Shell Oil Company

EAST BAY MARKETING DISTRICT

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

91 JAN 30 AM 10:44

January 25, 1991

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

SUBJECT: SHELL SERVICE STATION
1800 POWELL STREET
EMERYVILLE CALIFORNIA
WIC No. 204-2495-0101

Dear Ms. Hugo:

Enclosed is a copy of the Site Update report, dated January 21, 1991, 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.

Sincerely,

Jack Brastad
Senior Engineer

enclosure

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

GeoStrategies Inc.

SITE UPDATE

Shell Service Station
1800 Powell Street
Emeryville, California
WIC 204-2495-0101

760501-9

January 21, 1991

GeoStrategies Inc.
2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545

January 21, 1991

Gettler-Ryan Inc.
2150 West Winton Avenue
Hayward, California 94544

Attn: Mr. John Werfal

Re: SITE UPDATE
Shell Service Station
1800 Powell Street
Emeryville, California

Gentlemen:

This Site Update has been prepared for the Shell Service Station at the above referenced location (Plate 1). On October 19, 1990, Gettler-Ryan Inc. (G-R) performed the fourth quarterly ground-water sampling for 1990 in accordance with the current quarterly monitoring plan for the site. Included in this report are an updated potentiometric map and a chemical concentration map using the recent monitoring and chemical analytical data, respectively. Quality Control (QC) procedures during ground-water sampling are summarized in the G-R Field Methods and Procedures presented in the GeoStrategies Inc. (GSI) report dated November 2, 1990. Field work and laboratory analyses methods were performed in compliance with current State of California Water Resources Control Board (SWRCB) procedures for conducting environmental investigations related to leaking underground fuel tanks.

Prior to 1982, five ground-water monitoring wells were installed to assess soil and shallow ground-water quality. Floating product was detected in the initial monitoring wells (S-1 through S-5) at thicknesses up to 0.20 feet.

There are currently six on-site wells (S-8, S-9, S-10, S-12, S-13, and S-14) and one off-site well (S-5) in the monitoring-well network. Wells S-1 through S-4, and S-11 were redesigning as tank backfill wells A through E, respectively. Wells S-6 and S-7 were abandoned on November 10, 1989. Based on historical potentiometric data, ground-water flow has been towards the south-southwest.

Floating product has been observed in Well S-9 since June 1986. Floating product and/or a product sheen has also been observed in other wells at the site. Wells that contained measurable amounts of floating product were not sampled. Historical chemical concentrations have remained relatively the same in wells that did not contain floating product. Table 1 summarizes the historical chemical concentrations for ground-water samples from the monitoring well network.

CURRENT QUARTERLY SAMPLING RESULTS

Potentiometric Data

Prior to ground-water sampling on October 19, 1990, water-levels were measured in each well using an electronic oil-water interface probe. Static water levels were measured from the surveyed top of the well box and recorded to the nearest $\pm$0.01 foot. Depth to ground-water elevations ranged from 9.28 to 10.36 feet below the top of the well box, or 2.40 to 3.41 feet above Mean Sea Level (MSL). Plate 2 presents the location of each well.

Ground-water elevation data for the quarterly sampling have been plotted and contoured and are presented on Plate 3. Static ground-water elevation data from the wells were used to construct the potentiometric map. Potentiometric data from Wells S-5 and S-10 were not used in contouring Plate 3. Potentiometric data indicate that the shallow groundwater beneath the site flows south-southwest with an approximate hydraulic gradient of 0.011.

Floating Product Measurements

Each well, excluding S-9, was monitored for floating product using a portable oil-water interface probe. Sampled wells were inspected with a clean, clear acrylic bailer to visually confirm interface probe results and to check for the presence of a product sheen. The floating product in Well S-9 is highly viscous and an accurate measurement of the product thickness cannot be obtained with the acrylic bailer or the oil-water interface probe. Wells S-10 and S-14 contained floating product at thicknesses of 0.03 and 0.04 feet, respectively. Floating product was not observed in the other monitoring wells.

Chemical Analytical Data

Ground-water samples were collected by G-R on October 19, 1990. The 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. Chemical analyses were performed by International Technology (IT) Analytical Services, a State-certified environmental laboratory located in San Jose, California.

Detectable concentrations of TPH-Gasoline were identified in Wells S-5, S-8, S-12 and S-13 at concentrations ranging from 0.15 parts per million (ppm) (Well S-12) to 4.2 ppm (Well S-5). Benzene was reported in Wells S-5, S-8, S-12 and S-13 at concentrations above the current Maximum Contaminant Level (MCL) set by the State of California Regional Water Quality Control Board (RWQCB). Benzene concentrations in these wells ranged from 0.012 ppm (Well S-12) to 1.5 ppm (Well S-13). Water quality data for this quarter are presented in Table 2. A TPH-Gasoline and benzene concentration map (Plate 4) has been prepared using quarterly ground-water chemical analytical data.

Table 1 presents a historical ground-water quality database. As shown in Table 1, chemical concentrations have remained relatively the same in previous quarters.

Quality Control

The Quality Control (QC) sample for this quarterly ground-water sampling consisted of a trip blank. The trip blank (TB) was prepared by IT Analytical Services using organic-free water to evaluate laboratory handling procedures. The trip blank was reported as none detected (ND) for all constituents analyzed. Chemical analytical results indicate that proper field and laboratory handling techniques were followed and that no hydrocarbons were introduced into the samples during handling and transport.

QC procedures during field sampling are summarized in the G-R sampling protocol. The G-R Groundwater Sampling Report, Chain-of-Custody Form and the IT Analytical Services certified analytical report for the quarterly sampling are presented in Appendix A.

SUMMARY

A summary of activities and findings associated with this quarterly report are presented below:

- Water levels were measured in selected wells and the data were used to construct a potentiometric map. Potentiometric data indicate that the shallow groundwater beneath the site flows south-southwest with an approximate hydraulic gradient of 0.011.

- Floating product was observed in the Wells S-9, S-10 and S-14 during this sampling. Due to the highly viscous nature of the floating product in Well S-9, an accurate measurement of the product thickness cannot be obtained.

- Detectable concentrations of TPH-Gasoline were reported in Wells S-5 (4.2 ppm), S-8 (1.4 ppm), S-12 (0.15 ppm) and S-13 (3.4 ppm).

- Detectable concentrations of benzene were reported in Wells S-5 (1.1 ppm), S-8 (0.64 ppm), S-12 (0.012 ppm) and S-13 (1.5 ppm). These concentrations are above the current RWQCB MCL for benzene.

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. Site Plan
Plate 3. Potentiometric Map
Plate 4. TPH-G/Benzene Concentration Map

Appendix A: Gettler-Ryan Inc. Groundwater Sampling Report

QC Review:

References Cited

Gettler-Ryan Inc., 1988, Groundwater Sampling Report: Report No. 83134-1, dated December 6, 1988.

GeoStrategies Inc., 1989, Quarterly Groundwater Sampling Report: Report No. 7605, dated April 14, 1989.

GeoStrategies Inc., 1989, Quarterly Groundwater Sampling Report: Report No. 7605-2, dated July 13, 1989.

GeoStrategies Inc., 1989, Interim Groundwater Sampling Report: Report No. 7605-3, dated October 10, 1989.

GeoStrategies Inc., 1989, Work Plan: Report No. 7605-4, October 27, 1989.

GeoStrategies Inc., 1990, Quarterly Report: Report No. 7605-5, dated February 2, 1990.

GeoStrategies Inc., 1990, Quarterly Report: Report No. 7605-6, dated April 26, 1990.

GeoStrategies Inc., 1990, Quarterly Report: Report No. 7605-7, dated June 21, 1990.

GeoStrategies Inc., 1990, Site Update: Report No. 7605-8, dated November 2, 1990.

TABLE 1

HISTORICAL GROUNDWATER QUALITY DATABASE

SAMPLE DATE	WELL NUMBER	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	E.B. (PPM)	XYLENES (PPM)	TPH-D (PPM)	OIL (PPM)
27-Oct-88	S-5	3.	0.66	0.02	0.02	0.07	N/A	N/A
10-Feb-89	S-5	2.9	0.55	0.02	0.02	0.03	N/A	N/A
28-Apr-89	S-5	4.3	0.75	0.01	0.02	<0.03	N/A	N/A
07-Jul-89	S-5	1.5	0.30	0.008	0.007	0.009	N/A	N/A
25-Oct-89	S-5	2.1	0.76	0.01	0.04	0.05	N/A	N/A
04-Jan-90	S-5	1.3	0.52	0.009	0.008	0.01	N/A	N/A
06-Jul-90	S-5	1.4	0.5	0.01	0.004	<0.01	N/A	N/A
19-Oct-90	S-5	4.2	1.1	0.009	0.014	0.007	N/A	N/A
27-Oct-88	S-6	6.	1.7	0.05	0.08	0.42	N/A	N/A
10-Feb-89	S-6	2.8	0.74	0.02	0.02	0.14	N/A	N/A
28-Apr-89	S-6	6.5	2.4	0.03	0.05	0.21	N/A	N/A
07-Jul-89	S-6	3.7	1.7	0.034	0.055	0.20	N/A	N/A
25-Oct-89	S-6	<0.05	0.023	<0.005	<0.005	0.01	N/A	N/A
27-Oct-88	S-7	0.05	0.0011	<0.001	<0.001	0.004	N/A	N/A
10-Feb-89	S-7	0.05	0.0009	<0.001	<0.001	<0.003	N/A	N/A
28-Apr-89	S-7	<0.05	0.001	<0.001	<0.001	<0.003	N/A	N/A
07-Jul-89	S-7	0.07	0.0022	<0.001	<0.001	<0.003	N/A	N/A
25-Oct-89	S-7	6.2	2.2	0.13	0.19	0.66	N/A	N/A
27-Oct-88	S-8	1.	0.61	0.009	0.001	0.042	N/A	N/A
10-Feb-89	S-8	0.5	0.16	0.005	<0.002	0.017	N/A	N/A
28-Apr-89	S-8	2.7	1.5	0.02	0.01	0.04	N/A	N/A
07-Jul-89	S-8	0.44	0.18	0.005	0.002	0.012	N/A	N/A
25-Oct-89	S-8	2.	1.1	0.017	0.005	0.07	N/A	N/A
04-Jan-90	S-8	1.9	1.3	0.02	<0.01	0.07	N/A	N/A
06-Jul-90	S-8	1.6	0.92	0.03	<0.01	0.06	N/A	N/A
19-Oct-90	S-8	1.4	0.64	<0.01	<0.01	0.03	N/A	N/A
27-Oct-88	S-10	700.	37.	100.	20.	110.	N/A	N/A
10-Feb-89	S-10	6.5	0.48	0.7	0.1	1.8	N/A	N/A
28-Apr-89	S-10	13.	1.3	0.5	0.6	3.7	N/A	N/A
07-Jul-89	S-10	14.	1.3	0.31	0.27	2.4	N/A	N/A
25-Oct-89	S-10	4.2	0.58	0.034	0.044	0.44	N/A	N/A
04-Jan-90	S-10	1.7	0.36	0.010	0.0078	0.17	N/A	N/A
17-Nov-89	S-12	<0.25	0.018	<0.002	<0.002	<0.005	1.4	N/A
04-Jan-90	S-12	<0.25	0.024	0.002	<0.002	<0.005	N/A	N/A
06-Jul-90	S-12	0.08	0.015	0.0007	<0.0005	0.002	N/A	N/A
19-Oct-90	S-12	0.15	0.012	0.009	<0.0005	0.0036	N/A	N/A
17-Nov-89	S-13	1.9	0.70	0.16	0.07	0.34	2.0	5.
04-Jan-90	S-13	2.8	1.4	0.13	0.010	0.50	N/A	N/A
06-Jul-90	S-13	3.1	1.8	0.06	0.04	0.27	N/A	N/A
24-Oct-90	S-13	3.4	1.5	0.028	0.028	0.25	N/A	N/A

TABLE 1

HISTORICAL GROUNDWATER QUALITY DATABASE

SAMPLE DATE	WELL NUMBER	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	E.B. (PPM)	XYLENES (PPM)	TPH-D (PPM)	OIL (PPM)
17-Nov-89	S-14	<0.25	0.003	<0.002	<0.002	<0.005	<0.4	3.
04-Jan-90	S-14	<0.25	0.003	0.002	<0.002	<0.005	N/A	N/A

TPH-G = Total Petroleum Hydrocarbons calculated as gasoline
E.B. = Ethylbenzene
PPM = Parts per million
TPH-D = Total Petroleum Hydrocarbons calculated as Diesel
NOTE = All data shown as <X are reported as ND (none detected)

TABLE 2

GROUNDWATER 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-5	19-Oct-90	31-Oct-90	4.2	1.1	0.009	0.014	0.007	11.72	2.44	sheen	9.28
S-8	19-Oct-90	31-Oct-90	1.4	0.64	<0.01	<0.01	0.03	12.76	2.40	sheen	10.36
S-9	19-Oct-90	----	----	----	----	----	----	12.75	----	free product *	----
S-10	19-Oct-90	----	----	----	----	----	----	12.58	3.03	0.03	9.57
S-12	19-Oct-90	31-Oct-90	0.15	0.012	0.009	<0.0005	0.0036	12.84	3.41	sheen	9.43
S-13	19-Oct-90	01-Nov-90	3.4	1.5	0.028	0.028	0.25	12.59	2.42	----	10.17
S-14	19-Oct-90	01-Nov-90	----	----	----	----	----	12.69	2.45	0.04	10.27
TB	----	31-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	----	----	----	----

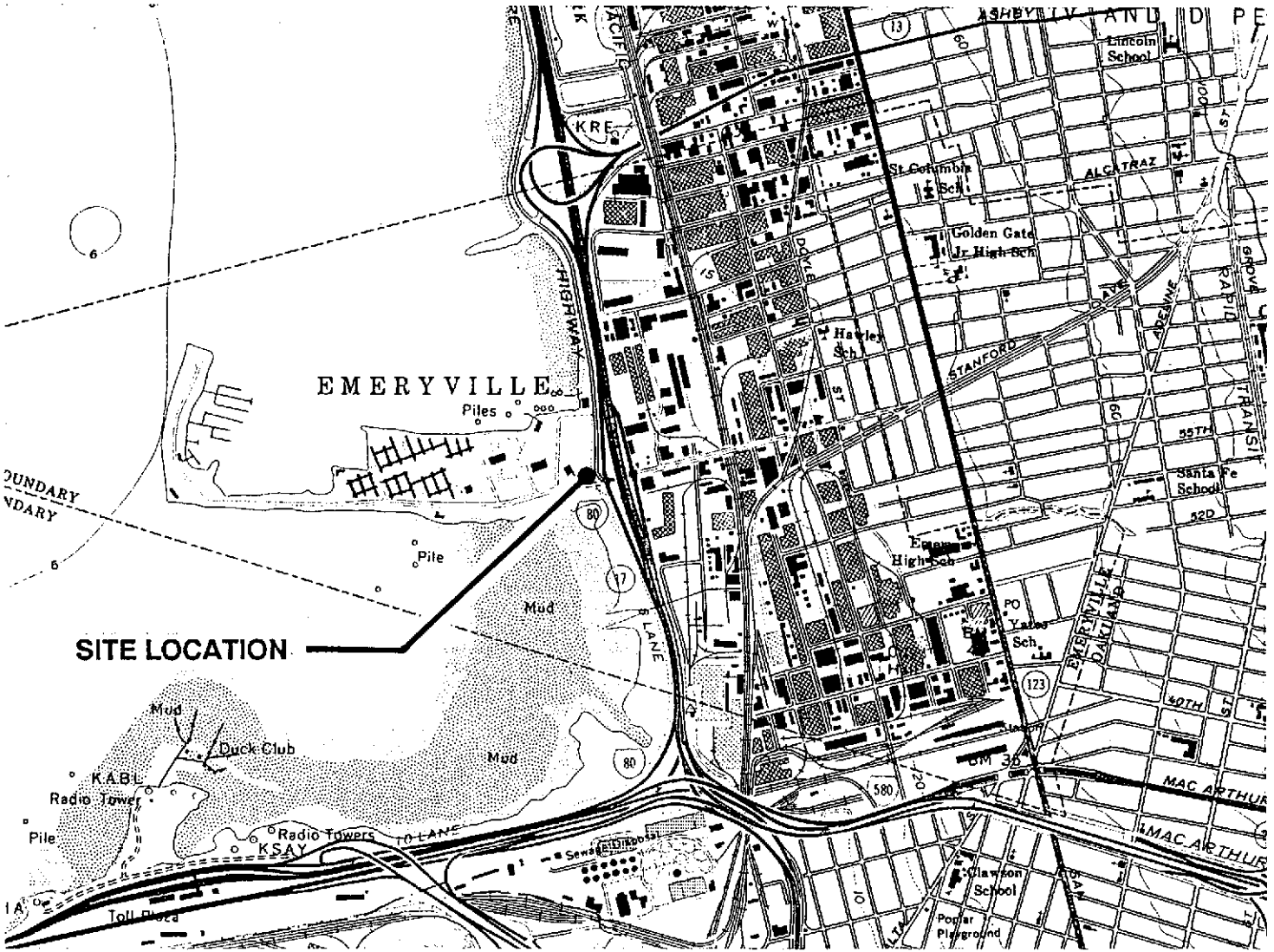
CURRENT REGIONAL WATER QUALITY CONTROL BOARD MAXIMUM CONTAMINANT LEVELS
Benzene 0.001 ppm Xylenes 1.750 ppm Ethylbenzene 0.68 ppm

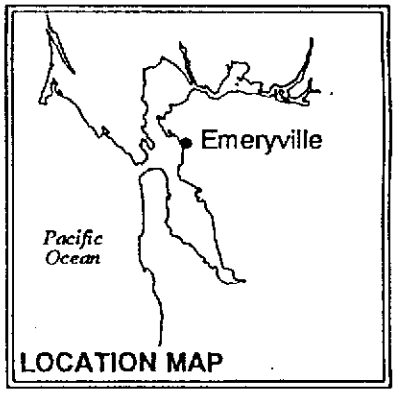
CURRENT DHS ACTION LEVELS
Toluene 0.1 ppm

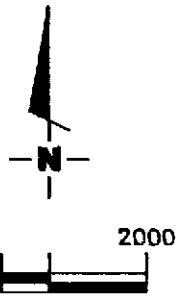
TPH-G = Total Petroleum Hydrocarbons as Gasoline
PPM = Parts Per Million
TB = Trip Blank

* Unable to measure product depth and thickness.

Note: 1. All data shown as <x is reported as ND (none detected)
2. Water level elevations referenced to mean sea level (MSL)
3. DHS Action Levels and MCLs are subject to change pending State review







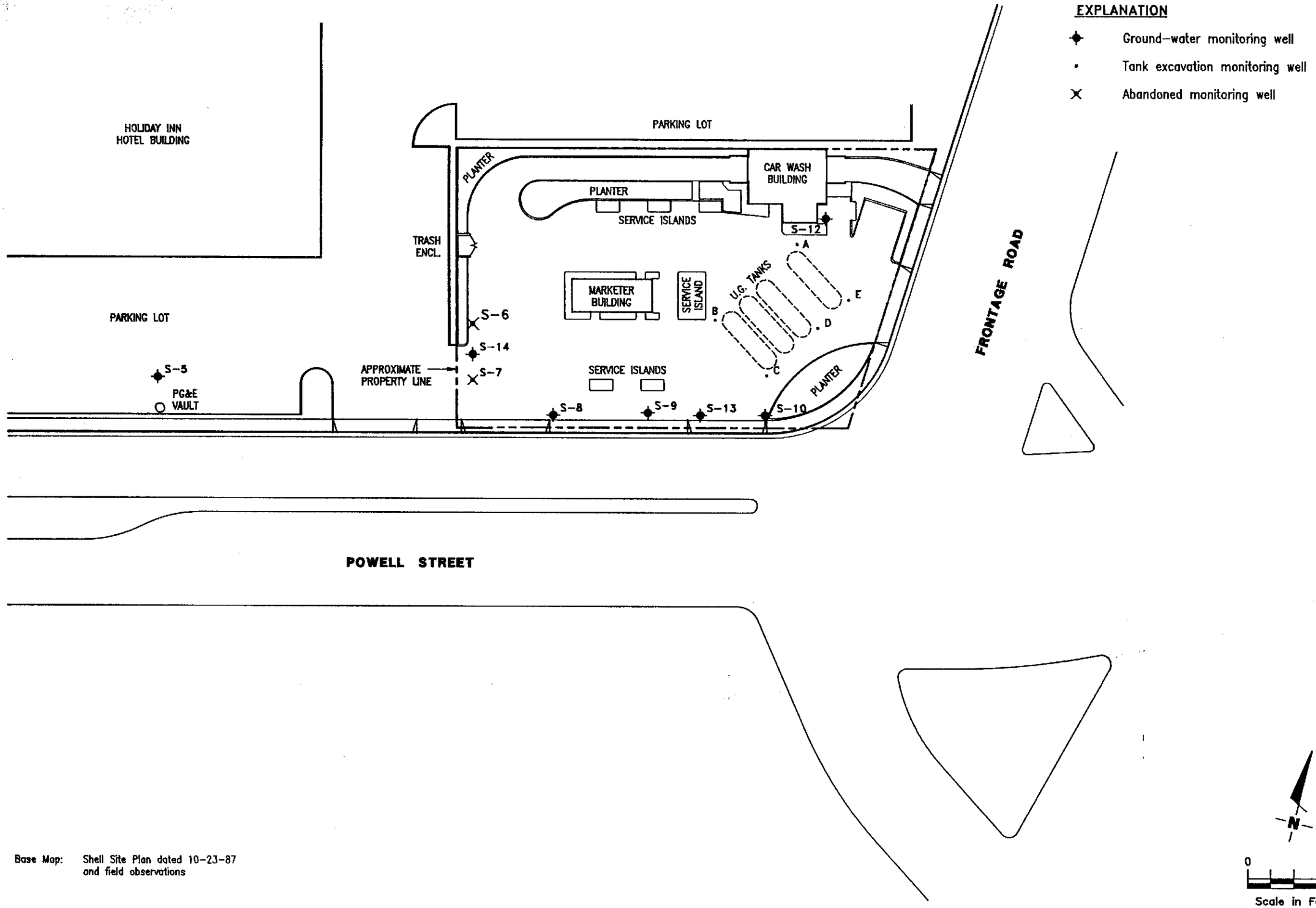
Base Map: USGS Topographic Map

GeoStrategies Inc.

VICINITY MAP
Shell Service Station
1800 Powell Street
Emeryville, California

PLATE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7605			



Base Map: Shell Site Plan dated 10-23-87 and field observations

PLATE 2

SITE PLAN
Shell Service Station
1800 Powell Street
Emeryville, California

GeoStrategies Inc.

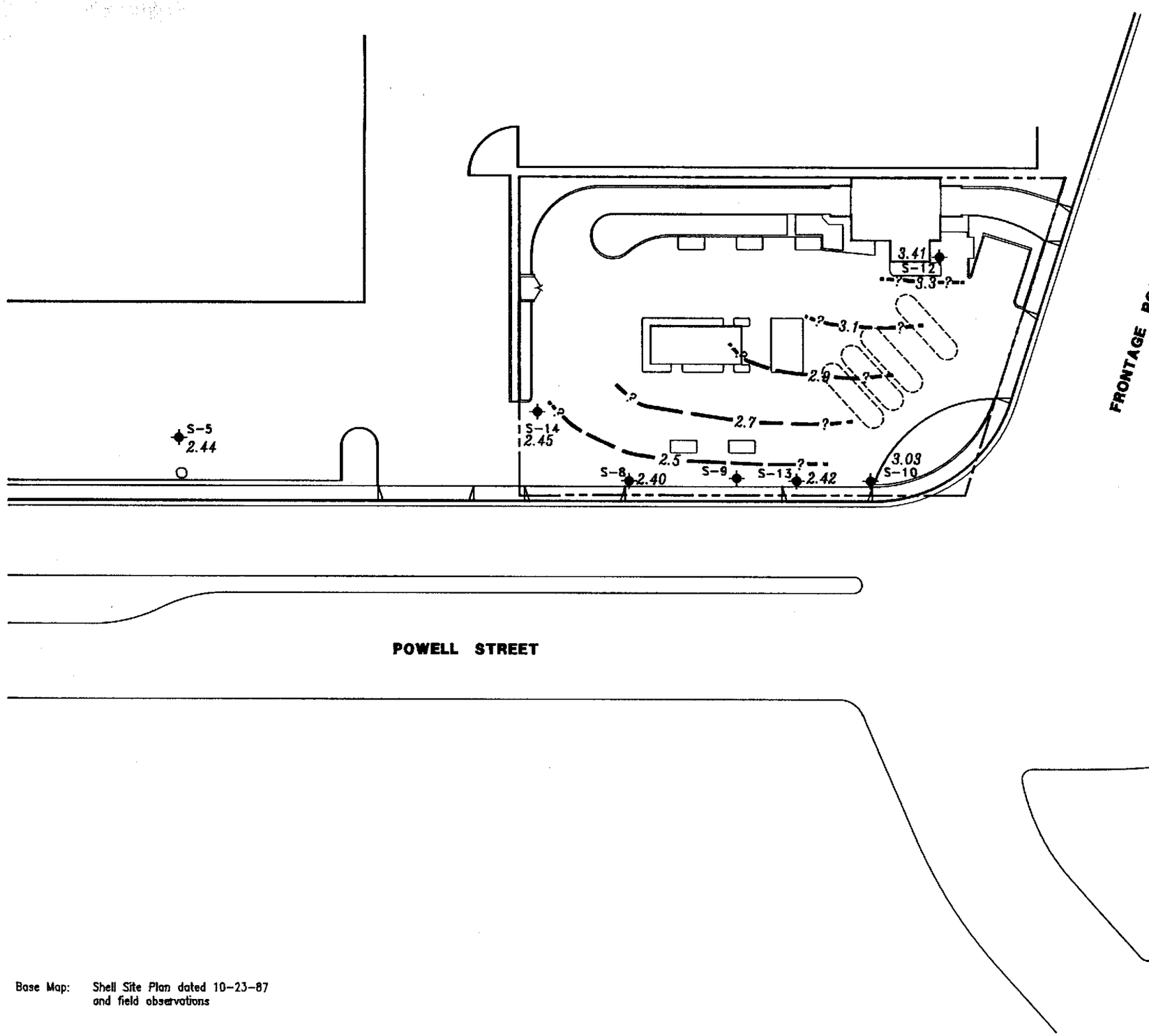
GSI

JOB NUMBER 7605

REVIEWED BY

DATE 12/90

REVISED DATE



EXPLANATION

- Ground-water monitoring well
- 99.99 — Ground-water elevation contour Approximate Gradient = 0.011
- 99.99 — Ground-water elevation in feet referenced to Mean Sea Level (MSL) measured on October 19, 1990

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

Well S-10 water level data not used for contouring.

Well S-9 ground-water elevation not available.

Base Map: Shell Site Plan dated 10-23-87 and field observations

PLATE 3

POTENTIOMETRIC MAP
Shell Service Station
1800 Powell Street
Emeryville, California

GeoStrategies Inc.

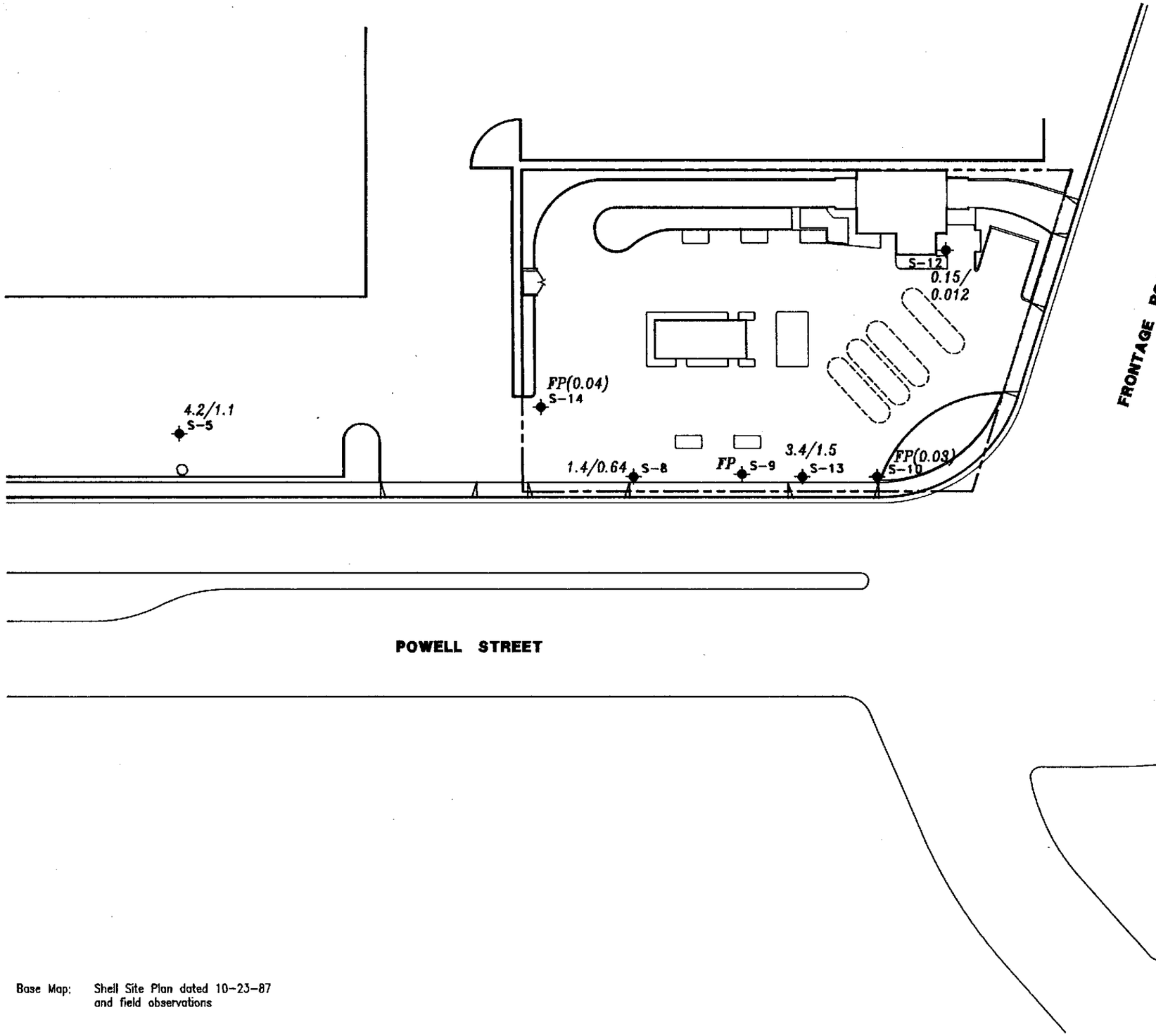
GSI

JOB NUMBER 7605

REVIEWED BY

DATE 12/90

REVISED DATE



Base Map: Shell Site Plan dated 10-23-87 and field observations

PLATE 4

TPH-G/BENZENE CONCENTRATION MAP
Shell Service Station
1800 Powell Street
Emeryville, California

GeoStrategies Inc.

GSI

JOB NUMBER 7605

REVIEWED BY

DATE 12/90

REVISED DATE

APPENDIX A

GETTLER-RYAN INC.

GROUNDWATER SAMPLING REPORT

gettler — ryan inc.

November 8, 1990

GROUNDWATER SAMPLING REPORT

Referenced Site: Shell Service Station
1800 Powell Street
Emeryville, California

Sampling Date: October 19, 1990

This report presents the results of the quarterly groundwater sampling and analytical program conducted by Gettler-Ryan Inc. on October 19, 1990 at the referenced location. The site is occupied by an operating service station located on the northwest corner of Powell Street and I-80. The service station has underground storage tanks containing regular leaded, unleaded and super unleaded gasoline products and diesel.

There are currently six groundwater monitoring wells and five tank backfill wells on site, and one well off site at the locations shown on the attached site map. Prior to sampling, the monitoring 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 9.28 to 10.36 feet below grade. Separate phase product was observed in Wells S-10 and S-14. Well S-9 contained a tar-like substance and was not monitored or sampled.

Wells that did not contain separate phase product 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 groundwater 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 supplied by the laboratory, was included and analyzed to assess quality control. Analytical results for the blank 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 by 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-5	S-8	S-9	S-10	S-12	S-13
Casing Diameter (inches)	6	3	3	6	3	3
Total Well Depth (feet)	12.1	19.2	----	----	24.4	19.9
Depth to Water (feet)	9.28	10.36	----	9.57 **	9.43	10.17
Free Product (feet)	sheen	sheen	----	0.03	sheen	none
Reason Not Sampled	----	----	free product	free product	----	----
Calculated 4 Case Vol.(gal.)	16.9	14.9	----	----	22.7	14.8
Did Well Dewater?	no	yes	----	----	no	yes
Volume Evacuated (gal.)	25.0	9.0	----	----	29.0	10.0
Purging Device	Diaphram	Diaphram	----	----	Diaphram	Diaphram
Sampling Device	Bailer	Bailer	----	----	Bailer	Bailer
Time	11:46	10:07	----	----	11:06	10:37
Temperature (F)*	71.8	73.2	----	----	67.2	69.0
pH*	6.59	6.87	----	----	6.60	6.97
Conductivity (umhos/cm)*	2310	5640	----	----	3420	6790

* Indicates Stabilized Value

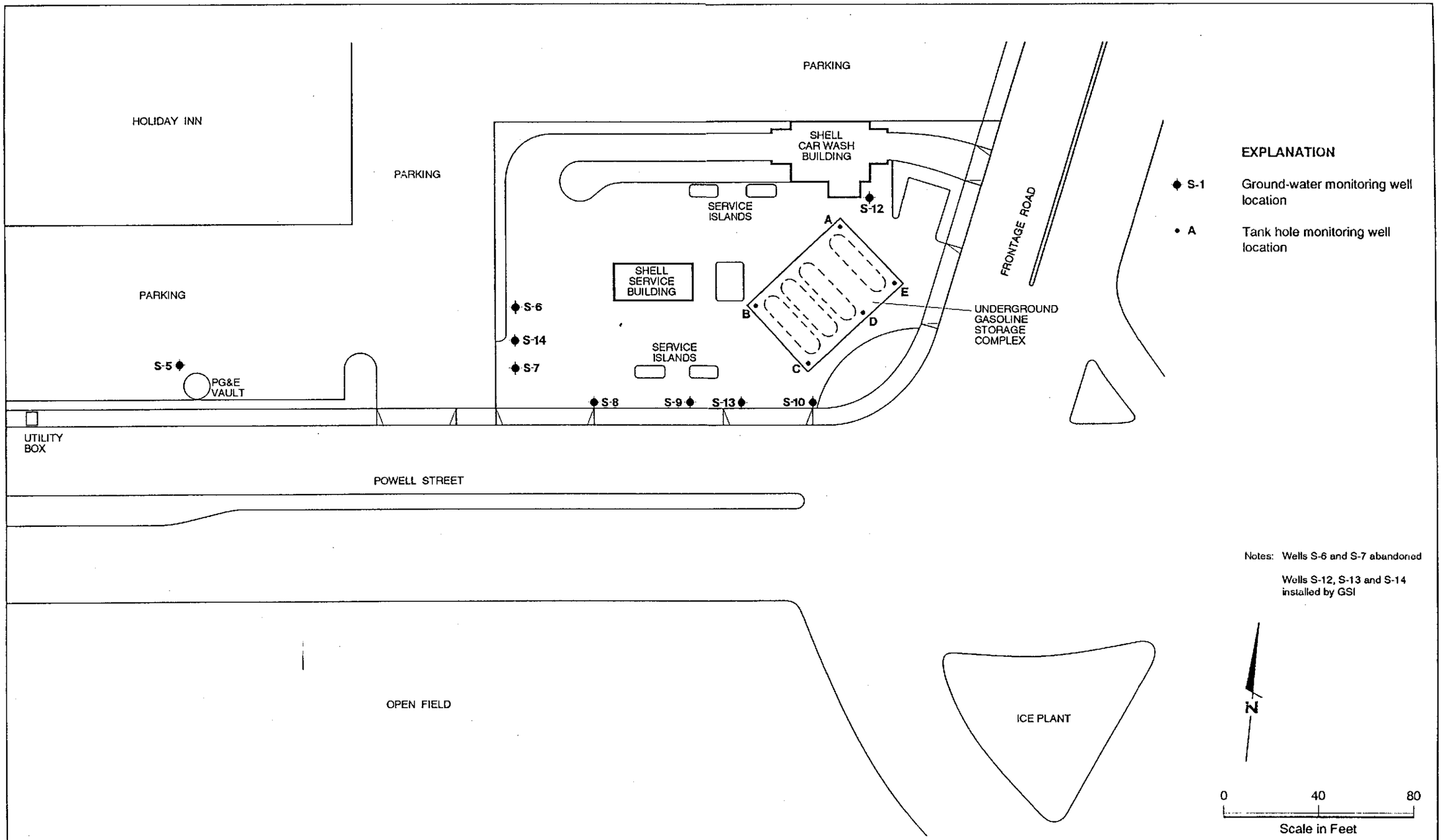
** Not corrected for presence of free product

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	S-14
Casing Diameter (inches)	3
Total Well Depth (feet)	----
Depth to Water (feet)	10.27 **
Free Product (feet)	0.04
Reason Not Sampled	free product
Calculated 4 Case Vol.(gal.)	----
Did Well Dewater?	----
Volume Evacuated (gal.)	----
Purging Device	----
Sampling Device	----
Time	----
Temperature (F)*	----
pH*	----
Conductivity (umhos/cm)*	----

* Indicates Stabilized Value

** Not corrected for presence of free product



GeoStrategies Inc.

Site Plan
Shell Service Station
1800 Powell Street
Emeryville, California

PLATE
2

JOB NUMBER
7605

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: 11/06/90

Work Order: TO-10-248

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

This is the Certificate of Analysis for the following samples:

Client Work ID: GR3605,1800 Powell Emeryville
Date Received: 10/19/90
Number of Samples: 5
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: 11/06/90
Client Work ID: GR3605,1800 Powell Emeryville

Work Order: TO-10-248

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-8**
SAMPLE DATE: **10/19/90**
LAB SAMPLE ID: **TO10248-01**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	—8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	1.0	1.4
BTEX		
Benzene	0.01	0.64
Toluene	0.01	None
Ethylbenzene	0.01	None
Xylenes (total)	0.01	0.03

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3605,1800 Powell Emeryville

Work Order: TO-10-248

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-5**
SAMPLE DATE: **10/19/90**
LAB SAMPLE ID: **TO10248-02**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.5	**4.2**
BTEX		
Benzene	0.005	**1.1**
Toluene	0.005	**0.009**
Ethylbenzene	0.005	**0.014**
Xylenes (total)	0.005	**0.007**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3605,1800 Powell Emeryville

Work Order: TO-10-248

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-12**
SAMPLE DATE: **10/19/90**
LAB SAMPLE ID: **T010248-03**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**0.15**
BTEX		
Benzene	0.0005	**0.012**
Toluene	0.0005	**0.009**
Ethylbenzene	0.0005	**None**
Xylenes (total)	0.0005	**0.0036**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3605,1800 Powell Emeryville

Work Order: TO-10-248

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-13**
SAMPLE DATE: **10/19/90**
LAB SAMPLE ID: **T010248-04**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	—8020		11/01/90
Low Boiling Hydrocarbons	Mod.8015		11/01/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.25	3.4
BTEX		
Benzene	0.01	1.5
Toluene	0.0025	0.028
Ethylbenzene	0.0025	0.028
Xylenes (total)	0.0025	0.25

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3605,1800 Powell Emeryville

Work Order: TO-10-248

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **Trip Blank**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T010248-05**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	—8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

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: 11/06/90
Client Work ID: GR3605,1800 Powell Emeryville

Work Order: TO-10-248

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.

Geltler - Ryan Inc. — ENVIRONMENTAL DIVISION — **Chain of Custody**

COMPANY Shell Oil Co. JOB NO.

JOB LOCATION 1800 Powell St

CITY Emeryville. PHONE NO. 783-7500

AUTHORIZED Tom Peterson DATE 10-19-90 P.O. NO. 3605

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
S-8	3	liquid	10/19/90 10:07	THC (8015) BTXE	bubble Cooler
S-5	3		11:46		
S-12	3		11:06		
S-13	3		10:39		
Trip	1		10-16-90		bubble

RELINQUISHED BY: John P. Zwerzyk 10-19-90 13:23

RELINQUISHED BY:

RELINQUISHED BY:

RECEIVED BY:

RECEIVED BY:

RECEIVED BY LAB: Josephine DeCarli 10/19/90 13:23

DESIGNATED LABORATORY: IT (SCV) DHS #: 137

REMARKS: Normal TAT

WIC # 204-2495-0101 Exp. Code 5440

Eng Diane Lundquist

DATE COMPLETED 10-19-90 FOREMAN John P. Zwerzyk

ORIGINAL