8-27-90

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

90 AUG 28 AM 11:04

August 27, 1990

Mr. Ariu Levi
Alameda County Health Department
Hazardous Materials Department
80 Swan Way, Room 200
Oakland, CA 94621

Re: Shell Service Station
WIC# 204-0072-0502
2160 Otis Drive
Alameda, California
WA Job #81-429-01

Dear Mr. Levi:

This letter describes Weiss Associates' (WA) third quarter 1990 ground water monitoring activities at the subject Shell service station. This status report satisfies the quarterly reporting requirements outlined in our workplan dated March 19, 1990, and prescribed by California Administrative Code Title 23 Waters, Chapter 3, Subchapter 16, Article 5, Section 265.d. A description of WA's proposed activities for the fourth quarter 1990 is also included below.

GROUND WATER SAMPLING

WA collected ground water samples from three monitoring wells on July 10, 1990, as part of the quarterly ground water monitoring program at Shell Service Station WIC #204-0072-0502 in Alameda, California (Figure 1). Ground water samples from monitoring well MW-2 (Figure 2) contained benzene above the California Department of Health Services (DHS) maximum contaminant level (MCL) for drinking water.

Personnel: Darren Green
WA Position: Environmental Technician
Date of sampling: July 10, 1990

Monitoring wells sampled: MW-1, MW-2 and S-1

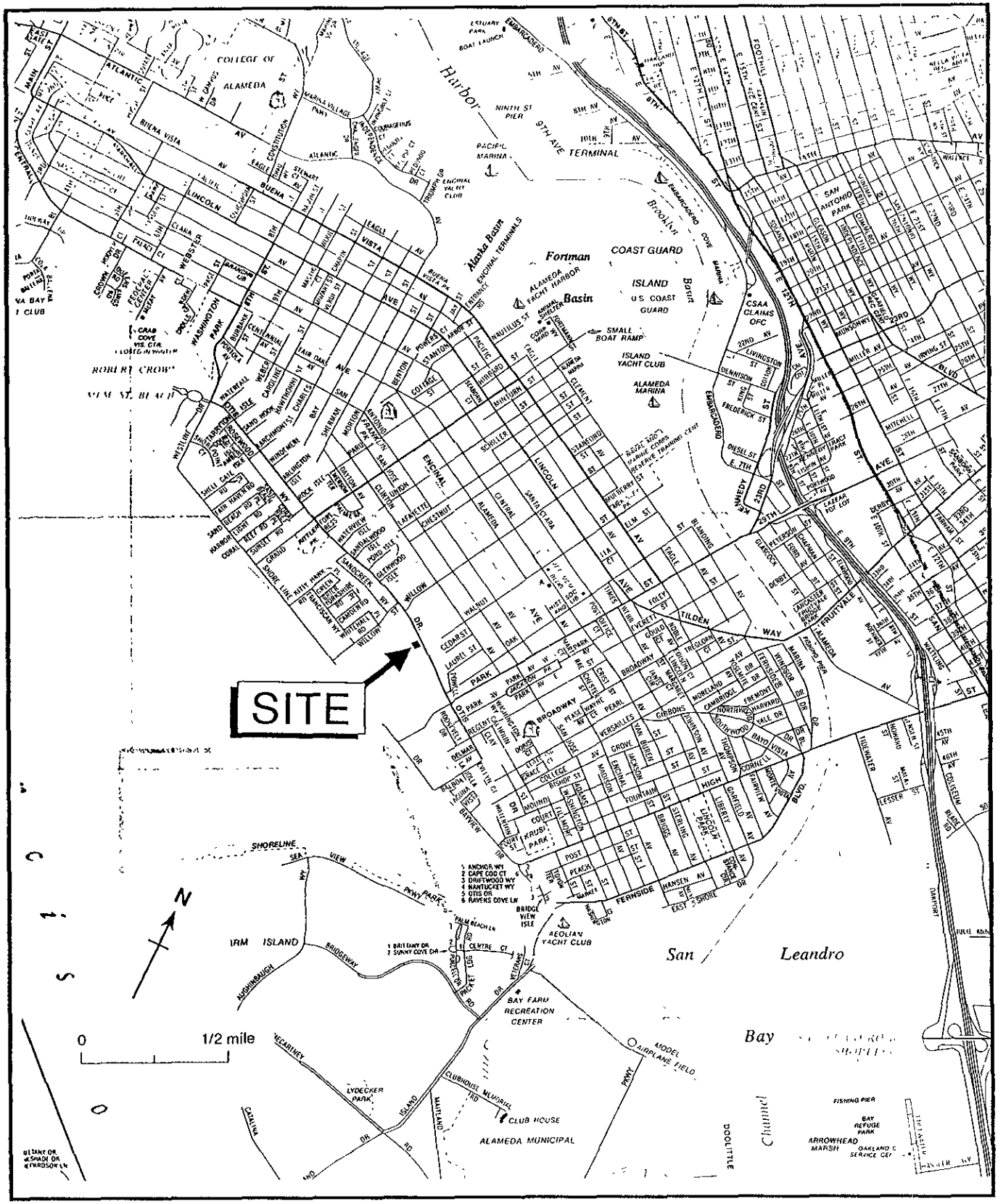

Figure 1. Site Location Map - Shell Service Station, WIC# 204-0072-0502, 2160 Otis Drive, Alameda, CA

8/21/90

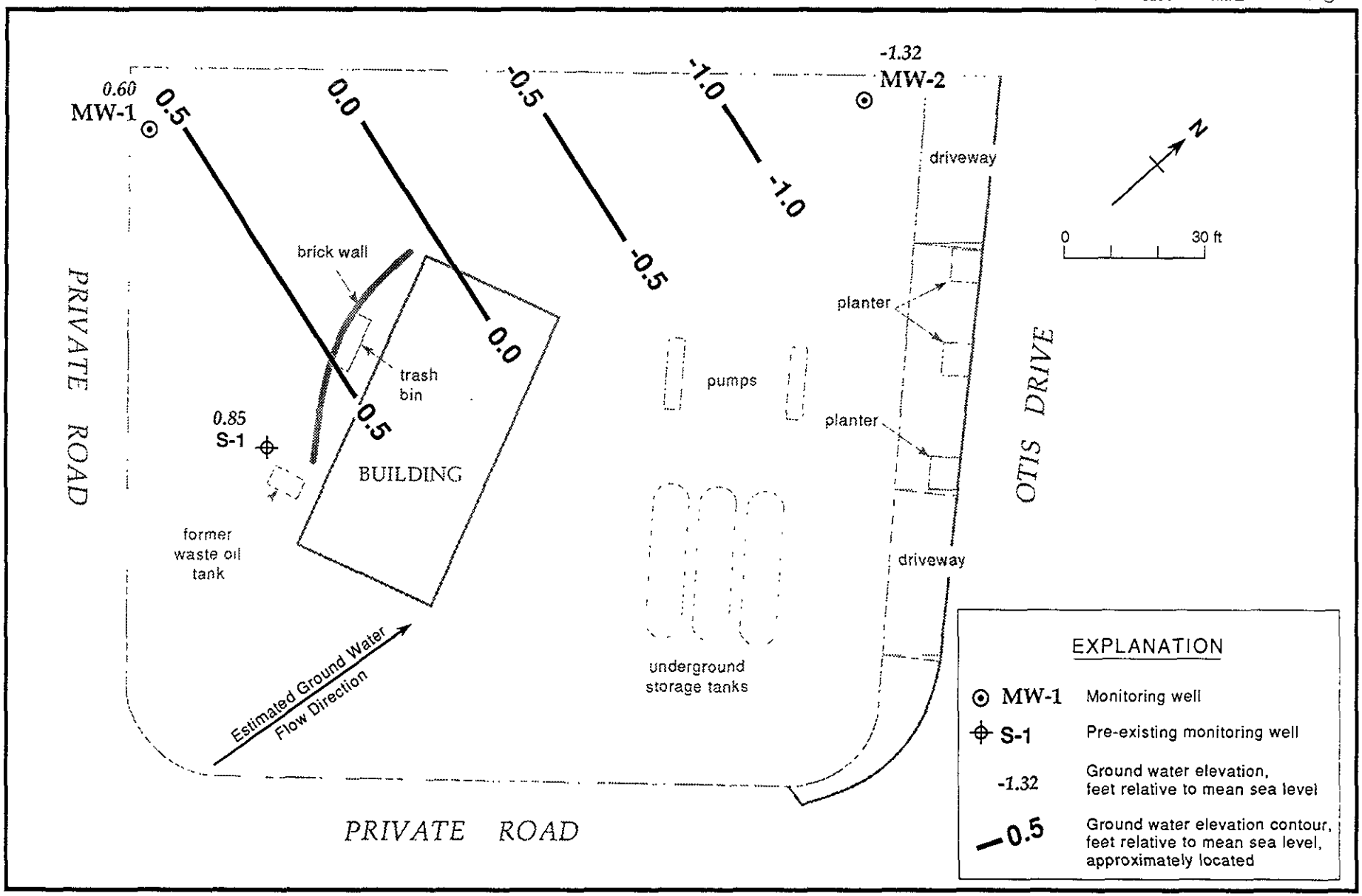

Figure 2. Monitoring Well Locations and Ground Water Elevation Contours - July 10, 1990 - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

8/21/90

Method of purging wells:

- Steam-cleaned PVC bailer: S-1
- Dedicated PVC bailer: MW-1 and MW-2

Volume of water purged prior to sampling:

- Wells were purged of about four well-casing volumes, approximately 21 to 32 gallons each.

Method of ground water sample collection:

- Decanted from steam-cleaned Teflon bailer: S-1
- Drawn through sampling port on side of dedicated PVC bailer: MW-1 and MW-2.

Method of containing ground water samples:

	Wells
• 40 ml glass, volatile organic analysis (VOA) vials.	all wells
• 1000 ml amber glass bottle preserved with hydrochloric acid for diesel analysis:	MW-2
• 1000 ml amber glass bottle preserved with sulfuric acid for total hydrocarbon (non-polar) oil and grease for analysis:	all wells

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

Water samples transported to:

- NET Pacific, Inc., Santa Clara, California

Samples were received by the laboratory on July 12, 1990.

Quality assurance/quality control:

- A travel blank was submitted for analysis.

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

GROUND WATER ELEVATIONS

Water levels were measured in: all wells on July 10, 1990.

Direction of ground water flow: Northward

Water levels and ground water elevations are presented in Table 1. Ground water elevation contours are plotted on Figure 2. The ground water flow direction this quarter is consistent with the previous quarter.

CHEMICAL ANALYSES

All 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 602:	all wells
• Total hydrocarbon (non-polar) oil and grease (TOG) by American Public Health Association Standard Method 503E:	all wells
• Halogenated volatile organic compounds (HVOC's) by modified EPA Method 8015:	all wells
• Total petroleum hydrocarbons as diesel (TPH-D) by Modified EPA Method 8015:	MW-2

Samples were analyzed by the laboratory on July 17 and 26, 1990. The results of the water analyses are presented in Table 2 and the analytic reports are included as Attachment C.

Table 1. Water Level Data - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-1	4-11-90	6.00	5.23	0.77
	7-10-90		5.40	0.60
MW-2	4-11-90	3.29	4.51	-1.22
	7-10-90		4.61	-1.32
S-1	9-11-90	5.10	4.29	0.81
	4-11-90		4.00	1.10
	7-10-90		4.25	0.85

Discussion of analytic results of ground water for this quarter:

- TPH-G was detected at low concentrations in monitoring wells MW-1 and S-1 for the first time. BETX, HVOCs and TOG compounds were not detected.

- The benzene concentration in monitoring well MW-2 increased from the previous quarter while TPH-G, TPH-D, ethylbenzene, toluene, xylenes, chloroform and trichloroethene concentrations are consistent with previous results. 1,2-dichloroethane and trans-1,2-dichloroethene were detected for the first time.

Table 2. Analytic Results for Ground Water - Shell Service Station WIC# 204-0072-0502, 2160 Otis Drive, Alameda, California

Sample ID	Date Sampled	Sampled By	Analytic Method	Lab	TPH-G	TPH-D[a]	B	E	T	X	TOG[b]	VOCs	Metals/Others
				<--					parts per billion (µg/L)				-->
S-1	9/4/87	PEG	624	IT	---	---	<5	<5	<5	<5	---	*[c]	---
	9/11/89	WA	8015/624/503 625/6010	IT	<50	<100	<0.5	<1	<1	<3	<1000	<5-50	*[d]
	4/11/90	WA	8015/8020/503 /601	NET	<50	<50	<0.5	<0.5	<0.5	<0.5	<10,000	1.7[e]	---
MW-1	4/11/90	WA	8015/8020/503 /601	NET	<50	<50	<0.5	<0.5	<0.5	<0.5	<10,000	<0.4-10	---
MW-2	4/11/90	WA	8015/8020/503 /601	NET	200	220	2.7	<0.5	0.5	2.4	<10,000	*[f]	---
DHS MCLs	-	-	-	-	NE	NE	1	620	100[g]	1,750	NE	*[h]	*[i]

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline
TPH-D = Total petroleum hydrocarbons as diesel
B = Benzene
E = Ethylbenzene
T = Toluene
X = Xylenes
TOG = Total hydrocarbon oil and grease (non-polar)
VOCs = Volatile organic compounds including halogenated VOCs
SVOCs = Semi-volatile organic compounds
--- = Not Analyzed
ND = Not Detected
NE = Action levels not established
<n = Not detected at detection limit of n ppb
WA = Weiss Associates
PEG = Pacific Environmental Group

Analytic Methods:

503 = American Public Health Association Standard Method 503A&E for TOG
601 = EPA Method 601 for HVOCs
624 = EPA Method 624 for VOCs
625 = EPA Method 625 for SVOCs
6010 = EPA Method 6010 for metals
8015 = Modified EPA Method 8015 for TPH-G & D
8020 = EPA Method 8020 for BETX

Analytical Laboratories:

IT = International Technology Corp., San Jose, California
NET = National Environmental Testing Pacific Inc., Santa Rosa, California

Notes:

[a] = Analytic results for total petroleum hydrocarbons as motor oil (TPH-MO) are reported with TPH-D results by the laboratory. TPH-MO results are specified in the analytic reports in Appendix C.
[b] = Analytic results for total oil and grease (polar and non-polar) and TOG (non-polar) are included in the analytic reports in Appendix C.
[c] = Unknown alcohol detected at 7 ppb, and acetone detected at 270 ppb
[d] = Metals detected include : chromium at 90 ppb; lead at 90 ppb; zinc at 100 ppb; also analyzed for cadimium (<10 ppb), PCBs (<0.05 ppb) and SVOCs (<5-10 ppb)
[e] = Chloroform detected at 1.7 ppb
[f] = Chloroform detected at 4.5 ppb; trans 1,2-Dichloroethylene at 16 ppb; Trichloroethylene at 1.2 ppb
[g] = DHS recommended action level for drinking water
[h] = DHS MCL for chloroform = 100 ppb; TCE = 5 ppb; Action level for trans 1,2-DCE = 16 ppb
[i] = DHS MCL for chromium = 50 ppb; lead = 50 ppb; zinc = 5,000 ppb

ANTICIPATED WORK FOR FOURTH QUARTER 1990

During the fourth quarter 1990, 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 previous quarter inlcuding the reuslts of water sampling and analysis.

We trust that this submittal satisfied your requirements. If you have any questions, please call Eric Anderson or Karen Sixt.

Sincerely,
Weiss Associates

Eric W. Anderson
Staff Geologist

Eric M. Nichols
Senior Water Resources Engineer

EWA/EMN:jg

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Attachments:
A - Water Sample Collection Records
B - Chain-of-Custody
C - Analytic Reports

ATTACHMENT A

WATER SAMPLE COLLECTION RECORDS

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name MW-1 Date 7.10.90 Time of Sampling 9:50
Job Name Shell Alameda I Job Number 81-429-01 Initials DTG
Sample Point Description M (M = Monitoring Well)
Location LOT

WELL DATA: Depth to Water 5.40 ft (static, pumping) Depth to Product NA ft.
Product Thickness NA Well Depth 16. ft (spec) Well Depth 14.00 ft(sounded) Well Diameter 4 in
Initial Height of Water in Casing 8.6 ft. = volume 5.6 gal.
4 Casing Volumes to be Evacuated. Total to be evacuated 22. gal.

EVACUATION METHOD: Pump # and type NA Hose # and type NA
Bailer# and type 3X3 pvc. Dedicated YES (Y/N)
Other NA

Evacuation Time: Stop 932
Start 915
Total Evacation Time 17.
Total Evacuated Prior to Sampling 22. gal.
Evacuation Rate 1.294 gal. per minute

80 mils of silt, grey black color in each bucket

Depth to Water during Evacuation NA ft. NA time
Depth to Water at Sampling 6.33 ft. 9:51 time
Evacuated Dry? NO After NA gal. Time NA
80% Recovery = NA
% Recovery at Sample Time NA 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 NA
Calibration: NA 4.0 NA 7.0 NA 10.0

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

SAMPLE: Color Light Grey Odor None
Description of matter in sample: Some white showings Maybe from casing Grey silt
Sampling Method: dedicated from side port of 3X3 PVC BAILER
Sample Port: Rate NA gpm Totalizer NA gal.
Time

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
3	060-1	V/V	40ml	N	Y	HCl	EPA 8015/8020 custom 601 Halogenated VOCs	N	NET
3	"	"	"	"	"	"	"	"	"
2	"	B/G	1 LTR	"	"	H2SO4	T.O.G. 503A/E	"	"

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 7-10-90 Time of Sampling 1249

Job Name Shell Alameda I Job Number 81-929-01 Initials DJS

Sample Point Description M (M = Monitoring Well)

Location E/T

WELL DATA: Depth to Water 4.61 ft (static, pumping) Depth to Product NA ft.

Product Thickness NA Well Depth 17. ft (spec) Well Depth 17.21 ft(sounded) Well Diameter 4 in

Initial Height of Water in Casing 12.39 ft. = volume 8.0 gal.

4 Casing Volumes to be Evacuated. Total to be evacuated 32. gal.

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

Bailer# and type 3X3 pvc Dedicated YES (Y/N)

Other NA

Evacuation Time: Stop 1211 1235

Approx 40 or 60 mil. of silt in each bucket, After Settleing. Start 1202 1228

Total Evacation Time 16

Total Evacuated Prior to Sampling 32. gal.

Evacuation Rate 2. gal. per minute

Depth to Water during Evacuation NA ft. NA time

Depth to Water at Sampling 10.67 ft. 1241 time

Evacuated Dry? No After NA gal. Time NA

80% Recovery = NA

% Recovery at Sample Time NA 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

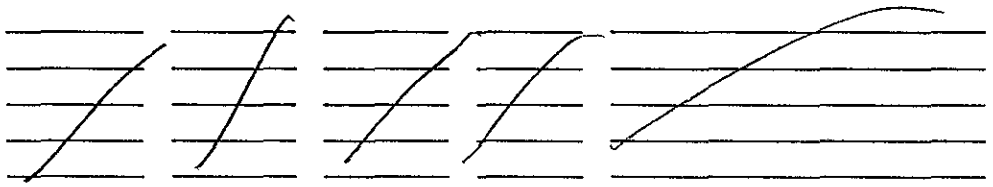
V_6" casing = 1.47 gal/ft

V8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number NA

Calibration: NA 4.0 NA 7.0 NA 10.0

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



SAMPLE: Color Light Grey Odor none detected

Description of matter in sample: Silt Sand

Sampling Method: decanted from the side of 3X3 pvc bailer

Sample Port: Rate NA spm Totalizer NA gal.

Time

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
3	060-Z	W/V	40 mil	N	Y	HCl	8015 8020 Gas Benz	N	NET
3		↓	↓	↓	↓	↓	Halogenated Vols 601	↓	↓
2		BG	1 LTR			H2SO4	TOG 503 A/E		
2		↓	↓			HCl	mod 8015 Diesel		

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 7.10.90 Time of Sampling 1125
Job Name Shell Alameda I Job Number 81-429-01 Initials DTE
Sample Point Description M (M = Monitoring Well)
Location LOT

WELL DATA: Depth to Water 4.25 ft (static, pumping) Depth to Product NA ft.
Product Thickness NA Well Depth 19. ft (spec) Well Depth 18.61 ft(sounded) Well Diameter 3 in
Initial Height of Water in Casing 14.36 ft. = volume 5.2 gal.
4 Casing Volumes to be Evacuated. Total to be evacuated 21 gal.

EVACUATION METHOD: Pump # and type NA Hose # and type NA
Bailer# and type ~~SS~~ MM Dedicated ~~YES~~ no (Y/N)
Other NA

Evacuation Time: Stop 911 1090 1117
Start 901 1030 1102
Total Evacation Time 35.
Total Evacuated Prior to Sampling 21 gal.
Evacuation Rate .6 gal. per minute
Depth to Water during Evacuation NA ft. NA time
Depth to Water at Sampling 13.24 ft. 11:21 time
Evacuated Dry? no After NA gal. Time NA
80% Recovery = NA
% Recovery at Sample Time NA Time NA

1/2 pint of Grey silt at bottom of each bucket.

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 NA
Calibration: NA 4.0 NA 7.0 NA 10.0

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

SAMPLE: Color Light Grey Black grains Odor None detected
Description of matter in sample: Grey Black SILT Sand and or Clay.
Sampling Method: decanted from top of Teflon bailee
Sample Port: Rate NA gpm Totalizer M gal.
Time NA

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
3	OLO-S1	W/V	40ml	N	Y	HCl	GasBetxepa8015/8020	N	NET
3	↓	↓	↓	↓	↓	↓	Halogenated Voc epa 601	↓	↓
2	↓	B/G	1 LTR.	↓	↓	H2SO4	TOC 503A/E	↓	↓

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 060-21 Date 7-10-90 Time of Sampling 12:25

Job Name Shell Alameda T Job Number 81-429-01 Initials DTC

Sample Point Description MW (M = Monitoring Well)

Location 60

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	060-21	W/V	40ml	W	Y	HCl	GAS BETX 8015 8020	N	NET

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

CHAIN-OF-CUSTODY

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

Shell Service Station Address:
2160 Otis Drive
Alameda, CA
Shell Contact: E. Paul Hayes
WIC #: 204007205 02
AFE #: 086685

Please send analytic results and a copy of the signed chain of custody form to:
Eric Anderson
2047
Project ID: 81-429-01

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: D. GREEN
Laboratory Name: NET

No. of Containers	Sample ID	Container Type	Sample Date	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analyze for	Analytic Method	Turn[5]	COMMENTS
3	060-S1	W/V	7-10-90	40 ml	N	Y	HCl	GAS/BETX 8015 8020	EPA 8015/8020	N	
3							HCl	Halogenated VOC's	EPA 601		
2		B/G		1 LTR.			H2SO4	T.O.G.	503 A/E		
3	060-1	W/V		40 ml			HCl	GAS/BETX	EPA 8015/8020		
3							HCl	Halogenated VOC's	EPA 601		
2		B/G		1 LTR			H2SO4	T.O.G.	503 A/E		
3	060-2	W/V		40 ml			HCl	GAS/BETX	EPA 8015/8020		
3							HCl	Halogenated VOCs	EPA 601		
2		B/G		1 LTR			H2SO4	T.O.G.	EPA 503 A/E		
2							HCl	Diesel	Mod. EPA 8015		
3	060-21	W/V		40 ml			HCl	GAS BETX	EPA 8015/8020		

1 Darren + Green 7-10-90
Released by (Signature), Date
1 Weiss Associates
Affiliation

2 A J Pinkard 7-11-90
Received by (Signature), Date
2 Weiss Assoc
Affiliation

3 A J Pinkard 7-11-90
Released by (Signature), Date
3 Weiss Assoc.
Affiliation

4 Jamie Green
Shipping Carrier, Method, Date
4 N.E.T.
Affiliation

5 Jamie Green 7/11/90
Released by (Signature), Date
5 N.E.T.
Affiliation

6 K Temple 7/12/90
Received by Lab Personnel, Date
6 NET Pacific
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:
locked and Store overnight.

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

* CUSTODY SEAL APPLIED UPON RECEIPT. J. G.

ATTACHMENT C

ANALYTIC REPORTS

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Eric Anderson
Weiss Associates
5500 Shell Mound Rd.
Emeryville, CA 94524

Date: 07-20-90
NET Client Acct. No: 18.09
NET Pacific Log No: 2847
Received: 07-12-90 0800

Client Reference Information

SHELL- 2160 Otis Dr., Alameda, Proj: 81-429-01

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

Enclosure(s)

Ref: SHELL- 2160 Otis Dr., Alameda, Proj: 81-429-01

SAMPLE DESCRIPTION: 060-S1 07-10-90
LAB Job No: (-57560)

Parameter	Method	Reporting Limit	Results	Units
Oil & Grease(Total)	413.1	5	ND	mg/L
Oil & Grease(Non-Polar)	SM503A/E	10	ND	mg/L
METHOD 601				
DATE ANALYZED			07-17-90	
DILUTION FACTOR*			1	
Bromodichloromethane		0.4	ND	ug/L
Bromoform		0.4	ND	ug/L
Bromomethane		0.4	ND	ug/L
Carbon tetrachloride		0.4	ND	ug/L
Chlorobenzene		0.4	ND	ug/L
Chloroethane		0.4	ND	ug/L
2-Chloroethylvinyl ether		1.0	ND	ug/L
Chloroform		0.4	ND	ug/L
Chloromethane		0.4	ND	ug/L
Dibromochloromethane		0.4	ND	ug/L
1,2-Dichlorobenzene		0.4	ND	ug/L
1,3-Dichlorobenzene		0.4	ND	ug/L
1,4-Dichlorobenzene		0.4	ND	ug/L
Dichlorodifluoromethane		0.4	ND	ug/L
1,1-Dichloroethane		0.4	ND	ug/L
1,2-Dichloroethane		0.4	ND	ug/L
1,1-Dichloroethene		0.4	ND	ug/L
trans-1,2-Dichloroethene		0.4	ND	ug/L
1,2-Dichloropropane		0.4	ND	ug/L
cis-1,3-Dichloropropene		0.4	ND	ug/L
trans-1,3-Dichloropropene		0.4	ND	ug/L
Methylene Chloride		10	ND	ug/L
1,1,2,2-Tetrachloroethane		0.4	ND	ug/L
Tetrachloroethene		0.4	ND	ug/L
1,1,1-Trichloroethane		0.4	ND	ug/L
1,1,2-Trichloroethane		0.4	ND	ug/L
Trichloroethene		0.4	ND	ug/L
Trichlorofluoromethane		0.4	ND	ug/L
Vinyl chloride		2.0	ND	ug/L

Ref: SHELL- 2160 Otis Dr., Alameda, Proj: 81-429-01

SAMPLE DESCRIPTION: 060-S1 07-10-90
LAB Job No: (-57560)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS			--	
VOLATILE (WATER)			--	
DILUTION FACTOR *			1	
DATE ANALYZED			07-17-90	
METHOD GC FID/5030			--	
as Gasoline		0.05	0.09	mg/L
METHOD 602			--	
DILUTION FACTOR *			1	
DATE ANALYZED			07-17-90	
Benzene		0.5	ND	ug/L
Ethylbenzene		0.5	ND	ug/L
Toluene		0.5	ND	ug/L
Xylenes, total		0.5	ND	ug/L

Ref: SHELL- 2160 Otis Dr., Alameda, Proj: 81-429-01

SAMPLE DESCRIPTION: 060-1 07-10-90
LAB Job No: (-57561)

Parameter	Method	Reporting Limit	Results	Units
Oil & Grease(Total)	413.1	5	ND	mg/L
Oil & Grease(Non-Polar)	SM503A/E	10	ND	mg/L
METHOD 601				
DATE ANALYZED			07-17-90	
DILUTION FACTOR*			1	
Bromodichloromethane		0.4	ND	ug/L
Bromoform		0.4	ND	ug/L
Bromomethane		0.4	ND	ug/L
Carbon tetrachloride		0.4	ND	ug/L
Chlorobenzene		0.4	ND	ug/L
Chloroethane		0.4	ND	ug/L
2-Chloroethylvinyl ether		1.0	ND	ug/L
Chloroform		0.4	ND	ug/L
Chloromethane		0.4	ND	ug/L
Dibromochloromethane		0.4	ND	ug/L
1,2-Dichlorobenzene		0.4	ND	ug/L
1,3-Dichlorobenzene		0.4	ND	ug/L
1,4-Dichlorobenzene		0.4	ND	ug/L
Dichlorodifluoromethane		0.4	ND	ug/L
1,1-Dichloroethane		0.4	ND	ug/L
1,2-Dichloroethane		0.4	ND	ug/L
1,1-Dichloroethene		0.4	ND	ug/L
trans-1,2-Dichloroethene		0.4	ND	ug/L
1,2-Dichloropropane		0.4	ND	ug/L
cis-1,3-Dichloropropene		0.4	ND	ug/L
trans-1,3-Dichloropropene		0.4	ND	ug/L
Methylene Chloride		10	ND	ug/L
1,1,2,2-Tetrachloroethane		0.4	ND	ug/L
Tetrachloroethene		0.4	ND	ug/L
1,1,1-Trichloroethane		0.4	ND	ug/L
1,1,2-Trichloroethane		0.4	ND	ug/L
Trichloroethene		0.4	ND	ug/L
Trichlorofluoromethane		0.4	ND	ug/L
Vinyl chloride		2.0	ND	ug/L

Ref: SHELL- 2160 Otis Dr., Alameda, Proj: 81-429-01

SAMPLE DESCRIPTION: 060-1 07-10-90
LAB Job No: (-57561)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS			--	
VOLATILE (WATER)			--	
DILUTION FACTOR *			1	
DATE ANALYZED			07-17-90	
METHOD GC FID/5030			--	
as Gasoline		0.05	0.10	mg/L
METHOD 602			--	
DILUTION FACTOR *			1	
DATE ANALYZED			07-17-90	
Benzene		0.5	ND	ug/L
Ethylbenzene		0.5	ND	ug/L
Toluene		0.5	ND	ug/L
Xylenes, total		0.5	ND	ug/L

Ref: SHELL- 2160 Otis Dr., Alameda, Proj: 81-429-01

SAMPLE DESCRIPTION: 060-2 07-10-90
LAB Job No: (-57562)

Parameter	Method	Reporting Limit	Results	Units
Oil & Grease(Total)	413.1	5	ND	mg/L
Oil & Grease(Non-Polar)	SM503A/E	10	ND	mg/L
METHOD 601				
DATE ANALYZED			07-17-90	
DILUTION FACTOR*			1	
Bromodichloromethane		0.4	ND	ug/L
Bromoform		0.4	ND	ug/L
Bromomethane		0.4	ND	ug/L
Carbon tetrachloride		0.4	ND	ug/L
Chlorobenzene		0.4	ND	ug/L
Chloroethane		0.4	ND	ug/L
2-Chloroethylvinyl ether		1.0	ND	ug/L
Chloroform		0.4	1.7	ug/L
Chloromethane		0.4	ND	ug/L
Dibromochloromethane		0.4	ND	ug/L
1,2-Dichlorobenzene		0.4	ND	ug/L
1,3-Dichlorobenzene		0.4	ND	ug/L
1,4-Dichlorobenzene		0.4	ND	ug/L
Dichlorodifluoromethane		0.4	ND	ug/L
1,1-Dichloroethane		0.4	ND	ug/L
1,2-Dichloroethane		0.4	0.44	ug/L
1,1-Dichloroethene		0.4	ND	ug/L
trans-1,2-Dichloroethene		0.4	11	ug/L
1,2-Dichloropropane		0.4	ND	ug/L
cis-1,3-Dichloropropene		0.4	ND	ug/L
trans-1,3-Dichloropropene		0.4	ND	ug/L
Methylene Chloride		10	ND	ug/L
1,1,2,2-Tetrachloroethane		0.4	ND	ug/L
Tetrachloroethene		0.4	ND	ug/L
1,1,1-Trichloroethane		0.4	ND	ug/L
1,1,2-Trichloroethane		0.4	ND	ug/L
Trichloroethene		0.4	0.93	ug/L
Trichlorofluoromethane		0.4	ND	ug/L
Vinyl chloride		2.0	ND	ug/L

Client Acct: 18.09 Date: 07-20-90
Client Name: Weiss Associates Page: 7
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Ref: SHELL- 2160 Otis Dr., Alameda, Proj: 81-429-01

SAMPLE DESCRIPTION: 060-2 07-10-90
LAB Job No: (-57562)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS			--	
VOLATILE (WATER)			--	
DILUTION FACTOR *			1	
DATE ANALYZED			07-17-90	
METHOD GC FID/5030			--	
as Gasoline		0.05	0.57	mg/L
METHOD 602			--	
DILUTION FACTOR *			1	
DATE ANALYZED			07-17-90	
Benzene		0.5	150	ug/L
Ethylbenzene		0.5	ND	ug/L
Toluene		0.5	0.9	ug/L
Xylenes, total		0.5	3.1	ug/L

Client Acct: 18.09 Date: 07-20-90
Client Name: Weiss Associates Page: 8
NET Log No: 2847

Ref: SHELL- 2160 Otis Dr., Alameda, Proj:81-429-01

SAMPLE DESCRIPTION: 060-21 07-10-90
LAB Job No: (-57563)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS			--	
VOLATILE (WATER)			--	
DILUTION FACTOR *			1	
DATE ANALYZED			07-17-90	
METHOD GC FID/5030			--	
as Gasoline		0.05	ND	mg/L
METHOD 602			--	
DILUTION FACTOR *			1	
DATE ANALYZED			07-17-90	
Benzene		0.5	ND	ug/L
Ethylbenzene		0.5	ND	ug/L
Toluene		0.5	ND	ug/L
Xylenes, total		0.5	ND	ug/L

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following, which supercedes the listed reporting limit.
mean	:	Average; sum of measurements divided by number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
NA	:	Not analyzed.
ND	:	Not detected; the analyte concentration is less than applicable listed reporting limit.
NTU	:	Nephelometric turbidity units.
RPD	:	Relative percent difference, 100 [Value 1 - Value 2]/mean value.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
umhos/cm	:	Micromhos per centimeter.

Method References

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

* Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated reporting limits by the dilution factor.

NATIONAL ENVIRONMENTAL TESTING, INC.

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Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Eric Anderson
Weiss Associates
5500 Shell Mound Rd.
Emeryville, CA 94524

Date: 07-26-90
NET Client Acct. No: 18.09
NET Pacific Log No: 3002
Received: 07-24-90 0900

Client Reference Information

SHELL- 2160 Otis Dr., Alameda, Project: 81-429-01

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

Enclosure(s)

Ref: SHELL- 2160 Otis Dr., Alameda, Project: 81-429-01

SAMPLE DESCRIPTION: 060-2 07-10-90
LAB Job No: (-58348)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS			--	
EXTRACTABLE (WATER)			--	
DILUTION FACTOR *			1	
DATE EXTRACTED			07-24-90	
DATE ANALYZED			07-26-90	
METHOD GC FID/3510			--	
as Diesel		0.05	0.45	mg/L
as Motor Oil		0.5	ND	mg/L

NOTE: Sample was extracted for total extractable petroleum hydrocarbons past holding time.