8-30-91

WEISS ASSOCIATES Fax: 415-547-5043 Phone: 415-547-5420

Geologic and Environmental Services 5500 Shellmound Street, Emeryville, CA 94608

TRANSMITTAL LETTER

FROM: Tom Fojut

DATE: August 30, 1991

TO: Lowell Miller
Alameda County Department
of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621-1426

VIA:
- X First Class Mail
- ___ Fax ___ pages
- ___ UPS (Surface)
- ___ Federal Express
- ___ Courier

SUBJECT: Shell Service Stations **JOB:** 81-429-01 81-434-01

~~WIC #204-0072-0502~~
~~2160 Otis Drive~~
~~Alameda, California 94501~~

~~WIC #204-0072-0403~~
1601 Webster Street
Alameda, California 94501

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 the subject site

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: Kurt Miller, Shell Oil Company, P.O. Box 5278, Concord, California 94520-9998

Lester Feldman, California Regional Water Quality Control Board, San Francisco Bay, 1800 Harrison Street, Oakland, California 94612

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WEISS ASSOCIATES
Geologic and Environmental Services
Fax: 415-547-5043 Phone: 415-547-5420
5500 Shellmound Street, Emeryville, CA 94608

August 30, 1991

Mr. Lowell Miller
Alameda County Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621-1426

Re: Shell Service Station
WIC #204-0072-0403
1601 Webster Street
Alameda, California 94501
WA Job #81-434-01

Dear Mr. Miller:

This letter describes Weiss Associates' (WA) third quarter 1991 activities at the Shell service station referenced above. This status report satisfies the quarterly reporting requirements outlined in our March 19, 1990 workplan, and 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 1991, and
- Proposed work for the fourth quarter 1991.

Proposed ground water sampling frequency modifications, which are on hold pending approval of the Alameda County Department of Environmental Health, are presented in Table 1.

THIRD QUARTER 1991 ACTIVITIES

During this quarter, WA:

- Collected ground water samples from the three site wells,

- Measured ground water depths and determined ground water elevations and the flow direction, and

- Analyzed the ground water samples and tabulated the analytic results.

These activities are described below.

Ground Water Sampling

On July 18, 1991, WA collected ground water samples from monitoring wells MW-1, MW-2 and S-1 (Figure 2) as part of the quarterly ground water monitoring program at Shell Service Station WIC #204-0072-0403 in Alameda, California. Ground water samples from well MW-2 (Figure 2) contained benzene and 1,2-dichloroethane (1,2-DCA) above California Department of Health Services (DHS) maximum contaminant levels (MCLs) for drinking water.

Sampling Personnel: WA Environmental Technician Paul Cardoza

Method of Purging Wells: Dedicated PVC bailers

Volume of Water Purged Prior to Sampling:

- Wells were purged of four well-casing volumes, about 16 to 32 gallons each.

Method of Collecting Ground Water Samples:	Wells
• Drawn through sampling ports on the side of dedicated PVC bailers	MW-1 and MW-2
• Decanted from the dedicated PVC bailer	S-1

Methods of Containing Ground Water Samples:

- 40 ml glass volatile organic analysis (VOA) vials, preserved with hydrochloric acid and packed in protective foam sleeves

All samples were refrigerated and transported under chain-of-custody to the analytical laboratory.

Water Samples Transported to:

- International Technology Analytical Services, Inc. (IT), San Jose, California, and were received on July 24, 1991

Quality Assurance/Quality Control:

- A travel blank was submitted for analysis.
- An equipment blank was not necessary because all bailers are dedicated to specific wells.

Water sample collection records and chain-of-custody forms are included in Attachments A and B, respectively.

Ground Water Elevations and Flow Direction

- The depth to water was measured in all wells on July 18, 1991. Ground water elevations decreased by 1.5 ft or less from the previous quarter.
- Ground water flows north-northeast. The flow direction has varied from north-northwest to northeast during the past year.

Depth to water measurements and ground water elevations are presented in Table 1. Ground water elevation contours are plotted on Figure 2. Previous ground water elevation contour maps are included in Figure 3.

Chemical Analyses

The Ground Water Samples were Analyzed for:	Wells
• Total petroleum hydrocarbons as gasoline (TPH-G) by modified EPA Method 8015	all wells
• Benzene, ethylbenzene, toluene and xylenes (BETX) by EPA Method 8020	all wells
• Halogenated volatile organic compounds (HVOCs) by EPA Method 601	MW-1 and MW-2

The laboratory analyzed the samples on April 19, 21, and 22, 1991. The results are presented in Table 2 and the analytic reports are included in Attachment B.

Discussion of Analytic Results of Ground Water for this Quarter:

- Ground water samples from monitoring well MW-2 contained benzene and 1,2-DCA above DHS MCLs for drinking water.
- TPH-G and BETX concentrations in samples from well MW-2 decreased for the second consecutive quarter.
- No hydrocarbons have been detected in samples from wells MW-1 and S-1 for six and eight consecutive quarters, respectively.

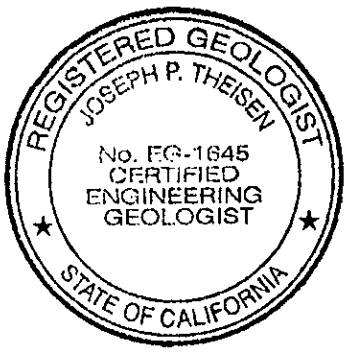
ANTICIPATED WORK FOR FOURTH QUARTER 1991

During the fourth quarter 1991, on behalf of Shell Oil, WA plans to:

- Continue quarterly monitoring of ground water at this site, and
- Prepare a quarterly status report presenting all data generated during the third quarter including water sampling results and analysis.

August 30, 1991

We trust that this submittal satisfies your requirements. Please call if you have any questions.



Sincerely,
Weiss Associates

Thomas Fojut
Staff Geologist

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

TF/JPT:fcr

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Attachments: Figures
Tables
A - Water Sample Collection Records
B - Analytic Report and Chain-of-Custody Form

cc: Kurt Miller, Shell Oil Company, P.O. Box 5278, Concord, California 94520-9998

Lester Feldman, Regional Water Quality Control Board - San Francisco Bay, 2101 Webster Street, Suite 500, Oakland, California 94612

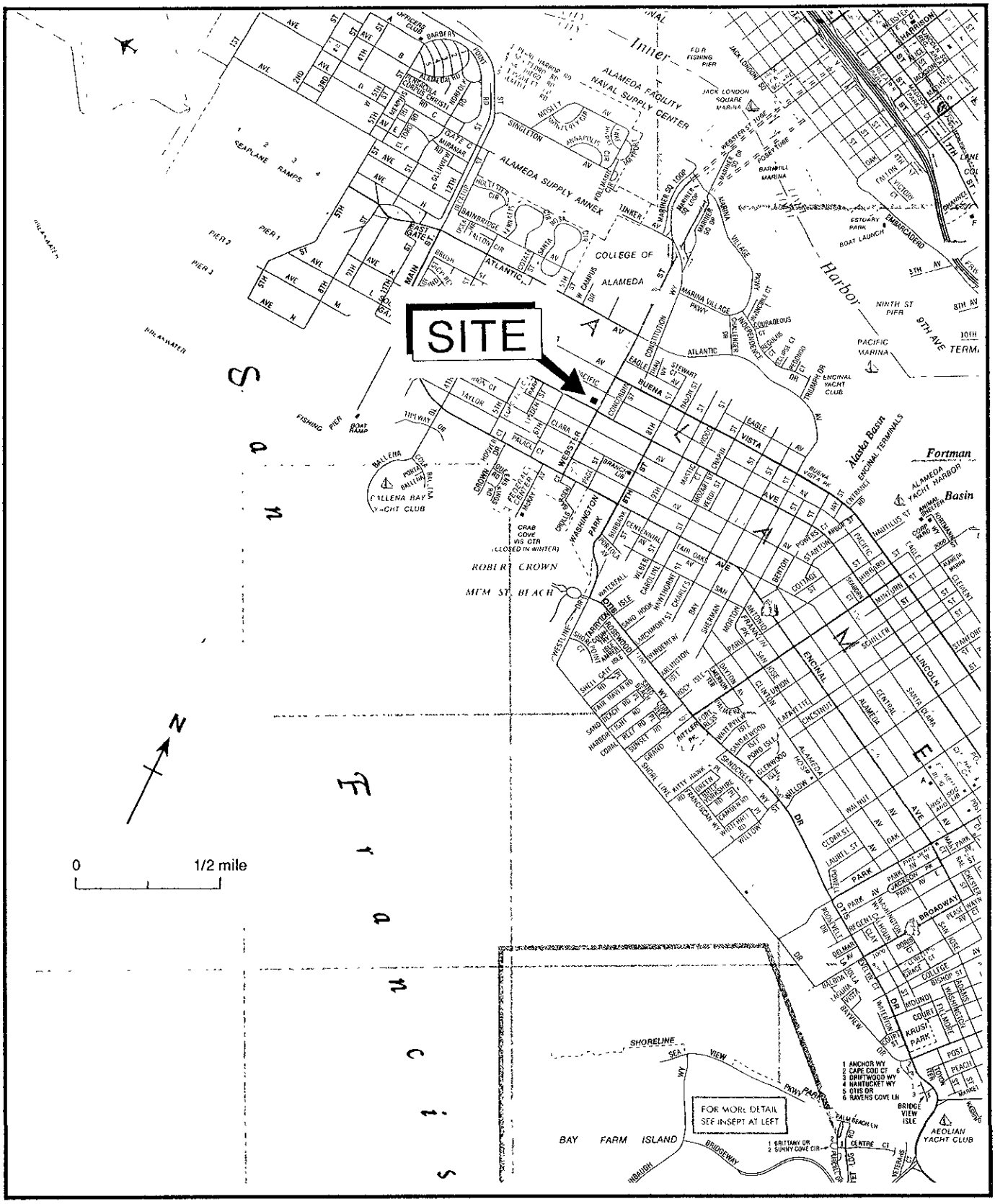


Figure 1. Site Location Map - Shell Service Station, WIC# 204-0072-0403, 1601 Webster Street, Alameda, CA

8/20/90

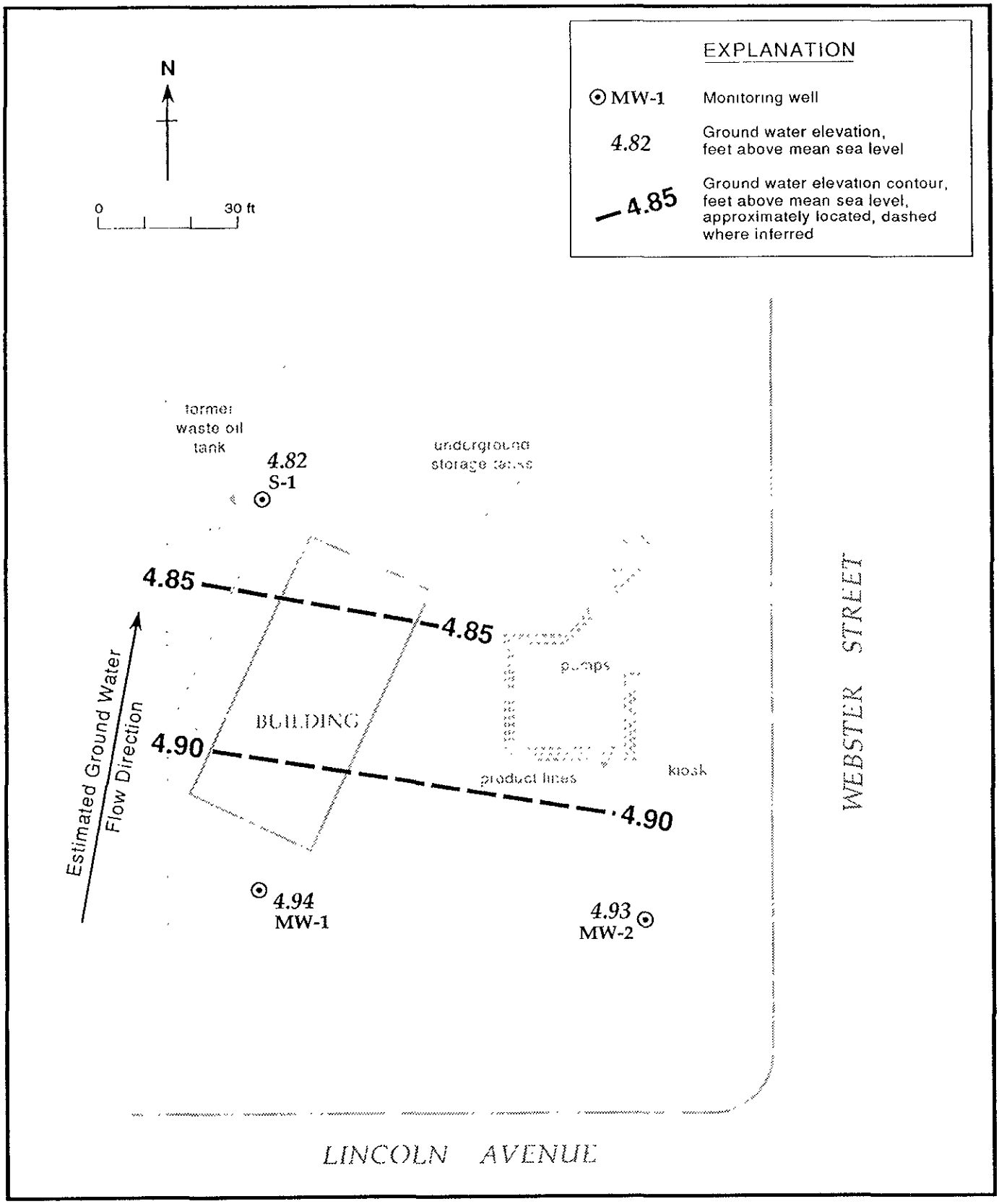
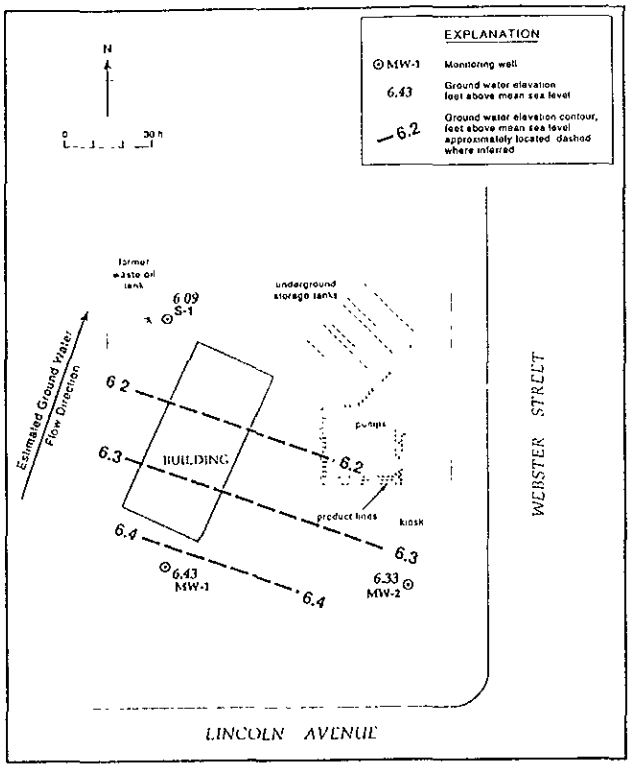
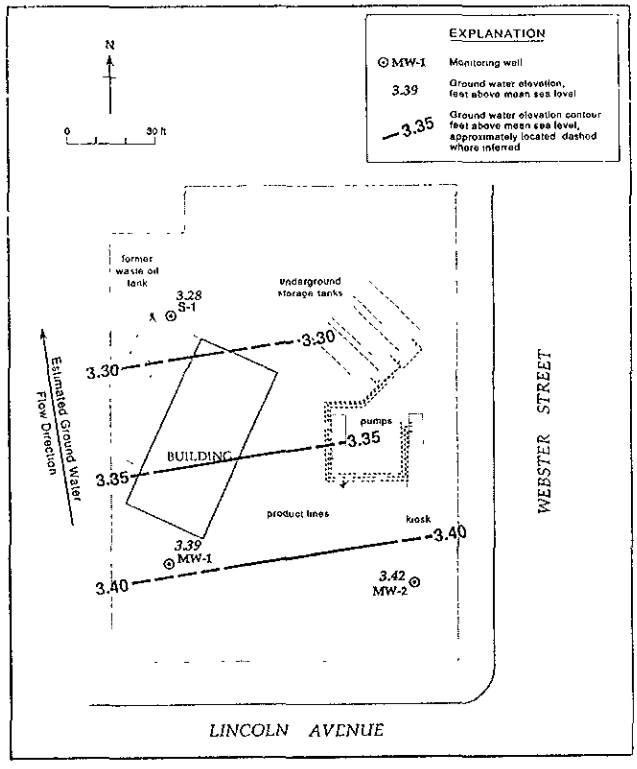


Figure 2. Monitoring Welll Locations and Ground Water Elevation Contours - July 23, 1991 - Shell Service Station WIC #204-0072-0403, 1601 Webster Street, Alameda, California

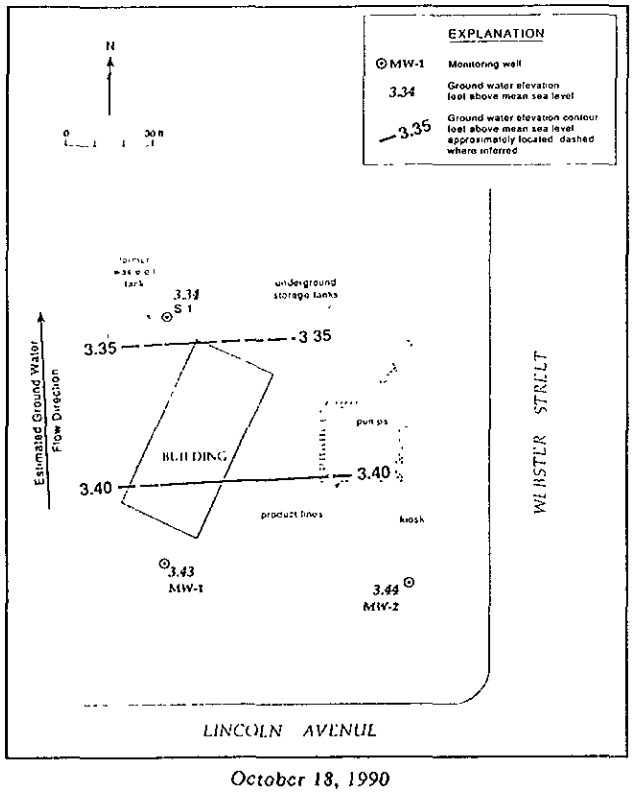
8/27/91



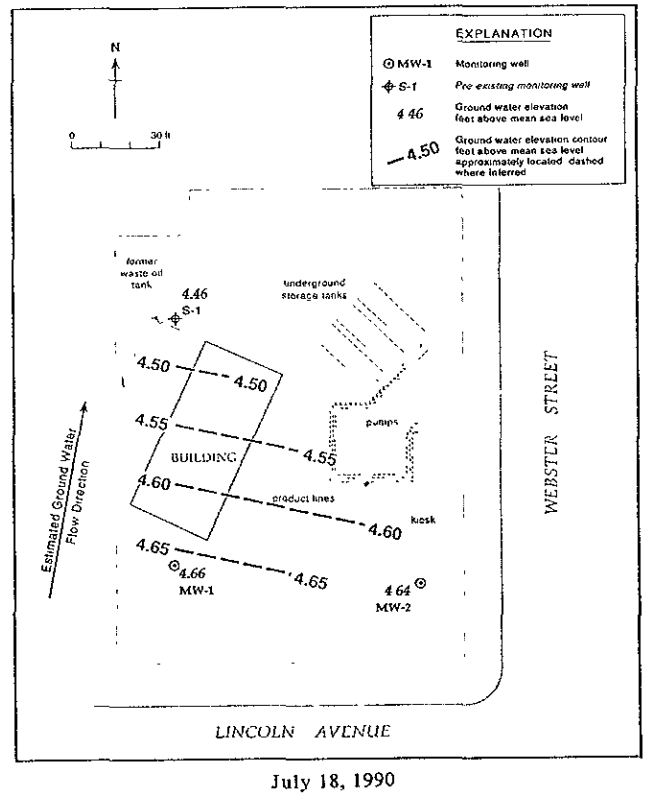
April 11, 1991



January 25, 1991



October 18, 1990



July 18, 1990

Figure 3. Previous Ground Water Elevation Contour Maps - Shell Service Station WIC #204-0072-0403, 1601 Webster Street, Alameda, California

TABLE 1. Proposed Ground Water Sampling Frequency, Shell Service Station WIC #204-0072-0403, 1601 Webster Street, Alameda, California

Well ID	Current Sampling Frequency	Recommended Future Sampling Frequency	Rationale for Recommended Sampling Frequency
MW-1	Quarterly	Annually	No hydrocarbons detected for six quarters; cross-gradient well
MW-2	Quarterly	Quarterly	Variable hydrocarbon concentrations for six quarters
S-1	Quarterly	Semi-Annually	No hydrocarbons detected for eight quarters; source area well

TABLE 2. Ground Water Elevations - Shell Service Station WIC #204-0072-0403, 1601 Webster Street Alameda, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-1	04-11-90	13.80	8.22	5.58
	07-18-90		9.14	4.66
	10-18-90		10.37	3.43
	01-25-91		10.41	3.39
	04-11-91		7.37	6.43
	07-18-91		**8.86**	**4.94**
MW-2	04-11-90	13.20	7.69	5.51
	07-18-90		8.56	4.64
	10-18-90		9.76	3.44
	01-25-91		9.78	3.42
	04-11-91		6.87	6.33
	07-18-91		**8.27**	**4.93**
S-1	09-11-89	13.77	9.82	3.95
	04-11-90		8.41	5.36
	07-18-90		9.31	4.46
	10-18-90		10.43	3.34
	01-25-91		10.49	3.28
	04-11-91		7.68	6.09
	07-18-91		**8.95**	**4.82**

TABLE 3. Analytic Results for Ground Water - Shell Service Station, WIC #204-0072-0403, 1601 Webster Street, Alameda, California

Sample ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B	E	T	X	c-1,2-DCE	1,2-DCA	TOG
			<----------parts per million (mg/L)---------->								
MW-1	04-11-90[a]	8.22	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<10
	07-18-90	9.14	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	0.003	<0.0005	<5
	10-18-90	10.37	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	0.0079	<0.0005	<5
	01-25-91	10.41	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	0.0056	<0.0005	---
	04-11-91	7.37	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	---
	07-18-91	**8.86**	**<0.05**	---	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**0.0044**	**<0.0005**	---
MW-2	04-11-90[a]	7.69	0.58	0.43	0.020	0.0012	0.0049	0.073	<0.0005	0.0011	<10
	07-18-90	8.56	1.4	---	0.11	0.071	0.31	0.31	<0.0005	0.0007	<5
	10-18-90	9.76	1.9	1.3[b]	0.11	0.089	0.47	0.40	<0.0005	0.0009	<5
	01-25-91	9.78	8.1	---	0.43	0.48	1.2	2.6	<0.0005	0.0008	---
	04-11-91	6.87	2.6	---	0.13	0.25	0.15	0.33	<0.0005	<0.0005	---
	07-15-91	**8.27**	**1.3**	---	**0.10**	**0.084**	**0.059**	**0.12**	**<0.0005**	**0.0008**	---
S-1	09-04-87[c]		---	---	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.0005	---
	09-11-89[d]	9.82	<0.05	<0.1	<0.0005	<0.001	<0.001	<0.003	<0.0005	<0.0005	<1
	04-11-90[a]	8.41	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<10
	07-18-90	9.31	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<5
	10-18-90	10.43	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<5
	01-25-91	10.49	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	---	---	---
	04-11-91	7.68	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	---	---	---
	07-18-91	**8.95**	**<0.05**	---	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	---	---	---
Trip Blank	07-18-90		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	---	---	---
	10-18-90		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	---	---	---
	01-25-91		<0.05	---	<0.0005	<0.0005	<0.0005	0.0008	---	---	---
	04-11-91		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005	---	---	---
	07-18-91		**<0.05**	---	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	---	---	---
DHS MCLs			NE	NE	0.001	0.680	0.10[e]	1.750	0.0060	0.0005	NE

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015
TPH-D = Total petroleum hydrocarbons as diesel by Modified EPA Method 8015
B = Benzene by EPA Method 602, 624, or 8020
E = Ethylbenzene by EPA Method 602, 624, or 8020
T = Toluene by EPA Method 602, 624, or 8020
X = Xylenes by EPA Method 602, 624, or 8020
c-1,2-DCE = cis-1,2-dichloroethylene by EPA Method 601 or 624
1,2-DCA = 1,2-dichloroethane by EPA Method 601 or 624
TOG = Total non-polar oil and grease by American Public Health Association Standard Method 503E
<n = Not detected at detection limit of n ppm
DHS MCL = California Department of Health Services maximum contaminant level for drinking water
NE = Not established
--- = Not analyzed

Analytical Laboratory:

International Technology Analytical Services, San Jose, California

Notes:

a = Samples analyzed by National Environmental Testing Pacific, Inc., Santa Rosa, California
b = Compounds detected and calculated as diesel appear to be the less volatile constituents of gasoline.
c = Sampled by Pacific Environmental Group, Santa Clara, California; 0.12 ppm acetone detected by EPA Method 624; no other volatile organic compounds detected
d = Metals detected by EPA Method 6010; 0.020 ppm chromium, 0.060 ppm lead and 0.030 ppm zinc; no cadmium detected above detection limit of 0.010 ppm; no PCBs or semi-volatile compounds detected by EPA Method 625.
e = DHS recommended action level for drinking water; MCL not established

ATTACHMENT A

WATER SAMPLE COLLECTION RECORDS

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name MW-1 Date 7/18/91 Time of Sampling 11:15

Job Name Shell Alameda II Job Number 81-434-01 Initials PC

Sample Point Description MW (M = Monitoring Well)

Location Southeast section of station next to "air-water" service

WELL DATA: Depth to Water 8.86 ft (static; pumping) Depth to Product — ft.

Product Thickness — Well Depth 21.0 ft (spec) Well Depth 20.80 ft(sounded) Well Diameter 4 in

Initial Height of Water in Casing 11.94 ft. = volume 7.80 gal.

4 Casing Volumes to be Evacuated. Total to be evacuated 31.2 gal.

EVACUATION METHOD: Pump # and type — Hose # and type —

Bailer# and type 3"x36" PVC Dedicated Y (Y/N)

Other —

Evacuation Time: Stop 10:39

Start 10:24

Total Evacation Time 15min

Total Evacuated Prior to Sampling 32 gal.

Evacuation Rate 2.13 gal. per minute

Depth to Water during Evacuation — ft. — time

Depth to Water at Sampling 9.35 ft. 11:16 time

Evacuated Dry? No After — gal. Time —

80% Recovery = —

% Recovery at Sample Time — Time —

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

vol. in cyl. = $\pi r^2 h$

7.48 gal/ft^3

V_2" casing = 0.163 gal/ft

V_3" casing = 0.367 gal/ft

V_4" casing = 0.653 gal/ft

$V_{4.5}$" casing = 0.826 gal/ft

V_6" casing = 1.47 gal/ft

V8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number

Calibration: 4.0 7.0 10.0

Measured:	SC/μmhos	pH	T°C	Time	Volume Evacuated (gal.)

SAMPLE: Color Clear Odor None

Description of matter in sample: None

Sampling Method: Sample port on dedicated bailer

Sample Port: Rate — gpm Totalizer — gal.

Time —

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
3	071-01	W/CM	40ml	N	Y	HCL	EPA 8015/8020 EPA 601	N	IT

1 Sample Type Codes: W = Water, S = Soil, Describe Other
Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other
Cap Codes: PT = Plastic, Teflon lined;
2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
5 Turnaround [N = Normal, W = 1 week, R = 24 hour, HOLD (spell)]

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name MW-2 Date 7/15/91 Time of Sampling 12:11

Job Name Shell-Alameda II Job Number 91-434-01 Initials PC

Sample Point Description M (M = Monitoring Well)

Location Southeast section of station near kiosk

WELL DATA: Depth to Water 8.27 ft (static, pumping) Depth to Product — ft.

Product Thickness — Well Depth 20.0 ft (spec) Well Depth 19.92 ft(sounded) Well Diameter 4 in

Initial Height of Water in Casing 11.65 ft. = volume 7.61 gal.

4 Casing Volumes to be Evacuated. Total to be evacuated 30.44 gal.

EVACUATION METHOD: Pump # and type — Hose # and type —

Bailer# and type 3/4, 36" PVC Dedicated Y (Y/N)

Other —

Evacuation Time: Stop 11:44 11:55 —

Start 11:37 11:47 —

Total Evacation Time 15min

Total Evacuated Prior to Sampling 32 gal.

Evacuation Rate 2.13 gal. per minute

Depth to Water during Evacuation — ft. — time

Depth to Water at Sampling 9.48 ft. 12:11 time

Evacuated Dry? No After — gal. Time —

80% Recovery = —

% Recovery at Sample Time — Time —

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

vol. in cyl. = $\pi r^2 h$

7.48 gal/ft^3

V_2" casing = 0.163 gal/ft

V_3" casing = 0.367 gal/ft

V_4" casing = 0.653 gal/ft

$V_{4.5}$" casing = 0.826 gal/ft

V_6" casing = 1.47 gal/ft

V8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number —

Calibration: — 4.0 — 7.0 — 10.0

Measured:	SC/μmhos	pH	T°C	Time	Volume Evacuated (gal.)
		N/R			

SAMPLE: Color Clear Odor ~~Slight~~ None

Description of matter in sample: None

Sampling Method: Sampling port on dedicated bailer

Sample Port: Rate — gpm Totalizer — gal.

Time —

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
3	071-02	w/cap	40ml	N	Y	HCL	EPA 8015/8020 EPA 601	N	ET

1 Sample Type Codes: W = Water, S = Soil, Describe Other
Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other
Cap Codes: PT = Plastic, Teflon lined;
2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
5 Turnaround [N = Normal, W = 1 week, R = 24 hour, HOLD (spell)]

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name S-1 Date 7/18/91 Time of Sampling 1230

Job Name Shell-Alameda II Job Number 81-434-01 Initials PC

Sample Point Description M (M = Monitoring Well)

Location Northwest section of station

WELL DATA: Depth to Water 8.45 ft (static, pumping) Depth to Product — ft.

Product Thickness — Well Depth 20.0 ft (spec) Well Depth 19.84 ft(sounded) Well Diameter 3 in

Initial Height of Water in Casing 10.89 ft. = volume 4 gal.

4 Casing Volumes to be Evacuated. Total to be evacuated 16 gal.

EVACUATION METHOD: Pump # and type — Hose # and type —

Bailer# and type 3"x36" PVC Dedicated Y (Y/N)

Other —

Evacuation Time: Stop 10:09 10:52 12:15

Start 10:01 10:46 11:59

Total Evacation Time 20 min

Total Evacuated Prior to Sampling 16 gal.

Evacuation Rate .8 gal. per minute

Depth to Water during Evacuation — ft. — time

Depth to Water at Sampling 9.26 ft. 12:30 time

Evacuated Dry? Yes After 7 gal. Time 10:09

80% Recovery = 11.13

% Recovery at Sample Time 97 Time 12:30

>4 casing volumes evacuated after allowing well to recover

CHEMICAL DATA: Meter Brand/Number

Calibration: ____ 4.0 ____ 7.0 ____ 10.0

Measured:	SC/μmhos	pH	T°C	Time	Volume Evacuated (gal.)
		N/A			

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

vol. in cyl. = $\pi r^2 h$

7.48 gal/ft^3

$V_{2"}$ casing = 0.163 gal/ft

$V_{3"}$ casing = 0.367 gal/ft

$V_{4"}$ casing = 0.653 gal/ft

$V_{4.5"}$ casing = 0.826 gal/ft

$V_{6"}$ casing = 1.47 gal/ft

V8 casing = 2.61 gal/ft

SAMPLE: Color Clear Odor None

Description of matter in sample: None

Sampling Method: Sample port on dedicated bailer

Sample Port: Rate — gpm Totalizer — gal.

Time —

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
3	071-S1	W/CV	40ml	N	Y	HCl	EPA 8015/8020	N	IT

1 Sample Type Codes: W = Water, S = Soil, Describe Other
Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other
Cap Codes: PT = Plastic, Teflon lined;
2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
5 Turnaround [N = Normal, W = 1 week, R = 24 hour, HOLD (spell)]

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

Trip Blanks

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name — Date 7/13/91 Time of Sampling 07:00

Job Name Shell-Alameda II Job Number 91-434-01 Initials PC

Sample Point Description — (M = Monitoring Well)

Location —

WELL DATA: Depth to Water _____ ft (static, pumping) Depth to Product _____ ft.

Product Thickness _____ Well Depth _____ ft (spec) Well Depth _____ ft(sounded) Well Diameter _____ in

Initial Height of Water in Casing _____ ft. = volume _____ gal.

_____ Casing Volumes to be Evacuated. Total to be evacuated _____ gal.

EVACUATION METHOD: Pump # and type _____ Hose # and type _____

Bailer# and type _____ Dedicated _____ (Y/N)

Other _____

Evacuation Time: Stop _____ _____ _____

Start _____ _____ _____

Total Evacation Time _____

Total Evacuated Prior to Sampling _____ gal.

Evacuation Rate _____ gal. per minute

Depth to Water during Evacuation _____ ft. _____ time

Depth to Water at Sampling _____ ft. _____ time

Evacuated Dry? _____ After _____ gal. Time _____

80% Recovery = _____

% Recovery at Sample Time _____ Time _____

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

vol. in cyl. = $\pi r^2 h$

7.48 gal/ft^3

V_2" casing = 0.163 gal/ft

V_3" casing = 0.367 gal/ft

V_4" casing = 0.653 gal/ft

$V_{4.5}$" casing = 0.826 gal/ft

V_6" casing = 1.47 gal/ft

V8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number _____

Calibration: _____ 4.0 _____ 7.0 _____ 10.0

Measured:	SC/µmhos	pH	T°C	Time	Volume Evacuated (gal.)

SAMPLE: Color _____ Odor _____

Description of matter in sample: _____

Sampling Method: _____

Sample Port: Rate ____ gpm Totalizer _____ gal.

Time

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
3	071-21	w/cv	40ml	N	Y	HCL	EPA 8015/8020	N	IT

1 Sample Type Codes: W = Water, S = Soil, Describe Other
Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other
Cap Codes: PT = Plastic, Teflon lined;
2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
5 Turnaround [N = Normal, W = 1 week, R = 24 hour, HOLD (spell)]

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

ATTACHMENT B

ANALYTIC REPORT AND CHAIN-OF-CUSTODY FORM

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Shell Oil Company
Weiss Associates
5500 Shellmound Street
Emeryville, CA 94608
Tom Fojut

Date: 08/12/91

Work Order: T1-07-311

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

This is the Certificate of Analysis for the following samples:

Client Work ID: 81-434-01/1601 Webster Ala,CA
Date Received: 07/24/91
Number of Samples: 4
Sample Type: aqueous

TABLE OF CONTENTS FOR ANALYTICAL RESULTS

Reviewed and Approved:

Suzanne Veaudry
Project Manager

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

Work Order: T1-07-311

TEST NAME: **Halocarbons by 8010/601**

SAMPLE ID: **071-01**
SAMPLE DATE: **07/18/91**
LAB SAMPLE ID: **T107311-01**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool**
EXTRACTION DATE: **N/A**
ANALYSIS DATE: **07/27/91**

RESULTS in Milligrams per Liter

PARAMETER	DETECTION LIMIT	DETECTED
Chloromethane	0.001	None
Bromomethane	0.001	None
Vinyl chloride	0.0005	None
Chloroethane	0.0005	None
Methylene Chloride	0.0006	None
1,1-Dichloroethene	0.0005	None
1,1-Dichloroethane	0.0005	None
Chloroform	0.0005	None
1,2-Dichloroethane	0.0005	None
1,1,1-Trichloroethane	0.0005	None
Carbon tetrachloride	0.0005	None
Bromodichloromethane	0.0005	None
1,1,2,2-Tetrachloroethane	0.0005	None
1,2-Dichloropropane	0.0005	None
trans-1,3-dichloropropene	0.0005	None
Trichloroethene	0.0005	None
Dibromochloromethane	0.0005	None
1,1,2-Trichloroethane	0.0005	None
cis-1,3-Dichloropropene	0.0005	None
Bromoform	0.0005	None
Tetrachloroethene	0.0005	None
Dichlorodifluoromethane	0.0005	None
Trichlorofluoromethane	0.0005	None
cis-1,2-Dichloroethene	0.0005	0.0044
trans-1,2-Dichloroethene	0.0005	None
Chlorobenzene	0.0005	None
1,2-Dichlorobenzene	0.0005	None
1,3-Dichlorobenzene	0.0005	None
1,4-Dichlorobenzene	0.0005	None
1,1,2-Trichlorotrifluoroethane	0.0005	None

SURROGATE	LIMITS	% RECOVERY
1-Chloro-2-fluorobenzene (Surr)	70-120%	94.

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-07-311

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **071-01**
SAMPLE DATE: **07/18/91**
LAB SAMPLE ID: **T107311-01**
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/25/91
Low Boiling Hydrocarbons	Mod.8015		07/25/91

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)	99.
1,3-Dichlorobenzene (BTEX)	98.

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-07-311

TEST NAME: **Halocarbons by 8010/601**

SAMPLE ID: **071-02**
SAMPLE DATE: **07/18/91**
LAB SAMPLE ID: **T107311-02**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool**
EXTRACTION DATE: **N/A**
ANALYSIS DATE: **07/27/91**

RESULTS in Milligrams per Liter

PARAMETER	DETECTION LIMIT	DETECTED
Chloromethane	0.001	None
Bromomethane	0.001	None
Vinyl chloride	0.0005	None
Chloroethane	0.0005	None
Methylene Chloride	0.0006	None
1,1-Dichloroethene	0.0005	None
1,1-Dichloroethane	0.0005	None
Chloroform	0.0005	None
1,2-Dichloroethane	0.0005	0.0008
1,1,1-Trichloroethane	0.0005	None
Carbon tetrachloride	0.0005	None
Bromodichloromethane	0.0005	None
1,1,2,2-Tetrachloroethane	0.0005	None
1,2-Dichloropropane	0.0005	None
trans-1,3-dichloropropene	0.0005	None
Trichloroethene	0.0005	None
Dibromochloromethane	0.0005	None
1,1,2-Trichloroethane	0.0005	None
cis-1,3-Dichloropropene	0.0005	None
Bromoform	0.0005	None
Tetrachloroethene	0.0005	None
Dichlorodifluoromethane	0.0005	None
Trichlorofluoromethane	0.0005	None
cis-1,2-Dichloroethene	0.0005	None
trans-1,2-Dichloroethene	0.0005	None
Chlorobenzene	0.0005	None
1,2-Dichlorobenzene	0.0005	None
1,3-Dichlorobenzene	0.0005	None
1,4-Dichlorobenzene	0.0005	None
1,1,2-Trichlorotrifluoroethane	0.0005	None

SURROGATE	LIMITS	% RECOVERY
1-Chloro-2-fluorobenzene (Surr)	70-120%	96.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

Work Order: T1-07-311

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **071-02**
SAMPLE DATE: **07/18/91**
LAB SAMPLE ID: **T107311-02**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/30/91
Low Boiling Hydrocarbons	Mod.8015		07/30/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**1.3**
BTEX		
Benzene	0.0005	**0.10**
Toluene	0.0005	**0.059**
Ethylbenzene	0.0005	**0.084**
Xylenes (total)	0.0005	**0.12**

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	**170.***
1,3-Dichlorobenzene (BTEX)	**109.**

*Surrogate elevated due to hydrocarbon interference.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

Work Order: T1-07-311

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **071-51**
SAMPLE DATE: **07/18/91**
LAB SAMPLE ID: **T107311-03**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/25/91
Low Boiling Hydrocarbons	Mod.8015		07/25/91

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)	**98.**
1,3-Dichlorobenzene (BTEX)	**98.**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

Work Order: T1-07-311

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **071-21**
SAMPLE DATE: **07/18/91**
LAB SAMPLE ID: **T107311-04**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/25/91
Low Boiling Hydrocarbons	Mod.8015		07/25/91

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)	97.
1,3-Dichlorobenzene (BTEX)	98.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

Work Order: T1-07-311

TEST NAME: **Halocarbons by 8010/601**

SAMPLE ID: **Quality Control Method Blank**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T107311-05**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool**
EXTRACTION DATE: **N/A**
ANALYSIS DATE: **07/26/91**

RESULTS in Milligrams per Liter

PARAMETER	DETECTION LIMIT	DETECTED
Chloromethane	0.0005	None
Bromomethane	0.0005	None
Vinyl chloride	0.0005	None
Chloroethane	0.0005	None
Methylene Chloride	0.0005	0.0008
1,1-Dichloroethene	0.0005	None
1,1-Dichloroethane	0.0005	None
Chloroform	0.0005	None
1,2-Dichloroethane	0.0005	None
1,1,1-Trichloroethane	0.0005	None
Carbon tetrachloride	0.0005	None
Bromodichloromethane	0.0005	None
1,1,2,2-Tetrachloroethane	0.0005	None
1,2-Dichloropropane	0.0005	None
trans-1,3-dichloropropene	0.0005	None
Trichloroethene	0.0005	None
Dibromochloromethane	0.0005	None
1,1,2-Trichloroethane	0.0005	None
cis-1,3-Dichloropropene	0.0005	None
Bromoform	0.0005	None
Tetrachloroethene	0.0005	None
Dichlorodifluoromethane	0.0005	None
Trichlorofluoromethane	0.0005	None
cis-1,2-Dichloroethene	0.0005	None
trans-1,2-Dichloroethene	0.0005	None
Chlorobenzene	0.0005	None
1,2-Dichlorobenzene	0.0005	None
1,3-Dichlorobenzene	0.0005	None
1,4-Dichlorobenzene	0.0005	None
1,1,2-Trichlorotrifluoroethane	0.0005	None

SURROGATE	LIMITS	% RECOVERY
1-Chloro-2-fluorobenzene (Surr)	70-120%	97.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

Work Order: T1-07-311

TEST NAME: **Spike and Spike Duplicates**

SAMPLE ID: **Quality Control**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T107311-05A**
EXTRACTION DATE:
ANALYSIS DATE: **07/25/91**
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	ND<50.	500.	408.	387.	82.	77.	6.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	108.	98.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

Work Order: T1-07-311

TEST NAME: **Spike and Spike Duplicates**

SAMPLE ID: **Quality Control**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T107311-05B**
EXTRACTION DATE:
ANALYSIS DATE: **07/29/91**
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	ND<50.	500.	498.	486.	100.	97.	3.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	125.*	122.*

*Surrogate elevated due to hydrocarbon interference.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

Work Order: T1-07-311

TEST NAME: **Spike and Spike Duplicates**

SAMPLE ID: **Quality Control**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T107311-05C**
EXTRACTION DATE:
ANALYSIS DATE: **07/26/91**
ANALYSIS METHOD: **601**

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
Chlorobenzene	None	10.0	10.1	9.91	101.	99.	2.
1,1-Dichloroethene	None	10.0	11.4	10.8	114.	108.	5.
Trichloroethene	None	10.0	10.9	10.7	109.	107.	2.

SURROGATES	MS %Rec	MSD %Rec
Halocarbons	105.	101.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 08/12/91
Client Work ID: 81-434-01/1601 Webster Ala,CA

Work Order: T1-07-311

TEST CODE **601** TEST NAME **Halocarbons by 8010/601**

The method of analysis for volatile halocarbons is taken from EPA Methods 601 and 8010. Samples are examined using the purge and trap technique. Final detection is by gas chromatography using an electrolytic conductivity detector.

Dichloromethane is reported as not detected at an elevated limit of 0.0006 Milligrams per Liter. Sample results for anlaytes are confirmed by history of sample prior to the April 1991 sampling.

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.

T1-07-311

Page 1 of 1

WEISS ASSOCIATES
5500 Shellmound St., Emeryville, CA 94608
Phone 415-547-5420 FAX: 415-547-5043

Shell Service Station Address: 1601 Webster St. Alameda, Ca
Shell Contact: Kurt Miller
WIC #: 204-0072-0403
AFE #: 5661

Please send analytic results and a copy of the signed chain of custody form to:
Tom Fojut
Project ID: 81-434-01

CHAIN-OF-CUSTODY RECORD AND ANALYTIC INSTRUCTIONS

Lab Personnel: 1) Specify analytic method and detection limit in report.
2) Notify us if there are any anomalous peaks on GC or other scans.
3) ANY QUESTIONS/CLARIFICATIONS: CALL US.

Sampled by: Paul Cardoza Laboratory Name: IT

No. of Containers	Sample ID	Container Type[1]	Sample Date	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analyze for	Analytic Method	Turn[5]	COMMENTS
1 ABC	071-01	w/vc	7/18/91	40ml	N	Y	HCL	TPH-G/BETX	EPA 8015/8020	N	PLEASE FAX
DEF	↓							HVOC's	EPA 601		ANALYTICAL
2 ABC	071-02							TPH-G/BETX	EPA 8015/8020		RESULTS TO
DEF	↓							HVOC's	EPA 601		WA.
3 ABC	071-S1							TPH-G/BETX	EPA 8015/8020		
4 ABC	071-21	↓	↓	↓	↓	↓	↓	TPH-G/BETX	EPA 8015/8020	↓	

Look

1 Paul Cardoza 7/23/91 09:57
Released by (Signature), Date

1 Weiss Associates
Affiliation

2 [signature] 7/23/91 10:00
Received by (Signature), Date

2 Weiss Associates
Affiliation

3 [signature] 7/23/91 14:08
Released by (Signature), Date

3 Weiss Associates
Affiliation

4 [signature] 7/23/91 14:10
Shipping Carrier, Method, Date

4 IT CORP
Affiliation

5 [signature] 7/23/91 1645
Released by (Signature), Date

5 IT CORP
Affiliation

6 Joann DeHerrera 7/24/91 10:00 am
Received by Lab Personnel, Date

6 IT Corp
Affiliation, Telephone

x yes
Seal intact?

1 Sample Type Codes: W = Water, S = Soil, Describe Other; Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B - Clear/Brown Glass, Describe Other; Cap Codes: PT = Plastic, Teflon Lined 2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
5 Turnaround [N = Normal, W = 1 Week, R = 24 Hour, HOLD (write out)]
ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:
→ Samples stored 7/18/91 → 7/23/91 in locked, secure area.

F:\ALL\ADMIN\FORMS\COCSHELL.WP2

11-01-21

WEISS ASSOCIATES
5500 Shellmound St., Emeryville, CA 94608
Phone: 415-547-5420 FAX: 415-547-5043

Shell Service Station Address: 1601 Webster St. Alameda, Ca
Shell Contact: Kurt Miller
WIC #: 204-0072-0403
AFE #: 5661

Please send analytic results and a copy of the signed chain of custody form to:
Tom Fojut
Project ID: 81-434-01

CHAIN-OF-CUSTODY RECORD AND ANALYTIC INSTRUCTIONS

Lab Personnel: 1) Specify analytic method and detection limit in report.
2) Notify us if there are any anomalous peaks on GC or other scans.
3) ANY QUESTIONS/CLARIFICATIONS: CALL US.

Sampled by: Paul Cardoza
Laboratory Name: IT

No. of Containers	Sample ID	Container Type[1]	Sample Date	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analyze for	Analytic Method	Turn[5]	COMMENTS
01 ABC 3	071-01	W/VC	7/18/91	40ml	N	Y	HCL	TPH-G/BETX	EPA 8015/8020	N	PLEASE FAX
DEF								HVOC's	EPA 601		ANALYTICAL
02 ABC	071-02							TPH-G/BETX	EPA 8015/8020		RESULTS TO
DEF								HVOC's	EPA 601		WA.
03 ABC	071-31							TPH-G/BETX	EPA 8015/8020		
04 ABC	071-21							TPH-G/BETX	EPA 8015/8020		

1 Paul Cardoza 7/23/91 09:57
Released by (Signature), Date

1 Weiss Associates
Affiliation

2 [signature] 7/23/91 10:00
Received by (Signature), Date

2 Weiss Associates
Affiliation

3 [signature] 7/23/91 14:08
Released by (Signature), Date

3 Weiss Associates
Affiliation

4 [signature] 7/23/91 14:10
Shipping Carrier, Method, Date

4 IT CORP
Affiliation

5 [signature] 7/23/91 1645
Released by (Signature), Date

5 IT CORP
Affiliation

6 Joann DeHerrera 7/24/91 10:00 am
Received by Lab Personnel, Date

6 IT Corp
Affiliation, Telephone

x Yes
Seal intact?

1 Sample Type Codes: W = Water, S = Soil, Describe Other; Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B - Clear/Brown Glass, Describe Other;
Cap Codes: PT = Plastic, Teflon Lined 2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
5 Turnaround [N = Normal, W = 1 Week, R = 24 Hour, HOLD (write out)]
ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:
→ Samples stored 7/18/91 → 7/23/91 in locked, secure area.

F:\ALL\ADMIN\FORMS\COCSHELL.WP2