GeoStrategies Inc.

SITE UPDATE

Former Shell Service Station
2800 Telegraph Avenue
Oakland, California

761001-11

January 17, 1991

Shell Oil Company

EAST BAY MARKETING DISTRICT

P.O. Box 4023
Concord, CA 94524
(415) 676-1414

January 18, 1991

LOP 413

Ms. Susan Hugo
County of Alameda
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

SUBJECT: FORMER SHELL SERVICE STATION
2800 TELEGRAPH AVENUE 94609
OAKLAND, CALIFORNIA

Dear Ms. Hugo:

Enclosed is a of copy of the January 17, 1991 Site Update report for the subject location. The report presents the results of the ground-water sampling conducted during the fourth quarter of 1990.

If you should have any questions or comments regarding this project please do not hesitate to call me at (415) 675-6127.

Very truly yours,

Jack Brastad
Senior Engineer

enclosure

cc: Mr. Tom Callaghan, Regional Water Quality Control Board
Mr. John Werfal, Gettler-Ryan Inc.

91 JAN 22 P12:56

GeoStrategies Inc.
2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545
(415) 352-4800

January 17, 1991

Gettler-Ryan Inc.
2150 West Winton Avenue
Hayward, California 94545

Attn: Mr. John Werfal

Re: SITE UPDATE
Former Shell Service Station
2800 Telegraph Avenue
Oakland, California

Gentlemen:

This Site Update has been prepared by GeoStrategies Inc. (GSI) for the above referenced location (Plate 1). This report describes the results of the fourth quarter ground-water sampling performed by Gettler-Ryan Inc. (G-R) in accordance with the current quarterly monitoring plan for the site. G-R ground-water sampling protocol and quality control (QC) procedures are presented in the GSI report dated October 26, 1990. Field work and laboratory analysis methods were performed to comply with current State of California Water Resources Control Board (SWRCB) procedures for conducting environmental investigations related to leaking underground fuel tanks. The field and chemical analytical data discussed in this report were collected between October 1 and December 31, 1990.

The site was formerly occupied by a Shell Service Station. In late 1987, five exploratory soil borings were drilled onsite to evaluate soil quality conditions prior to relinquishment of the property. During the second quarter of 1988, three ground-water monitoring wells (S-1, S-2 and S-3) were installed to assess ground-water quality and to monitor water-levels to calculate flow direction and estimate the hydraulic gradient. The four underground storage tanks were removed in late 1988. In October 1988, four additional monitoring wells (S-4 through S-7) were installed around the periphery of the site to further evaluate the vertical and horizontal extent of petroleum hydrocarbon plume migration beneath the site.

Ground-water monitoring began in May 1988, by Blaine Tech Services Inc. (Blaine), and subsequently, in November 1988 G-R took over the monitoring program. Three additional monitoring wells (S-8, S-9 and S-10) were installed during the third quarter of 1989. During the fourth quarter of 1989, one additional monitoring well (S-11) and one recovery well (SR-1) were installed. The recovery well location was selected based on historical chemical and isoconcentration data. G-R continued monthly monitoring and quarterly sampling for 1990. The results of the 1990 fourth quarter sampling are presented below.

CURRENT QUARTERLY SAMPLING RESULTS

Potentiometric Data

Prior to ground-water sampling on October 12, 1990, water levels were measured in each monitoring well using an electronic oil-water interface probe. Static water levels were measured from the surveyed top of well box and recorded to the nearest $\pm$0.01 foot. Plate 2 shows the location of each well at the site.

Ground-water elevation data for the fourth quarter have been plotted and contoured and are presented on Plate 3. Water-level data used to prepare the quarterly potentiometric map were taken from data collected on the same day that ground-water sampling occurred. Depth to groundwater ranges from 10.10 feet to 11.43 feet below existing grade. These depths correspond to a range in elevation from 19.84 to 24.11 feet above Mean Sea Level (MSL). The calculated hydraulic gradient is 0.014 with groundwater flowing to the south towards Well S-11.

Floating-Product Measurements

Measurements for separate-phase petroleum hydrocarbons (floating product) were made in each well using an electronic oil-water interface probe. Floating-product thicknesses, if present, were measured and recorded to the nearest $\pm$0.01 foot. A clean, clear, acrylic bailer was used to confirm interface probe measurements and check for the presence of product sheens. Floating product was only detected only in Well S-3, at a measured thickness of 0.12 feet.

Chemical Analytical Data

Ground-water samples for the fourth quarter were collected by G-R from ten site monitoring wells (S-1, S-2 and S-4 through S-11) on October 12, 1990. Collected ground-water samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) according to EPA Method 8015 (Modified); and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) according to EPA Method 8020. International Technology (IT) Analytical Services, a State-certified environmental laboratory located in San Jose, California performed the analyses.

TPH-Gasoline was detected in Wells S-6, S-7, S-8 and S-11 at concentrations ranging from 0.63 parts per million (ppm) (S-7) to 1.7 ppm (S-6). Wells S-2, S-4 through S-8 and S-11 contained benzene concentrations ranging from 0.0005 ppm (S-5) to 0.39 ppm (S-6). Benzene concentrations in Wells S-2, S-4, S-6 through S-8 and S-11 are at or above the current established Regional Water Quality Control Board (RWQCB) Maximum Contaminant Level (MCL). Wells S-1, S-2, S-4, S-5, S-9 and S-10 were reported as None Detected (ND) for TPH-Gasoline. Wells S-1, S-9 and S-10 were reported as ND for benzene. Well S-11 contained toluene at the current Department of Health Services (DHS) Action Level. TPH-Gasoline and benzene concentrations have been plotted on Plate 4. The G-R Groundwater Sampling Report, Chain-of-Custody forms and IT's Analytical Report for this sampling are presented in Appendix A.

Quality Control

Quality Control (QC) samples for this quarter's sampling included a trip blank (TB), field blank (SF-2) and a duplicate sample (SD-1). The trip blank was prepared by IT using organic-free water to evaluate field and laboratory handling procedures. The field blank was prepared in the field using organic-free water provided by IT Analytical Services (IT) to evaluate field procedures and ambient site conditions. The duplicate sample was prepared in the field by collecting a split (second) sample from Well S-1 to quantitatively assess laboratory analytical methods and precision.

Chemical analytical results of the trip blank and field blank were ND for the constituents analyzed. Chemical analytical results indicate that no hydrocarbons were introduced into the samples during handling, transport, or from ambient site conditions.

The analytical results from S-1 and SD-1 were evaluated for analytical precision using the Relative Percent Difference (RPD) method. The calculated RPD value for TPH-Gasoline and benzene for Well S-1 was 0%.

SUMMARY

- The monitoring network was sampled on October 12, 1990.
- Depth to ground-water measurements ranged from 10.10 feet to 11.43 feet below existing grade.
- Shallow groundwater appears to flow to the south with an approximate hydraulic gradient of 0.014.
- Floating product was only measured in Well S-3 at a thickness of 0.12 feet.
- TPH-Gasoline was detected in Wells S-6 (1.7 ppm), S-7 (0.63 ppm), S-8 (1.0 ppm), and S-11 (1.2 ppm).
- Five wells (S-4, S-6, S-7, S-8 and S-11) contained benzene concentrations above the current RWQCB MCL.
- Wells S-1, S-9 and S-10 were reported as ND for benzene.

PLANNED SITE ACTIVITIES

The following activities are planned at the site during the first quarter of 1991:

- All scheduled wells will be sampled and analyzed for TPH-Gasoline according to EPA Method 8015 (Modified) and BTEX according to EPA Method 8020.

- o Water levels will be measured monthly and selected data will be used to prepare a potentiometric map across the site. The local shallow ground-water gradient will be calculated.
- o A Site Update report will be prepared for the first quarter of 1991.

If you have any questions, please call.

GeoStrategies Inc. by,

Timothy J. Walker
Geologist

David H. Peterson
Senior Geologist
C.E.G. 1186

REGISTERED GEOLOGIST
DAVID H. PETERSON
No. 1186
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

TJW/DHP/mlg

Plate 1. Vicinity Map
Plate 2. Extended Site Plan
Plate 3. Potentiometric Map
Plate 4. TPH-G/Benzene Concentration Map

Appendix A: Gettler-Ryan Inc. Groundwater Sampling Report

QC Review: JLP/dhp

TABLE 1

GROUND-WATER ANALYSIS DATA

WELL NO	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	WELL ELEV (FT)	STATIC WATER ELEV (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
S-1	12-Oct-90	24-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	35.31	24.11	----	11.20
S-2	12-Oct-90	24-Oct-90	<0.05	0.0020	<0.0005	<0.0005	<0.0005	33.91	22.93	----	10.98
S-3	----	----	----	----	----	----	----	33.56	22.88	0.12	10.78
S-4	12-Oct-90	24-Oct-90	<0.05	0.0010	0.0047	0.0010	0.0032	34.08	22.66	----	11.42
S-5	12-Oct-90	24-Oct-90	<0.05	0.0005	0.0026	0.0005	0.0017	33.42	22.60	----	10.82
S-6	12-Oct-90	25-Oct-90	1.7	0.39	0.0065	0.0036	0.016	32.59	22.09	----	10.50
S-7	12-Oct-90	25-Oct-90	0.63	0.043	0.0053	0.0048	0.012	33.33	21.08	----	12.25
S-8	12-Oct-90	25-Oct-90	1.0	0.017	0.031	0.034	0.12	31.97	20.93	----	11.04
S-9	12-Oct-90	24-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	31.86	20.43	----	11.43

CURRENT REGIONAL WATER QUALITY CONTROL BOARD MAXIMUM CONTAMINANT LEVELS
Benzene 0.001 ppm Xylenes 1.750 ppm Ethylbenzene 0.68 ppm

CURRENT DHS ACTION LEVELS
Toluene 0.100 ppm

TPH-G = Total Petroleum Hydrocarbons as Gasoline
PPM = Parts Per Million SD = Duplicate Sample SF = Field Blank TB = Trip Blank

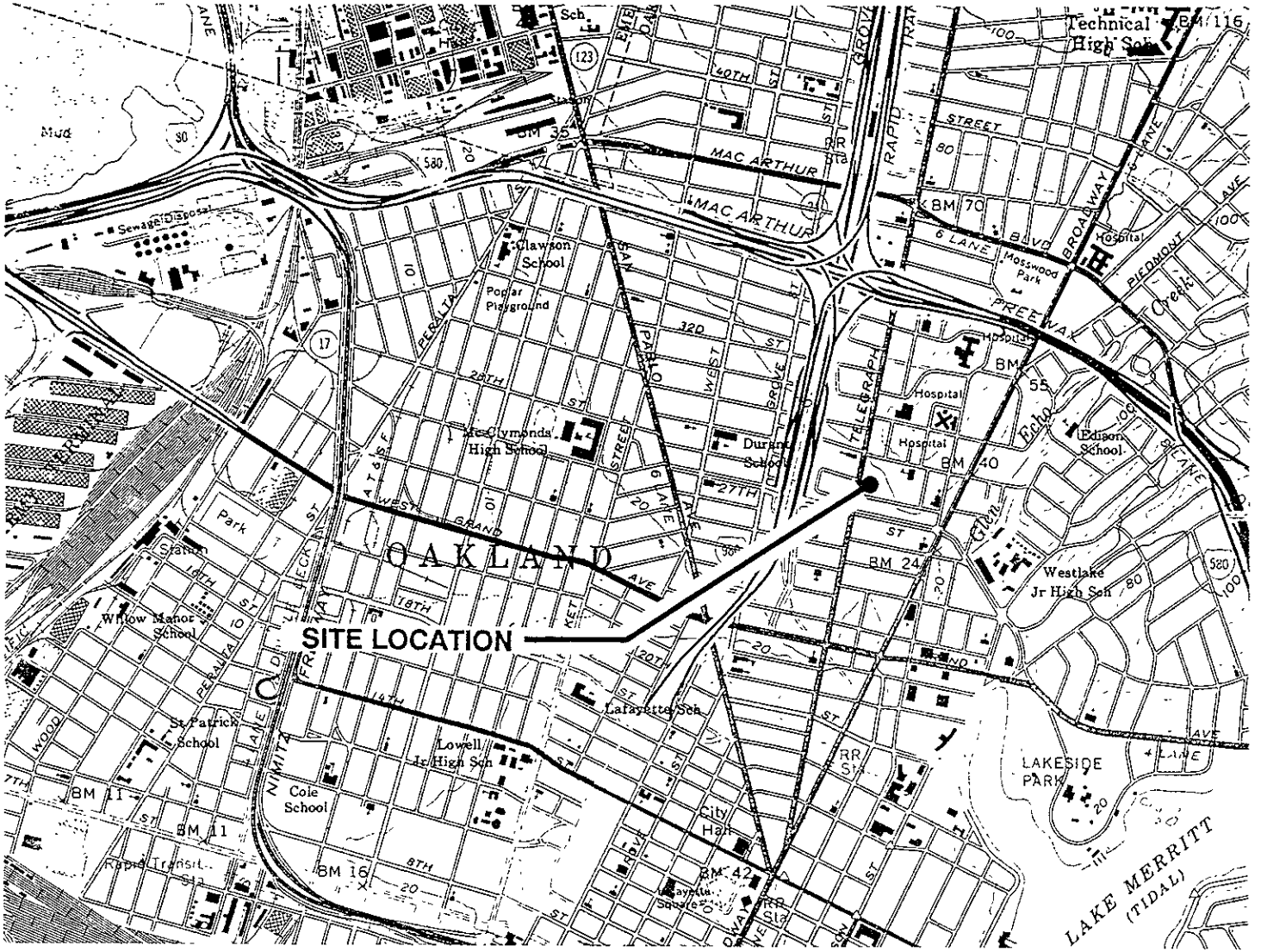
Note: 1. All data shown as <x are reported as ND (none detected).
2. Static Water Elevations referenced to mean sea level (MSL). Elevations are corrected for free product using a correction factor of 0.8.
3. DHS Action Levels and MCLs are subject to change pending State review.

TABLE 1

GROUND-WATER ANALYSIS DATA

WELL NO	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	WELL ELEV (FT)	STATIC WATER ELEV (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
S-10	12-Oct-90	24-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	32.95	22.85	----	10.10
S-11	12-Oct-90	25-Oct-90	1.2	0.14	0.10	0.064	0.22	30.78	19.84	----	10.94
SF-2	12-Oct-90	24-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	----	----	----	----
SD-1	12-Oct-90	24-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	----	----	----	----
TB	08-Oct-90	24-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	----	----	----	----

ILLUSTRATIONS



Base Map: USGS Topographic Map

GeoStrategies Inc.

VICINITY MAP
Former Shell Service Station
2800 Telegraph Avenue
Oakland, California

PLATE 1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7610			

COMMERCIAL

MERRIMAC ST.

COMMERCIAL

28th STREET

S-5

S-4

TELEGRAPH AVENUE

S-8

S-6

S-3

SR-1

S-D

S-E

APPROXIMATE LOCATION OF REMOVED U.G. STORAGE TANKS

S-C

KIOSK

SERVICE ISLANDS (Not in Use)

COMMERCIAL

S-B

S-1

APPROXIMATE AREA OF REMOVED U.G. TANK

SERVICE STATION BUILDING (Not in Use)

S-A

S-2

APPROXIMATE AREA OF REMOVED W.O. TANK

BUILDING

PARKING LOT

27th STREET

S-7

28th STREET

S-9

S-11

FENCE

RESIDENTIAL

RESIDENTIAL

S-10

Base Map - Field observations

0 40

Scale in Feet

EXPLANATION

- Ground-water monitoring well
- Ground-water recovery well
- Soil boring

PLATE 2

SITE PLAN
Former Shell Service Station
2800 Telegraph Avenue
Oakland, California

DATE 12/90

REVISED DATE

REVIEWED BY

GeoStrategies Inc.

GSI

JOB NUMBER 7610

PLATE 3

EXPLANATION

- Ground-water monitoring well
- Ground-water recovery well
- 99.99 — Ground-water elevation contour Approximate Gradient = 0.014
- 99.99 — Ground-water elevation in feet referenced to Mean Sea Level (MSL) measured on October 12, 1990

Note: Contours may be influenced by irrigation practices and/or site construction activities.

MERRIMAC ST.

28th STREET

TELEGRAPH AVENUE

27th STREET

28th STREET

S-5 22.60

S-4 22.66

20.93 S-8

22.09 S-6

22.50

22.88 S-3

SR-1

24.11 S-1

23.00

22.93 S-2

23.50

24.00

21.08 S-7

20.50

21.00

21.50

22.00

20.43 S-9

19.84 S-11

20.00

S-10 22.85

Base Map Field observations

0 40

Scale in Feet

N

POTENTIOMETRIC MAP
Former Shell Service Station
2800 Telegraph Avenue
Oakland, California

GeoStrategies Inc.

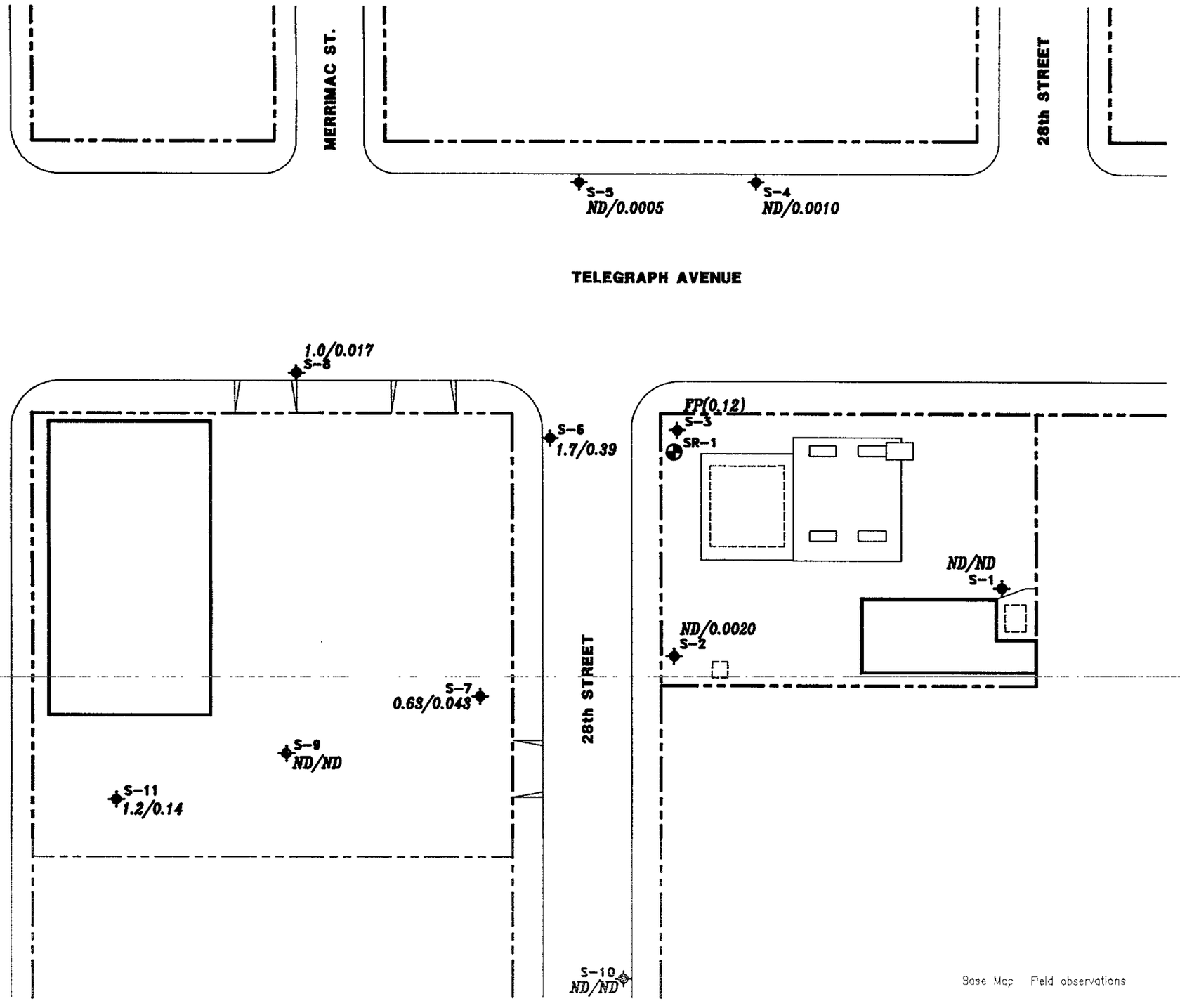
GSI

JOB NUMBER 7610

REVIEWED

DATE 12/90

REVISED DATE



EXPLANATION

- Ground–water monitoring well
- Ground–water recovery well
- *99/9.9* TPH–G (Total Petroleum Hydrocarbons calculated as Gasoline)/Benzene concentrations in ppm sampled on October 12, 1990
- *ND* Not Detected (See laboratory reports for detection limits)
- *FP(0.01)* Floating product (thickness in feet)

Base Map Field observations

N

0 40

Scale in Feet

TPH–G/BENZENE CONCENTRATION MAP
Former Shell Service Station
2800 Telegraph Avenue
Oakland, California

GeoStrategies Inc.

PLATE 4

DATE 12/90

REVISED DATE

REVIEWED BY

JOB NUMBER 7610

APPENDIX A
GETTLER-RYAN INC.
GROUNDWATER SAMPLING REPORT

gettler — ryan inc.

November 5, 1990

GROUNDWATER SAMPLING REPORT

Referenced Site: Former Shell Service Station
2800 Telegraph Avenue
Oakland, California

Sampling Date: October 12, 1990

This report presents the results of the quarterly groundwater sampling and analytical program conducted by Gettler-Ryan Inc. on October 12, 1990 at the referenced location. The site, located on the northeast corner of Telegraph and 28th Avenue, is no longer an operating service station. The former station had underground storage tanks which contained petroleum products.

There are currently four groundwater monitoring wells on site and seven off site at the locations shown on the attached site map. Prior to sampling, all wells were inspected for total well depth, water levels, and presence of separate phase product using an electronic interface probe. A clean acrylic bailer was used to visually confirm the presence and thickness of separate phase product. Groundwater depths ranged from 10.10 to 11.43 feet below grade. Separate phase product was observed in monitoring Well S-3.

The wells were then purged and sampled. The purge water was contained in drums for proper disposal. Standard sampling procedure calls for a minimum of four case volumes to be purged from each well. Each well was purged while pH, temperature, and conductivity measurements were monitored for stability. Details of the final well purging results are presented on the attached Table of Monitoring Data. In cases where a well dewatered or less than four case volumes were purged, groundwater samples were obtained after the physical parameters had stabilized. Under such circumstances the sample may not represent actual formation water, due to low flow conditions.

Samples were collected, using Teflon bailers, in properly cleaned and laboratory prepared containers. All sampling equipment was thoroughly cleaned after each well was sampled and steam cleaned upon completion of work at the site. The samples were labeled, stored on blue ice, and transported to the laboratory for analysis. A trip blank and field blank, (SF-2), supplied by the laboratory, were included and analyzed to assess quality control. A duplicate sample, (SD-1) was submitted without well designations to assess laboratory performance. Analytical results for the blanks are included in the Certified Analytical Report (CAR's). Chain of custody records were established noting sample identification numbers, time, date, and custody signatures.

2150 west winton avenue • hayward, california 94545-1210 • (415) 783-7500

The samples were analyzed at International Technology Corporation - Santa Clara Valley Laboratory, located at 2055 Junction Avenue, San Jose, California. The laboratory is assigned a California DHS-HMTL Certification number of 137. The results are presented as a Certified Analytical Report, a copy of which is attached to this report.

Tom Paulson
Sampling Manager

attachments

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	S-1 SD-1	S-2	S-3	S-4	S-5	S-6
Casing Diameter (inches)	3	3	3	3	3	3
Total Well Depth (feet)	27.9	25.5	----	28.9	30.6	22.1
Depth to Water (feet)	11.20	10.98	10.78 **	11.42	10.82	10.50
Free Product (feet)	none	none	0.12	none	none	none
Reason Not Sampled	----	----	free product	----	----	----
Calculated 3 Case Vol.(gal.)	25.2	22.0	----	26.4	30.8	17.6
Did Well Dewater?	yes	yes	----	yes	no	yes
Volume Evacuated (gal.)	25.0	13.0	----	25.0	41.0	10.0
Purging Device	Diaphram	Diaphram	----	Diaphram	Diaphram	Diaphram
Sampling Device	Bailer	Bailer	----	Bailer	Bailer	Bailer
Time	12:45	13:03	----	11:28	11:49	12:10
Temperature (F)*	67.4	67.8	----	68.6	70.4	71.3
pH*	6.75	6.84	----	6.83	7.05	6.64
Conductivity (umhos/cm)*	504	667	----	463	130	821

* Indicates Stabilized Value

** Not corrected for presence of free product

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	S-7	S-8	S-9	S-10	S-11
Casing Diameter (inches)	3	3	3	3	3
Total Well Depth (feet)	30.7	19.2	30.0	24.2	19.2
Depth to Water (feet)	12.25	11.04	11.43	10.10	10.94
Free Product (feet)	none	none	none	none	none
Reason Not Sampled	----	----	----	----	----
Calculated 3 Case Vol.(gal.)	28.0	12.4	28.4	21.6	12.4
Did Well Dewater?	no	yes	no	yes	yes
Volume Evacuated (gal.)	37.0	10.0	37.0	13.0	7.0
Purging Device	Diaphram	Diaphram	Diaphram	Diaphram	Diaphram
Sampling Device	Bailer	Bailer	Bailer	Bailer	Bailer
Time	10:00	10:42	09:44	10:21	11:00
Temperature (F)*	71.8	73.6	72.7	68.9	69.7
pH*	6.67	7.06	6.83	7.74	6.84
Conductivity (umhos/cm)*	778	565	716	229	660

* Indicates Stabilized Value

COMMERCIAL

28TH STREET

S-5

S-4

TELEGRAPH AVENUE

FORMER UNDERGROUND GASOLINE STORAGE COMPLEX

S-8

S-6

S-3

SR-1

S-E

KIOSK

S-D

FORMER SERVICE ISLANDS

S-C

COMMERCIAL

S-1

S-B

ABANDONED TANK

FORMER SHELL SERVICE STATION BUILDING

S-2

S-A

FORMER WASTE OIL TANK

S-7

S-9

S-11

28TH STSRET

RESIDENTIAL

S-10

LOCATION MAP

EXPLANATION

- ◆ S-1 Ground-water monitoring well location
- ● S-A Soil boring location
- ⊙ SR-1 Recovery well location

Base Map:
Woodward-Clyde Consultants

N

0 40 80

Scale in Feet

GSI GeoStrategies Inc.

Site Plan
Former Shell Service Station
2800 Telegraph Avenue
Oakland, California

PLATE

JOB NUMBER 610 | REVIEWED BY RG/CEG | DATE | REVISED DATE | REVISED DATE

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Shell Oil Company
Gettler-Ryan
2150 West Winton
Hayward, CA 94545
Tom Paulson

Date: 10/31/90

Work Order: TO-10-186

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

This is the Certificate of Analysis for the following samples:

Client Work ID: GR3610, 2800 Telegraph, Oklnd
Date Received: 10/15/90
Number of Samples: 13
Sample Type: aqueous

TABLE OF CONTENTS FOR ANALYTICAL RESULTS

Reviewed and Approved:

Suzanne Veaudry
Project Manager

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: T0-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-1**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **T010186-01**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/24/90
Low Boiling Hydrocarbons	Mod.8015		10/24/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None
BTEX		
Benzene	0.0005	None
Toluene	0.0005	None
Ethylbenzene	0.0005	None
Xylenes (total)	0.0005	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: T0-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-2**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **T010186-02**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/24/90
Low Boiling Hydrocarbons	Mod.8015		10/24/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None
BTEX		
Benzene	0.0005	0.0020
Toluene	0.0005	None
Ethylbenzene	0.0005	None
Xylenes (total)	0.0005	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-4**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **TO10186-03**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/24/90
Low Boiling Hydrocarbons	Mod.8015		10/24/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**None**
BTEX		
Benzene	0.0005	**0.0010**
Toluene	0.0005	**0.0047**
Ethylbenzene	0.0005	**0.0010**
Xylenes (total)	0.0005	**0.0032**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: T0-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-5**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **T010186-04**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/24/90
Low Boiling Hydrocarbons	Mod.8015		10/24/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**None**
BTEX		
Benzene	0.0005	**0.0005**
Toluene	0.0005	**0.0026**
Ethylbenzene	0.0005	**0.0005**
Xylenes (total)	0.0005	**0.0017**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-6**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **TO10186-05**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/25/90
Low Boiling Hydrocarbons	Mod.8015		10/25/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	1.0	1.7
BTEX		
Benzene	0.01	0.39
Toluene	0.01	0.0065
Ethylbenzene	0.01	0.0036
Xylenes (total)	0.01	0.016

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: T0-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-7**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **T010186-06**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/25/90
Low Boiling Hydrocarbons	Mod.8015		10/25/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**0.63**
BTEX		
Benzene	0.0005	**0.043**
Toluene	0.0005	**0.0053**
Ethylbenzene	0.0005	**0.0048**
Xylenes (total)	0.0005	**0.012**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-8**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **TO10186-07**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/25/90
Low Boiling Hydrocarbons	Mod.8015		10/25/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	1.0
BTEX		
Benzene	0.0005	0.017
Toluene	0.0005	0.031
Ethylbenzene	0.0005	0.034
Xylenes (total)	0.0005	0.12

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-9**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **TO10186-08**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/24/90
Low Boiling Hydrocarbons	Mod.8015		10/24/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None
BTEX		
Benzene	0.0005	None
Toluene	0.0005	None
Ethylbenzene	0.0005	None
Xylenes (total)	0.0005	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-10**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **TO10186-09**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/24/90
Low Boiling Hydrocarbons	Mod.8015		10/24/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None
BTEX		
Benzene	0.0005	None
Toluene	0.0005	None
Ethylbenzene	0.0005	None
Xylenes (total)	0.0005	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-11**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: TO10186-10
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/25/90
Low Boiling Hydrocarbons	Mod.8015		10/25/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	1.2
BTEX		
Benzene	0.0005	0.14
Toluene	0.0005	0.10
Ethylbenzene	0.0005	0.064
Xylenes (total)	0.0005	0.22

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **SF-2**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **T010186-11**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/24/90
Low Boiling Hydrocarbons	Mod.8015		10/24/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None
BTEX		
Benzene	0.0005	None
Toluene	0.0005	None
Ethylbenzene	0.0005	None
Xylenes (total)	0.0005	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **SD-1**
SAMPLE DATE: **10/12/90**
LAB SAMPLE ID: **TO10186-12**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/24/90
Low Boiling Hydrocarbons	Mod.8015		10/24/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None
BTEX		
Benzene	0.0005	None
Toluene	0.0005	None
Ethylbenzene	0.0005	None
Xylenes (total)	0.0005	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **Trip Blank**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **TO10186-13**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/24/90
Low Boiling Hydrocarbons	Mod.8015		10/24/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None
BTEX		
Benzene	0.0005	None
Toluene	0.0005	None
Ethylbenzene	0.0005	None
Xylenes (total)	0.0005	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 10/31/90
Client Work ID: GR3610, 2800 Telegraph, Oklnd

Work Order: TO-10-186

TEST CODE **TPHVB** TEST NAME **TPH Gas,BTEX by 8015/8020**

The method of analysis for low boiling hydrocarbons is taken from E.P.A. Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatograhy using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethylbenzene and xylenes.

Gettler - Ryan Inc. TO·10·lcc

ENVIRONMENTAL DIVISION

Chain of Custody

COMPANY Shell Oil Co. JOB NO.

JOB LOCATION 2800 Telegraph AV

CITY Oakland PHONE NO. 783-7500

AUTHORIZED DATE 10-12-90 P.O. NO. 3610

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
S-1	3-40ml	liquid	10/12/90/1245	THC(gas) BTXE	Cool 10/15/90
S-2	↓	↓	/1303	↓	↓
S-4			/1128		
S-5			/1149		
S-6			/1210		
S-7			/1000		
S-8			/1042		
S-9			/0944		
S-10			/1021		
S-11			/1100		
SF-2			/1303		
SD-1			/ —		
Trip Blank	1	↓	10-8-90/ —	↓	↓

RELINQUISHED BY: Guadalupe Lunel 10-12-90 15:47 RECEIVED BY: Refrigerator [signature] 10:45

RELINQUISHED BY: [signature] 10-15-90 14:05 RECEIVED BY:

RELINQUISHED BY: RECEIVED BY: Josephus Cali, IT, 10/15/90 14:05

DESIGNATED LABORATORY: IT SLV DHS #: 137

REMARKS:

WIC # - 2045508-2303

Normal TAT Exp - 5440

Eng - Lundquist

DATE COMPLETED 10-12-90 FOREMAN

ORIGINAL