gettler — ryan inc.

91 OCT -4 PM 12:11

October 2, 1991

Mr. Gil Wistar
County of Alameda
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

Reference: Shell Service Station
999 San Pablo Avenue
Albany, California
WIC 204-0079-0109

Mr. Wistar:

Enclosed is a of copy of the September 30, 1991 Site Update report for the above referenced location. The report presents the results of the ground-water sampling conducted during the third quarter of 1991.

If you have any questions or comments do not hesitate to call.

Sincerely,

John Werfal
Project Manager

cc: Mr. Tom Callaghan, Regional Water Quality Control Board
Mr. Jack Brastad, Shell Oil Company

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

GeoStrategies Inc.

SITE UPDATE

Shell Service Station
999 San Pablo Avenue
Albany, California
WIC 204-0079-0109

766601-8

September 30, 1991

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

September 30, 1991

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

Attn: Mr. John Werfal

Re: SITE UPDATE
Shell Service Station
999 San Pablo Avenue
Albany, California

Gentlemen:

This Site Update has been prepared by GeoStrategies Inc. (GSI) and presents the results of the 1991 third quarter ground-water sampling performed by Gettler-Ryan Inc. (G-R) for the above referenced site (Plate 1). The scope of work presented in this document was performed at the request of Shell Oil Company. Field work and laboratory analysis methods were performed to comply with current State of California Water Resources Control Board guidelines.

SITE BACKGROUND

There are currently seven ground-water monitoring wells (Wells S-1 through S-7) at the site (Plate 2). These wells were installed between the first and third quarters of 1990. Wells S-1 through S-3 are onsite. Wells S-4 through S-7 are offsite. These wells have been installed to evaluate the vertical and horizontal extent of petroleum hydrocarbons in the soil and upper water-bearing zone beneath the site.

Quarterly monitoring and sampling of wells began in the first quarter of 1990. Ground-water samples have been 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.

CURRENT QUARTERLY SAMPLING RESULTS

Potentiometric Data

Prior to ground-water sampling, depth to water-level measurements were obtained in each monitoring well using an electronic oil-water interface probe. Static ground-water levels were measured from the surveyed top of well box and recorded to the nearest $\pm$0.01 foot. Elevations referenced to Mean Sea Level (MSL) are presented in Table 1. Water-level data collected on August 23, 1991 were used to construct the quarterly potentiometric map on Plate 3. Shallow ground-water flow is generally radially outward from Well S-1 at a calculated average gradient of 0.021, with flow mainly toward the west.

Floating Product Measurements

Each well was checked for the presence of floating product using an electronic oil-water interface probe. A clear acrylic bailer was used to confirm probe results. Floating product was observed in Well S-5 this quarter at a measured thickness of 5.50 feet.

Ground-water Analytical Data

Ground-water samples were collected on August 23, 1991. The samples were analyzed for TPH-Gasoline according to EPA Method 8015 (Modified) and BTEX according to EPA Method 8020 by International Technology (IT), a State of California certified laboratory located in San Jose, California.

TPH-Gasoline was detected in Wells S-1 through S-3 and S-6 at concentrations ranging from 2.0 to 23. parts per million (ppm). Benzene concentrations detected in these wells ranged from 0.025 to 4.4 ppm. These data are summarized in Table 2 and included in Appendix A. Chemical isoconcentration maps for TPH-Gasoline and benzene are presented on Plates 4 and 5, respectively. Historical chemical analytical data are presented in Table 3.

Quality Control

Quality Control (QC) samples for this quarter's sampling included a trip blank (TB), a field blank (SF-3), and a duplicate sample (SD-4). The trip blank and a field blank were prepared in the laboratory using organic-free water, to evaluate laboratory and field sampling procedures. The duplicate sample was collected as a split (second) sample to evaluate laboratory analytical precision. The results of QC sample analyses are presented in Table 2.

If you have any questions, please call.

GeoStrategies Inc. by,

Stephen J. Carter
Project Geologist

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

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

SJC/DHP/kjj

Plate 1. Vicinity Map
Plate 2. Site Plan
Plate 3. Potentiometric Map
Plate 4. TPH-Gasoline Isocncentration Map
Plate 5. Benzene Isoconcentration Map

Appendix A: Analytical Laboratory Report and Chain-of-Custody

QC Review: _____

766601-8

TABLE 1

FIELD MONITORING DATA

WELL NO.	MONITORING DATE	CASING DIA. (IN)	TOTAL WELL DEPTH (FT)	WELL ELEV. (FT)	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	STATIC WATER ELEV. (FT)	PURGED WELL VOLUMES	pH	TEMPERATURE (F)	CONDUCTIVITY (uMHOS/cm)
S-1	23-Aug-91	3	11.8	42.73	8.37	----	34.36	3	6.63	68.1	614
S-2	23-Aug-91	3	12.2	40.73	8.80	----	31.93	3	6.56	69.4	940
S-3	23-Aug-91	3	12.2	41.46	8.14	----	33.32	3	6.46	70.3	698
S-4	23-Aug-91	3	14.1	41.10	8.32	----	32.78	2	6.55	67.8	356
S-5	23-Aug-91	3	----	39.99	15.14	5.50	29.25	----	----	----	----
S-6	23-Aug-91	3	15.3	40.12	9.58	----	30.54	2	6.61	68.8	598
S-7	23-Aug-91	3	15.1	40.10	11.16	----	28.94	3	6.61	68.4	600

Notes: 1. Static water elevations referenced to Mean Sea Level (MSL).
2. Physical parameter measurements represent stabilized values.
3. Static water-levels corrected for floating product (conversion factor = 0.80).

TABLE 2

GROUND-WATER ANALYSIS DATA

WELL NO	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
S-1	23-Aug-91	04-Sep-91	2.9	0.027	<0.0025	0.075	0.018
S-2	23-Aug-91	03-Sep-91	23.	4.4	0.26	1.9	2.4
S-3	23-Aug-91	04-Sep-91	2.0	0.025	0.0040	0.0093	0.0045
S-4	23-Aug-91	30-Aug-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
S-6	23-Aug-91	31-Aug-91	9.8	0.48	0.08	0.12	0.15
S-7	23-Aug-91	29-Aug-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
SD-2	23-Aug-91	03-Sep-91	22.	4.4	0.25	1.9	2.4
SF-3	23-Aug-91	30-Aug-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
TB	----	30-Aug-91	<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 0.680 ppm

CURRENT DHS ACTION LEVELS
Toluene 0.1000 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. DHS Action Levels and MCLs are subject to change pending State review.

766601-B

TABLE 3

HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
05-Feb-90	S-1	3.1	0.056	0.037	0.11	0.097
01-May-90	S-1	4.2	0.023	<0.0025	0.116	0.32
28-Aug-90	S-1	0.80	0.0081	0.001	0.075	0.054
27-Nov-90	S-1	2.2	0.011	<0.0025	0.058	0.022
11-Feb-91	S-1	1.5	0.027	<0.0025	0.073	0.087
13-May-91	S-1	1.5	0.020	0.0026	0.086	0.074
23-Aug-91	S-1	2.9	0.027	<0.0025	0.075	0.018
05-Feb-90	S-2	8.7	1.6	0.058	0.16	1.0
01-May-90	S-2	11.	2.3	0.082	0.409	0.77
28-Aug-90	S-2	4.4	1.7	0.035	0.16	0.17
27-Nov-90	S-2	18.	4.3	0.20	1.5	1.7
11-Feb-91	S-2	6.8	1.1	0.047	0.17	0.62
13-May-91	S-2	23.	3.9	0.23	1.1	3.2
23-Aug-91	S-2	23.	4.4	0.26	1.9	2.4
05-Feb-90	S-3	5.7	0.045	0.004	0.12	0.50
01-May-90	S-3	2.0	0.018	<0.0025	0.024	0.008
28-Aug-90	S-3	0.66	0.0087	0.001	0.026	0.007
27-Nov-90	S-3	1.9	0.0073	0.0030	0.0093	0.0032
11-Feb-91	S-3	1.3	0.020	<0.0025	0.0095	0.0036
13-May-91	S-3	3.3	0.030	0.0036	0.026	0.013
23-Aug-91	S-3	2.0	0.025	0.0040	0.0093	0.0045
01-May-90	S-4	<0.05	<0.0005	<0.0005	<0.0005	<0.001
28-Aug-90	S-4	<0.05	<0.0005	0.0006	<0.0005	0.0010
27-Nov-90	S-4	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
11-Feb-91	S-4	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
13-May-91	S-4	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
23-Aug-91	S-4	<0.05	<0.0005	<0.0005	<0.0005	<0.0005

TABLE 3

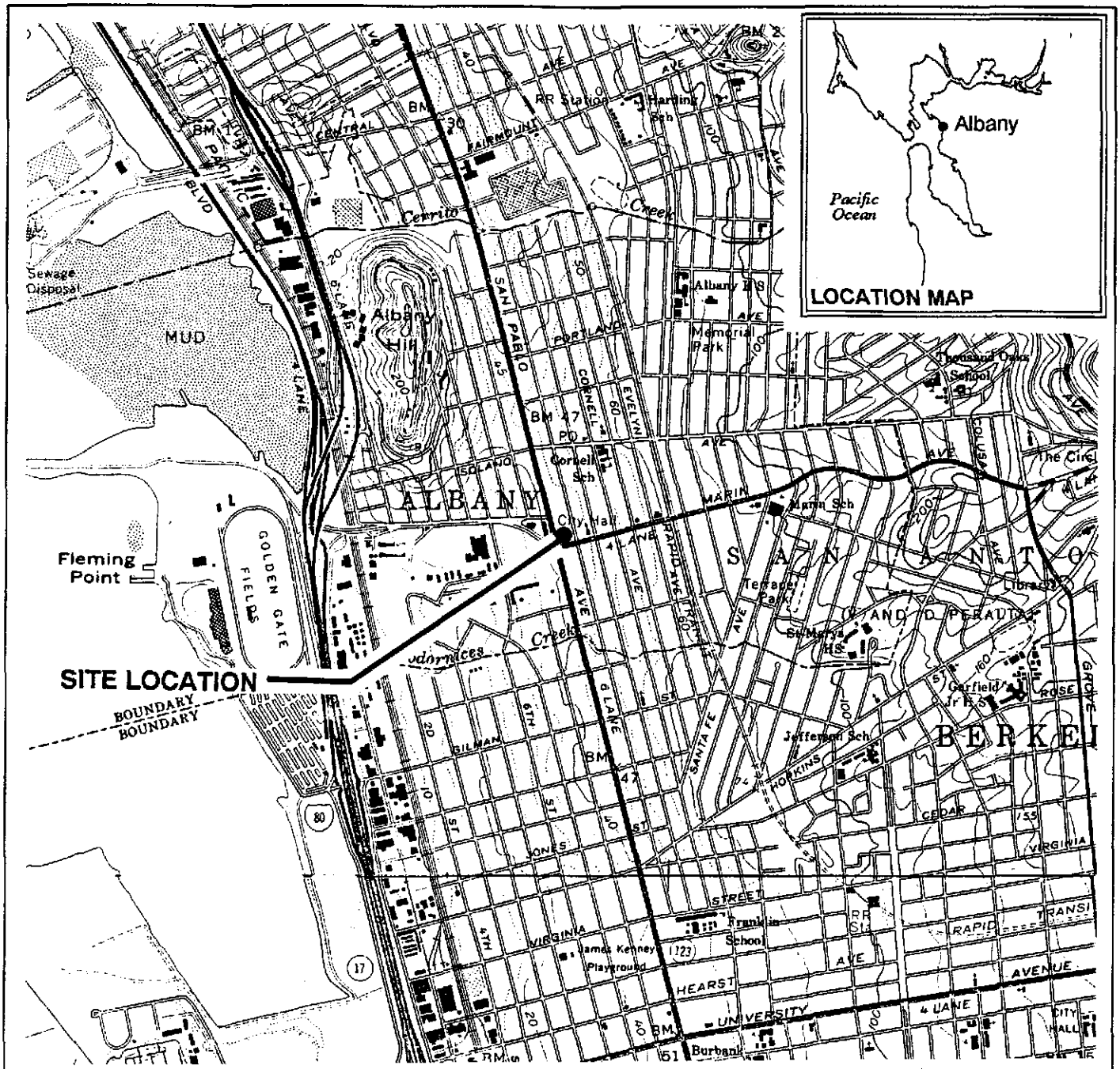
HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
01-May-90	S-5	Floating Product 0.64 ft				
28-Aug-90	S-5	Floating Product 3.51 ft				
27-Nov-90	S-5	Floating Product 4.71 ft				
11-Feb-91	S-5	Floating Product 5.57 ft				
13-May-91	S-5	Floating Product 6.48 ft				
23-Aug-91	S-5	Floating Product 5.50 ft				
28-Aug-90	S-6	5.7	0.58	0.023	0.032	0.058
27-Nov-90	S-6	8.0	0.79	0.037	0.096	0.069
11-Feb-91	S-6	12.	0.54	0.077	0.17	0.19
13-May-91	S-6	13.	0.60	0.14	0.21	0.31
23-Aug-91	S-6	9.8	0.48	0.08	0.12	0.15
28-Aug-90	S-7	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
27-Nov-90	S-7	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
11-Feb-91	S-7	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
13-May-91	S-7	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
23-Aug-91	S-7	<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 0.680 ppm

Current DHS Action Levels Toluene 0.1000 ppm

TPH-G - Total Petroleum Hydrocarbons calculated as Gasoline
PPM - Parts Per Million
NOTE: 1. DHS Action levels and MCL's are subject to change pending State of California review.
2. All data shown as <X are reported as ND (none detected).



Base Map: USGS Topographic Map

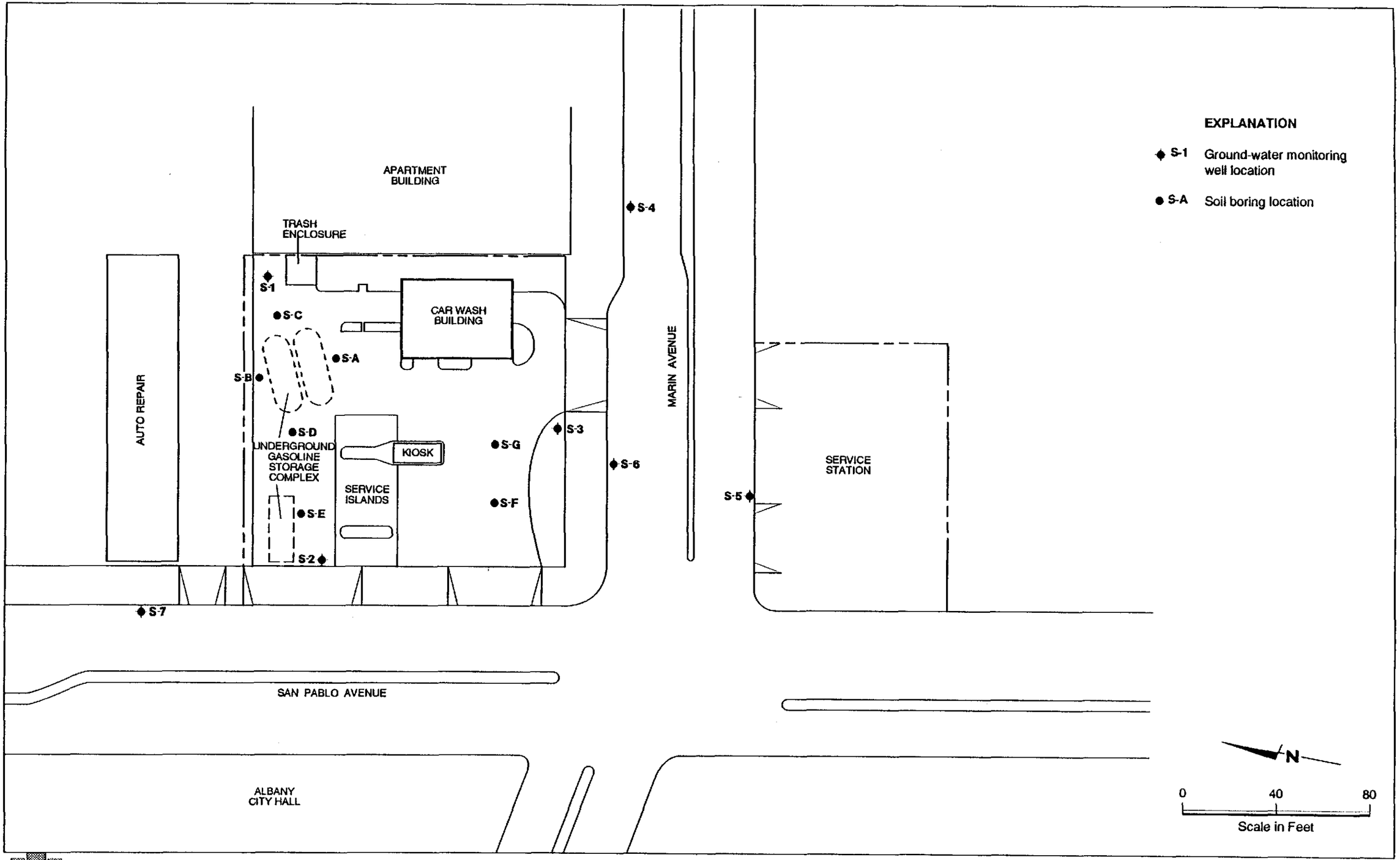
Approximate Scale : 1" = 2000'

GeoStrategies Inc.

Vicinity Map
Shell Service Station
999 San Pablo Avenue
Albany, California

PLATE **1**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE	REVISED DATE
7666		1/90		

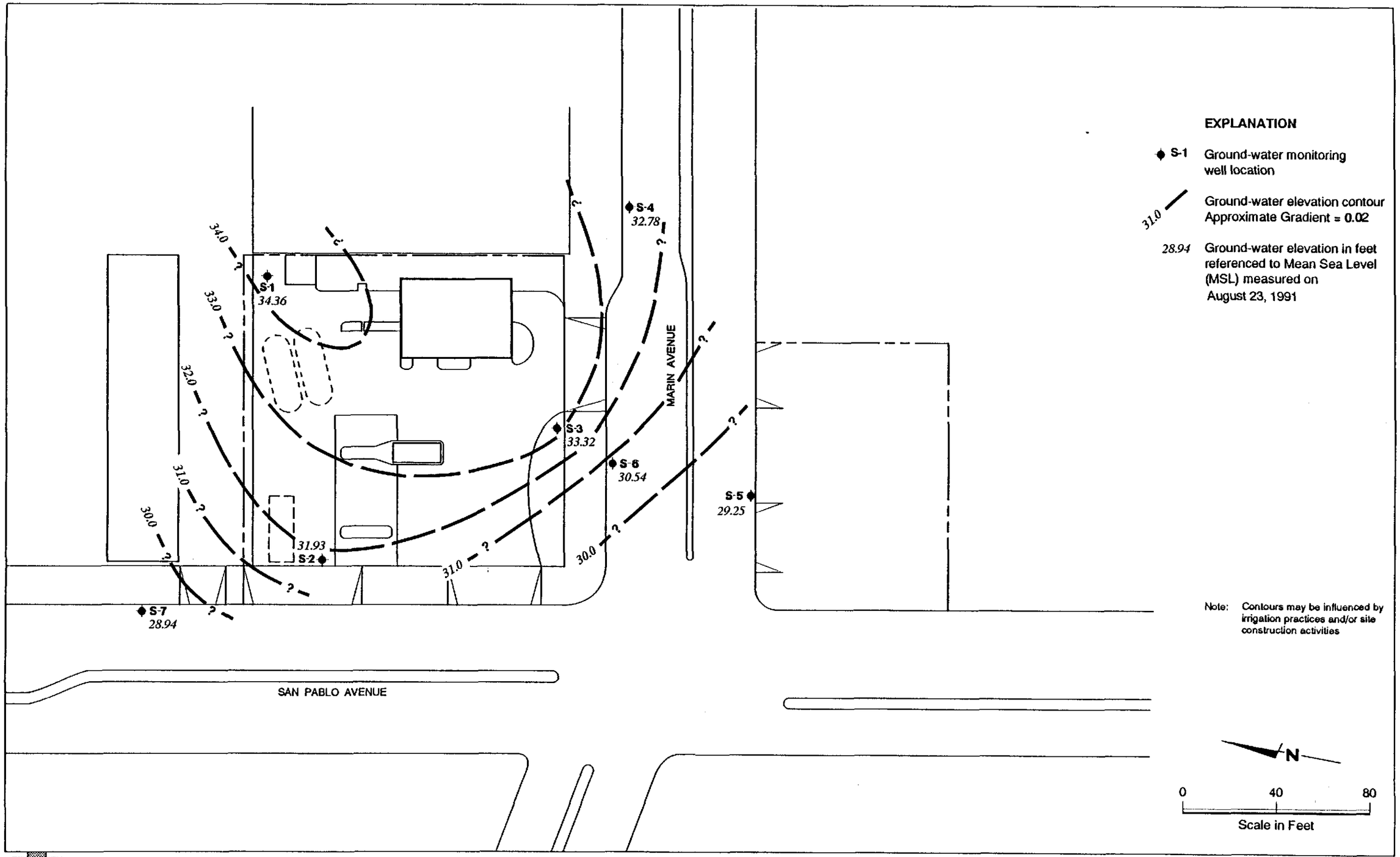


GeoStrategies Inc.

Site Plan
Shell Service Station
999 San Pablo Avenue
Albany, California

PLATE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE	REVISED DATE
766601-8	DHP	9/91		

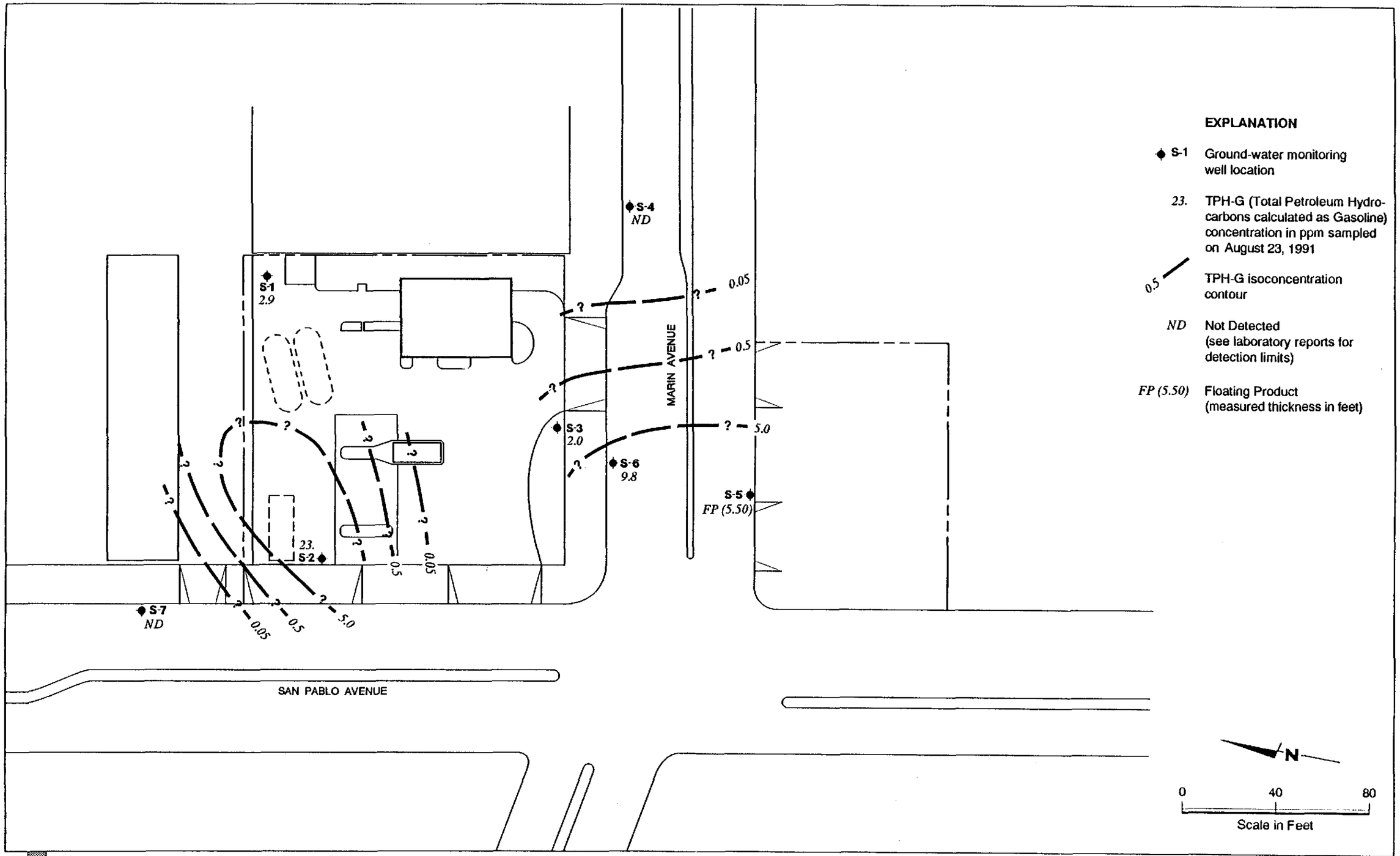


GeoStrategies Inc.

Potentiometric Map
Shell Service Station
999 San Pablo Avenue
Albany, California

PLATE
3

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE	REVISED DATE
766601-8	DHP	9/91		



EXPLANATION

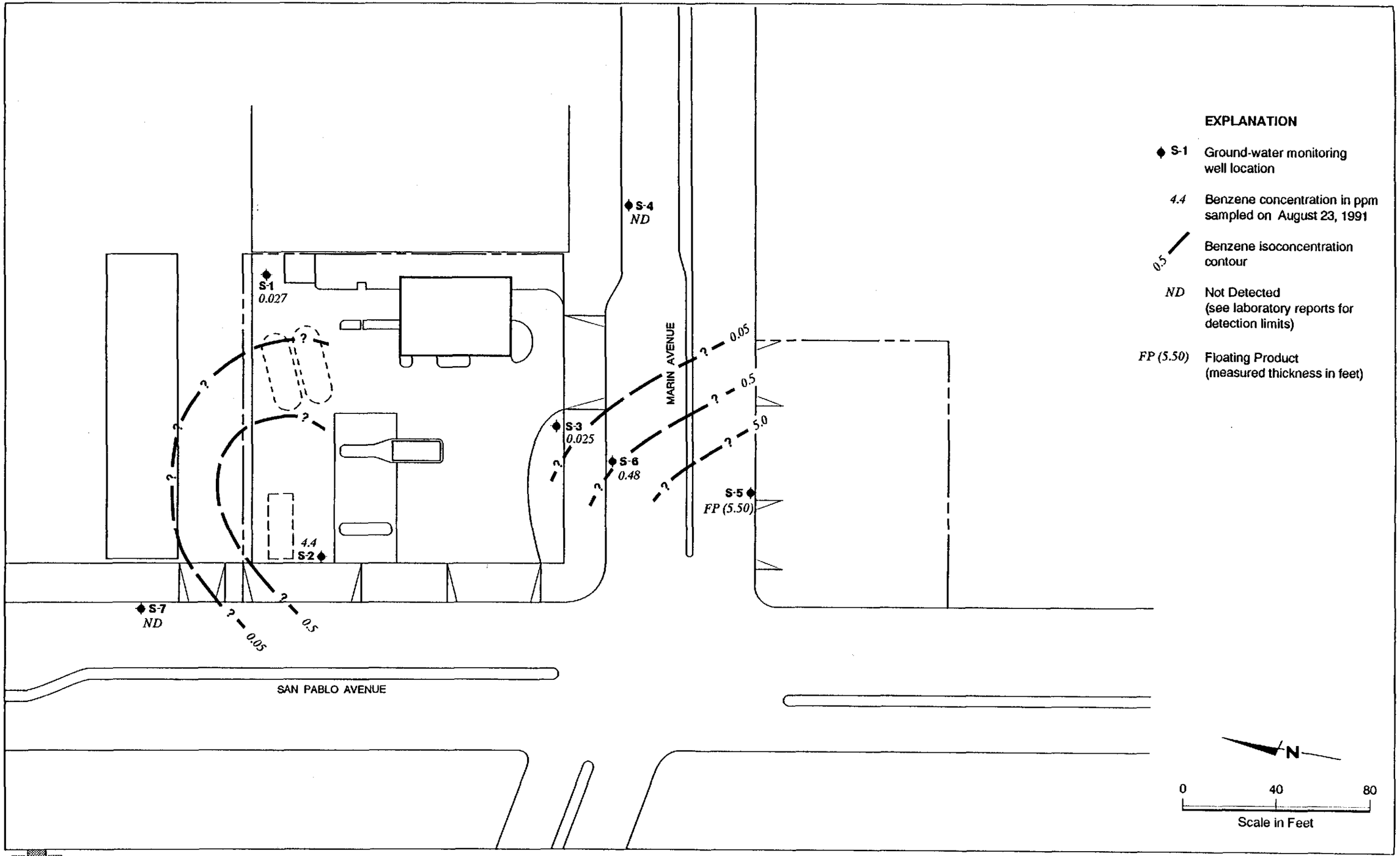
- ◆ S-1 — Ground-water monitoring well location
- *23.* — TPH-G (Total Petroleum Hydrocarbons calculated as Gasoline) concentration in ppm sampled on August 23, 1991
- 0.5 — TPH-G isoconcentration contour
- *ND* — Not Detected (see laboratory reports for detection limits)
- *FP (5.50)* — Floating Product (measured thickness in feet)

GSI GeoStrategies Inc.

TPH-G Isoconcentration Map
Shell Service Station
999 San Pablo Avenue
Albany, California

PLATE **4**

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766601-8	DHP	9/91		



GeoStrategies Inc.

Benzene Isoconcentration Map
Shell Service Station
999 San Pablo Avenue
Albany, California

PLATE **5**

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766601-8	DHP	9/91		

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

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

Date: 09/13/91

Work Order: T1-08-311 **P.O. Number: MOH 880-021 Vendor #I0002402**

This is the Certificate of Analysis for the following samples:

Client Work ID: GR3666 999 San Pablo Ave,Albn
Date Received: 08/26/91
Number of Samples: 9
Sample Type: aqueous

TABLE OF CONTENTS FOR ANALYTICAL RESULTS

Reviewed and Approved:

Susanne Veaudry
Project Manager

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

Work Order: T1-08-311

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-1
SAMPLE DATE: 08/23/91
LAB SAMPLE ID: T108311-01
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		09/04/91
Low Boiling Hydrocarbons	Mod.8015		09/04/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.25	2.9
BTEX		
Benzene	0.0025	0.027
Toluene	0.0025	None
Ethylbenzene	0.0025	0.075
Xylenes (total)	0.0025	0.018

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	99.
1,3-Dichlorobenzene (BTEX)	96.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

Work Order: T1-08-311

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-2
SAMPLE DATE: 08/23/91
LAB SAMPLE ID: T108311-02
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		09/03/91
Low Boiling Hydrocarbons	Mod.8015		09/03/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	2.5	23.
BTEX		
Benzene	0.025	4.4
Toluene	0.025	0.26
Ethylbenzene	0.025	1.9
Xylenes (total)	0.025	2.4

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	101.
1,3-Dichlorobenzene (BTEX)	92.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

Work Order: T1-08-311

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-3
SAMPLE DATE: 08/23/91
LAB SAMPLE ID: T108311-03
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		09/04/91
Low Boiling Hydrocarbons	Mod.8015		09/04/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.25	2.0
BTEX		
Benzene	0.0025	0.025
Toluene	0.0025	0.0040
Ethylbenzene	0.0025	0.0093
Xylenes (total)	0.0025	0.0045

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	105.
1,3-Dichlorobenzene (BTEX)	101.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

Work Order: T1-08-311

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-4
SAMPLE DATE: 08/23/91
LAB SAMPLE ID: T108311-04
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		08/30/91
Low Boiling Hydrocarbons	Mod.8015		08/30/91

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

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	94.
1,3-Dichlorobenzene (BTEX)	94.

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-08-311

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-6
SAMPLE DATE: 08/23/91
LAB SAMPLE ID: T108311-05
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		08/31/91
Low Boiling Hydrocarbons	Mod.8015		08/31/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	1.0	9.8
BTEX		
Benzene	0.01	0.48
Toluene	0.01	0.08
Ethylbenzene	0.01	0.12
Xylenes (total)	0.01	0.15

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	114.
1,3-Dichlorobenzene (BTEX)	101.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

Work Order: T1-08-311

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-7
SAMPLE DATE: 08/23/91
LAB SAMPLE ID: T108311-06
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		08/29/91
Low Boiling Hydrocarbons	Mod.8015		08/29/91

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

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	95.
1,3-Dichlorobenzene (BTEX)	96.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

Work Order: T1-08-311

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: SD-2
SAMPLE DATE: 08/23/91
LAB SAMPLE ID: T108311-07
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		09/03/91
Low Boiling Hydrocarbons	Mod.8015		09/03/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	2.5	22.
BTEX		
Benzene	0.025	4.4
Toluene	0.025	0.25
Ethylbenzene	0.025	1.9
Xylenes (total)	0.025	2.4

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	99.
1,3-Dichlorobenzene (BTEX)	92.

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-08-311

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: SF-3
SAMPLE DATE: 08/23/91
LAB SAMPLE ID: T108311-08
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		08/30/91
Low Boiling Hydrocarbons	Mod.8015		08/30/91

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

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	94.
1,3-Dichlorobenzene (BTEX)	93.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

Work Order: T1-08-311

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: Trip Blank
SAMPLE DATE: not spec
LAB SAMPLE ID: T108311-09
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		08/30/91
Low Boiling Hydrocarbons	Mod.8015		08/30/91

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

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	96.
1,3-Dichlorobenzene (BTEX)	95.

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-08-311

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T108311-10A
EXTRACTION DATE:
ANALYSIS DATE: 08/28/91
ANALYSIS METHOD: 8020

QUALITY CONTROL REPORT

Laboratory Spike(LS) and Laboratory Spike Duplicate(LSD) Analyses

RESULTS in Micrograms per Liter

PARAMETER	Sample Amt	Spike Amt	LS Result	LSD Result	LS %Rec	LSD %Rec	RPD
Benzene	None	50.	54.5	N/A	109.	N/A	N/A
Toluene	None	50.	54.3	N/A	109.	N/A	N/A
Ethyl benzene	None	50.	51.0	N/A	102.	N/A	N/A
Xylenes	None	150.	116.	N/A	77.	N/A	N/A

SURROGATES	LS %Rec	LSD %Rec
1,3-Dichlorobenzene	95.	N/A

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-08-311

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T108311-10A
EXTRACTION DATE:
ANALYSIS DATE: 08/30/91
ANALYSIS METHOD: Mod. 8015

QUALITY CONTROL REPORT

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Analyses

RESULTS in Micrograms per Liter

PARAMETER	Sample Amt	Spike Amt	MS Result	MSD Result	MS %Rec	MSD %Rec	RPD
Gasoline	ND<50.	500.	445.	448.	89.	90.	1.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	99.	98.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

Work Order: T1-08-311

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T108311-10B
EXTRACTION DATE:
ANALYSIS DATE: 08/30/91
ANALYSIS METHOD: 8020

QUALITY CONTROL REPORT

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Analyses

RESULTS in Micrograms per Liter

PARAMETER	Sample Amt	Spike Amt	MS Result	MSD Result	MS %Rec	MSD %Rec	RPD
Benzene	ND<0.5	50.0	54.6	53.9	109.	108.	1.
Toluene	ND<0.5	50.0	54.6	54.0	109.	108.	1.
Ethyl benzene	ND<0.5	50.0	52.1	51.7	104.	103.	1.
Xylenes	ND<0.5	150.	115.	115.	77.	77.	0

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	92.	92.

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-08-311

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T108311-10C
EXTRACTION DATE:
ANALYSIS DATE: 09/03/91
ANALYSIS METHOD: Mod. 8015

QUALITY CONTROL REPORT

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Analyses

RESULTS in Micrograms per Liter

PARAMETER	Sample Amt	Spike Amt	MS Result	MSD Result	MS %Rec	MSD %Rec	RPD
Gasoline	ND<50.	500.	397.	397.	79.	79.	0

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	98.	98.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: GR3666 999 San Pablo Ave,Albn

Work Order: T1-08-311

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

The method of analysis for low boiling hydrocarbons is taken from EPA Methods modified 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector in series with a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline. Results in soils are corrected for moisture content and are reported on a dry soil basis unless otherwise noted.

Gettler - Ryan Inc. 177-00-511 ENVIRONMENTAL DIVISION — **3032 Chain of Custody**

COMPANY Shell Oil Company — JOB NO.

JOB LOCATION 999 San Pablo Ave

CITY Albany — PHONE NO. (415) 783-7500

AUTHORIZED Tom Paulson — DATE 8-23-91 — P.O. NO. # 3666.01

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
S-1	3	Liquid	8-23-91 / 12:20	THC(gas) BTXE	Cool
S-2			/ 12:14		
S-3			/ 1230		
S-4			/ 1140		
S-6			/ 1150		
S-7			/ 1201		
SD-2			/ —		
SF-3			/ 1230		
Trip	1		/ —		

RELINQUISHED BY: Guadalupe Sanchez 8-23-91 17:00 — RECEIVED BY: Chris #1 8-23-91 17:0

RELINQUISHED BY: Chris #1 8-26-91 ~~12:10~~ 10:00 — RECEIVED BY: Jack 8-23-91 10:00

RELINQUISHED BY: [illegible] 8-26-91 12:15 — RECEIVED BY LAB: Manuel Ogrande 8-26-91 1215

DESIGNATED LABORATORY: IT (SCV) — DHS #: 137

REMARKS:

WIC #: 204-0079-0109

Normal TAT

EXP CODE: 5461

ENGr: Jack Broadtad

DATE COMPLETED 8-23-91 — FOREMAN Guadalupe Sanchez

ORIGINAL