enviros®

January 5, 1995

Mr. Lynn Walker
Shell Oil Company
P.O. Box 4023
Concord, California 94524

RE: **Quarterly Monitoring Report - Fourth Quarter 1994**
Former Shell Service Station
461 Eighth Street
Oakland, California
WIC #204-5508-6205

Dear Mr. Walker:

This Quarterly Monitoring Report describes the recently completed activities associated with groundwater monitoring and sampling at the referenced site (Plate 1). This report was prepared to meet quarterly reporting requirements issued by the Regional Water Quality Control Board, San Francisco Bay Region and Alameda County Health Care Services Agency.

This document presents the results of activities performed in the fourth quarter of 1994.

Executive Summary

- Blaine Tech Services Inc. of San Jose, California measured groundwater levels from off-site Wells S-4, S-5, and S-6 on October 24, 1994.
- Groundwater samples collected from Well S-4 and Well S-6 were transported to Crosby Laboratories, Inc. of Anaheim, California. A trip blank, equipment blank, and a duplicate sample were prepared and analyzed for quality control purposes.
- Enviros, Inc. (Enviros) evaluated water-level measurement data and chemical analytical results and prepared this report, which includes the Blaine Tech Quarterly Groundwater Sampling Report, a site plan, a groundwater contour map and a benzene concentration map.
- Groundwater flow was calculated to be to the east-southeast at a gradient of 0.06 ft/ft.
- Well S-4 was ND for TPH-G and BTEX. Well S-6 contained 2,936 ppb TPH-Gasoline and 1,184 ppb benzene.

- Well S-5 was gauged by Blaine Tech and evacuated by Crosby and Overton on a monthly basis. A total of approximately 165 gallons of groundwater and separate-phase hydrocarbon mixture were evacuated from this well. Separate-phase hydrocarbon thicknesses ranged from 0.15 to 0.56 feet.

- A sample of a separate-phase product was collected from Well S-5 and transported to Crosby Laboratories for analysis. The Gas Chromatogram for this sample indicates this product to be gasoline, with no detection of diesel or motor oil.

Site Conditions

Three off-site groundwater monitoring wells; S-4, S-5, S-6 (Plate 2) were present during sampling performed this quarter. These wells were installed in 1981. Wells S-1, S-2, S-3 and S-7 have been destroyed. Quarterly groundwater sampling began in October 1988.

A site investigation was performed on the former Shell property on July 6 and 7, 1994. Results from this investigation were transmitted in the Enviros report dated August 16, 1994.

Three onsite groundwater monitoring wells were installed on December 7 and 8, 1994. Analysis of groundwater samples from these wells will be included in subsequent quarterly reports.

Fourth Quarter 1994 Sampling Evaluation

Monitoring wells S-4 and S-6 were purged and physical parameters monitored prior to sampling. Field measurements are presented in Table 1. Groundwater samples collected were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-G) according to EPA Method 8015 (Modified) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) according to EPA Method 8020. The fourth quarter 1994 chemical analytical data for TPH-G and BTEX compounds have been included in the Historical Groundwater Quality Database (Table 2).

Groundwater samples were labeled, entered onto a chain of custody record, stored in a cooler with ice and transported to NET for chemical analysis.

The following field documents are included in this report (Appendix A):

- Blaine Tech Services Inc. Quarterly Groundwater Sampling Reports
- Chain-of-Custody Record
- Crosby Laboratories, Inc. Certified Analytical Reports

The fourth quarter 1994 groundwater contour map is presented on Plate 3. A benzene concentration map is presented on Plate 4.

Chemical analytical data are presented in the Crosby Laboratories certified analytical reports contained in Appendices A and B.

Conclusions

Evacuation of separate-phase petroleum hydrocarbons from Well S-5 by Crosby and Overton will continue to be performed on a monthly frequency.

Groundwater sampling and monitoring will continue on the established schedule, and will include three onsite wells installed during the fourth quarter of 1994.

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

Sincerely,

Enviros, Inc.

Jeffrey L. Peterson
Hydrogeologist

Diane M. Lundquist, P.E.
Senior Engineer
C46725

Attachments

Table 1. Field Monitoring Data
Table 2. Historical Groundwater Quality Database

Plate 1. Vicinity Map
Plate 2. Site Plan
Plate 3. Groundwater Elevation Map
Plate 4. Benzene Concentration Map

Appendix A. Blaine Tech Services Inc.- Quarterly Groundwater Sampling Report
Appendix B. Crosby Laboratories - Hydrocarbon Speciation Analytical Report

Distribution List

Mr. Richard Hiett, San Francisco Bay Region, Regional Water Quality Control Board
Ms. Jennifer Eberle, Alameda County Health Care Services Agency
Mr. Jim Matthews, Shell Oil Company

TABLE 1

FIELD MONITORING DATA

FORMER SHELL SERVICE STATION
461 EIGHTH STREET
OAKLAND, CALIFORNIA
204-5508-6205

GWE

WELL NO.	DATE	CASING DIA. (IN.)	TOTAL WELL DEPTH (FT.)	WELL ELEV. (FT.)	PRODUCT THICKNESS (FT.)	DEPTH TO FIRST IMMISCIBLES LIQUID (FT.)	DEPTH TO WATER (FT.)	STATIC WATER ELEV. (FT.)
S-4	24-Oct-94	4	28.81	93.51	0.00	NONE	22.72	70.79
S-5	25-Aug-94	4	---	99.36	0.44	21.57	22.01	77.70
	22-Sep-94	4	---	99.36	0.15	21.85	22.00	77.48
	24-Oct-94	4	---	99.36	0.56	21.72	22.28	77.53
S-6	24-Oct-94	4	36.74	100.58	0.00	NONE	22.06	78.52

NOTES

Static water elevations referenced to project site datum.

* = Groundwater elevation corrected to include 80 percent of the floating product thickness measured in the well.

TABLE 2

HISTORICAL GROUNDWATER QUALITY DATABASE

FORMER SHELL SERVICE STATION
461 EIGHTH STREET
OAKLAND, CALIFORNIA
WIC 204-5508-6205

WELL DESIGNATION	SAMPLE DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
S-2	16-Apr-87	47,000	8,200	4,700	---	3,100
S-4	26-Oct-88	130	3.8	13	4	30
	14-Feb-89	<50	0.5	<1	<1	3
	1-May-89			Dry		
	27-Jul-89			Dry		
	5-Oct-89			Dry		
	9-Jan-90			Dry		
	30-Apr-90	<50	<0.5	<0.5	<5	<1
	31-Jul-90			Dry		
	30-Oct-90			Dry		
	6-May-91			Dry		
	27-Jun-91	<50	<0.5	<0.5	<0.5	<0.5
	24-Sep-91			Dry		
	7-Nov-91			Dry		
	13-Feb-92	<50	<0.5	<0.5	<0.5	3
	11-May-92			Dry		
	3-Dec-92			Inaccessible		
	13-May-93			Inaccessible		
	22-Jul-93			Inaccessible		
	20-Oct-93			Inaccessible		
	25-Jan-94			Inaccessible		
	25-Apr-94			Inaccessible		
	21-Jul-94	<50	<0.5	<0.5	<0.5	<0.5
	24-Oct-94	<500	<0.3	<0.3	<0.3	<0.6
S-5	16-Apr-87	130,000	15,000	16,000	---	14,000
	26-Oct-88	110,000	20,000	25,000	2,300	10,000
	14-Feb-89	94,000	16,000	21,000	1,800	10,000
	1-May-89	120,000	29,000	35,000	3,100	15,000
	27-Jul-89	110,000	20,000	29,000	2,400	14,000
	5-Oct-89			Floating Product 0.01 ft		
	9-Jan-90			Floating Product 0.01 ft		
	30-Apr-90	100,000	13,000	22,000	2,100	11,000
	31-Jul-90	53,000	8,300	14,000	1,200	7,400
	30-Oct-90			Floating Product 0.03 ft		
	6-May-91			Floating Product 0.13 ft		
	27-Jun-91			Floating Product 0.03 ft		
	24-Sep-91			Floating Product 0.06 ft		
	7-Nov-91			Floating Product 0.25 ft		
	13-Feb-92			Floating Product 0.31 ft		
	11-May-92			Floating Product 0.58 ft		

TABLE 2

HISTORICAL GROUNDWATER QUALITY DATABASE

FORMER SHELL SERVICE STATION
461 EIGHTH STREET
OAKLAND, CALIFORNIA
WIC 204-5508-6205

WELL DESIGNATION	SAMPLE DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
S-5	3-Dec-92			Inaccessible		
	13-May-93			Floating Product 0.27 ft		
	22-Jul-93			Floating Product 0.25 ft		
	20-Oct-93			Floating Product 0.23 ft		
	25-Jan-94			Floating Product 0.18 ft		
	25-Apr-94			Floating Product 0.35 ft		
	26-May-94			Floating Product 0.35 ft		
	10-Jun-94			Floating Product 0.32 ft		
	21-Jul-94			Floating Product 0.47 ft		
	25-Aug-94			Floating Product 0.44 ft		
	22-Sep-94			Floating Product 0.15 ft		
	24-Oct-94			Floating Product 0.56 ft		
S-6	16-Apr-87	81,000	16,000	9,000	---	6,400
	26-Oct-88	110,000	29,000	18,000	2,500	8,200
	14-Feb-89	54,000	18,000	4,500	1,400	4,000
	1-May-89	93,000	43,000	9,900	3,000	8,000
	27-Jul-89	52,000	20,000	3,200	1,700	5,500
	5-Oct-89	55,000	20,000	2,900	1,600	5,500
	9-Jan-90	76,000	35,000	9,100	2,300	8,600
	30-Apr-90	39,000	13,000	2,300	900	2,800
	31-Jul-90	48,000	20,000	4,600	1,500	4,900
	30-Oct-90	27,000	7,400	900	600	1,400
	6-May-91	35,000	3,900	2,700	2,300	3,500
	27-Jun-91	51,000	19,000	5,600	1,700	6,300
	24-Sep-91	42,000	14,000	4,300	1,200	4,000
	7-Nov-91	39,000	11,000	2,000	800	2,300
	13-Feb-92	64,000	21,000	6,200	1,600	5,100
	11-May-92	57,000	22,000	7,600	2,200	7,700
	3-Dec-92	110,000	26,000	9,400	2,100	8,700
	13-May-93	58,000	21,000	6,800	2,500	9,800
	22-Jul-93	70,000	31,000	14,000	3,000	13,000
	20-Oct-93	48,000	28,000	9,800	3,200	12,000
	25-Jan-94	70,000	23,000	7,500	2,500	8,000
	25-Apr-94	61,000	16,000	4,000	1,800	5,100
	21-Jul-94	44,000	8,200	3,600	1,400	3,900
	24-Oct-94	2,936	1,184	440.6	163.4	648.4
	21-Jul-94	32,000	7,800	3,400	1,300	3,700
S-6 DUP	24-Oct-94	2,968	770.8	325.3	144.1	622

TABLE 2

HISTORICAL GROUNDWATER QUALITY DATABASE

FORMER SHELL SERVICE STATION
461 EIGHTH STREET
OAKLAND, CALIFORNIA
WIC 204-5508-6205

WELL DESIGNATION	SAMPLE DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)

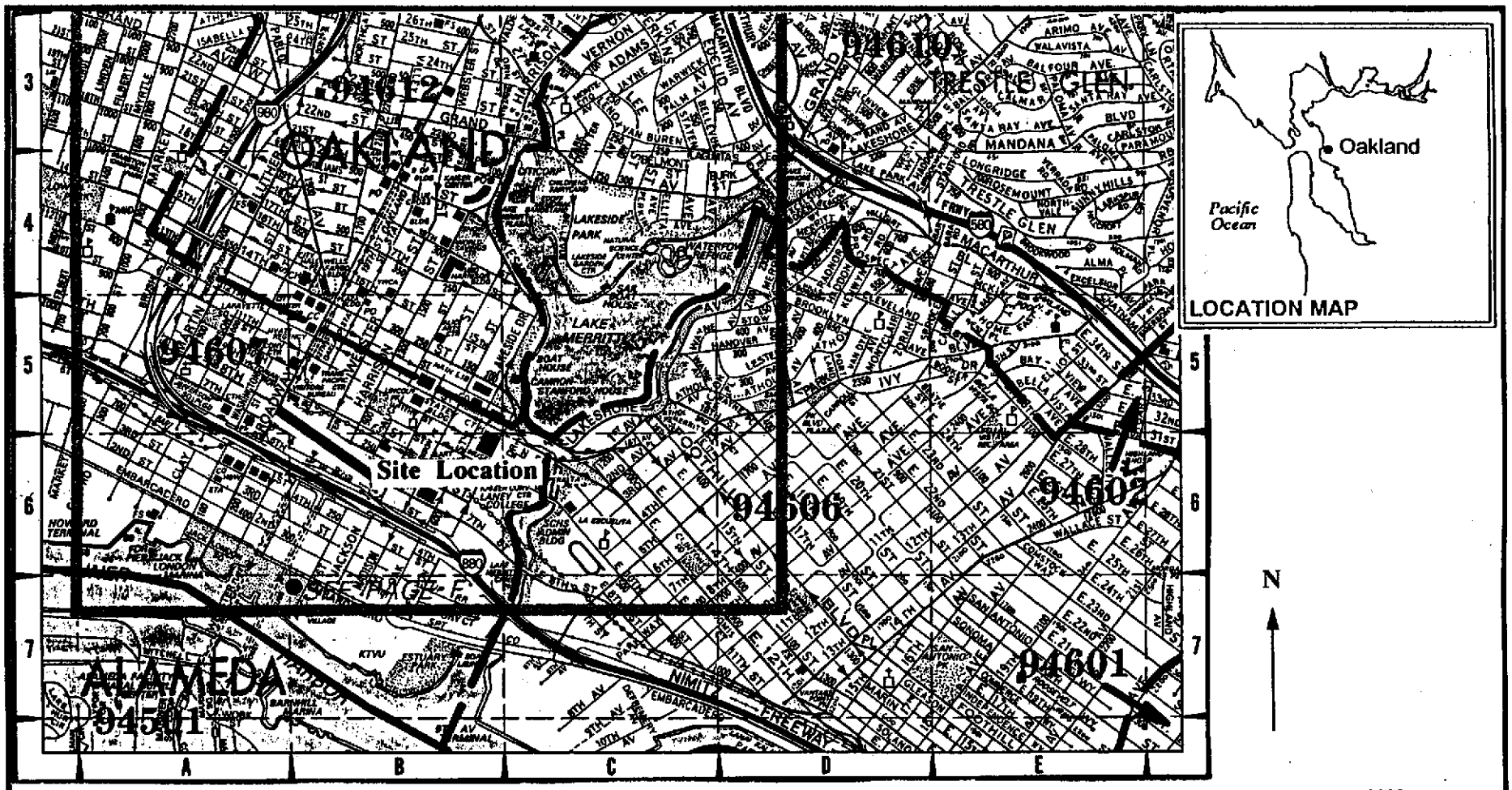
Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015

Benzene, Toluene, Ethylbenzene, and Xylenes analyzed by EPA Method 8020

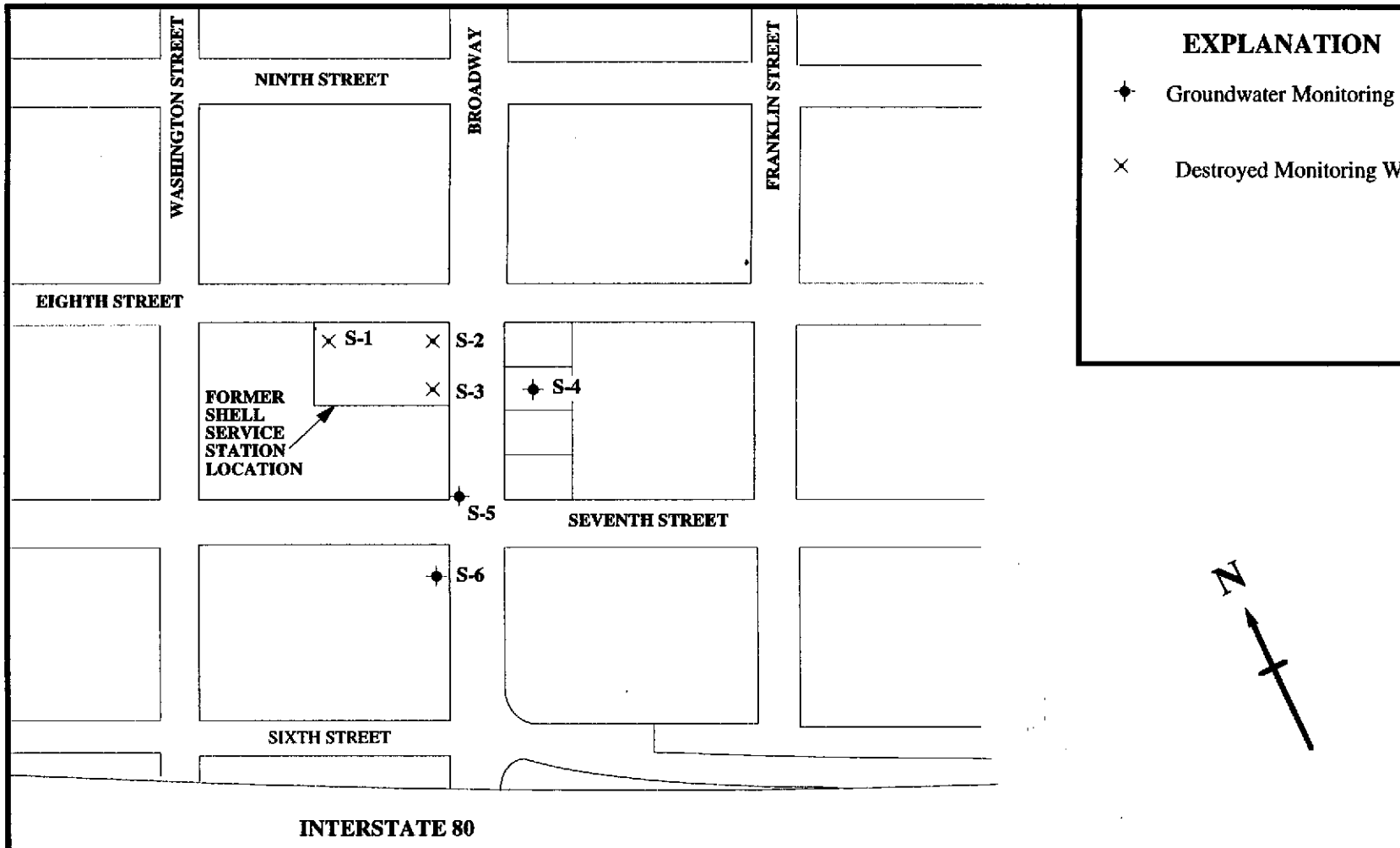
--- = Ethylbenzene and Xylenes were combined prior to May 1987

<x = Not detected at detection limit of x



Base Map: 1993 Thomas Guide

PLATE	VICINITY MAP	
1	Former Shell Service Station 461 Eighth Street Oakland, California	*enviros*® E49307216
Drawn By: CJG	Date: 12/6/93	Approved By: BK Date: 1-5-95



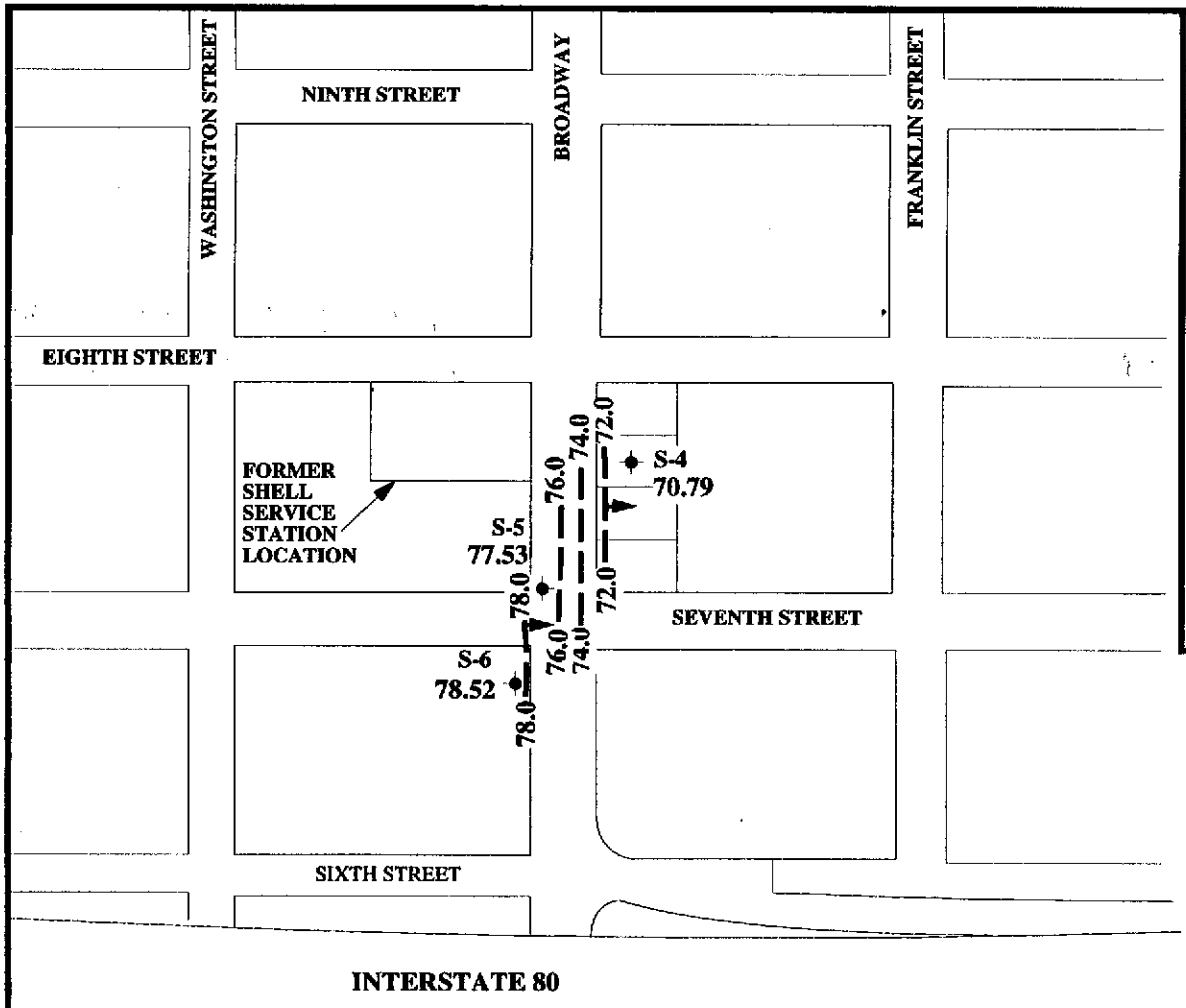
Note: Base Map taken from GeoStrategies Inc. Report dated 10-4-93.

PLATE 2

SITE PLAN
Former Shell Service Station
461 Eighth Street
Oakland, California

enviros®
94216

Drawn By: JLP | Date: 12-13-94 | Approved By: [illegible] | Date: 1-5-95



EXPLANATION

- Groundwater Monitoring Well

77.36

- Groundwater Elevation in Feet; Referenced to Mean Sea Level.

74.0

Groundwater Elevation Contour in feet (Referenced to Mean Sea Level). Arrows indicate approximate groundwater flow direction.

Approximate Hydraulic Gradient = 0.06 ft./ft.

Note: Water levels measured on 10-24-94.

N

0 200

Scale in Feet

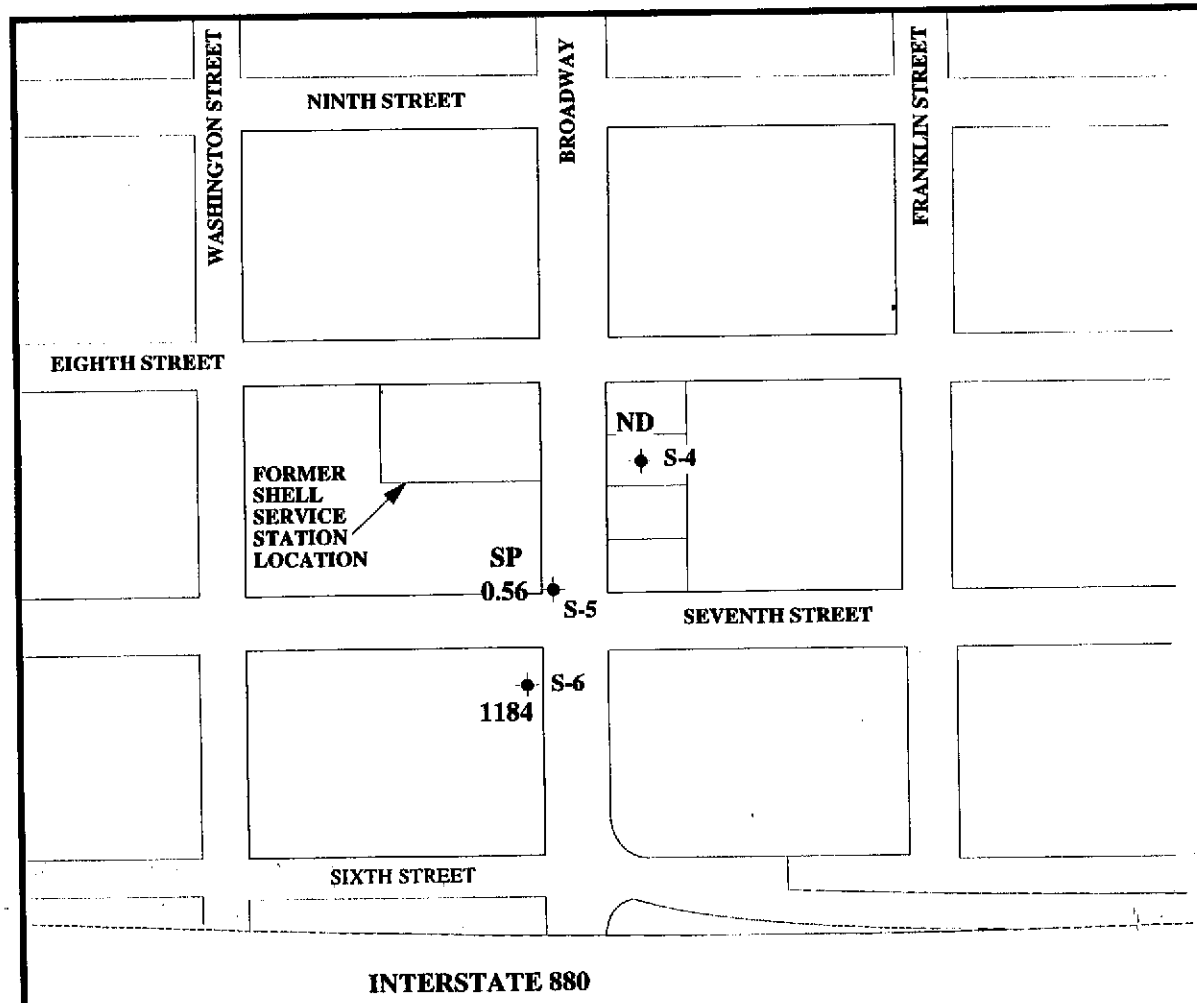
Note: Base Map taken from GeoStrategies Inc. Report dated 10-4-93.

PLATE 3

GROUNDWATER ELEVATION MAP
Former Shell Service Station
461 Eighth Street
Oakland, California

enviros®
94207

Drawn By: JLP | Date: 12-13-94 | Approved By: [illegible] | Date: 1-5-95



EXPLANATION

- Groundwater Monitoring Well
- S-6
- 1184 — Benzene Concentrations in parts per billion (ppb)
- 0.56 SP — Separate Phase Product Thickness in feet
- ND — Not Detected

Note: Wells sampled on 10-24-94

N

0 200

Scale in Feet

Note: Base Map taken from GeoStrategies Inc. Report dated 10-4-93.

PLATE 4

BENZENE CONCENTRATION MAP
Former Shell Service Station
461 Eighth Street
Oakland, California

enviros®
94216

Drawn By: JLP | Date: 12-13-94 | Approved By: AK | Date: 1-5-95

Appendix A

Blaine Tech Services Inc.
Quarterly Groundwater Sampling Report

Chain-of Custody Record

Crosby Laboratories, Inc.
Certified Analytical Report

BLAINE
TECH SERVICES INC.

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

November 15, 1994

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

Attn: Lynn Walker

SITE:
Shell WIC #204-5508-6200
461 8th Street
Oakland, California

QUARTER:
4th quarter of 1994

QUARTERLY GROUNDWATER SAMPLING REPORT 941024-E-1

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 obtained 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 Crosby Laboratories, Inc. in Anaheim, California. Crosby Laboratories, Inc. is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1552.

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: Enviros, Inc.
P.O. Box 259
Sonoma, CA 95476-0259
ATTN: Diane Lundquist

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-4	10/24/94	TOB	--	NONE	--	--	22.72	28.81
S-5	10/24/94	TOB	FREE PRODUCT	21.72	0.56	--	22.28	--
S-6 *	10/24/94	TOB	ODOR	NONE	--	--	22.06	36.74

* Sample DUP was a duplicate sample taken from well S-6.

Grey Bin on Shelf 5

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 9410Z4-E1 9410.188 1/8

Date: 10/24/94
Page 1 of 1

Site Address: 461 8th Street, Oakland

WIC#: 204-5508-6200

Shell Engineer: Lynn Walker — Phone No.: (510) 675-6160 Fax #: 675-6172

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: Kent Brown

Printed Name: Kent Brown

LAB: CROSBY LABS

CHECK ONE (1) BOX ONLY — C/D1

- Quarterly Monitoring XX — 8441
- Site Investigation — 8441
- Soil Closure/Disposal — 8442
- Water Closure/Disposal — 8443
- Soil/Air Rem. or Sys. O & M — 8452
- Water Rem. or Sys. O & M — 8453
- Other

TURN AROUND TIME

- 24 hours
- 48 hours
- 15 days X (Normal)
- Other ____

NOTE: Holding time as soon as Possible for 24/48 hr. 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	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
S-4	10/24/94			W		3						X		40 ml	HCl		AA51852	
S-6				W		3						X					AA51853	
EB				W		3						X					AA51854	
DUP				W		3						X					AA51855	
T.B.	↓			W		2						X		↓	↓		AA51856	

Relinquished By (signature)	Printed Name	Date	Time	Received (signature)	Printed Name	Date	Time
Kent Brown	Kent Brown	10/24/94	10:45	B Capoccia	B Capoccia	10/25/94	10:45
B Capoccia	B Capoccia	10/25/94	3:10	[illegible]	Terry McLaughlin	10/25/94	3:10
				[illegible]	[illegible]	10/26/94	1100

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

CROSBY
LABORATORIES
INCORPORATED

Analytical Report

1101 South Richfield Road Placentia, California 92670 • 714-777-1425 • 1-800-3 CROSBY • FAX 714-777-3926

ENVIRONMENTAL • CHEMICAL • MICROBIOLOGICAL • TESTING SERVICES

COVER SHEET

LAB RECEIVING #: 9410.188

REPORT DATE: 11/11/94

REPORTED TO: BLAINE TECH SERVICES, INC.
ATTN.: MR. JIM KELLER
985 TIMOTHY DRIVE
SAN JOSE, CA 95133

WIC #: 204-5508-6200
PROJECT #: 941024-E1
PROJECT NAME: SHELL-461 8TH STREET, OAKLAND

DATE SAMPLED: 10/24/94
DATE RECEIVED: 10/25/94
 # OF SAMPLES: 5

SAMPLE MATRIX: LIQUID

SAMPLE ID: S-4
S-6
EB
DUP
T.B.

SAMPLE HANDLING & CONTROL STATEMENT

The above mentioned samples were received in appropriate containers accompanied by a fully signed and dated chain-of-custody record. The containers were assigned unique identification numbers and had sufficient amount for the test requested. There were no site specific quality control requirements made at the time of sample submittal. Samples submitted did not exceed the holding time of the requested test parameters.

QUALITY CONTROL SUMMARY STATEMENT

Laboratory Quality Control parameters and results of instrument calibration standards were all within control limits and the analytical data hereby submitted falls within acceptable limits of accuracy and precision unless otherwise indicated. Please see the attached Quality Control Data for additional information.

SUBMITTED BY:

Girma Selassie
QA/QC Director

CERTIFICATE OF APPROVED ANALYSIS

The information contained in this cover sheet is an integral part of the attached analytical report.

DOHS Lab Certificate #: 1552
Expiration Date: 6/30/95

A2LA Certificate #: 0389.01
Expiration Date: 9/30/94

CROSBY LABORATORIES INCORPORATED

1101 South Richfield Road Placentia, California 92670 • 714-777-1425 • 1-800-3 CROSBY • FAX 714-777-3926

ENVIRONMENTAL • CHEMICAL • MICROBIOLOGICAL • TESTING SERVICES

Analytical Report

CLIENT: BLAINE TECH SERVICES, INC.

ATTN.: MR. JIM KELLER

LAB RECEIVING#: 9410.188

WIC #: 204-5508-6200

PROJECT #: 941024-E1

PROJECT NAME: SHELL-461 8TH STREET, OAKLAND

Spl. Prep. Meth.: EPA 5030

MATRIX:	LIQUID
UNIT:	µg/l

Prepared:	11/04-05/94
Analyzed:	11/04-05/94
Analyst:	AR

			EPA 8020 (Partial)/8015 TPH-Modified (Gasoline)					%Surrogate Recovery	
Lab ID	Client Sample ID	D.F.	Benzene	Toluene	Ethyl Benzene	Total Xylene	TPH Gasoline	BTEX (70-130)	TPH (70-130)
RA110494	METHOD BLANK	1	ND	ND	ND	ND	ND	77	74
AA51852	S-4	1	ND	ND	ND	ND	ND	90	77
AA51853	S-6	200	1184	440.6	163.4	648.4	2936	101	72
AA51854	EB	1	ND	ND	ND	ND	ND	83	65*
AA51855	DUP	200	770.8	325.3	144.1	622	2968	87	74
AA51856	T.B.	1	ND	ND	ND	ND	ND	97	77
DETECTION LIMITS			0.3	0.3	0.3	0.6	500		

QUALITY CONTROL DATA, EPA-8020Part./8015Mod.

		ACCURACY				PRECISION	
MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SPK CONC. (µg/l)	MS (µg/l)	% MS	MSD (µg/l)	% MSD	ACP % MS	RPD	ACP % RPD
Benzene	8.0	9.0	113	9.2	115	80-120	2	0-25
Toluene	8.0	9.1	114	9.3	116	80-120	2	0-25
Ethyl Benzene	8.0	9.0	113	9.1	114	80-120	<1	0-25

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	QC STD #	ANALYZED
	AA52188	DISCHARGE	BT110494	GC148	11/05/94

NOTES:

ND denotes Not Detected at the indicated detection limit.

**Surrogate recovery is out of limits due to matrix interference.*

This report is preceded by a cover sheet that contains vital information.

Appendix B

Crosby Laboratories, Inc.
Hydrocarbon Speciation Analytical Report

Chain-of-Custody Record

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: Lynn Walker

SITE:
Shell WIC #204-5508-6200
461 8th Street
Oakland, California

QUARTER:
3rd quarter of 1994

QUARTERLY GROUNDWATER SAMPLING REPORT 940922-K-1

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 obtained 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 Crosby Laboratories, Inc. in Anaheim, California. Crosby Laboratories, Inc. is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1552.

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: Enviros, Inc.
P.O. Box 259
Sonoma, CA 95476-0259
ATTN: Diane Lundquist

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-5	8/25/94	TOB	FREE PRODUCT	21.57	0.44	--	22.01	--
	9/22/94	TOB	FREE PRODUCT	21.85	0.15	--	22.00	--

RECEIVED
DEC 27 1994

Shelf #2 Bin #3

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 940922-ICI 9409.180

Date: 9/22/94
Page 1 of 1

Site Address: 461 8th Street, Oakland

WIC#: 204-5508-6200

Shell Engineer: Lynn Walker
Phone No.: (510) 675-6169
Fax #: 675-6172

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: CONTACT DIANE LUNDQUIST @ ENVIROS (707) 935-4850

Sampled by: KCB

Printed Name: Keith Brown

LAB: CROSBY

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	HYDROCARBON FINGERPRINT		Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
S-5	9/22			X		4							X						AA50538	

CHECK ONE (1) BOX ONLY | CT/DT
- Quarterly Monitoring XX | 6441
- Site Investigation | 6441
- Soil Classify/Disposal | 6442
- Water Classify/Disposal | 6443
- Soil/Air Rem. or Sys. O & M | 6452
- Water Rem. or Sys. O & M | 6453
- Other

TURN AROUND TIME
- 24 hours
- 48 hours
- 15 days XX (Normal)
- Other ____

NOTE: Notify us as soon as Possible of 24/48 hr. TAT.

Relinquished By (signature)	Printed Name	Date/Time	Received (signature)	Printed Name	Date/Time
	Keith Brown	Date: 9/23/94 Time: 09:35	D CAROCCIA	D CAROCCIA	Date: 9/23/94 Time: 09:35
D CAROCCIA	D CAROCCIA	Date: 9/27/94 Time:	J Pick	J Pick	Date: 9/27/94 Time: 3:14
J Pick	J Pick	Date: 9/28/94 Time: 10:40	Jenny Byramian	Jenny Byramian	Date: 9/28/94 Time: 10:40

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

White Copy to Lab

CROSBY
LABORATORIES
INCORPORATED

1101 South Richfield Road Placentia, California 92670 • 714-777-1425 • 1-800-3 CROSBY • FAX 714-777-3926

ENVIRONMENTAL • CHEMICAL • MICROBIOLOGICAL • TESTING SERVICES

Analytical Report

LAB RECEIVING #: **9409.180**

COVER SHEET

REPORT DATE: 10/10/94

REPORTED TO: **BLAINE TECH SERVICES, INC.**
ATTN.: **MR. JIM KELLER**
985 TIMOTHY DRIVE
SAN JOSE, CA 95133

WIC #: 204-5508-6200
PROJECT #: 940922-K1
PROJECT NAME: SHELL-461 8TH STREET, OAKLAND

DATE SAMPLED: 09/22/94
DATE RECEIVED: 09/23/94
 # OF SAMPLES: 1

SAMPLE MATRIX: LIQUID

SAMPLE ID: S-5

NOTE:
Report was re-submitted on 12/14/94.

SAMPLE HANDLING & CONTROL STATEMENT

The above mentioned sample was received in appropriate container accompanied by a fully signed and dated chain-of-custody record. The container was assigned a unique identification number and had sufficient amount for the test requested. There were no site specific quality control requirements made at the time of sample submittal. Sample submitted did not exceed the holding time of the requested test parameters.

QUALITY CONTROL SUMMARY STATEMENT

Laboratory Quality Control parameters and results of instrument calibration standards were all within control limits and the analytical data hereby submitted falls within acceptable limits of accuracy and precision unless otherwise indicated. Please see the attached Quality Control Data for additional information.

SUBMITTED BY:

Girma Selassie
QA/QC Director

CERTIFICATE OF APPROVED ANALYSIS

The information contained in this cover sheet is an integral part of the attached analytical report.

DOHS Lab Certificate #: 1552
Expiration Date: 6/30/95

A2LA Certificate #: 0389.01
Expiration Date: 9/30/94

CROSBY
LABORATORIES
INCORPORATED

Analytical Report

1101 South Richfield Road Placentia, California 92670 • 714-777-1425 • 1-800-3 CROSBY • FAX 714-777-3926

ENVIRONMENTAL • CHEMICAL • MICROBIOLOGICAL • TESTING SERVICES

CLIENT: BLAINE TECH SERVICES, INC.
ATTN.: MR. JIM KELLER

LAB RECEIVING#: 9409.180

WIC #: 204-5508-6200
PROJECT #: 940922-K1
PROJECT NAME: SHELL-461 8TH STREET, OAKLAND

MATRIX:	LIQUID
UNIT:	mg/l

Prepared:	10/06/94
Analyzed:	10/06/94
Analyst:	AR

HYDROCARBON SPECIATION

COMPOUNDS:	Lab ID: AA50538 Client Sample ID: S-5 D.F.: 1000000	Detection Limit
C5	117771	1
C6	37329	1
C7	73026	1
C8	34542	1
C9	31002	1
C10	55280	1
C11	6192	1
C12	6635	1

NOTES:

ND denotes Not Detected at the indicated detection limit.

This report is preceded by a cover sheet that contains vital information.