	<0.0005	0.056	0.1	0.3
MW-2	02/15/92	2.3	0.087	<0.0025	0.088	0.15	2.2#
MW-2	05/21/92	0.70	0.024	0.0010	0.034	0.048	NA
MW-2	08/19/92	0.74	0.021	<0.0025	0.024	0.026	NA
MW-2D	08/19/92	0.84	0.031	<0.0025	0.036	0.043	NA
MW-3	08/07/91	1.9	0.22	0.057	0.057	0.26	0.47
MW-3	10/30/91	1.9	0.16	0.028	0.063	0.18	0.48
MW-3	02/15/92	2.3	0.17	0.031	0.059	0.18	0.78#
MW-3	05/21/92	1.5	0.16	0.020	0.044	0.14	NA
MW-3	08/19/92	4.5	0.21	0.064	0.089	0.31	NA
MW-4	08/07/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
MW-4	10/30/91	0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
MW-4	02/15/92	0.09	0.0009	<0.0005	<0.0005	<0.0005	NA
MW-4	05/21/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-4	08/19/92	0.082^	<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

= Concentration reported as diesel is primarily due to the presence of a lighter petroleum product, possibly gasoline

^ = Concentration reported as gasoline is primarily due to the presence of discrete hydrocarbon peaks not indicative of gasoline

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

Shell Station: 500 40th Street
 Oakland, California
 WIC #: 204-5508-4903

Date: 09/14/92
 Project Number: G67-49.01

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-5	08/07/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
MW-5	10/30/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
MW-5	02/15/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-5	05/20/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-5	08/19/92	0.055 [^]	<0.0005	<0.0005	<0.0005	<0.0005	NA
OMW-6	08/06/91	26.	0.91	0.42	0.56	1.9	3.6
OMW-6	10/30/91	20.	0.71	0.24	0.41	1.7	4.6
OMW-6	02/15/92	35.	0.69	0.42	0.65	3.0	27.#
OMW-6	05/21/92	15.	0.46	0.11	0.30	1.6	NA
OMW-6	08/19/92	24.	0.60	0.30	0.46	2.0	NA
MW-8	08/06/91	0.09	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
MW-8	10/30/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
MW-8	02/15/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-8	05/20/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-8	08/19/92	0.060 [^]	<0.0005	<0.0005	<0.0005	<0.0005	NA
OMW-9	08/06/91	3.9	0.058	0.0088	0.080	0.220	0.19
OMW-9	10/30/91	NR	NR	NR	NR	NR	NR
OMW-9	03/18/92	1.8*	0.084	0.011	0.049	0.060	0.21
OMW-9	05/20/92	IW	IW	IW	IW	IW	IW
OMW-9	08/19/92	4.6	0.063	<0.025	0.048	0.070	0.22#

TPH-g = total petroleum hydrocarbons as gasoline

TPH-d = total petroleum hydrocarbons as diesel

NA = Not analyzed

[^] = Concentration reported as gasoline is primarily due to the presence of discrete hydrocarbon peaks not indicative of gasoline

= Concentration reported as diesel is primarily due to the presence of a lighter petroleum product, possibly gasoline

NR = Not reported; data not available

* = Compounds detected and calculated as gasoline do not match the standard gasoline chromatographic pattern

IW = Inaccessible well; well was inaccessible and was not sampled

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

Shell Station: 500 40th Street
 Oakland, California
 WIC #: 204-5508-4903

Date: 09/14/92
 Project Number: G67-49.01

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)
OMW-10	08/07/91	0.46	0.073	0.001	0.018	0.0084	<0.05
OMW-10	10/31/91	0.63	0.100	<0.0005	0.033	0.026	0.15
OMW-10	02/15/92	0.81	0.085	0.0025	0.044	0.038	0.57#
OMW-10	05/21/92	0.28	0.047	0.0007	0.0040	0.0031	NA
OMW-10	08/19/92	0.33	0.035	<0.0010	0.0060	0.0041	NA
OMW-11	11/22/91	0.45	0.0011	<0.0005	<0.0005	<0.0005	0.24
OMW-11	02/15/92	IW	IW	IW	IW	IW	IW
OMW-11	03/18/92	IW	IW	IW	IW	IW	IW
OMW-11	05/20/92	IW	IW	IW	IW	IW	IW
OMW-11	08/19/92	0.27^	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
OMW-12	12/02/91	<1	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
OMW-12	03/18/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
OMW-12	05/20/92	0.18^	<0.0005	<0.0005	<0.0005	<0.0005	NA
OMW-12	08/19/92	0.23^	<0.0005	<0.0005	<0.0005	<0.0005	NA
OMW-13	11/22/91	0.90	0.037	0.0095	0.074	0.130	1.0
OMW-13	03/18/92	9.*	0.24	0.028	0.32	0.32	0.59#
OMW-13	05/20/92	IW	IW	IW	IW	IW	IW
OMW-13	08/19/92	7.0	0.18	0.036	0.15	0.15	0.47#
FB	08/19/92	<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

= Concentration reported as diesel is primarily due to the presence of a lighter petroleum product, possibly gasoline

NA = Not analyzed

IW = Inaccessible well; well was inaccessible and was not sampled

^ = Concentration reported as gasoline is primarily due to the presence of discrete hydrocarbon peaks not indicative of gasoline

* = Compounds detected and calculated as gasoline do not match the standard gasoline chromatographic pattern

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

Shell Station: 500 40th Street
 Oakland, California
 WIC #: 204-5508-4903

Date: 09/14/92
 Project Number: G67-49.01

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	02/15/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
TB	03/18/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
TB	05/21/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
TB	08/19/92	<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

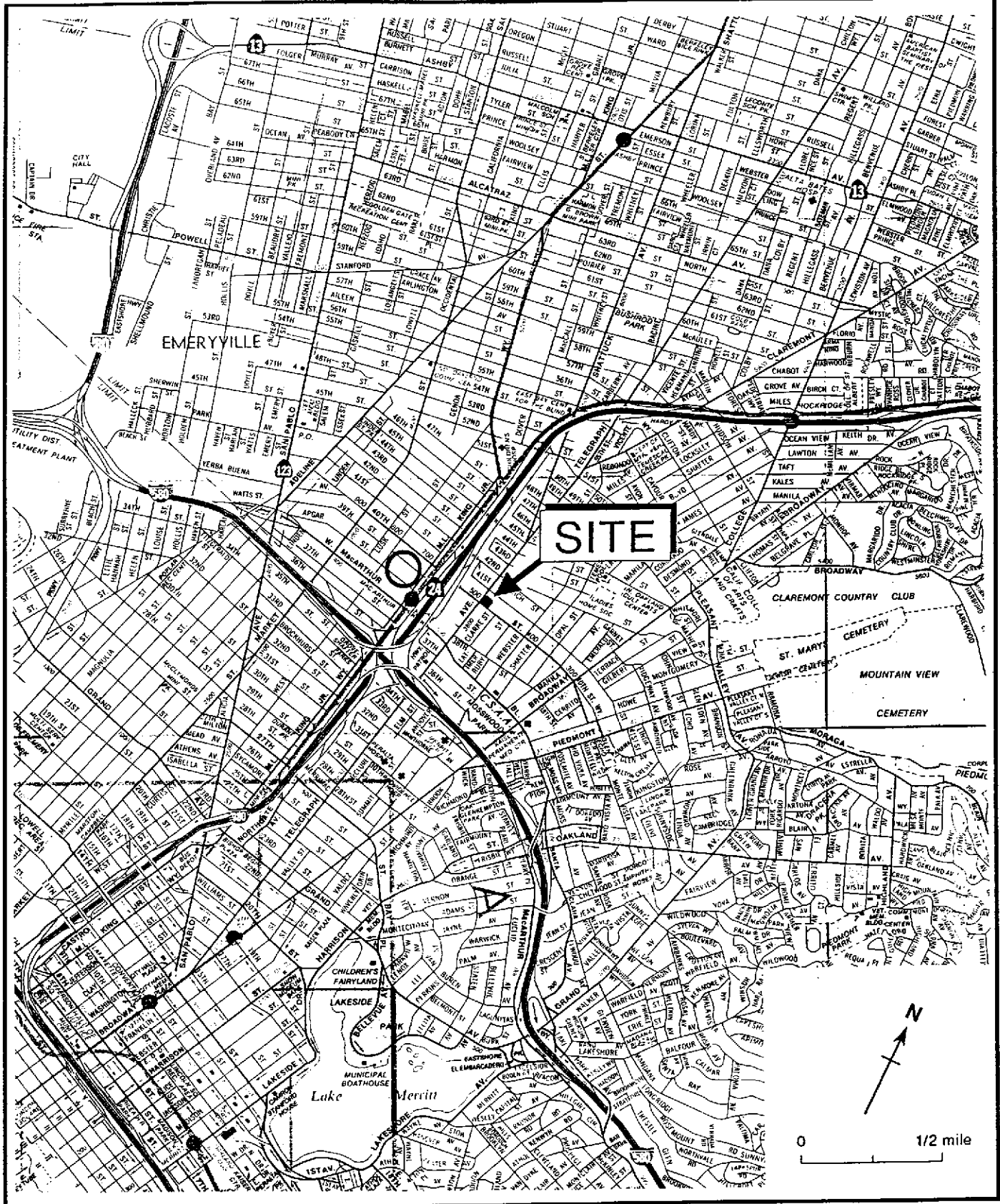


Figure 1. Site Location Map - Shell Service Station WIC #204-5508-4903, 500 40th Street, Oakland, California

EXPLANATION

- ⊙ MW-1 Monitoring well
- ⊙ OMW-10 Offsite monitoring well
- EW-1 Extraction well

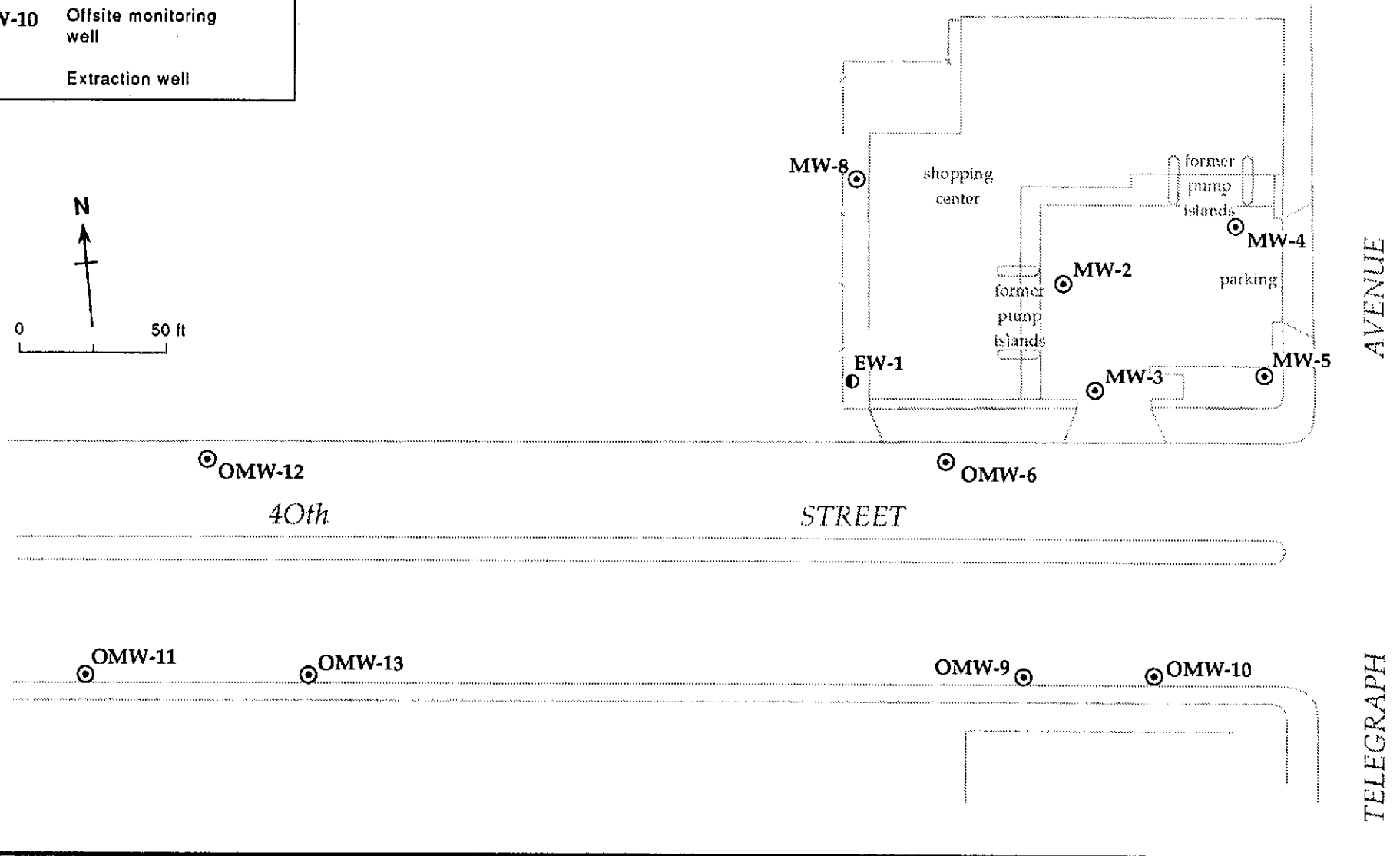
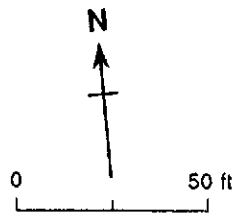


Figure 2. Monitoring Well Locations - Shell Service Station WIC #204-5508-4903, 500 40th Street, Oakland, California

ANAMETRIX INC

Environmental & Analytical Chemistry
 1961 Concourse Drive, Suite E, San Jose, CA 95131
 (408) 432-8192 • Fax (408) 432-8198

**REPORT**

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

Workorder # : 9208234
 Date Received : 08/20/92
 Project ID : 204-5508-4903
 Purchase Order: MOH-B813

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

ANAMETRIX ID	CLIENT SAMPLE ID
9208234- 1	MW-5
9208234- 2	MW-8
9208234- 3	OMW-12
9208234- 4	MW-4
9208234- 5	EW-1
9208234- 6	OMW-11
9208234- 7	OMW-10
9208234- 8	MW-2
9208234- 9	OMW-13
9208234-10	MW-3
9208234-11	OMW-9
9208234-12	OMW-6
9208234-13	MW-2D
9208234-14	TB
9208234-15	FB

This report consists of 10 pages not including the cover letter, and is organized in sections according to the specific Anamatrix 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 Anamatrix 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.

Anamatrix 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 Anamatrix.

Sarah Schoen, Ph.D.
 Laboratory Director

9-15-92
 Date

EMCON ASSOCIATES

SEP 17 1992

RECEIVED

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

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

Workorder # : 9208234
Date Received : 08/20/92
Project ID : 204-5508-4903
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9208234- 6	OMW-11	WATER	08/19/92	TPHd
9208234- 9	OMW-13	WATER	08/19/92	TPHd
9208234-11	OMW-9	WATER	08/19/92	TPHd
9208234- 1	MW-5	WATER	08/19/92	TPHg/BTEX
9208234- 2	MW-8	WATER	08/19/92	TPHg/BTEX
9208234- 3	OMW-12	WATER	08/19/92	TPHg/BTEX
9208234- 4	MW-4	WATER	08/19/92	TPHg/BTEX
9208234- 5	EW-1	WATER	08/19/92	TPHg/BTEX
9208234- 6	OMW-11	WATER	08/19/92	TPHg/BTEX
9208234- 7	OMW-10	WATER	08/19/92	TPHg/BTEX
9208234- 8	MW-2	WATER	08/19/92	TPHg/BTEX
9208234- 9	OMW-13	WATER	08/19/92	TPHg/BTEX
9208234-10	MW-3	WATER	08/19/92	TPHg/BTEX
9208234-11	OMW-9	WATER	08/19/92	TPHg/BTEX
9208234-12	OMW-6	WATER	08/19/92	TPHg/BTEX
9208234-13	MW-2D	WATER	08/19/92	TPHg/BTEX
9208234-14	TB	WATER	08/19/92	TPHg/BTEX
9208234-15	FB	WATER	08/19/92	TPHg/BTEX

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

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

Workorder # : 9208234
Date Received : 08/20/92
Project ID : 204-5508-4903
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentrations reported as diesel for samples OMW-13 and OMW-9 are primarily due to the presence of a lighter petroleum product, possibly gasoline.
- The concentrations reported as gasoline for samples MW-5, MW-8, OMW-12, MW-4 and OMW-11 are primarily due to the presence of discrete hydrocarbon peaks not indicative of gasoline.

Cheryl Bulmer 9/17/92
Department Supervisor Date

Luna Star 9/17/92
Chemist Date

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

Anamatrix W.O.: 9208234
Matrix : WATER
Date Sampled : 08/19/92

Project Number : 204-5508-4903
Date Released : 09/03/92

Reporting Limit	Sample I.D.# MW-5	Sample I.D.# MW-8	Sample I.D.# OMW-12	Sample I.D.# MW-4	Sample I.D.# EW-1	
COMPOUNDS (mg/L)	-01	-02	-03	-04	-05	
Benzene	0.0005	ND	ND	ND	ND	0.0066
Toluene	0.0005	ND	ND	ND	ND	ND
Ethylbenzene	0.0005	ND	ND	ND	ND	ND
Total Xylenes	0.0005	ND	ND	ND	ND	ND
TPH as Gasoline	0.050	0.055	0.060	0.23	0.082	0.14
% Surrogate Recovery	102%	101%	97%	126%	88%	
Instrument I.D.	HP12	HP12	HP12	HP12	HP12	
Date Analyzed	08/25/92	08/25/92	08/25/92	08/25/92	08/25/92	
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.

Reggie Davison 9/14/92
Analyst Date

Cheryl Baerman 9/14/92
Supervisor Date

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

Anamatrix W.O.: 9208234
Matrix : WATER
Date Sampled : 08/19/92

Project Number : 204-5508-4903
Date Released : 09/03/92

Reporting Limit	Sample I.D.# OMW-11	Sample I.D.# OMW-10	Sample I.D.# MW-2	Sample I.D.# OMW-13	Sample I.D.# MW-3	
COMPOUNDS (mg/L)	-06	-07	-08	-09	-10	
Benzene	0.0005	ND	0.035	0.021	0.18	0.21
Toluene	0.0005	ND	ND	ND	0.036	0.064
Ethylbenzene	0.0005	ND	0.0060	0.024	0.15	0.089
Total Xylenes	0.0005	ND	0.0041	0.026	0.15	0.31
TPH as Gasoline	0.050	0.27	0.33	0.74	7.0	4.5
% Surrogate Recovery	101%	98%	101%	114%	98%	
Instrument I.D.	HP12	HP12	HP12	HP12	HP12	
Date Analyzed	08/25/92	08/25/92	08/25/92	08/25/92	08/25/92	
RLMF	1	2	5	50	50	

- 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.

W. B. Denton 09/03/92
Analyst Date

Cheryl Balmer 9/3/92
Supervisor Date

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

Anamatrix W.O.: 9208234
Matrix : WATER
Date Sampled : 08/19/92

Project Number : 204-5508-4903
Date Released : 09/03/92

Reporting Limit	Sample I.D.# OMW-9	Sample I.D.# OMW-6	Sample I.D.# MW-2D	Sample I.D.# TB	Sample I.D.# FB	
COMPOUNDS (mg/L)	-11	-12	-13	-14	-15	
Benzene	0.0005	0.063	0.60	0.031	ND	ND
Toluene	0.0005	ND	0.30	ND	ND	0.0005
Ethylbenzene	0.0005	0.048	0.46	0.036	ND	ND
Total Xylenes	0.0005	0.070	2.0	0.043	ND	0.0005
TPH as Gasoline	0.050	4.6	24	0.84	ND	ND
% Surrogate Recovery	105%	93%	86%	109%	93%	
Instrument I.D.	HP12	HP12	HP12	HP12	HP12	
Date Analyzed	08/25/92	08/25/92	08/25/92	08/25/92	08/24/92	
RLMF	50	250	5	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.

W. B. Buntz 09/03/92
Analyst Date

Cheryl Deelman 9/3/92
Supervisor Date

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

Anamatrix W.O.: 9208234
Matrix : WATER
Date Sampled : N/A

Project Number : 204-5508-4903
Date Released : 09/03/92

COMPOUNDS	Reporting Limit (mg/L)	Sample I.D.# BG2401E2 BLANK	Sample I.D.# BG2501E2 BLANK
Benzene	0.0005	ND	ND
Toluene	0.0005	ND	ND
Ethylbenzene	0.0005	ND	ND
Total Xylenes	0.0005	ND	ND
TPH as Gasoline	0.050	ND	ND
% Surrogate Recovery		109%	108%
Instrument I.D.		HP12	HP12
Date Analyzed		08/24/92	08/25/92
RLMF		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.

[Signature] 09/03/92
Analyst Date

Cheryl Bulmer 9/3/92
Supervisor Date

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

Sample I.D. : 204-5508-4903 OMW-11
 Matrix : WATER
 Date Sampled : 08/19/92
 Date Analyzed : 08/25/92

Anamatrix I.D. : 9208234-06
 Analyst : *HP*
 Supervisor : *CS*
 Date Released : 09/03/92
 Instrument ID : HP12

COMPOUND	SPIKE AMT. (mg/L)	MS (mg/L)	%REC MS	MD (mg/L)	%REC MD	RPD	%REC LIMITS
GASOLINE	0.25	0.14	57%	0.15	61%	7%	48-145
P-BFB			105%		105%		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 : 08/25/92

Anamatrix I.D. : LCSW0825
 Analyst : *AS*
 Supervisor : *CS*
 Date Released : 09/03/92
 Instrument I.D.: HP12

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	0.25	0.25	100%	48-145
SURROGATE		89%		53-147

* Quality control established by Anamatrix, Inc.

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
 EPA METHOD 3510 WITH GC/FID
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
 Matrix : WATER
 Date Sampled : N/A
 Date Extracted: 08/21/92
 Date Analyzed : 08/25/92

Anamatrix I.D. : LCSW0821
 Analyst : AP
 Supervisor : OS
 Date Released : 09/02/92
 Instrument I.D.: HP23

COMPOUND	SPIKE AMT (ug/L)	LCS REC (ug/L)	% REC LCS	LCS D REC (ug/L)	% REC LCS D	RPD	% REC LIMITS
DIESEL	1.25	0.93	74%	1.00	80%	7%	63-130

*Quality control established by Anamatrix, Inc.



Site Address: 500 40th Street
Oakland, CA

Analysis Required

LAB: Anamatrix

WIC#: 204-5508-4903

CHECK ONE (1) BOX ONLY CT/DT TURN AROUND TIME

Shell Engineer: Paul Hayes Phone No. (510) 675-6168
Fax #: (510) 675-6168

Quarterly Monitoring 5461 24 hours
Site Investigation 5441 48 hours
Soil for disposal 5442 15 days (Normal)
Water for disposal 5443 Other
Air Sample - Sys O&M 5452
Water Sample - Sys O&M 5453
Other NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.

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

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

Comments: 3-VOAs (HCl) for Gas, BTEX
2-Liter Glass (SR) for Diesel

Sampled By: M Adler
Printed Name: M ADLER

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
① MW-5	8-19-92		X		3	X	X								40 ml	MC	No		
② MW-8					3	X	X												
③ MW-12					3	X	X												
④ MW-4					3	X	X												
⑤ EW-1					3	X	X												
⑥ MW-11					5	X	X	X											
⑦ MW-10					3	X	X												
⑧ MW-2					3	X	X												

Relinquished By (signature): <u>M Adler</u>	Printed name: <u>M ADLER</u>	Date: <u>8/20/92</u>	Time: <u>08:35</u>	Received (signature): <u>Michele D Aguilar</u>	Printed name: <u>MICHELE D. AGUILAR</u>	Date: <u>8/20/92</u>	Time: <u>08:35</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



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: 8185

Date: _____
 Page 2 of 2

Site Address: 500 40th Street
Oakland, CA

WIC#: 204-5508-4903

Shell Engineer: Paul Hayes Phone No. _____
 Fax #: (510) 675-6168

Consultant Name & Address: 1988 Junction Avenue
EMCON Associates San Jose, CA 95131

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

Comments: See page 1.

Sampled By: M Adler
 Printed Name: M ADLER

Analysis Required

LAB: Anametrix

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"/>		

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

Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
<u>40</u>	<u>HCL</u>	<u>No</u>		

Sample ID	Date	Soil	Water	Air	No. of conis.
<u>① OMW-13</u>	<u>8-19-92</u>		<u>X</u>		<u>5</u>
<u>② MW-3</u>					<u>3</u>
<u>③ OMW-9</u>					<u>5</u>
<u>④ OMW-6</u>					<u>3</u>
<u>⑤ MW-2D</u>					<u>3</u>
<u>⑥ TB</u>					<u>3</u>
<u>⑦ FB</u>					<u>3</u>

Relinquished By (signature): <u>M Adler</u>	Printed name: <u>MADLER</u>	Date: <u>8-20-92</u>	Received (signature): <u>Michelle D. Aguilar</u>	Printed name: <u>MICHELE D. AGUILAR</u>	Date: <u>8/20/92</u>
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:
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