



April 3, 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 copy of the April 2, 1991 Site Update report for the above referenced location. The report presents the results of the ground-water sampling conducted during the first 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

91 APR -5
MAY 16



GeoStrategies Inc.

SITE UPDATE

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

766601-6

April 2, 1991

RECEIVED

APR 2 1991



GeoStrategies Inc.

2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545

GETTLER-RYAN INC.

GENERAL CONTRACTORS

(415) 352-4800

April 2, 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 first 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.

766601-6

GeoStrategies Inc.

Gettler-Ryan Inc.
April 2, 1991
Page 2

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 0.01 foot. Elevations referenced to Mean Sea Level (MSL) are presented in Table 1. Water-level data collected on February 14, 1991 were used to construct the quarterly potentiometric map on Plate 3. Shallow ground-water flow is generally to the south at a calculated average gradient of 0.1.

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 only observed in Well S-5 this quarter.

Ground-water Analytical Data

Ground-water samples were collected on February 11, 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 1.3 to 12. parts per million (ppm). Benzene concentrations detected in Wells S-1 through S-3, and S-6 ranged from 0.020 to 1.1 ppm. These data are summarized in Table 1 and included in Appendix A. A chemical concentration map for TPH-Gasoline and benzene is presented on Plate 4. Historical chemical analytical data are presented on Table 2.

GeoStrategies Inc.

Gettler-Ryan Inc.
April 2, 1991
Page 3

Quality Control

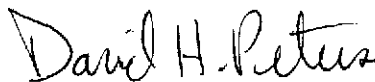
Quality Control (QC) samples for this quarter's sampling included a trip blank (TB) and field blank (SF-3). These samples were prepared in the laboratory and field using organic-free water to evaluate laboratory and field handling procedures of samples. The results of QC sample analyses are presented in Table 1.

If you have any questions, please call.

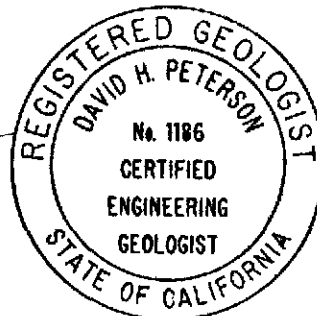
GeoStrategies Inc. by,



Cliff M. Garratt
Hydrogeologist



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



CMG/DHP/kjj

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

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

QC Review: _____

766601-6

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)	pH	TEMPERATURE (F)	CONDUCTIVITY (uMHOS/cm)
S-1	11-Feb-91	21-Feb-91	1.5	0.027	<0.0025	0.073	0.087	42.73	34.38	----	8.35	7.07	61.0	777
S-2	11-Feb-91	21-Feb-91	6.8	1.1	0.047	0.17	0.62	40.73	31.18	----	9.55	7.20	61.9	1117
S-3	11-Feb-91	21-Feb-91	1.3	0.020	<0.0025	0.0095	0.0036	41.46	33.08	----	8.38	6.95	62.3	909
S-4	11-Feb-91	20-Feb-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	41.10	33.27	----	7.83	6.99	62.6	453
S-5	11-Feb-91	----	----	----	----	----	----	39.99	29.43	5.57	15.02	----	----	----
S-6	11-Feb-91	22-Feb-91	12.	0.54	0.077	0.17	0.19	40.12	29.79	----	10.33	7.17	62.5	851
S-7	11-Feb-91	21-Feb-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	40.10	----	----	----	7.25	63.3	705
SF-3	11-Feb-91	20-Feb-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	----	----	----	----	----	----	----
TB	----	20-Feb-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	----	----	----	----	----	----	----

CURRENT REGIONAL WATER QUALITY CONTROL BOARD MAXIMUM CONTAMINANT LEVELS

Benzene 0.001 pp Xylenes 1.750 ppm Ethylbenzene 0.68 ppm

CURRENT DHS ACTION LEVELS

Toluene 0.100 ppm

TPH-G = Total Petroleum Hydrocarbons as Gasoline

SF = Field Blank

PPM = Parts Per Million

TB = Trip Blank

Note: 1. All data shown as <x are reported as ND (none detected).

2. Water level elevations referenced to mean seal 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.

4. Physical parameter measurements represent stabilized values during well purging.

5. Depth to water and product thickness data collected 14-Feb-91.

TABLE 2

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
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
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
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
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

TABLE 2

HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
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

Current Regional Water Quality Control Board Maximum Contaminant Levels

Benzene .001 ppm Xylenes 1.75 ppm Ethylbenzene .68 ppm

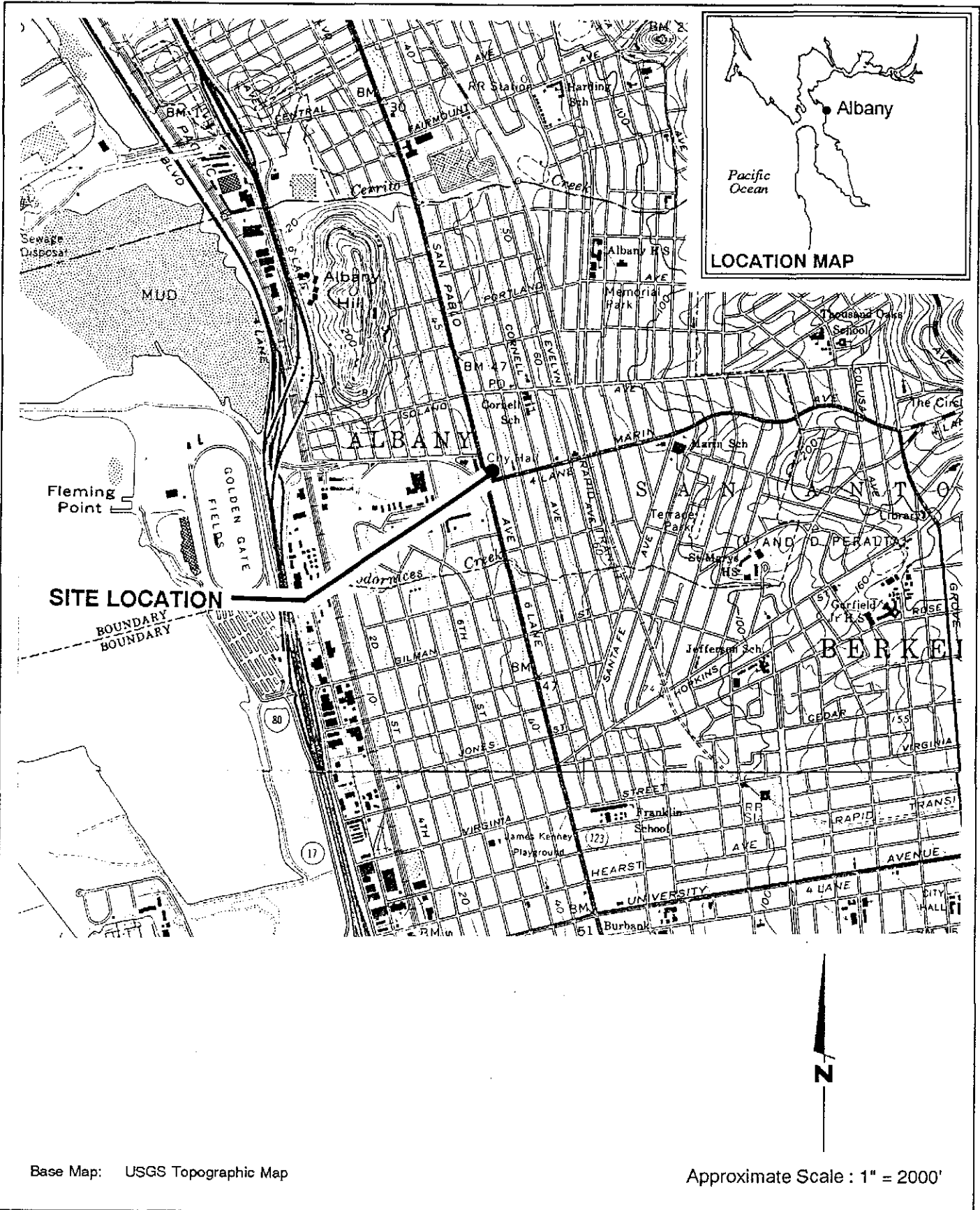
Current DHS Action Levels Toluene .1 ppm

TPH-G - Total Petroleum Hydrocarbons calculated as Gasoline

PPM - Parts Per Million

NOTE: 1. DHS Action levels and MCLS 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

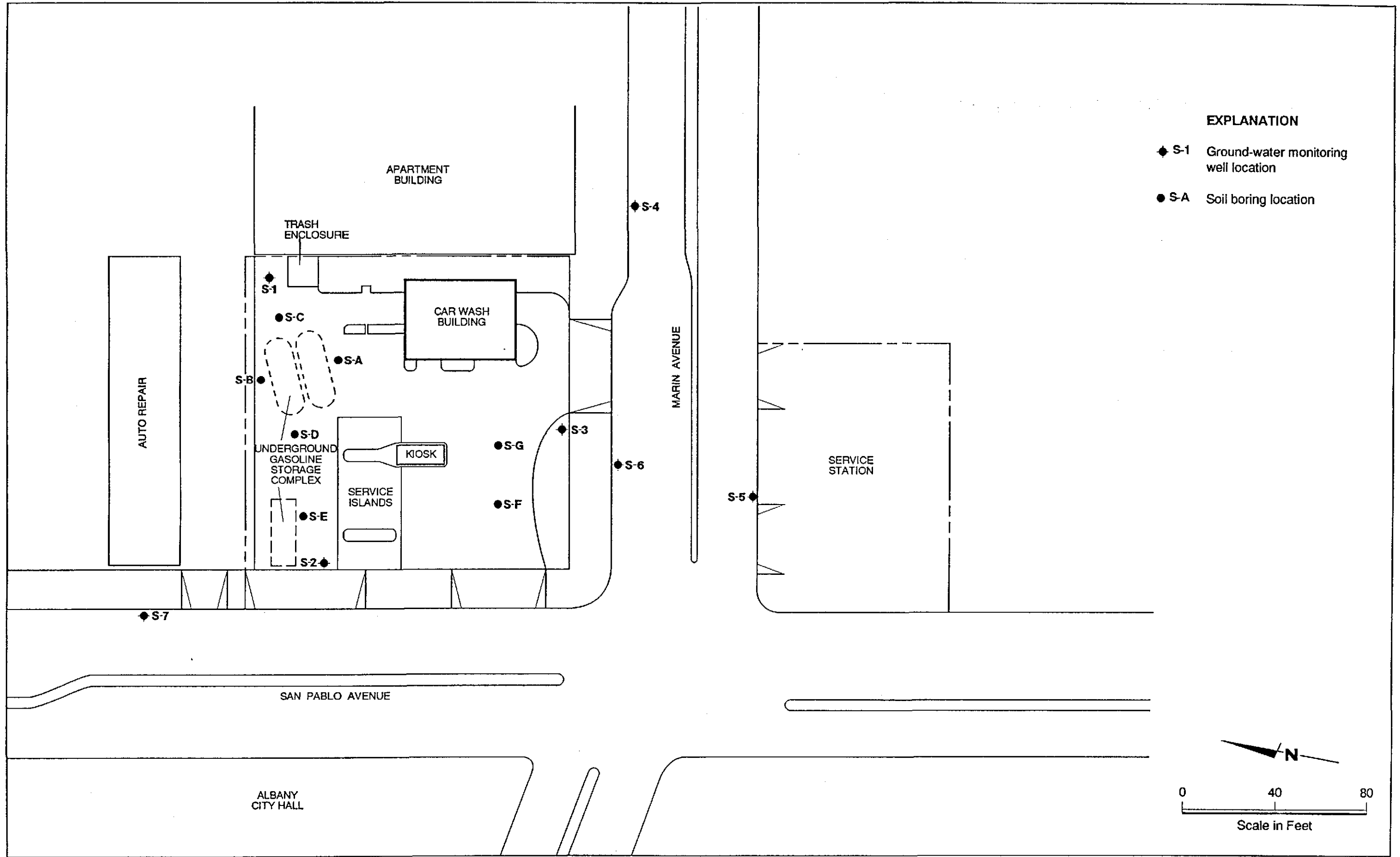
JOB NUMBER
 7666

REVIEWED BY

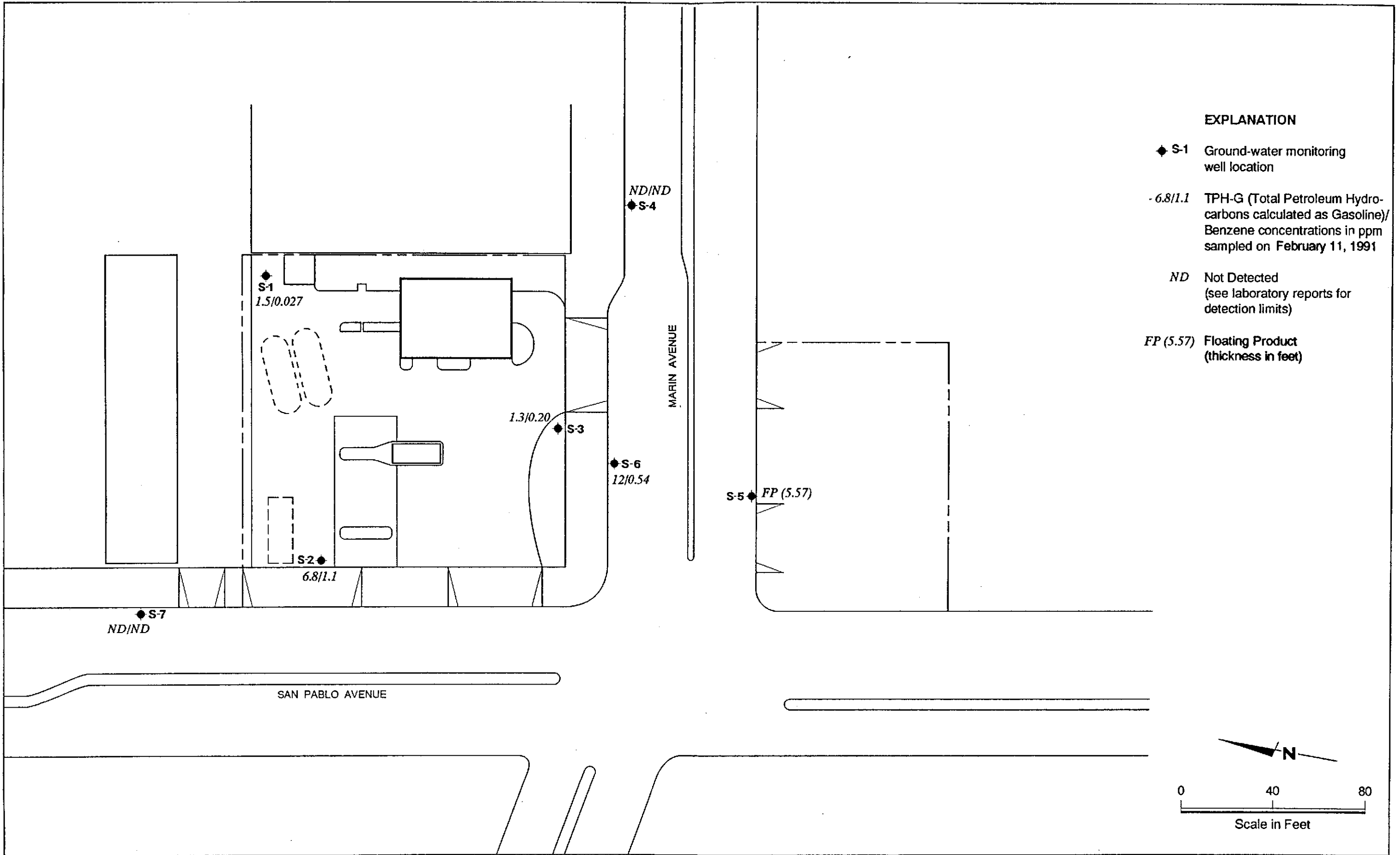
DATE
 1/90

REVISED DATE

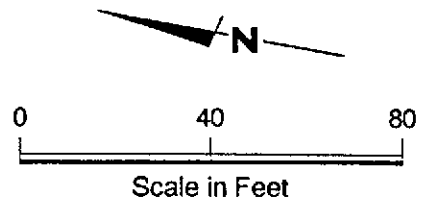
REVISED DATE

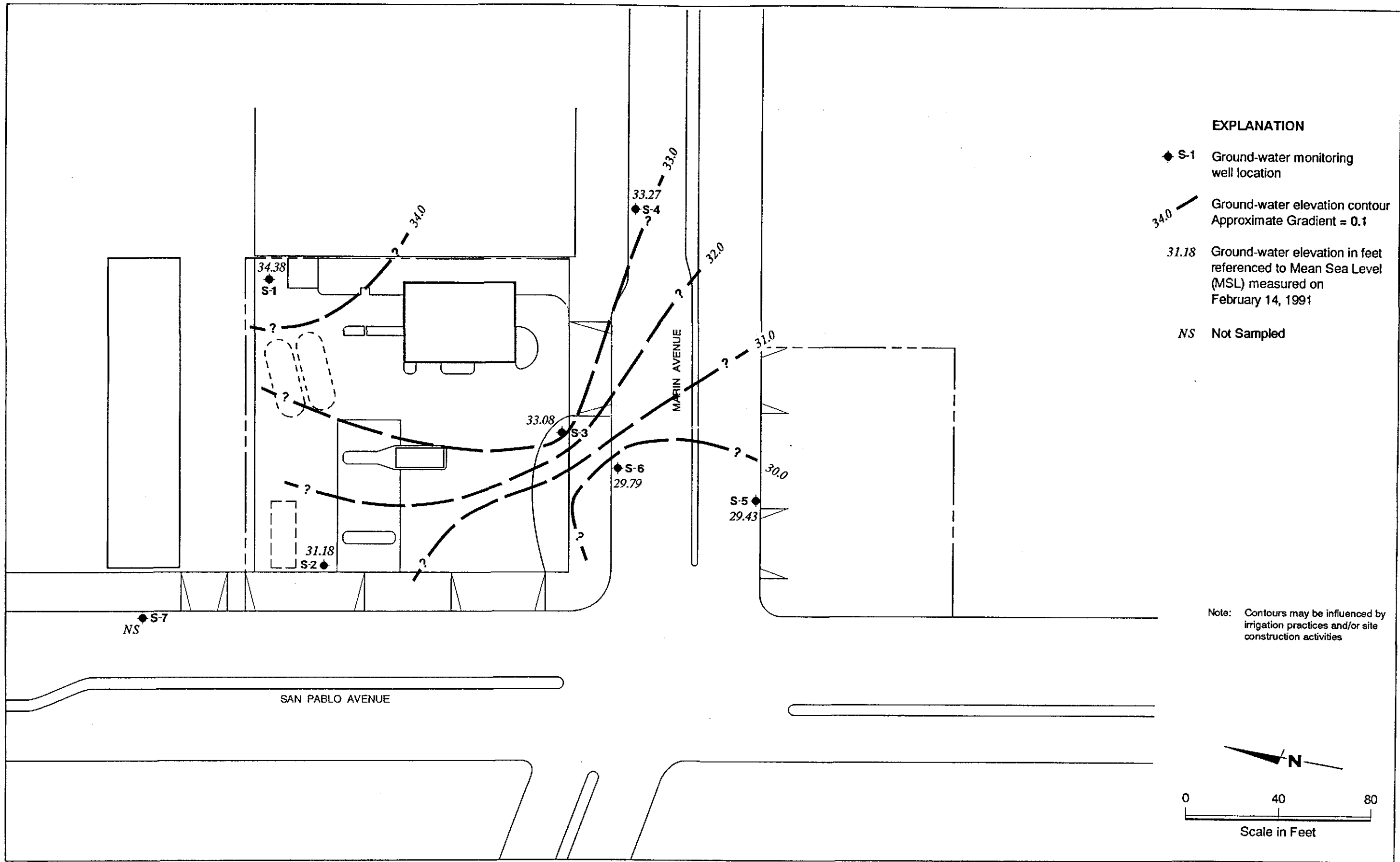


- EXPLANATION**
- ◆ S-1 Ground-water monitoring well location
 - S-A Soil boring location



- EXPLANATION**
- ◆ S-1 Ground-water monitoring well location
 - 6.8/1.1 TPH-G (Total Petroleum Hydrocarbons calculated as Gasoline)/ Benzene concentrations in ppm sampled on February 11, 1991
 - ND Not Detected (see laboratory reports for detection limits)
 - FP (5.57) Floating Product (thickness in feet)

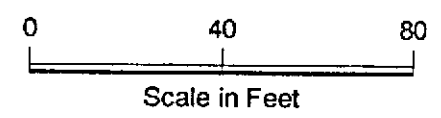




EXPLANATION

- ◆ S-1 Ground-water monitoring well location
- 34.0 — Ground-water elevation contour
Approximate Gradient = 0.1
- 31.18 Ground-water elevation in feet referenced to Mean Sea Level (MSL) measured on February 14, 1991
- NS Not Sampled

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



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

PLATE
3

JOB NUMBER
766601

REVIEWED BY
D.H.

DATE
3/91

REVISED DATE

REVISED DATE



INTERNATIONAL
TECHNOLOGY
CORPORATION

ANALYTICAL SERVICES

RECEIVED

FEB 27 1991

GETTLER-RYAN INC.
GENERAL CONTRACTORS

CERTIFICATE OF ANALYSIS

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

Date: 02/26/91

Work Order: T1-02-130

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

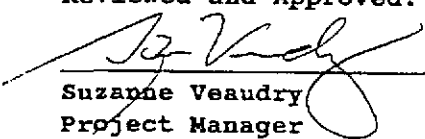
This is the Certificate of Analysis for the following samples:

Client Work ID: GR3666, 999 San Pablo, Albany
Date Received: 02/12/91
Number of Samples: 8
Sample Type: aqueous

TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	T1-02-130-01	S-1
3	T1-02-130-02	S-2
4	T1-02-130-03	S-3
5	T1-02-130-04	S-4
6	T1-02-130-05	S-6
7	T1-02-130-06	S-7
8	T1-02-130-07	SF-3
9	T1-02-130-08	Trip Blank

Reviewed and Approved:


Suzanne Veaudry
Project Manager

American Council of Independent Laboratories
International Association of Environmental Testing Laboratories
American Association for Laboratory Accreditation

Company: Shell Oil Company

Date: 02/26/91

Client Work ID: GR3666, 999 San Pablo, Albany

Work Order: T1-02-130

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-1

SAMPLE DATE: 02/11/91

LAB SAMPLE ID: T102130-01

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/21/91
Low Boiling Hydrocarbons	Mod.8015		02/21/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.25	1.5
BTEX		
Benzene	0.0025	0.027
Toluene	0.0025	None
Ethylbenzene	0.0025	0.073
Xylenes (total)	0.0025	0.087

Company: Shell Oil Company

Date: 02/26/91

Client Work ID: GR3666, 999 San Pablo, Albany

Work Order: T1-02-130

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-2

SAMPLE DATE: 02/11/91

LAB SAMPLE ID: T102130-02

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
BTEX	8020		02/21/91
Low Boiling Hydrocarbons	Mod.8015		02/21/91

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Low Boiling Hydrocarbons calculated as Gasoline	0.5	6.8
BTEX		
Benzene	0.005	1.1
Toluene	0.005	0.047
Ethylbenzene	0.005	0.17
Xylenes (total)	0.005	0.62

Company: Shell Oil Company

Date: 02/26/91

Client Work ID: GR3666, 999 San Pablo, Albany

Work Order: T1-02-130

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-3

SAMPLE DATE: 02/11/91

LAB SAMPLE ID: T102130-03

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
BTEX	8020		02/21/91
Low Boiling Hydrocarbons	Mod.8015		02/21/91

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Low Boiling Hydrocarbons calculated as Gasoline	0.25	1.3
BTEX		
Benzene	0.0025	0.020
Toluene	0.0025	None
Ethylbenzene	0.0025	0.0095
Xylenes (total)	0.0025	0.0036

Company: Shell Oil Company

Date: 02/26/91

Client Work ID: GR3666, 999 San Pablo, Albany

Work Order: T1-02-130

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-4

SAMPLE DATE: 02/11/91

LAB SAMPLE ID: T102130-04

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/20/91
Low Boiling Hydrocarbons	Mod.8015		02/20/91

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

Company: Shell Oil Company

Date: 02/26/91

Client Work ID: GR3666, 999 San Pablo, Albany

Work Order: T1-02-130

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-6

SAMPLE DATE: 02/11/91

LAB SAMPLE ID: T102130-05

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
BTEX	8020		02/22/91
Low Boiling Hydrocarbons	Mod.8015		02/22/91

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Low Boiling Hydrocarbons calculated as Gasoline	0.5	12.
BTEX		
Benzene	0.005	0.54
Toluene	0.005	0.077
Ethylbenzene	0.005	0.17
Xylenes (total)	0.005	0.19

Company: Shell Oil Company

Date: 02/26/91

Client Work ID: GR3666, 999 San Pablo, Albany

Work Order: T1-02-130

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-7

SAMPLE DATE: 02/11/91

LAB SAMPLE ID: T102130-06

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
BTEX	8020		02/21/91
Low Boiling Hydrocarbons	Mod.8015		02/21/91

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
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

Company: Shell Oil Company

Date: 02/26/91

Client Work ID: GR3666, 999 San Pablo, Albany

Work Order: T1-02-130

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: SF-3

SAMPLE DATE: 02/11/91

LAB SAMPLE ID: T102130-07

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
BTEX	8020		02/20/91
Low Boiling Hydrocarbons	Mod.8015		02/20/91

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
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

Company: Shell Oil Company

Date: 02/26/91

Client Work ID: GR3666, 999 San Pablo, Albany

Work Order: T1-02-130

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: Trip Blank

SAMPLE DATE: not spec

LAB SAMPLE ID: T102130-08

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/20/91
Low Boiling Hydrocarbons	Mod.8015		02/20/91

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

Company: Shell Oil Company

Date: 02/26/91

Client Work ID: GR3666, 999 San Pablo, Albany

Work Order: T1-02-130

TEST CODE TPHEB 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.

COMPANY Shell Oil Company JOB NO. _____
 JOB LOCATION 999 San Pablo Av
 CITY Albany PHONE NO. 783-7500
 AUTHORIZED Tom Paulson DATE 2-11-91 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	2-11-91/1455	THC (gas) BTXE	CO-18
S-2			1415		}
S-3			1539		
S-4			1616		
S-6			1644		
S-7			1717		
SF-3			1539		
Trie Blank	1		1-23-91/-		

RELINQUISHED BY: Rodall F. Hedqvist 2-11-91 1800 RECEIVED BY: Refug #1 2-11-91 1801

RELINQUISHED BY: Refug #1 2-12-91 700 RECEIVED BY: RuBw 2-12-91 701

RELINQUISHED BY: RuBw 2-12-91 1641 RECEIVED BY LAB: 2/12/91 1641

DESIGNATED LABORATORY: IT (SCV) DHS #: 137

REMARKS: Normal TAT LIC# 204.0079.0109
Exp: 5441
Eng: Lundquist

DATE COMPLETED 2-11-91 FOREMAN Rodall F. Hedqvist

ORIGINAL