Reviewed 12/11/91 505

Weiss Associates
Environmental and Geologic Services
5500 Shellmound Street, Emeryville, CA 94608-2411 Fax: 510-547-5043 Phone: 510-547-5420

December 2, 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) fourth 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 fourth quarter 1991, and
- Proposed work for the first quarter 1992.

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

FOURTH QUARTER 1991 ACTIVITIES

During this quarter, WA:

- Collected ground water samples from the three site wells,

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

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

These activities are described below.

Ground Water Sampling

On October 17, 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 contained, benzene and 1,2-dichloroethane (1,2-DCA) above California Department of Health Services (DHS) maximum contaminant levels (MCLs) for drinking water. The samples from MW-2 also contained toluene above the DHS recommended action level (RAL).

Sampling Personnel: WA Environmental Technician Chris Christensen

Method of Purging Wells: Dedicated PVC bailers

Volume of Water Purged Prior to Sampling:

- Wells were purged of four well-casing volumes, about 14 to 29 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 October 18, 1991. Analytic results were reported on November 25, 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 October 17, 1991. Ground water elevations decreased by about 1.6 ft from the previous quarter.
- Ground water flows north-northeast. The flow direction has varied from north to northeast during the past year (Figure 3).

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

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 October 22, 25, 29 and 30, 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 MW-1 contained 0.0072 ppm cis-1,2-Dichloroethene (C-1,2-DCE). The DHS MCL for C-1,2-DCE is 0.006 ppm.

- Ground water samples from monitoring well MW-2 contained 0.18 ppm benzene and 0.0006 ppm 1,2-DCA. The DHS MCLs for benzene and 1,2-DCA are 0.001 ppm and 0.0005 ppm, respectively.

- No TPH-G or BETX have been detected in samples from wells MW-1 and S-1 for seven and nine consecutive quarters, respectively.

ANTICIPATED WORK FOR FIRST QUARTER 1992

During the first quarter 1992, 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 first quarter including water sampling results and analysis.

Please call if you have any questions.

Sincerely,
Weiss Associates

David Elias
Staff Geologist

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

DCE/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

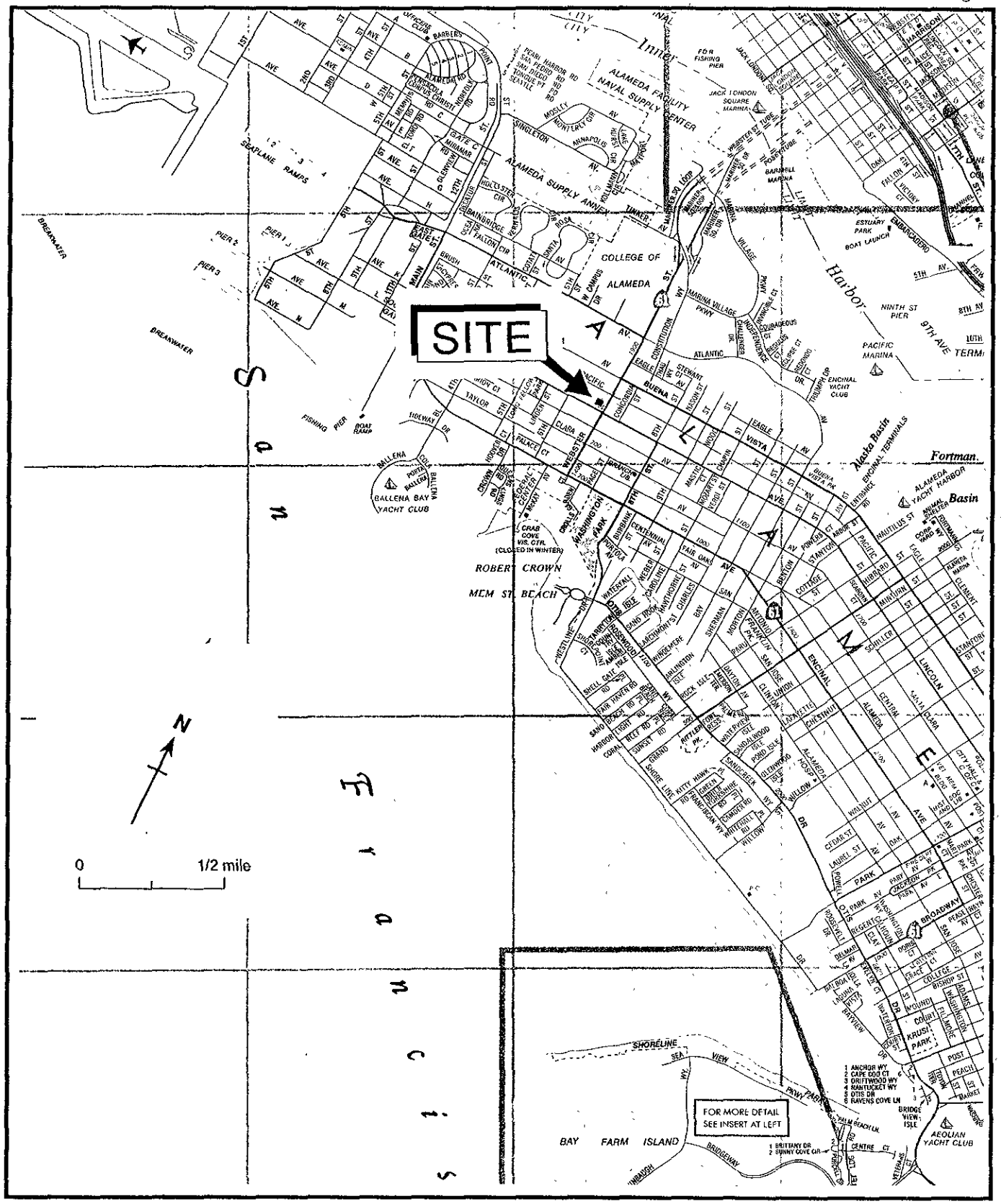

Figure 1. Site Location Map - Shell Service Station, WIC# 204-0072-0403, 1601 Webster Street, Alameda, CA

8/20/90

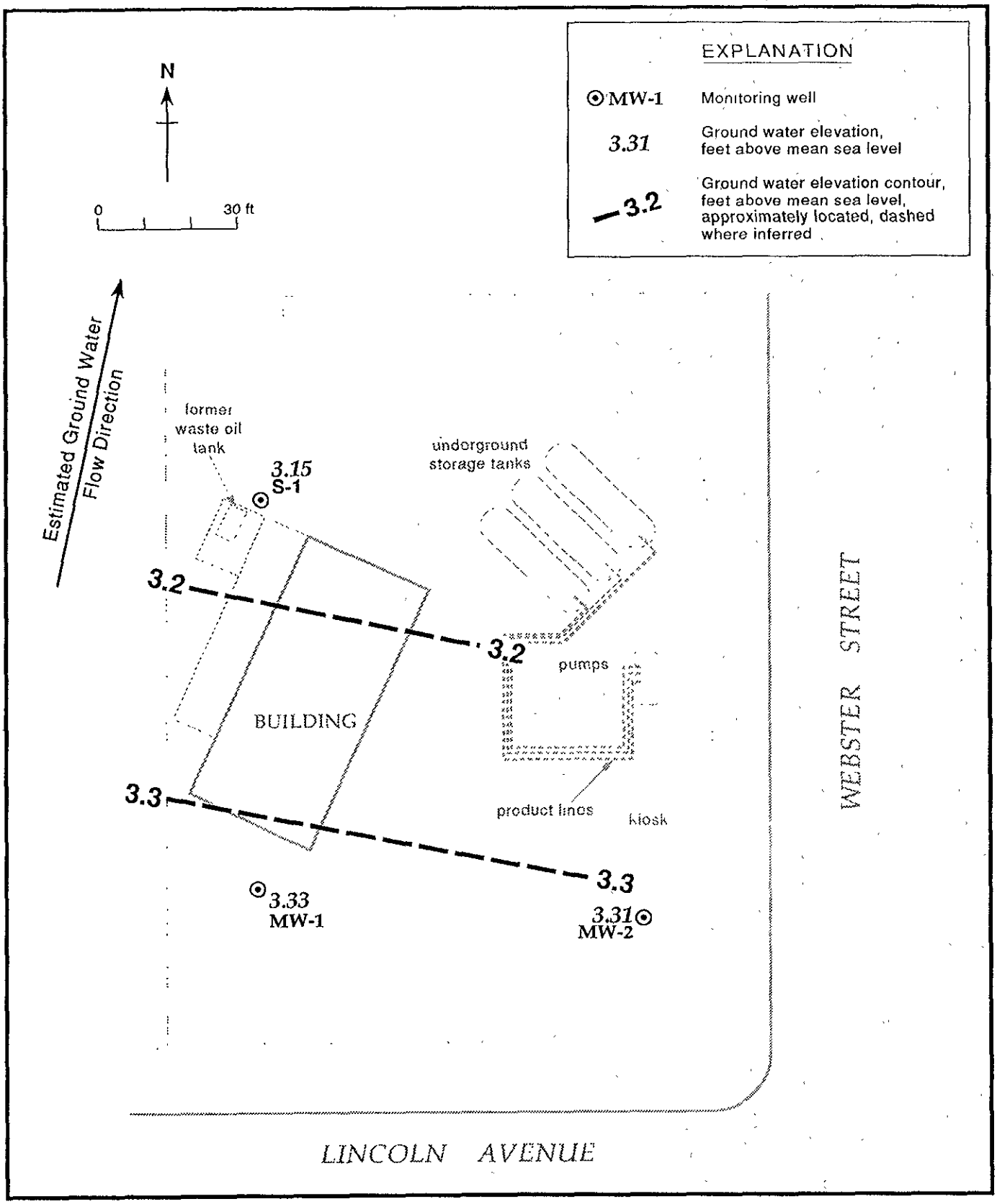

Figure 2. Monitoring Welll Locations and Ground Water Elevation Contours - October 17, 1991 - Shell Service Station WIC #204-0072-0403, 1601 Webster Street, Alameda, California

11/27/91

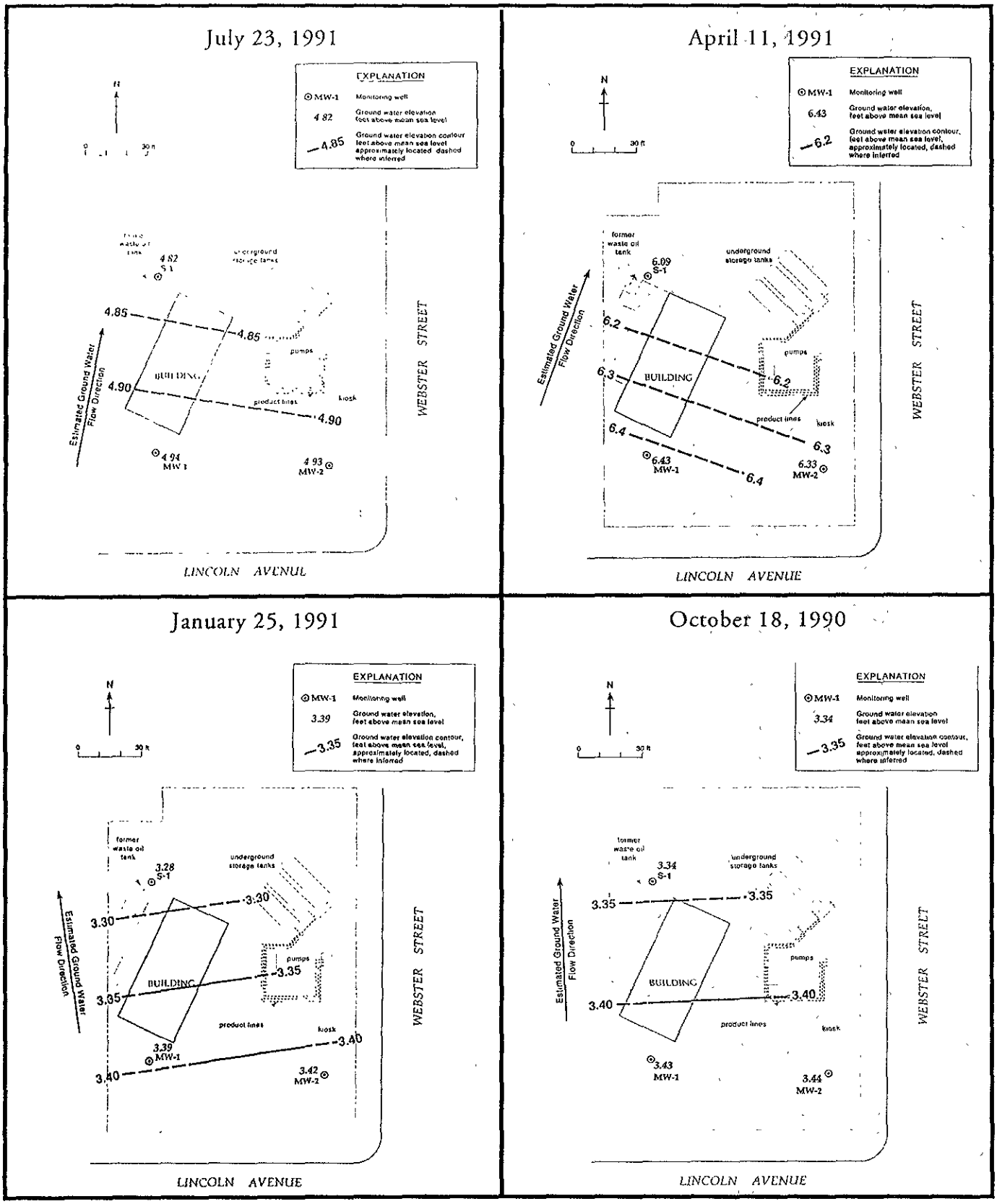

Figure 3. Previous Ground Water Elevation Contour Maps - Shell Service Station WIC #204-0072-0403, 1601 Webster Street, Alameda, California

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	Semi-Annually	No TPH-G or BETX detected for seven quarters, HVOCs concentration near or below DHS MCLs for seven quarters; cross-gradient well
MW-2	Quarterly	Quarterly	Variable hydrocarbon concentrations for six quarters; upgradient well
S-1	Quarterly	Semi-Annually	No hydrocarbons detected for nine 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
	10-17-91		10.47	3.33
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
	10-17-19		9.89	3.31
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
	10-17-91		10.62	3.15

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	---
	10-17-91	**10.47**	**<0.05**	---	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**0.0072**	**<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	---
	10-17-91	**9.89**	**2.1**	---	**0.18**	**0.15**	**0.26**	**0.52**	**<0.0005**	**0.0006**	---
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	---	---	---
	10-17-91	**10.62**	**<0.05**	---	**<0.0005**	**<0.0005**	**<0.0005**	**<0.005**	---	---	---
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	---	---	---
	10-17-91		**<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

-- Table 3 continues on next page --

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

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-dichloroethene 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 10.17.91 Time of Sampling 1115

Job Name ALAMEDA II Job Number 421-434-01 Initials SC

Sample Point Description M (M = Monitoring Well)

Location NEAR A.S./ WAREH

WELL DATA: Depth to Water 10.47 ft (static, pumping) Depth to Product — ft.

Product Thickness — Well Depth ___ ft (spec) Well Depth 21.93 ft(sounded) Well Diameter 4 in

Initial Height of Water in Casing 11.46 ft. = volume 7.48 gal.

4 Casing Volumes to be Evacuated. Total to be evacuated 29.9 gal.

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

Bailer# and type 4"x3' PVC Dedicated YES (Y/N)

Other —

Evacuation Time: Stop 1112

Start 1055

Total Evacation Time 17

Total Evacuated Prior to Sampling 30 gal.

Evacuation Rate 1.76 gal. per minute

Depth to Water during Evacuation — ft. — time

Depth to Water at Sampling 12.75 ft. 1116 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.)

N/A

SAMPLE: Color GREY/ BROWN Odor NONE

Description of matter in sample: SILT

Sampling Method: FROM SAMPLE PORT ON DED 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	MW1-01	V/C	40ml	N	Y	HCL	EPA 8015/8020	N	IT
↓	↓	↓	↓	↓	↓	↓	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 10.17.91 Time of Sampling 1035
Job Name ALAMEDA II Job Number 81-434-01 Initials CC
Sample Point Description M (M = Monitoring Well)
Location NW SE CORNER OF LOT NEAR CASHIER

WELL DATA: Depth to Water 9.89 ft (static, pumping) Depth to Product — ft.
Product Thickness — Well Depth — ft (spec) Well Depth 19.98 ft(sounded) Well Diameter 4 in
Initial Height of Water in Casing 10.09 ft. = volume 6.59 gal.
4 Casing Volumes to be Evacuated. Total to be evacuated 26.36 gal.

EVACUATION METHOD: Pump # and type — Hose # and type —
Bailer# and type 4"x3' PVC Dedicated YES (Y/N)
Other —

Evacuation Time: Stop 1029
Start 1010
Total Evacation Time 19
Total Evacuated Prior to Sampling 27 gal.
Evacuation Rate 1.42 gal. per minute
Depth to Water during Evacuation — ft. — time
Depth to Water at Sampling 12.00 ft. 1036 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.)
			NA		

SAMPLE: Color GREY BROWN Odor MODERATE
Description of matter in sample: —
Sampling Method: FROM SAMPLE PORT ON DED 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	MW-02	V/cV	40ml	N	Y	HCl	EPA 8015/8020	N	"
3	MW-02	V/cV	40ml	N	Y	HCl	EPA 601	N	"

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 10.17.91 Time of Sampling 1139
Job Name ALAMEDA II Job Number 31-431-01 Initials CC
Sample Point Description M (M = Monitoring Well)
Location NORTH CORNER OF LOT NEXT TO STATION

WELL DATA: Depth to Water 10.62 ft (static, pumping) Depth to Product — ft.
Product Thickness — Well Depth — ft (spec) Well Depth 19.91 ft(sounded) Well Diameter 3 in
Initial Height of Water in Casing 9.29 ft. = volume 3.41 gal.
4 Casing Volumes to be Evacuated. Total to be evacuated 13.6 gal.

EVACUATION METHOD: Pump # and type — Hose # and type —
Bailer# and type 2"x 4' PVC Dedicated YES (Y/N)
Other

Evacuation Time: Stop 1002
Start 953
Total Evacation Time 5
Total Evacuated Prior to Sampling 6 gal.
Evacuation Rate 1.20 gal. per minute
Depth to Water during Evacuation — ft. — time
Depth to Water at Sampling 11.13 ft. 1141 time
Evacuated Dry? YES After 6 gal. Time 1002
80% Recovery = YES
% Recovery at Sample Time 0.99 Time 1134
(10.65' at 1134)

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 GREY CC. CLEAR Odor NONE
Description of matter in sample: SILT
Sampling Method: OED 2"x 4' PVC 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	WMX-S1	V/CV	40ml	N	Y	HCL	EPA 8015/8020	N	CT

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:

TRAVEL BLANK

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name — Date 10.17.91 Time of Sampling 800

Job Name ALAMEDA II Job Number 81-454-01 Initials CR

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 _____

NA

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 —

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	WWX-21	G/C\	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:

Job Name: SHELL ALAMEDA II
WA Job #: 81-434-01

W.L. #3
METER

Date Measured: 10-17-91
Initials: CO

Well ID	Measurement Point	T.O.C. Elev.	Historical D.T.W. 2nd Most Recent Date: 4-11-91	Historical D.T.W. Most Recent Date: 7-18-91	Field D.T.W.	Clock Time (Military)	Comments (well condition special access, etc.)
MW-1	TOC	13.80	7.37	8.86	10.47	857	21.43
MW-2	TOC	13.20	6.87	8.27	9.89	844	19.48
~~MW-3~~ S-1	TOC	13.77	7.68	8.95	10.62	902	19.91

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: 11/25/91

Work Order: T1-10-234

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 St.Ala, CORRECTED REPORT
Date Received: 10/18/91
Number of Samples: 6
Sample Type: aqueous

TABLE OF CONTENTS FOR ANALYTICAL RESULTS

Reviewed and Approved:

For HOWK

Richard Jacobs
Project Manager

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company, CORRECTED REPORT
Date: 11/25/91
Client Work ID: 81-434-01/1601 Webster St.Ala

Work Order: T1-10-234

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **WWX-01**
SAMPLE DATE: **10/17/91**
LAB SAMPLE ID: **T110234-01**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Micrograms per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/22/91
Low Boiling Hydrocarbons	Mod.8015		10/22/91

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)	**104.**
1,3-Dichlorobenzene (BTEX)	**95.**

Company: Shell Oil Company, CORRECTED REPORT
Date: 11/25/91
Client Work ID: 81-434-01/1601 Webster St.Ala

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-10-234

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **WWX-02**
SAMPLE DATE: **10/17/91**
LAB SAMPLE ID: **T110234-02**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/25/91
Low Boiling Hydrocarbons	Mod.8015		10/25/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.25	**2.1**
BTEX		
Benzene	0.0025	**0.18**
Toluene	0.0025	**0.26**
Ethylbenzene	0.0025	**0.15**
Xylenes (total)	0.0025	**0.52**

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	**109.**
1,3-Dichlorobenzene (BTEX)	**101.**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company, CORRECTED REPORT
Date: 11/25/91
Client Work ID: 81-434-01/1601 Webster St.Ala

Work Order: T1-10-234

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **WWX-S1**
SAMPLE DATE: **10/17/91**
LAB SAMPLE ID: **T110234-03**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/22/91
Low Boiling Hydrocarbons	Mod.8015		10/22/91

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)	**112.**
1,3-Dichlorobenzene (BTEX)	**100.**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company, CORRECTED REPORT
Date: 11/25/91
Client Work ID: 81-434-01/1601 Webster St.Ala

Work Order: T1-10-234

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

SAMPLE ID: **WWX-01**
SAMPLE DATE: **10/17/91**
LAB SAMPLE ID: **T110234-04**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool**
EXTRACTION DATE: **N/A**
ANALYSIS DATE: **10/30/91**

RESULTS in Micrograms per Liter

PARAMETER	DETECTION LIMIT	DETECTED
Chloromethane	0.5	None
Bromomethane	0.5	None
Vinyl chloride	0.5	None
Chloroethane	0.5	None
Methylene Chloride	0.5	None
1,1-Dichloroethene	0.5	None
1,1-Dichloroethane	0.5	None
Chloroform	0.7	None
1,2-Dichloroethane	0.5	None
1,1,1-Trichloroethane	0.5	None
Carbon tetrachloride	0.5	None
Bromodichloromethane	0.5	None
1,1,2,2-Tetrachloroethane	0.5	None
1,2-Dichloropropane	0.5	None
cis-1,3-dichloropropene	0.5	None
Trichloroethene	0.5	None
Dibromochloromethane	0.5	None
1,1,2-Trichloroethane	0.5	None
trans-1,3-Dichloropropene	0.5	None
Bromoform	0.5	None
Tetrachloroethene	0.5	None
Dichlorodifluoromethane	0.5	None
Trichlorofluoromethane	0.5	None
cis-1,2-Dichloroethene	0.5	7.2
trans-1,2-Dichloroethene	0.5	None
Chlorobenzene	0.5	None
1,2-Dichlorobenzene	0.5	None
1,3-Dichlorobenzene	0.5	None
1,4-Dichlorobenzene	0.5	None
1,1,2-Trichlorotrifluoroethane	0.5	None
1-Chloro-2-fluorobenzene (Surr)	70-120%	103%

Company: Shell Oil Company, CORRECTED REPORT
Date: 11/25/91
Client Work ID: 81-434-01/1601 Webster St.Ala

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-10-234

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

SAMPLE ID: **WWX-02**
SAMPLE DATE: **10/17/91**
LAB SAMPLE ID: **T110234-05**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool**
EXTRACTION DATE: **N/A**
ANALYSIS DATE: **10/30/91**

RESULTS in Micrograms per Liter

PARAMETER	DETECTION LIMIT	DETECTED
Chloromethane	0.5	None
Bromomethane	0.5	None
Vinyl chloride	0.5	None
Chloroethane	0.5	None
Methylene Chloride	0.5	None
1,1-Dichloroethene	0.5	None
1,1-Dichloroethane	0.5	None
Chloroform	0.5	None
1,2-Dichloroethane	0.5	0.6
1,1,1-Trichloroethane	0.5	None
Carbon tetrachloride	0.5	None
Bromodichloromethane	0.5	None
1,1,2,2-Tetrachloroethane	0.5	None
1,2-Dichloropropane	0.5	None
cis-1,3-dichloropropene	0.5	None
Trichloroethene	0.5	None
Dibromochloromethane	0.5	None
1,1,2-Trichloroethane	0.5	None
trans-1,3-Dichloropropene	0.5	None
Bromoform	0.5	None
Tetrachloroethene	0.5	None
Dichlorodifluoromethane	0.5	None
Trichlorofluoromethane	0.5	None
cis-1,2-Dichloroethene	0.5	None
trans-1,2-Dichloroethene	0.5	None
Chlorobenzene	0.5	None
1,2-Dichlorobenzene	0.5	None
1,3-Dichlorobenzene	0.5	None
1,4-Dichlorobenzene	0.5	None
1,1,2-Trichlorotrifluoroethane	0.5	None
1-Chloro-2-fluorobenzene (Surr)	70-120%	107%

Company: Shell Oil Company, CORRECTED REPORT
Date: 11/25/91
Client Work ID: 81-434-01/1601 Webster St.Ala

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-10-234

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **WWX-21**
SAMPLE DATE: **10/17/91**
LAB SAMPLE ID: **T110234-06**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/22/91
Low Boiling Hydrocarbons	Mod.8015		10/22/91

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)	**115.**
1,3-Dichlorobenzene (BTEX)	**104.**

Company: Shell Oil Company, CORRECTED REPORT
Date: 11/25/91
Client Work ID: 81-434-01/1601 Webster St.Ala

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-10-234

TEST NAME: **Spike and Spike Duplicates**

SAMPLE ID: **Quality Control**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T110234-07A**
EXTRACTION DATE:
ANALYSIS DATE: **10/29/91**
ANALYSIS METHOD: **601/8010**

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
Chlorobenzene	None	10.0	9.97	10.4	100.	104.	4.
1,1-Dichloroethene	None	10.0	11.0	11.1	110.	111.	1.
Trichloroethene	None	10.0	10.4	10.5	104.	105.	1.

SURROGATES	LS %Rec	LSD %Rec
1-Chloro-2-fluoro-benzene (601)	114.	115.

Company: Shell Oil Company, CORRECTED REPORT
Date: 11/25/91
Client Work ID: 81-434-01/1601 Webster St.Ala

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-10-234

TEST NAME: **Spike and Spike Duplicates**

SAMPLE ID: **Quality Control**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T110234-07A**
EXTRACTION DATE:
ANALYSIS DATE: **10/22/91**
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	N/A	50.0	55.7	53.1	111.	106.	5.
Toluene	N/A	50.0	55.1	55.0	110.	110.	0.
Ethyl benzene	N/A	50.0	54.7	55.0	109.	110.	1.
Xylenes	N/A	150.	163.	163.	109.	109.	0.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	105.	101.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company, CORRECTED REPORT
Date: 11/25/91
Client Work ID: 81-434-01/1601 Webster St.Ala

Work Order: T1-10-234

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.

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 **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.

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 #:~~ 5461

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: CHRIS CHRISTENSEN

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
3	WWX-01	W/cl	10-17-91	40ml	N	Y	HCl	EPA 8015/8020	TPH-G/BETX	N	(HOLD SAMPLE 101-21
	WWX-02							↓	↓		~~UNLESS~~ ONLY IF NO
	WWX-S1							EPA 601	HVOC's		TPH-G OR BTEX ARE
	WWX-01							↓	↓		DETECTED IN SAMPLES
	WWX-02							EPA 8015/8020	TPH-G/BETX		101-01 AND 101-~~02~~ S1)
3	WWX-21										

1 Chris Christensen 10-17-91 1500
Released by (Signature), Date

1 Weiss Associates
Affiliation

2 Joyce Fenstad 10-18-91 15:00
Received by (Signature), Date

2 Weiss Associates
Affiliation

3 Joyce Fenstad 10-18-91 15:00
Released by (Signature), Date

3 Weiss Associates
Affiliation

4 James Montag 10-18-91
Shipping Carrier, Method, Date

4 I.T.S.J.
Affiliation

5 _____
Released by (Signature), Date

5 _____
Affiliation

6 _____
Received by Lab Personnel, Date

6 _____
Affiliation, Telephone

x _____
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:

Weiss Associates Environmental and Geologic Services

5500 Shellmound Street, Emeryville, CA 94608-2411 Fax: 510-547-5043 Phone: 510-547-5420

91 DEC -4 PM 4:05

TRANSMITTAL LETTER

FROM: Dave Elias

DATE:

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

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

SUBJECT:

JOB: 81-434-01

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 _____

FOR:
- ___ Your information
- X Your use
- ___ Your review & comments
- ___ Return to you

PLEASE:
- X Keep this material
- ___ Return within 2 weeks
- ___ Acknowledge receipt

MESSAGE: Kurt Miller, Shell Oil Company, P.O. Box 5278, Concord, California 94520-9998
Lester Feldman, Regional Water Quality Control Board - S.F. Bay, 2101 Webster Street, Suite 500, Oakland, California 94612

D:\ALL\TRANS\FE1.WP