PACIFIC
ENVIRONMENTAL
GROUP, INC.

October 27, 1994
Project 305-131.2B

Mr. Daniel T. Kirk
Shell Oil Company
P.O. Box 4023
Concord, California 94524

Re: Quarterly Report - Third Quarter 1994
Shell Service Station
4411 Foothill Boulevard at High Street
Oakland, California
WIC No 204-5508-3400

Dear Mr. Kirk:

The following presents the results of the third quarter 1994 monitoring program and a discussion of the hydrogeologic conditions for the site referenced above. This letter has been prepared for Shell Oil Company (Shell) by Pacific Environmental Group, Inc. (PACIFIC).

FINDINGS

Groundwater monitoring wells were gauged and sampled by Blaine Tech Services, Inc. (Blaine) at the direction of PACIFIC on September 22, 1994. Groundwater elevation contours for the sampling date are shown on Figure 1. Data for the Chevron U.S.A. Products Company station and the B.P. Oil station were not available for the quarter. Groundwater elevation contours are presented for the Shell site only. Table 1 presents groundwater elevation data.

Groundwater analytical data are presented in Table 2. The laboratory noted the positive results of gasoline to be in the C_5-C_{12} hydrocarbon range. Total petroleum hydrocarbons calculated as gasoline (TPH-g), benzene, and TPH calculated as diesel (TPH-d) concentrations for the September 1994 sampling event are shown on Figure 2. Blaine's groundwater sampling report, including field data, is presented as Attachment A.

HYDROGEOLOGIC CONDITIONS

The site is located on a flat mixed residential and commercial area of the East Bay Plain, approximately 1 mile east of the Oakland Estuary. The site is underlain by Quaternary deposits consisting of alluvial sands, silts, clays and gravels. Moderately sloping stream channel sands have been mapped in the vicinity (Radbruch, 1969).

Beneath the Shell site (Figure 3), the borings for Wells S-1 through S-3 encountered sandy clay and clayey sand to 10 to 12 feet below ground surface (bgs). From approximately 12 to 14 feet bgs interbedded clayey sand, clayey gravel, sandy gravel, and silty sand was encountered. From approximately 14 feet bgs to the total depth explored of 26 feet bgs, minor clayey sand, silty clay and fat, high plasticity clays were encountered beneath the Shell site. Geologic cross sections are shown on Figures 4 and 5.

Groundwater elevations for the June 16, 1994 cooperative sampling date are shown on Figures 4 and 5. The groundwater elevation data combined with the stratigraphy, first encountered groundwater elevations, and photo-ionization detector (PID) concentrations all indicate that at a minimum two and possibly three discrete water-bearing zones are represented by the groundwater elevation data from the adjacent Chevron, British Petroleum, and Shell sites.

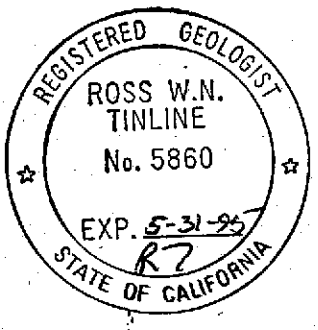
During the cooperative sampling event, groundwater was encountered at approximately the 28.6 feet MSL on the Shell site, 13.9 feet MSL from Wells C-2 through C-5 on the Chevron site and approximately 2.4 feet MSL in Chevron Wells C-6 through C-8 located southwest of the Shell and Chevron sites. Well C-1 on the Chevron site reported a groundwater elevation of 20.58 feet MSL. The reason for the intermediate groundwater elevation in Well C-1 is unknown.

It is not conclusive whether the upper water-bearing zone screened on the Shell site extends across the entire Chevron site and toward the southwest, however PID concentrations in Wells C-5 and C-7 at 10 to 15 feet bgs indicate that at least groundwater has been present. Also it is not likely that Wells C-2 through C-5 on the Chevron site monitor the same water-bearing zone as Wells C-6 through C-8 to the southwest. With the channellized nature of the stratigraphy underlying the area, it is difficult to determine discrete water-bearing units with 25-foot screen intervals. Groundwater monitoring will continue during the fourth quarter 1994.

If you have any questions regarding the contents of this letter, please call.

Sincerely,

Pacific Environmental Group, Inc.



Ross W.N. Tinline
Project Geologist
RG 5860

Attachments: Table 1 - Groundwater Elevation Data
Table 2 - Groundwater Analytical Data - Total Petroleum Hydrocarbons (TPH as Gasoline, BTEX Compounds, TPH as Diesel, and TPH as Motor Oil)
Figure 1 - Groundwater Elevation Contour Map
Figure 2 - TPH-g/Benzene/TPH-d Concentration Map
Figure 3 - Extended Site Map
Figure 4 - Geologic Cross-Section A-A'
Figure 5 - Geologic Cross-Section B-B'
Attachment A - Groundwater Sampling Report

cc: Mr. Barney Chan, Alameda County Department of Environmental Health
Mr. Richard Hiett, Regional Water Quality Control Board - S.F. Bay Region

Table 1
Groundwater Elevation Data

Shell Service Station
4411 Foothill Boulevard at High Street
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)
S-1	12/18/92	NM	9.06	NA
	05/26/93	38.31	NM	NA
	05/28/93		12.13	26.18
	06/03/93		8.89	29.42
	06/08/93		8.80	29.51
	09/21/93		10.40	27.91
	12/14/93		9.66	28.65
	03/17/94		8.20	30.11
	06/16/94		9.41	28.90
	09/22/94		11.13	27.18
S-2	05/28/93	38.79	9.51	29.28
	06/03/93		9.51	29.28
	06/08/93		9.57	29.22
	09/21/93		10.54	28.25
	12/14/93		9.76	29.03
	03/17/94		9.92	28.87
	06/16/94		10.11	28.68
	09/22/94		10.51	28.28
S-3	05/28/93	37.33	8.45	28.88
	06/03/93		8.36	28.97
	06/08/93		8.41	28.92
	09/21/93		10.08	27.25
	12/94/93		8.80	28.53
	03/17/94		8.34	28.99
	06/16/94		9.12	28.21
	09/22/94		10.27	27.06

MSL = Mean sea level
TOB = Top of box
NM = Not measured
NA = Not available

Table 2
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, and TPH as Motor Oil)

Shell Service Station
4411 Foothill Boulevard at High Street
Oakland, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	TPH as Motor Oil (ppb)
S-1	12/18/92 a	41,000	3,100	1,100	1,200	8,700	NA	9,400 b
	05/26/93	39,000	1,300	4,700	1,500	7,800	6,000 c	370
	09/21/93	34,000	480	5,000	3,800	18,000	5,900 c	ND
	12/14/93	25,000	1,100	5,000	2,200	11,000	13,000 d	ND
	03/17/94	57,000	1,300	5,400	2,100	11,000	1,500 c	2,900 c
	06/16/94	57,000	1,600	6,000	2,000	13,000	3,000	210
	09/22/94	39,000	1,300	2,100	1,500	7,100	ND	ND
S-2	06/29/93	1,300	290	35	38	130	NA	NA
	09/21/93	3,300	870	24	190	120	NA	NA
	12/14/93	1,300	400	16	36	27	NA	NA
	03/17/94	4,500	610	27	92	110	NA	NA
	03/17/94(D)	4,000	610	26	93	120	NA	NA
	06/16/94	2,800	690	45	97	140	NA	NA
	09/22/94	4,000	630	94	64	230	NA	NA
S-3	06/29/93	29,000	1,500	1,800	950	6,200	NA	NA
	09/21/93	15,000	900	2,200	2,600	11,000	NA	NA
	12/14/93	20,000	1,100	2,400	1,800	8,500	NA	NA
	03/17/94	14,000	580	190	750	1,700	NA	NA
	06/16/94	20,000	700	690	1,400	4,100	NA	NA
	06/16/94(D)	19,000	680	560	1,300	3,700	NA	NA
	09/22/94	24,000	630	1,100	1,400	5,700	NA	NA
	09/22/94(D)	25,000	720	1,100	1,500	6,100	NA	NA

ppb = Parts per billion
a. Phenolic and napthalene compounds detected in Sample S-1 by semi-volatile organics (EPA Method 8270).
b. Laboratory noted concentration due to hydrocarbon range $<C_{22}$.
c. Laboratory noted concentration due to a lighter petroleum product of hydrocarbon range C_6-C_{12}.
d. Laboratory noted concentration due to hydrocarbon range C_6-C_{12}.
NA = Not analyzed
ND = Not detected
(D) = Duplicate sample

N

CHEVRON SERVICE STATION

C-5

C-1

KIOSK

C-3

C-2

PRODUCT ISLANDS

C-4

MW-8

FOOTHILL BOULEVARD

BP SERVICE STATION

MW-2

MW-4

STATION BUILDING

MW-6

PRODUCT ISANDS

MW-3

MW-5

MW-9

EAST 17th STREET

C-6

C-8

C-7

BOND STREET

HIGH STREET

CANOPY

27.40

27.80

28.20

S-3 (27.06)

S-2 (28.28)

PRODUCT ISLANDS

UNDERGROUND FUEL STORAGE TANKS

CANOPY

S-1 (27.18)

SITE LOCATION

STATION BUILDING

PRODUCT ISLANDS

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

APPROXIMATE GRADIENT = 0.01

LEGEND

- S-3 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (SHELL)
- C-1 ◒ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (CHEVRON)
- MW-5 ◑ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (BP)
- (28.68) GROUNDWATER ELEVATION IN FEET - MSL, 9-22-94
- 28.20 —— GROUNDWATER ELEVATION CONTOUR IN FEET - MSL, 9-22-94

NOTE: DATA NOT AVAILABLE FOR CHEVRON AND BP MONITORING WELLS

PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE

0 50 100 FEET

SHELL SERVICE STATION
4411 Foothill Boulevard at High Street
Oakland, California

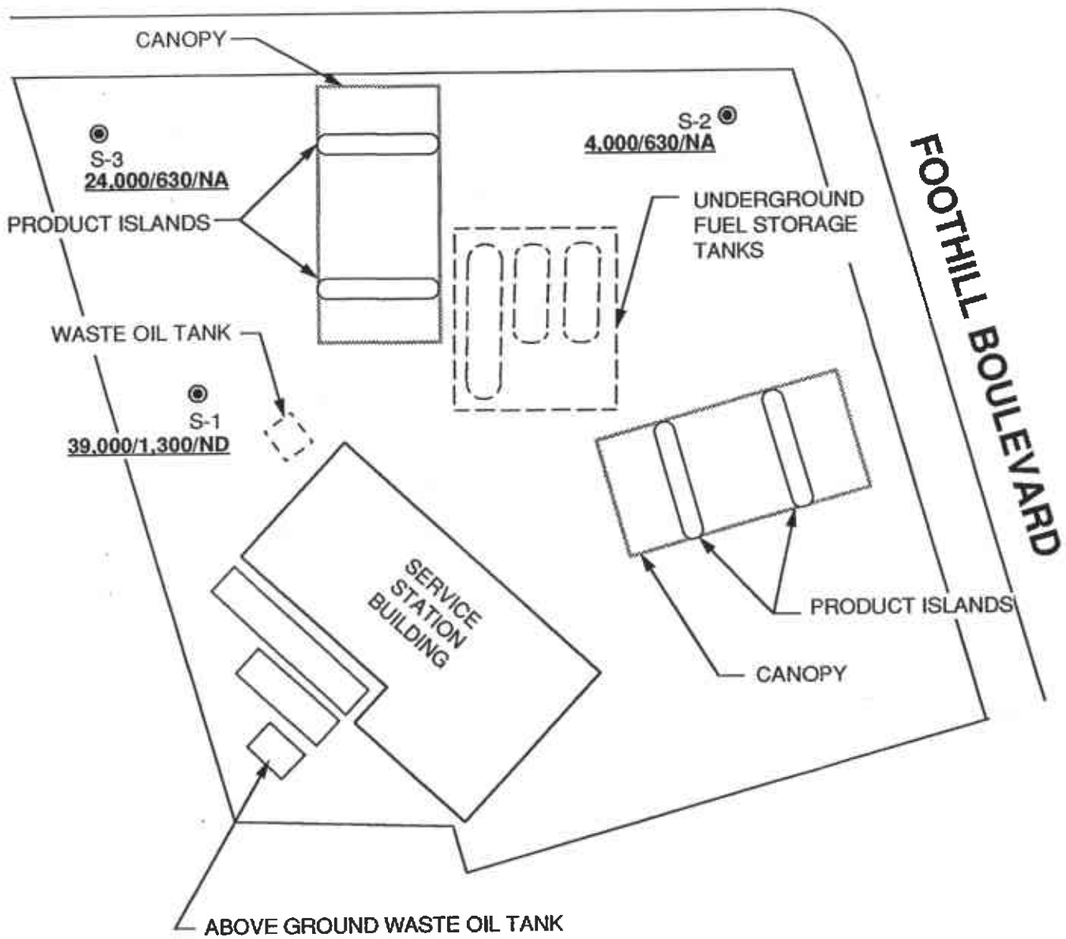
GROUNDWATER ELEVATION CONTOUR MAP

FIGURE: **1**
PROJECT: 305-131.2B

10/25/94

N

HIGH STREET



FOOTHILL BOULEVARD

LEGEND

S2 ◉	GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
4,000/630/NA	TPH-g/BENZENE/TPH-d CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION, 9-22-94
ND	NOT DETECTED
NA	NOT ANALYZED

APPROXIMATE DIRECTION
OF GROUNDWATER FLOW

PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 30 60 FEET

SHELL SERVICE STATION
4411 Foothill Boulevard At High Street
Oakland, California

TPH-g/BENZENE/TPH-d CONCENTRATION MAP

FIGURE:
2
PROJECT:
305-131.2B

10/25/94

N

CHEVRON SERVICE STATION

BP SERVICE STATION

MW-8

MW-2

MW-4

STATION BUILDING

MW-6

PRODUCT ISANDS

MW-3

MW-5

MW-9

FOOTHILL BOULEVARD

B

C-5

C-1

KIOSK

C-3

C-2

PRODUCT ISLANDS

C-4

EAST 17th STREET

C-6

C-8

BOND STREET

HIGH STREET

CANOPY

A'

A

C-7

S-3

S-2

PRODUCT ISLANDS

UNDERGROUND FUEL STORAGE TANKS

CANOPY

S-1

B'

SITE LOCATION

STATION BUILDING

PRODUCT ISLANDS

LEGEND

S-3 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (SHELL)

C-1 ◒ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (CHEVRON)

MW-5 ◑ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (BP)

A A' LINE OF GEOLOGIC CROSS-SECTION (SEE FIGURES 4 and 5)

PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE

0 50 100 FEET

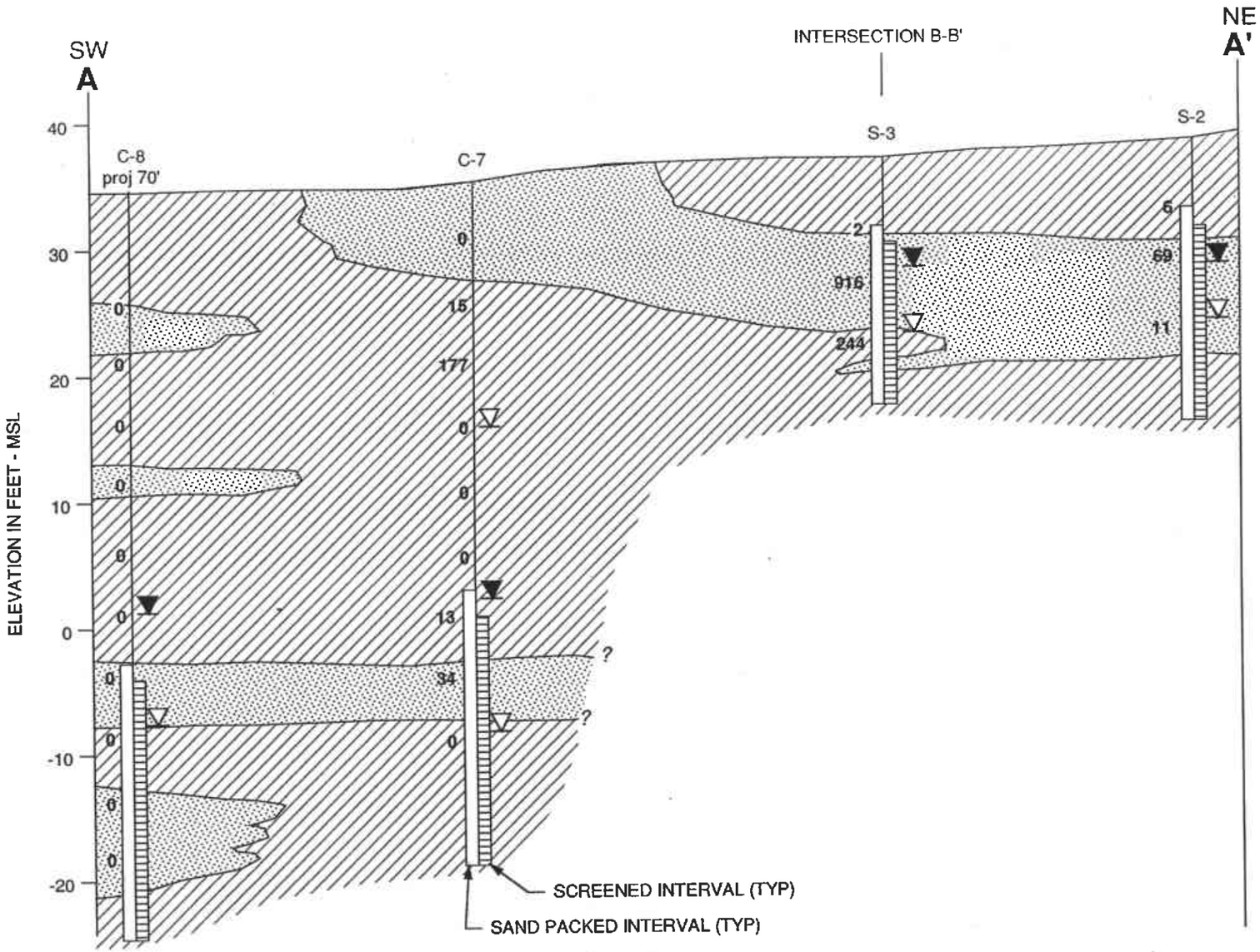
SHELL SERVICE STATION
4411 Foothill Boulevard at High Street
Oakland, California

EXTENDED SITE MAP

FIGURE: 3

PROJECT: 305-131.2B

10/25/94



PACIFIC
ENVIRONMENTAL
GROUP, INC.

SCALE

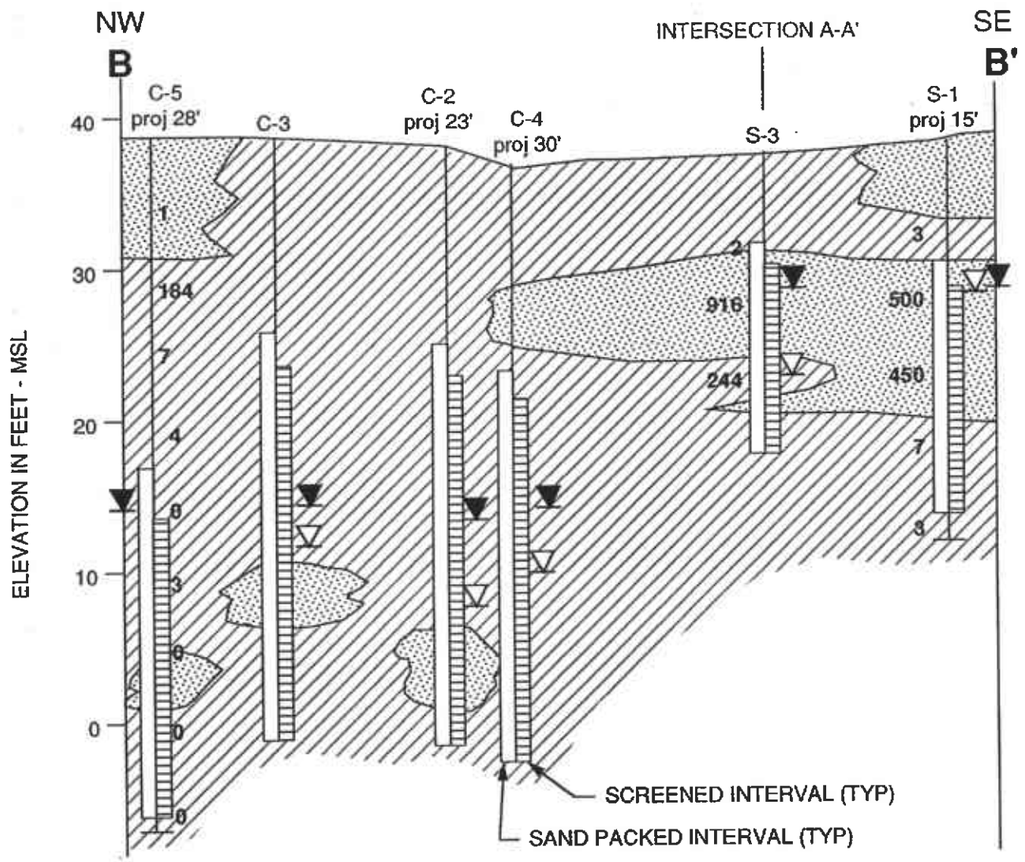
HORIZONTAL : 1" = 50'
VERTICAL : 1" = 10'

SHELL SERVICE STATION
4411 Foothill Boulevard at High Street
Oakland, California

GEOLOGIC CROSS-SECTION A-A'

FIGURE:
4
PROJECT:
305-131.2B

10/25/94



LEGEND

PRIMARILY FINE-GRAINED DEPOSITS - CL and SM

PRIMARILY COARSE-GRAINED DEPOSITS - SC, SW, SP, GC and GM

S-3 GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION (SHELL)

C-2 GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION (CHEVRON)

proj PROJECTED ONTO LINE OF SECTION IN FEET

FIRST ENCOUNTERED WATER LEVEL AT TIME OF DRILLING

STATIC WATER LEVEL, 6-16-94

916 PHOTO IONIZATION DETECTOR LEVEL IN PARTS PER MILLION

PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE

HORIZONTAL : 1" = 50'
VERTICAL : 1" = 10'

SHELL SERVICE STATION
4411 Foothill Boulevard at High Street
Oakland, California

GEOLOGIC CROSS-SECTION B-B'

FIGURE:
5
PROJECT:
305-131.2B

10/25/94

ATTACHMENT A

GROUNDWATER SAMPLING REPORT

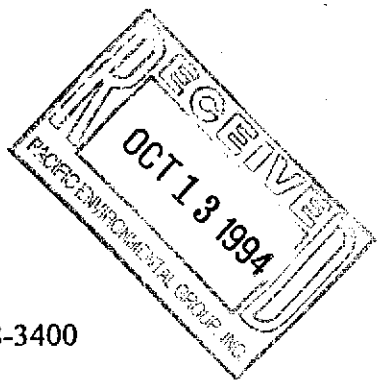
BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

October 4, 1994

Shell Oil Company
P.O. Box 4023
Concord, CA 94524

Attn: Daniel T. Kirk



SITE:
Shell WIC #204-5508-3400
4411 Foothill Blvd.
Oakland, California

QUARTER:
3rd quarter of 1994

QUARTERLY GROUNDWATER SAMPLING REPORT 940922-K-4

This report contains data collected during routine inspection, gauging and sampling of groundwater monitoring wells performed by Blaine Tech Services, Inc. in response to the request of the consultant who is overseeing work at this site on behalf of our mutual client, Shell Oil Company. Data collected in the course of our field work is presented in a TABLE OF WELL GAUGING DATA. The field information was collected during our preliminary gauging and inspection of the wells, the subsequent evacuation of each well prior to sampling, and at the time of sampling.

Measurements taken include the total depth of the well and the depth to water. The surface of water was further inspected for the presence of immiscibles which may be present as a thin film (a sheen on the surface of the water) or as a measurable free product zone (FPZ). At intervals during the evacuation phase, the purge water was monitored with instruments that measure electrical conductivity (EC), potential hydrogen (pH), temperature (degrees Fahrenheit), and turbidity (NTU). In the interest of simplicity, fundamental information is tabulated here, while the bulk of the information is turned over directly to the consultant who is making professional interpretations and evaluations of the conditions at the site.

STANDARD PROCEDURES

Evacuation

Groundwater wells are thoroughly purged before sampling to insure that the sample is collected from water that has been newly drawn into the well from the surrounding geologic formation. The selection of equipment to evacuate each well is based on the physical characteristics of the well and what is known about the performance of the formation in which the well has been installed. There are several suitable devices which can be used for evacuation. The most commonly employed devices are air or gas actuated pumps, electric submersible pumps, and hand or mechanically actuated bailers. Our personnel frequently employ USGS/Middleburg positive displacement pumps or similar air actuated pumps which do not agitate the water standing in the well.

Normal evacuation removes three case volumes of water from the well. More than three case volumes of water are removed in cases where more evacuation is needed to achieve stabilization of water parameters and when requested by the local implementing agency. Less water may be removed in cases where the well dewaters and does not recharge to 80% of its original volume within two hours and any additional time our personnel have reason to remain at the site. In such cases, our personnel return to the site within twenty four hours and collect sample material from the water which has recharged into the well case.

Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site. Effluent water from purging and on-site equipment cleaning is collected and transported to Shell's Martinez Manufacturing Complex in Martinez, California.

Free Product Skimmer

The column headed, VOLUME OF IMMISCIBLES REMOVED (ml) is included in the TABLE OF WELL GAUGING DATA to cover situations where a free product skimming device must be removed from the well prior to gauging. Skimmers are installed in wells with a free product zone on the surface of the water. The skimmer is a free product recovery device which often prevents normal well gauging and free product zone measurements. The 2.0" and 3.0" PetroTraps fall into the category of devices that obstruct normal gauging. In cases where the consultant elects to have our personnel pull the skimmers out of the well and gauge the well, our personnel perform the additional task of draining the accumulated free product out of the PetroTrap before putting it back in the well. This

recovered free product is measured and logged in the VOLUME OF IMMISCIBLES REMOVED column. Gauging at such sites is performed in accordance with specific directions from the professional consulting firm overseeing work at the site on Shell's behalf.

Sample Containers

Sample material is collected in specially prepared containers which are provided by the laboratory that performs the analyses.

Sampling

Sample material is collected in stainless steel bailer type devices normally fitted with both a top and a bottom check valve. Water is promptly decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA standard for handling volatile organic and semi-volatile compounds.

Following collection, samples are promptly placed in an ice chest containing prefrozen blocks of an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

Sample Designations

All sample containers are identified with a site designation and a discrete sample identification number specific to that particular groundwater well. Additional standard notations (e.g. time, date, sampler) are also made on the label.

Chain of Custody

Samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under a standard Shell Oil Company chain of custody. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of the person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

Hazardous Materials Testing Laboratory

The samples obtained at this site were delivered to National Environmental Testing, Inc. in Santa Rosa, California. NET is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #178.

Objective Information Collection

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. performs no consulting and does not become involved in the marketing or installation of remedial systems of any kind. Blaine Tech Services, Inc. is concerned only with the generation of objective information, not with the use of that information to support evaluations and recommendations concerning the environmental condition of the site. Even the straightforward interpretation of objective analytical data is better performed by interested regulatory agencies, and those engineers and geologists who are engaged in the work of providing professional opinions about the site and proposals to perform additional investigation or design remedial systems.

Reportage

Submission of this report and the attached laboratory report to interested regulatory agencies is handled by the consultant in charge of the project. Any professional evaluations or recommendations will be made by the consultant under separate cover.

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/lp

attachments: table of well gauging data
chain of custody
certified analytical report

cc: Pacific Environmental Group, Inc.
2025 Gateway Place, Suite #440
San Jose, CA 95110
ATTN: Rhonda Barrick

TABLE OF WELL GAUGING DATA

WELL I.D.	DATA COLLECTION DATE	MEASUREMENT REFERENCED TO	QUALITATIVE OBSERVATIONS (sheen)	DEPTH TO FIRST IMMISCIBLES LIQUID (FPZ) (feet)	THICKNESS OF IMMISCIBLES LIQUID ZONE (feet)	VOLUME OF IMMISCIBLES REMOVED (ml)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)
S-1	9/22/94	TOB	ODOR	NONE	--	--	11.13	24.27
S-2	9/22/94	TOB	ODOR	NONE	--	--	10.51	22.04
S-3 *	9/22/94	TOB	ODOR	NONE	--	--	10.27	20.02

* Sample DUP was a duplicate sample taken from well S-3.

2781

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 940922-K4

Date: 9/22/94
Page 1 of 1

Site Address: 4411 Foothill Blvd., Oakland

WIC#: 204-5508-3400

Shell Engineer: Dan Kirk
Phone No.: (510) 675-6168
Fax #: 675-6160

Consultant Name & Address:
Blaine Tech Services, Inc.
985 Timothy Drive San Jose, CA 95133

Consultant Contact: Jim Keller
Phone No.: (408) 995-5535
Fax #: 293-8773

Comments:

Sampled by: KCB

Printed Name: Keith Bow

LAB: NET

CHECK ONE (1) BOX ONLY	CT/DT
Quarterly Monitoring	[X] 5461
Site Investigation	[ ] 5441
Soil Classify/Disposal	[ ] 5442
Water Classify/Disposal	[ ] 5443
Soil/Air Rem. or Sys. O & M	[ ] 5452
Water Rem. or Sys. O & M	[ ] 5453
Other	[ ]

TURN AROUND TIME
- 24 hours [ ]
- 48 hours [ ]
- 15 days [X] (Normal)
- Other [ ]

NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.

Analysis Required

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020	Motor Oil		Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
S-1	9/22			W		5		X				X	X							
S-2	↓			↓		3						X								
S-3						3						X								
DUP						3						X								
EB						3						X								
TB	↓			↓		2						X								

(9/23/94 ... Seals intact - AL)

Relinquished By (signature):	Printed Name:	Date/Time:	Received (signature):	Printed Name:	Date/Time:
[signature]	Keith Bow	Date: 9/23 Time: 09:35	[signature]	G Lumbra	Date: 9/23 Time: 9:50
[signature]	G LUMBRA	Date: 9/23 Time: 16:00	A Lope via NCS	Anny Lope	Date: 9/24/94 Time: 08:5
		Date: Time:			Date: Time:

NATIONAL ENVIRONMENTAL TESTING, INC.

Santa Rosa Division
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Jim Keller
Blaine Tech Services
985 Timothy Dr.
San Jose, CA 95133

Date: 10/07/1994
NET Client Acct. No: 1821
NET Pacific Job No: 94.04420
Received: 09/24/1994

Client Reference Information

SHELL, 4411 Foothill Blvd., Oakland, 940922-K4

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. 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:

Judy Ridley
Project Coordinator

Jim Hoch
Operations Manager

Enclosure(s)

Ref: SHELL, 4411 Foothill Blvd., Oakland, 940922-K4

SAMPLE DESCRIPTION: S-1
Date Taken: 09/22/1994
Time Taken:
NET Sample No: 217471

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						09/30/1994
DILUTION FACTOR*	50						09/30/1994
as Gasoline	39,000		2,000	ug/L	5030		09/30/1994
Carbon Range:	C5-C12						09/30/1994
METHOD 8020 (GC,Liquid)	--						09/30/1994
Benzene	1,300		20	ug/L	8020		09/30/1994
Toluene	2,100	FH	20	ug/L	8020		10/02/1994
Ethylbenzene	1,500		20	ug/L	8020		09/30/1994
Xylenes (Total)	7,100	FH	20	ug/L	8020		10/02/1994
SURROGATE RESULTS	--						09/30/1994
Bromofluorobenzene (SURR)	111			% Rec.	5030		09/30/1994
METHOD M8015 (EXT., Liquid)						09/27/1994	
DILUTION FACTOR*	1						10/03/1994
as Diesel	ND		250	ug/L	3510		10/03/1994
as Motor Oil	ND		500	ug/L	3510		10/03/1994
Carbon Range:	--						10/03/1994

FH : Compound quantitated at a 500X dilution factor.

Ref: SHELL, 4411 Foothill Blvd., Oakland, 940922-K4

SAMPLE DESCRIPTION: S-2
Date Taken: 09/22/1994
Time Taken:
NET Sample No: 217472

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						09/30/1994
DILUTION FACTOR*	50						09/30/1994
as Gasoline	4,000		2,000	ug/L	5030		09/30/1994
Carbon Range:	C5-C12						09/30/1994
METHOD 8020 (GC,Liquid)	--						09/30/1994
Benzene	630		20	ug/L	8020		09/30/1994
Toluene	94		20	ug/L	8020		09/30/1994
Ethylbenzene	64		20	ug/L	8020		09/30/1994
Xylenes (Total)	230		20	ug/L	8020		09/30/1994
SURROGATE RESULTS	--						09/30/1994
Bromofluorobenzene (SURR)	106			% Rec.	5030		09/30/1994

Ref: SHELL, 4411 Foothill Blvd., Oakland, 940922-K4

SAMPLE DESCRIPTION: S-3
Date Taken: 09/22/1994
Time Taken:
NET Sample No: 217473

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						09/30/1994
DILUTION FACTOR*	10						09/30/1994
as Gasoline	24,000		500	ug/L	5030		09/30/1994
Carbon Range:	C5-C12						09/30/1994
METHOD 8020 (GC,Liquid)	--						09/30/1994
Benzene	630	FF	5.0	ug/L	8020		10/02/1994
Toluene	1,100	FF	5.0	ug/L	8020		10/02/1994
Ethylbenzene	1,400	FF	5.0	ug/L	8020		10/02/1994
Xylenes (Total)	5,700	FF	5.0	ug/L	8020		10/02/1994
SURROGATE RESULTS	--						09/30/1994
Bromofluorobenzene (SURR)	116			% Rec.	5030		09/30/1994

FF : Compound quantitated at a 100X dilution factor.

Ref: SHELL, 4411 Foothill Blvd., Oakland, 940922-K4

SAMPLE DESCRIPTION: DUP
Date Taken: 09/22/1994
Time Taken:
NET Sample No: 217474

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						09/30/1994
DILUTION FACTOR*	10						09/30/1994
as Gasoline	25,000		500	ug/L	5030		09/30/1994
Carbon Range:	C5-C12						09/30/1994
METHOD 8020 (GC,Liquid)	--						09/30/1994
Benzene	720	FF	5.0	ug/L	8020		10/02/1994
Toluene	1,100	FF	5.0	ug/L	8020		10/02/1994
Ethylbenzene	1,500	FF	5.0	ug/L	8020		10/02/1994
Xylenes (Total)	6,100	FF	5.0	ug/L	8020		10/02/1994
SURROGATE RESULTS	--						09/30/1994
Bromofluorobenzene (SURR)	111			% Rec.	5030		09/30/1994

FF : Compound quantitated at a 100X dilution factor.

Client Name: Blaine Tech Services
Client Acct: 1821
NET Job No: 94.04420

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Ref: SHELL, 4411 Foothill Blvd., Oakland, 940922-K4

SAMPLE DESCRIPTION: EB
Date Taken: 09/22/1994
Time Taken:
NET Sample No: 217475

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						09/30/1994
DILUTION FACTOR*	1						09/30/1994
as Gasoline	ND		50	ug/L	5030		09/30/1994
Carbon Range:	--						09/30/1994
METHOD 8020 (GC,Liquid)	--						09/30/1994
Benzene	ND		0.5	ug/L	8020		09/30/1994
Toluene	ND		0.5	ug/L	8020		09/30/1994
Ethylbenzene	ND		0.5	ug/L	8020		09/30/1994
Xylenes (Total)	ND		0.5	ug/L	8020		09/30/1994
SURROGATE RESULTS	--						09/30/1994
Bromofluorobenzene (SURR)	92			% Rec.	5030		09/30/1994

Ref: SHELL, 4411 Foothill Blvd., Oakland, 940922-K4

SAMPLE DESCRIPTION: TB
Date Taken: 09/22/1994
Time Taken:
NET Sample No: 217476

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						09/30/1994
DILUTION FACTOR*	1						09/30/1994
as Gasoline	ND		50	ug/L	5030		09/30/1994
Carbon Range:	--						09/30/1994
METHOD 8020 (GC,Liquid)	--						09/30/1994
Benzene	ND		0.5	ug/L	8020		09/30/1994
Toluene	ND		0.5	ug/L	8020		09/30/1994
Ethylbenzene	ND		0.5	ug/L	8020		09/30/1994
Xylenes (Total)	ND		0.5	ug/L	8020		09/30/1994
SURROGATE RESULTS	--						09/30/1994
Bromofluorobenzene (SURR)	95			% Rec.	5030		09/30/1994

Ref: SHELL, 4411 Foothill Blvd., Oakland, 940922-K4

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Units	Date Analyzed	Analyst Initials
TPH (Gas/BTXE,Liquid)						
as Gasoline	102.0	1.02	1.00	mg/L	09/30/1994	dfw
Benzene	84.6	4.23	5.00	ug/L	09/30/1994	dfw
Toluene	97.0	4.85	5.00	ug/L	09/30/1994	dfw
Ethylbenzene	89.8	4.49	5.00	ug/L	09/30/1994	dfw
Xylenes (Total)	92.5	13.87	15.0	ug/L	09/30/1994	dfw
Bromofluorobenzene (SURR)	93.0	93	100	% Rec.	09/30/1994	dfw
TPH (Gas/BTXE,Liquid)						
as Gasoline	111.0	1.11	1.00	mg/L	10/02/1994	dfw
Benzene	86.4	4.32	5.00	ug/L	10/02/1994	dfw
Toluene	96.6	4.83	5.00	ug/L	10/02/1994	dfw
Ethylbenzene	93.6	4.68	5.00	ug/L	10/02/1994	dfw
Xylenes (Total)	94.3	14.15	15.0	ug/L	10/02/1994	dfw
Bromofluorobenzene (SURR)	100.0	100	100	% Rec.	10/02/1994	dfw

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METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Units	Date Analyzed	Analyst Initials
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	09/30/1994	dfw
Benzene	ND	0.5	ug/L	09/30/1994	dfw
Toluene	ND	0.5	ug/L	09/30/1994	dfw
Ethylbenzene	ND	0.5	ug/L	09/30/1994	dfw
Xylenes (Total)	ND	0.5	ug/L	09/30/1994	dfw
Bromofluorobenzene (SURR)	88		% Rec.	09/30/1994	dfw
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	10/02/1994	dfw
Benzene	ND	0.5	ug/L	10/02/1994	dfw
Toluene	ND	0.5	ug/L	10/02/1994	dfw
Ethylbenzene	ND	0.5	ug/L	10/02/1994	dfw
Xylenes (Total)	ND	0.5	ug/L	10/02/1994	dfw
Bromofluorobenzene (SURR)	97		% Rec.	10/02/1994	dfw
METHOD M8015 (EXT., Liquid)					
as Diesel	ND	0.25	mg/L	10/05/1994	sub
as Motor Oil	ND	0.5	mg/L	10/05/1994	sub

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike % Rec.	Matrix Spike Dup % Rec.	RPD	Spike Amount	Sample Conc.	Matrix Spike Conc.	Matrix Spike Dup. Conc.	Units	Date Analyzed	Analyst Initials
TPH (Gas/BTXE,Liquid)										
as Gasoline	103.0	104.0	1.0	1.00	ND	1.03	1.04	mg/L	09/30/1994	dfw
Benzene	103.1	106.3	3.1	35.1	ND	36.2	37.3	ug/L	09/30/1994	dfw
Toluene	101.9	104.8	2.8	104	ND	106	109	ug/L	09/30/1994	dfw
TPH (Gas/BTXE,Liquid)										
as Gasoline	114.0	102.0	11.1	1.00	ND	1.14	1.02	mg/L	10/02/1994	dfw
Benzene	102.8	92.7	10.2	39.5	ND	40.6	36.6	ug/L	10/02/1994	dfw
Toluene	103.5	94.0	9.2	114	ND	118	107	ug/L	10/02/1994	dfw
METHOD M8015 (EXT., Liquid)										
as Diesel	95.8	111.6	15.1	2.500	ND	2.395	2.790	mg/L	10/03/1994	sub

NET® **KEY TO ABBREVIATIONS and METHOD REFERENCES**

<	:	Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
*	:	Reporting Limits are a function of the dilution factor for any given sample. Actual reporting limits and results have been multiplied by the listed dilution factor. **Do not** multiply the reporting limits or reported values by the dilution factor.
dw	:	Result expressed as dry weight.
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 the 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 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, Rev. 1983.

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., Rev. 1, December 1987.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

Revised September, 1993
abb.93

COOLER RECEIPT FORM

Project: Shell, 4411 Foothill Blvd. Oakland Log No: _____
Cooler received on: 9/24/94 and checked on 9/24/94 by A. Lopez
A. Lopez
(signature)

Were custody papers present?.....(YES) NO
Were custody papers properly filled out?.....(YES) NO
Were the custody papers signed?.....(YES) NO
Was sufficient ice used?.....(YES) NO -1.8°C
Did all bottles arrive in good condition (unbroken)?.....(YES) NO
Did bottle labels match COC?.....(YES) NO
Were proper bottles used for analysis indicated?.....(YES) NO
Correct preservatives used?.....(YES) NO
VOA vials checked for headspace bubbles?.....(YES) NO
Note which voas (if any) had bubbles:*

Sample descriptor:	Number of vials:
Trip Blank	2 of 2

*All VOAs with headspace bubbles have been set aside so they will not be used for analysis.....YES NO

List here all other jobs received in the same cooler:

Client Job #	NET log #

(coolerrec)

SHELL WELL MONITORING DATA SHEET

Project #: 940922-K4	Wic # 204-5508-3400
Sampler: KCB	Date Sampled: 9/22
Well I.D.: S-1	Well Diameter: (circle one) 2 3 (4) 6 ___
Total Well Depth: Before 24.27 After	Depth to Water: Before 11.13 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC (Grade) Other --	

Volume Conversion Factor (VCF):
(12 × (d²/4) × π)/231
Where
12 = in/feet
d = diameter (in.)
π = 3.1416
231 = in³/gal

Well dia.	VCF
2"	0.16
3"	0.37
4"	0.65
6"	1.47
10"	4.08
12"	5.87

8.5	x	3	=	25.5
1 Case Volume		Specified Volumes		gallons

Purging: Bailer ☐
Middleburg ☐
Electric Submersible ☑
Suction Pump ☐
Type of Installed Pump ___

Sampling: Bailer ☑
Middleburg ☐
Electric Submersible ☐
Suction Pump ☐
Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1342	71.2	7.2	1400	31.0	9	very strong
1344	69.4	7.2	1400	94.9	18	gas odor
1346	69.3	7.2	1400	108.7	26	

Did Well Dewater? N If yes, gals. — Gallons Actually Evacuated: 26

Sampling Time: 1355

Sample I.D.: S-1 Laboratory:

Analyzed for: TPHG, BTEX, TPHD, Motor Oil

Duplicate I.D.: Cleaning Blank I.D.:

Analyzed for:

Shipping Notations:

Additional Notations:

SHELL WELL MONITORING DATA SHEET

Project #: 940922-K4	Wic # 204-5508-3400
Sampler: KB	Date Sampled: 9/22
Well I.D.: S-2	Well Diameter: (circle one) 2 3 (4) 6 ___
Total Well Depth: Before 22.04 After	Depth to Water: Before 10.51 After
Depth to Free Product: —	Thickness of Free Product (feet):
Measurements referenced to: PVC (Grade)	Other --

Volume Conversion Factor (VCF):
$(12 \times (d^2/4) \times \pi)/231$
where
12 = in./foot
d = diameter (in.)
π = 3.1416
231 = in.³/gal

Well dia.	VCF
2"	= 0.16
3"	= 0.37
4"	= 0.65
6"	= 1.47
10"	= 4.08
12"	= 5.87

1 Case Volume		Specified Volumes	=	gallons
7.5	x	3		22.5

Purging: Bailer ☐ Middleburg ☐ Electric Submersible ☑ Suction Pump ☐ Type of Installed Pump ____

Sampling: Bailer ☐ Middleburg ☐ Electric Submersible ☐ Suction Pump ☐ Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1256	72.9	7.6	1600	55.6	8	gas odor
1258	73.8	7.2	1500	45.9	16	
1300	72.5	7.0	1600	81.3	23	

Did Well Dewater? N If yes, gals. — Gallons Actually Evacuated: 23

Sampling Time: 1310

Sample I.D.: S-2 Laboratory: Net

Analyzed for: TPHG, BTEX

Duplicate I.D.: Cleaning Blank I.D.:

Analyzed for:

Shipping Notations:

Additional Notations:

SHELL WELL MONITORING DATA SHEET

Project #: 940922-K4	Wic # 204-5508-3400
Sampler: ICCB	Date Sampled: 9/22
Well I.D.: S-3	Well Diameter: (circle one) 2 3 (4) 6 ___
Total Well Depth: Before 20.02 After	Depth to Water: Before 10.27 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC (Grade) Other --	

Volume Conversion Factor (VCF):
(12 × (d²/4) × π)/231
Where
12 = in./foot
d = diameter (in.)
π = 3.1416
231 = in³/gal

Well dia.	VCF
2"	= 0.16
3"	= 0.37
4"	= 0.65
6"	= 1.47
10"	= 4.08
12"	= 5.87

1 Case Volume		Specified Volumes	=	gallons
6.3	x	3	=	18.9

Purging: Bailer ☐
Middleburg ☐
Electric Submersible ☑
Suction Pump ☐
Type of Installed Pump ___

Sampling: Bailer ☑
Middleburg ☐
Electric Submersible ☐
Suction Pump ☐
Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1320	73.7	7.2	1300	22.5	6	strong gas
1322	72.8	7.2	1200	38.6	12	odor
1324	73.4	7.2	1200	96.7	19	

Did Well Dewater? N If yes, gals. — Gallons Actually Evacuated: 19

Sampling Time: 1335

Sample I.D.: S-3 Laboratory: Non

Analyzed for: TPHG, BTEX

Duplicate I.D.: DUP Cleaning Blank I.D.: EB-1317

Analyzed for: TPHG, BTEX

Shipping Notations:

Additional Notations: