



**GeoStrategies Inc.**

2140 WEST WINTON AVENUE  
HAYWARD, CALIFORNIA 94545

(510) 352-4800

March 23, 1992

~~Mr. Gil Wistar~~ *Susan*

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

*STID 3670*

Reference: Shell Service Station  
999 San Pablo Avenue  
Albany, California *9906*  
WIC 204-0079-0109

Mr. Wistar:

Enclosed is a copy of the March 23, 1992 Quarterly Report for the above referenced location. The report presents the results of the ground-water sampling conducted during the first quarter of 1992.

If you have any questions, please call.

Sincerely,

*Ellen Fostersmith*

Ellen Fostersmith  
Geologist

cc: Mr. Paul Hayes, Shell Oil Company  
Mr. Tom Callaghan, Regional Water Quality Control Board



**GeoStrategies Inc.**

**QUARTERLY REPORT**

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

766601-10

March 23, 1992



**GeoStrategies Inc.**

2140 WEST WINTON AVENUE  
HAYWARD, CALIFORNIA 94545

(510) 352-4800

March 23, 1992

Shell Oil Company  
P.O. Box 5278  
Concord, California

Attn: Mr. E. Paul Hayes

Re: QUARTERLY REPORT  
Shell Service Station  
999 San Pablo Avenue  
Albany, California  
WIC# 204-0079-0109

Gentlemen:

This Quarterly Report has been prepared by GeoStrategies Inc. (GSI) presents the results of the 1992 first quarter sampling for the above referenced site (Plate 1). Sampling data were furnished by the Shell Oil Company sampling contractor.

There are currently seven monitoring wells at the site; Wells S-1 through S-7 (Plate 2). These wells were installed in 1990.

**CURRENT QUARTER SAMPLING RESULTS**

Depth to water-level measurements were obtained in each monitoring well. Static ground-water levels were measured from the surveyed top of the well box and recorded to the nearest  $\pm 0.01$  foot. Water-level elevations, referenced to Mean Sea Level (MSL) datum and the stabilized values of measured physical parameters are presented in Table 1. Water-level data were used to construct a quarterly potentiometric map (Plate 2). Shallow ground-water flow is to the south and west at an approximate hydraulic gradient of 0.04.

Each well was checked for the presence of floating product. Floating product observed in Well S-5 at a measured thickness of 4.90 feet.

# GeoStrategies Inc.

Shell Oil Company  
March 23, 1992  
Page 2

Ground-water samples were collected on January 28, 1992. Samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline), according to EPA Method 8015 (Modified) and for BTEX according to EPA Method 8020. The ground-water samples were analyzed by International Technology (IT) Analytical Services, a California State-certified laboratory located in San Jose, California. These data are summarized in Table 2. A chemical isoconcentration map for benzene is presented on Plate 3. Historical chemical analytical data are presented in Table 3.

If you have any questions, please call.

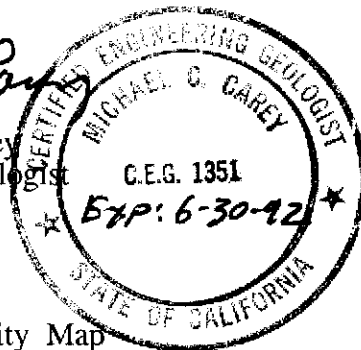
GeoStrategies Inc. by,

*Ellen C. Fostersmith*

Ellen C. Fostersmith  
Geologist

*Michael C. Carey*

Michael C. Carey  
Engineering Geologist  
C.E.G. 1351



ECF/MCC/dls

Plate 1. Vicinity Map  
Plate 2. Site Plan/Potentiometric Map  
Plate 3. Benzene Isoconcentration Map

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

QC Review *JZ*

Table 1  
Monitoring Well Field Measurement Data  
First Quarter 1992

Shell Station: 999 San Pablo Avenue  
Albany, California

WIC#: 204-0079-0109

<u>Well Identi- fication</u>	<u>Water Level Survey Date</u>	<u>Depth To Water (feet)</u>	<u>Well Total Depth (feet)</u>	<u>Floating Product Thickness (feet)</u>	<u>Well Sampling Date</u>	<u>pH (std. units)<sup>1</sup></u>	<u>Electrical Conductivity (µmhos/cm)<sup>2</sup></u>	<u>Temperature (°F)<sup>3</sup></u>	<u>Turbidity (NTU)<sup>4</sup></u>
S-1	01/28/92	7.84	11.4	ND. <sup>5</sup>	01/28/92	6.87	707	63.9	>200
S-2	01/28/92	7.80	11.8	ND.	01/28/92	6.94	1,177	62.4	>200
S-3	01/28/92	7.53	11.9	ND.	01/28/92	6.76	777	61.2	>200
S-4	01/28/92	7.40	13.8	ND.	01/28/92	6.80	409	63.6	>200
S-5	01/28/92	14.05	15.7	4.90	01/28/92	FP. <sup>6</sup>	FP.	FP.	FP.
S-6	01/28/92	8.97	14.8	ND.	01/28/92	7.09	728	65.8	>200
S-7	01/28/92	10.72	14.7	ND.	01/28/92	6.79	800	62.7	>200

1. Standard pH units

2. µmhos/cm = micromhos per centimeter

3. °F = degrees Fahrenheit

4. NTU = nephelometric turbidity units

5. ND. = not detected

6. FP. = floating product; well S-5 contained 4.90 feet of floating product and was not sampled.

Table 2

Summary of Analytical Results  
 First Quarter 1992  
 milligrams per liter (mg/l) or parts per million (ppm)

Shell Station: 999 San Pablo Avenue  
 Alamo, California

WIC#: 204-0079-0109

Sample Designation	Sampling Date	TPH <sup>1</sup> as Gasoline (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Ethyl- benzene (mg/l)	Total Xylenes (mg/l)
S-1	01/28/92	2.0	0.011	<0.0025	0.060	0.020
S-2	01/28/92	22.	1.6	0.07	0.42	1.7
S-3	01/28/92	2.1	0.021	0.0076	0.0067	0.015
S-4	01/28/92	0.11 <sup>2</sup>	<0.0005	<0.0005	<0.0005	<0.0005
S-5	01/28/92	FP. <sup>3</sup>	FP.	FP.	FP.	FP.
S-6	01/28/92	5.6	0.25	0.015	0.041	0.036
S-7	01/28/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
SD-3	01/28/92	2.1	0.018	0.0061	0.0071	0.014
TB	01/28/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005

1. TPH = total petroleum hydrocarbons

2. Compounds detected and calculated as low boiling hydrocarbons consist of compounds eluting within the chromatographic range of gasoline, but are not characteristic of the standard gasoline pattern.

3. FP. = floating product; well S-5 contained 4.90 feet of floating product and was not sampled.

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
07-Nov-91	S-1	2.9	0.0080	0.0025	0.046	0.026
28-Jan-92	S-1	2.0	0.011	<0.0025	0.060	0.020
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
07-Nov-91	S-2	40.	4.0	0.16	1.02	3.4
28-Jan-92	S-2	22.	1.6	0.07	0.42	1.7
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
07-Nov-91	S-3	4.0	0.020	0.0039	0.0050	0.0049
28-Jan-92	S-3	2.1	0.021	0.0076	0.0067	0.015

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-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
07-Nov-91	S-4	0.26&	<0.0005	<0.0005	<0.0005	<0.0005
28-Jan-92	S-4	0.11	<0.0005	<0.0005	<0.0005	<0.0005
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		
07-Nov-91	S-5	Floating Product		5.35 ft		
28-Jan-92	S-5	Floating Product		4.90 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
07-Nov-91	S-6	6.2	0.24	0.023	0.025	0.027
28-Jan-92	S-6	5.6	0.25	0.015	0.041	0.036
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



TABLE 3

HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
07-Nov-91	S-7	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
28-Jan-92	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

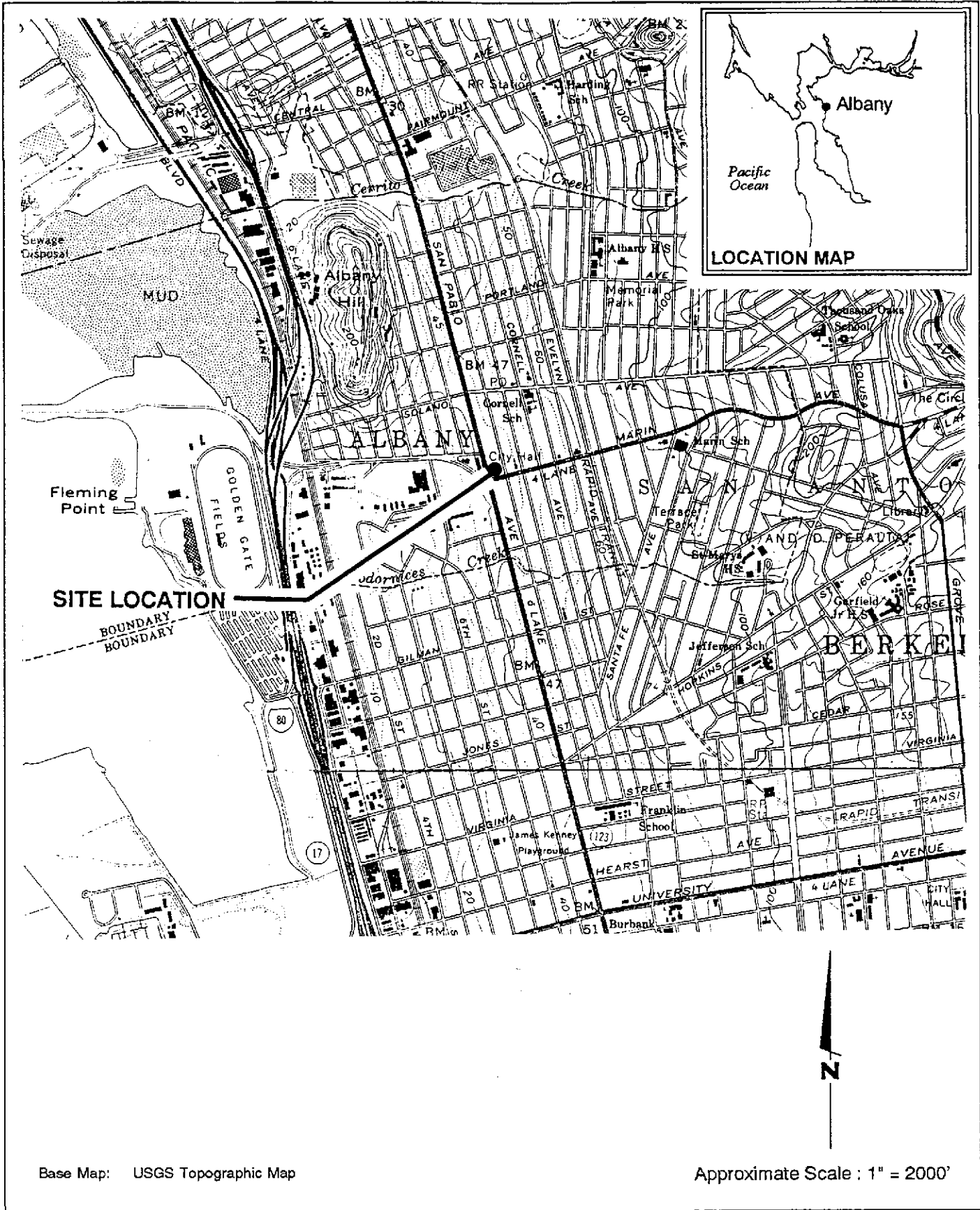
- NOTE: 1. DHS Action levels and MCL's are subject to change pending State of California review.  
 2. All data shown as <X are reported as ND (none detected).

& Compounds detected and calculated as low boiling hydrocarbons consist of compounds eluting within the chromatographic range of gasoline, but are not characteristic of the standard gasoline standard pattern.

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline

PPM = Parts per Million

NOTE: 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

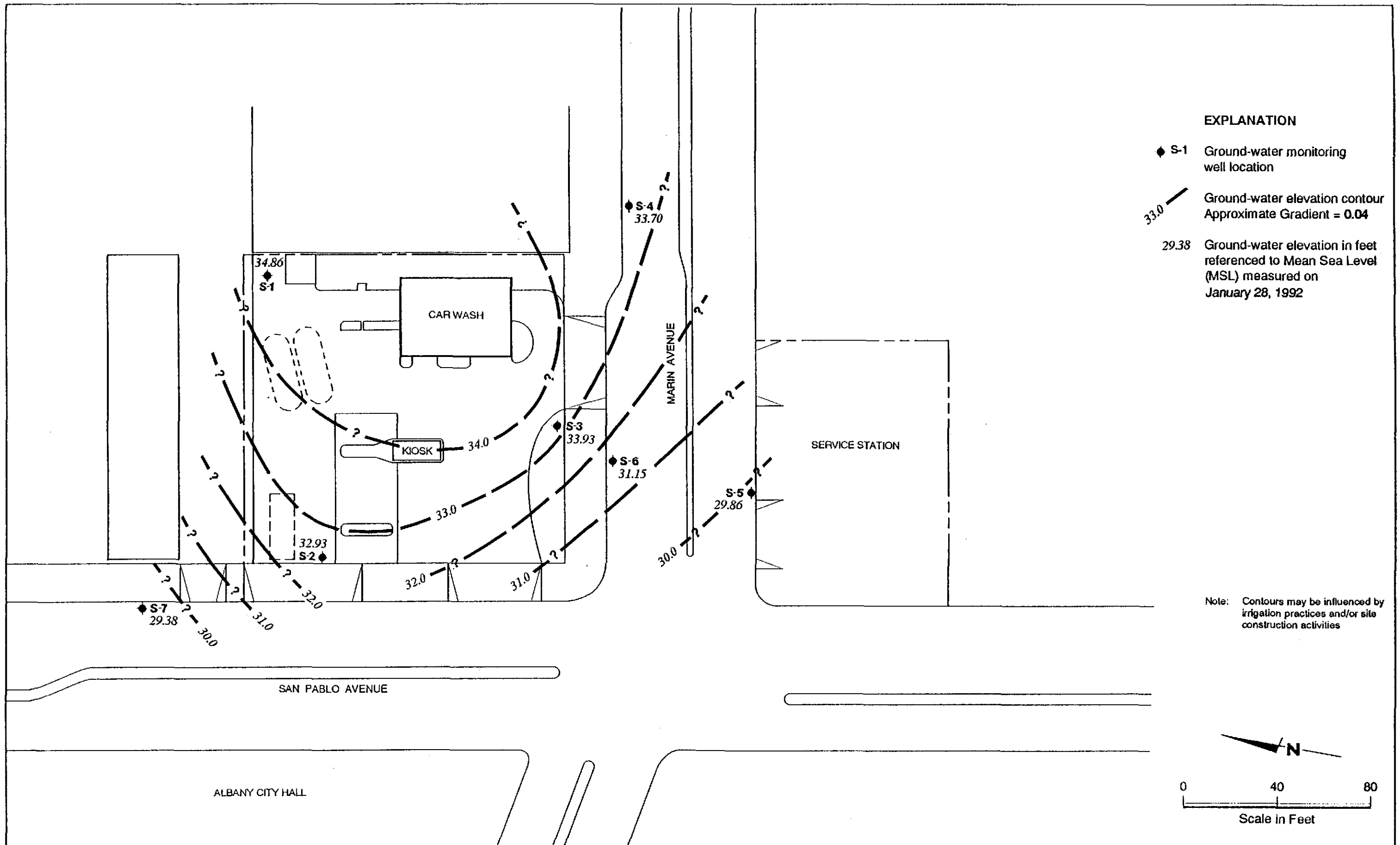
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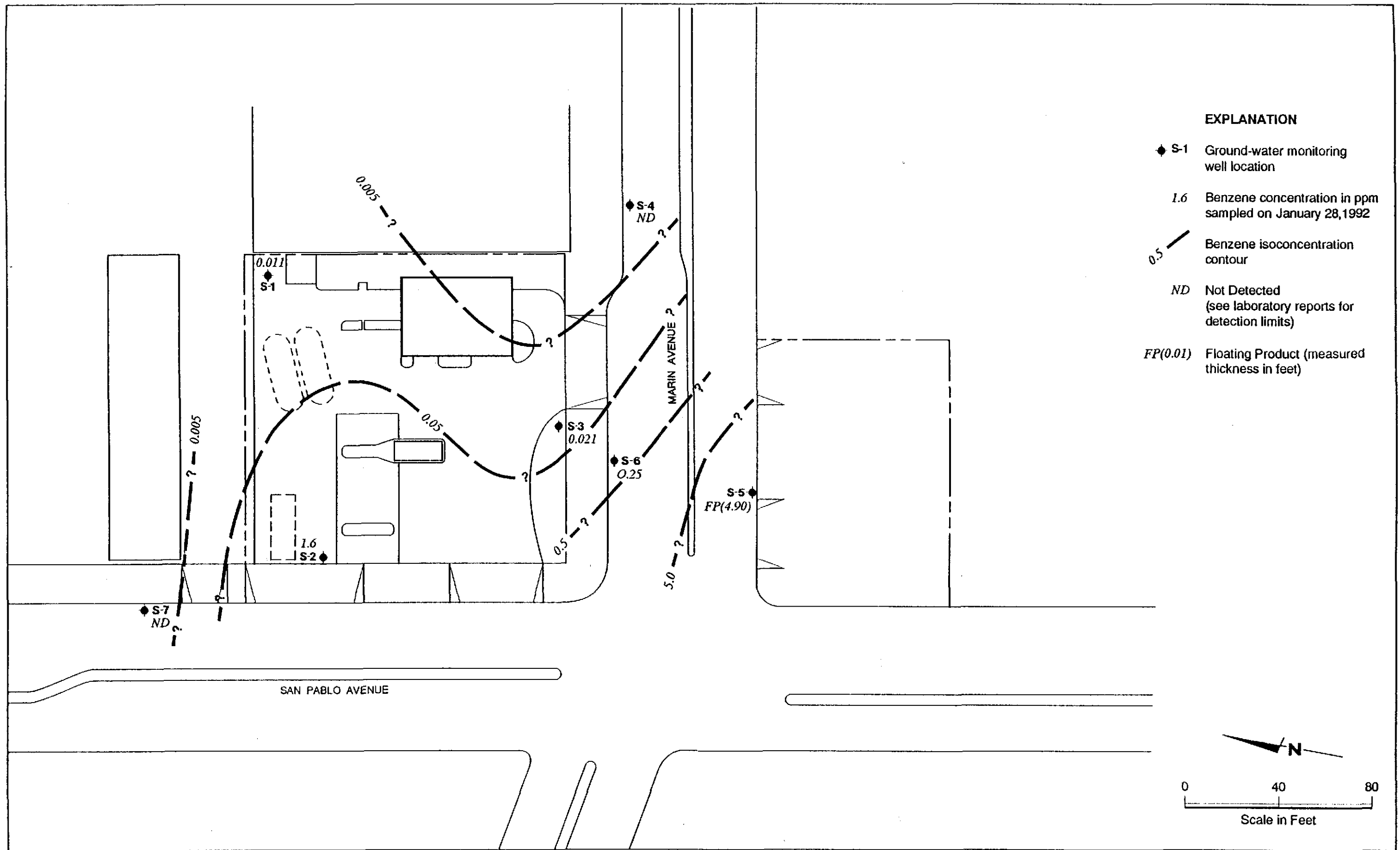
REVIEWED BY

DATE  
 1/90

REVISED DATE

REVISED DATE





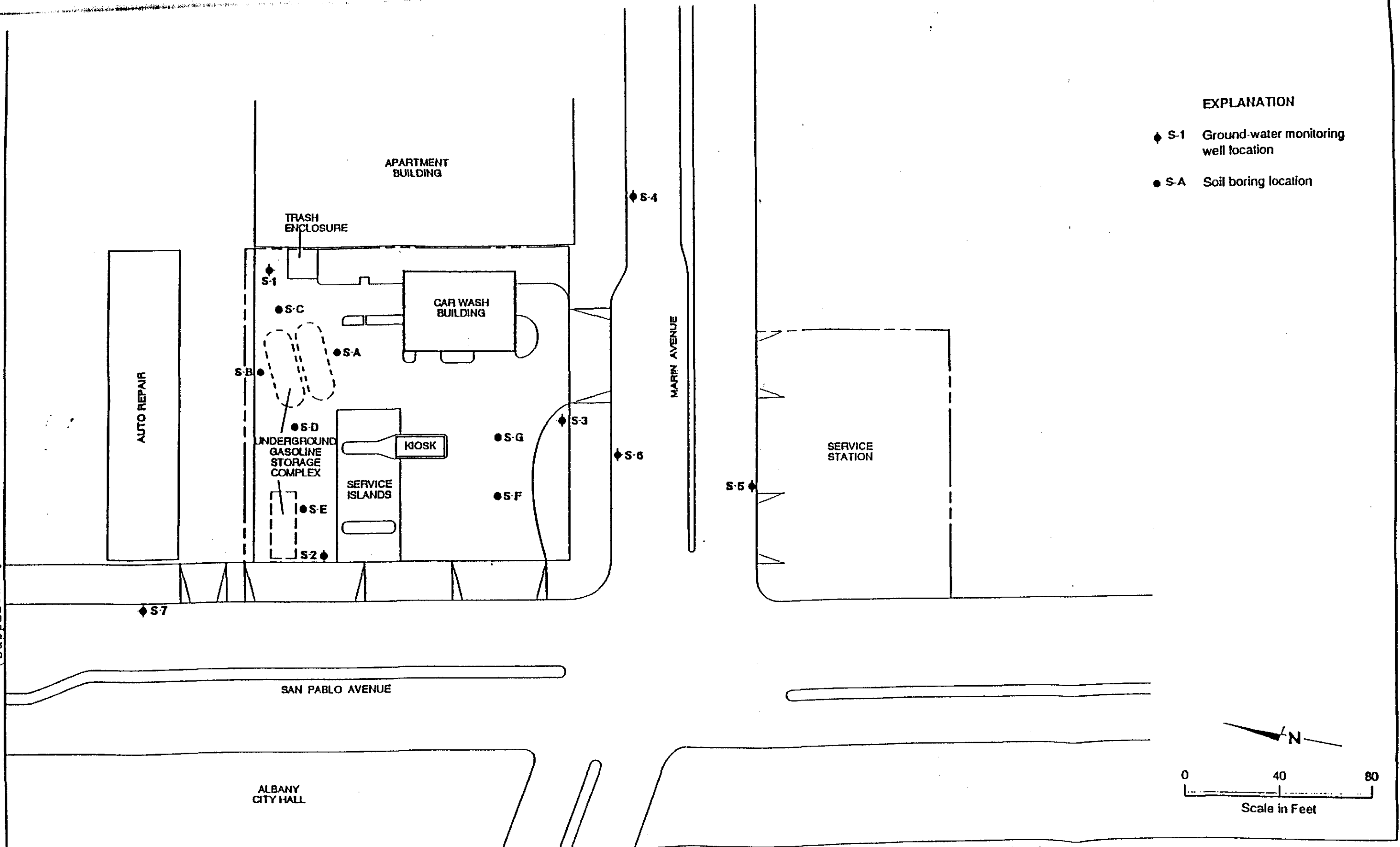
- EXPLANATION**
- ◆ S-1 Ground-water monitoring well location
  - 1.6 Benzene concentration in ppm sampled on January 28, 1992
  - 0.5 Benzene isoconcentration contour
  - ND Not Detected (see laboratory reports for detection limits)
  - FP(0.01) Floating Product (measured thickness in feet)



**BENZENE ISOCONCENTRATION MAP**  
 Shell Service Station  
 999 San Pablo Avenue  
 Albany, California

PLATE  
**3**

Figure 1  
 (Supplied by Geo Strategies, Inc.)



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



**EMCON**  
ASSOCIATES

Consultants in Wastes  
Management and  
Environmental Control

Ms. Ellen Fostersmith  
Geo Strategies Inc.  
2140 West Winton Avenue  
Hayward, California 94545

RECEIVED

FEB 24 1992

GeoStrategies Inc.

February 21, 1992  
Project: G67-19.01  
WIC#: 204-0079-0109

Re: First quarter 1992 ground-water monitoring report, Shell Oil  
Company, 999 San Pablo Avenue, Albany, California

Dear Ms. Fostersmith:

This letter presents the results of the first quarter 1992 ground-water monitoring event for the Shell Oil Company (Shell) service station located at 999 San Pablo Avenue, Albany, California. First quarter monitoring was conducted on January 28, 1992. The site is monitored quarterly.

#### GROUND-WATER LEVEL SURVEY

A water-level survey preceded the purging and sampling of the monitoring wells. The wells included in the survey are identified in figure 1 (supplied by Geo Strategies, Inc.). During the survey, wells S-1 through S-7 were measured for depth to water, floating product thickness, and total depth. Depth to water and floating product thickness were measured to the nearest 0.01 foot with an oil/water interface probe. Well S-5 contained 4.90 feet of floating product. Total depth was measured to the nearest 0.5 foot. Results of the water-level survey are summarized in table 1.

#### SAMPLING AND ANALYSIS

Ground-water samples were collected from wells S-1 through S-4, S-6, and S-7 on January 28, 1992. Prior to sample collection, the wells were purged with a polyvinyl chloride (PVC) bailer. During the purging operation, ground water was monitored for pH, electrical conductivity, and temperature as a function of volume of water removed. Purging continued until these parameters were stable and a minimum of three casing volumes of ground water were removed. Wells S-1, S-2, S-4, S-6, and S-7 were evacuated to dryness before three casing volumes were removed. The wells were allowed to recharge for up to 24 hours. Samples were collected as soon as the wells had recharged to a level sufficient for sample collection. Well S-5 contained 4.90 feet of floating product and was not sampled. Field measurements from first quarter monitoring are

G671901A.DOC



summarized in table 1. Purge water from the monitoring wells was contained in a 55-gallon drum. The drum was identified with a Shell-approved label and secured for on-site storage.

Ground water samples were collected with a Teflon® bailer, labeled, placed on ice, and transported to a Shell-approved and state-certified analytical laboratory for analysis. Shell chain-of-custody documents accompanied all samples to the laboratory.

All equipment that was placed down a well or that came in contact with ground water was steam cleaned on site with steaming hot deionized water prior to use at each well.

Quality control samples included one duplicate sample (SD-3) collected from well S-3, and a trip blank (TB). All water samples from the first quarter 1992 monitoring event were analyzed for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

## ANALYTICAL RESULTS

Analytical results for the first quarter 1992 monitoring event are summarized in table 2. The original certified analytical reports and a copy of the final chain-of-custody documents are attached.

If you have any questions, please call.

Very truly yours,

EMCON Associates



David Larsen  
Environmental Sampling Coordinator



Orrin Childs  
Environmental Sampling Supervisor

DL/OC:dl

Attachments: Table 1 - Monitoring well field measurement data, first  
quarter 1992  
Table 2 - Summary of analytical results, first quarter 1992  
Figure 1 - Site map  
Certified analytical reports  
Chain-of-custody documents



INTERNATIONAL  
TECHNOLOGY  
CORPORATION

# ANALYTICAL SERVICES

## CERTIFICATE OF ANALYSIS

Shell Oil Company  
Emcon Associates  
1938 Junction Ave.  
San Jose, CA 95131  
David Larsen

Date: 02/11/92

Work Order: T2-01-186

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

This is the Certificate of Analysis for the following samples:

Client Work ID: G6719 999 San Pablo Av, Albany  
Date Received: 01/28/92  
Number of Samples: 9  
Sample Type: aqueous

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

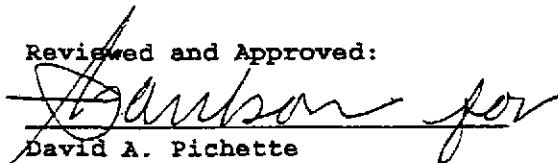
<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	T2-01-186-01	S-4
3	T2-01-186-02	S-7
4	T2-01-186-03	S-3
5	T2-01-186-04	S-1
6	T2-01-186-05	S-6
7	T2-01-186-06	S-2
8	T2-01-186-07	TB
9	T2-01-186-08	SD-3
10	T2-01-186-09	Quality Control

EMCON ASSOCIATES

FEB 11 1992

RECEIVED

Reviewed and Approved:



David A. Pichette

Project Manager

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



Company: Shell Oil Company

Date: 02/11/92

Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-4

SAMPLE DATE: 01/28/92

LAB SAMPLE ID: T201186-01

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH&lt;2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/03/92
Low Boiling Hydrocarbons	Mod. 8015		02/03/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	0.11 &
BTEX		
Benzene	0.0005	None.
Toluene	0.0005	None.
Ethylbenzene	0.0005	None.
Xylenes (total)	0.0005	None.

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	109.
1,3-Dichlorobenzene (BTEX)	96.

## Comments:

& Compounds detected and calculated as low boiling hydrocarbons consist of compounds eluting within the chromatographic range of gasoline, but are not characteristic of the standard gasoline standard pattern.

Company: Shell Oil Company

Date: 02/11/92

Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-7

SAMPLE DATE: 01/28/92

LAB SAMPLE ID: T201186-02

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/03/92
Low Boiling Hydrocarbons	Mod.8015		02/03/92

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)	106.
1,3-Dichlorobenzene (BTEX)	101.

Company: Shell Oil Company

Date: 02/11/92

Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-3

SAMPLE DATE: 01/28/92

LAB SAMPLE ID: T201186-03

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	B020		02/03/92
Low Boiling Hydrocarbons	Mod.8015		02/03/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.25	2.1
BTEX		
Benzene	0.0025	0.021
Toluene	0.0025	0.0076
Ethylbenzene	0.0025	0.0067
Xylenes (total)	0.0025	0.015

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	128*
1,3-Dichlorobenzene (BTEX)	99.

\* Hydrocarbon interference

Company: Shell Oil Company

Date: 02/11/92

Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-1

SAMPLE DATE: 01/28/92

LAB SAMPLE ID: T201186-04

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/03/92
Low Boiling Hydrocarbons	Mod.8015		02/03/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.25	2.0
BTEX		
Benzene	0.0025	0.011
Toluene	0.0025	None.
Ethylbenzene	0.0025	0.060
Xylenes (total)	0.0025	0.020

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	121*.
1,3-Dichlorobenzene (BTEX)	94.

\* Hydrocarbon interference

Company: Shell Oil Company  
 Date: 02/11/92  
 Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

TEST NAME: Petroleum Hydrocarbons

 SAMPLE ID: S-6  
 SAMPLE DATE: 01/28/92  
 LAB SAMPLE ID: T201186-05  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/04/92
Low Boiling Hydrocarbons	Mod.8015		02/04/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	1.0	5.6
BTEX		
Benzene	0.01	0.25
Toluene	0.01	0.015
Ethylbenzene	0.01	0.041
Xylenes (total)	0.01	0.036

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	124*.
1,3-Dichlorobenzene (BTEX)	96.

\* Hydrocarbon interference

Company: Shell Oil Company

Date: 02/11/92

Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-2

SAMPLE DATE: 01/28/92

LAB SAMPLE ID: T201186-06

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/04/92
Low Boiling Hydrocarbons	Mod.8015		02/04/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	1.0	22.
BTEX		
Benzene	0.01	1.6
Toluene	0.01	0.07
Ethylbenzene	0.01	0.42
Xylenes (total)	0.01	1.7

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	129*.
1,3-Dichlorobenzene (BTEX)	100.

\* Hydrocarbon interference

Company: Shell Oil Company

Date: 02/11/92

Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: TB

SAMPLE DATE: 01/28/92

LAB SAMPLE ID: T201186-07

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/03/92
Low Boiling Hydrocarbons	Mod.8015		02/03/92

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)	114.
1,3-Dichlorobenzene (BTEX)	95.

Company: Shell Oil Company

Date: 02/11/92

Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: SD-3

SAMPLE DATE: 01/28/92

LAB SAMPLE ID: T201186-08

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH&lt;2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		02/03/92
Low Boiling Hydrocarbons	Mod.8015		02/03/92

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.25	2.1
BTEX		
Benzene	0.0025	0.018
Toluene	0.0025	0.0061
Ethylbenzene	0.0025	0.0071
Xylenes (total)	0.0025	0.014

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	125*.
1,3-Dichlorobenzene (BTEX)	99.

\* Hydrocarbon interference



Company: Shell Oil Company

Date: 02/11/92

Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control

SAMPLE DATE: not spec

LAB SAMPLE ID: T201186-09A

EXTRACTION DATE:

ANALYSIS DATE: 02/04/92

ANALYSIS METHOD: Mod.8015

## QUALITY CONTROL REPORT

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

RESULTS in Milligrams per Liter

PARAMETER	Sample Amt	Spike Amt	MS Result	MSD Result	MS %Rec	MSD %Rec	RPD
Gasoline	None	500	458	456	92	91	1
SURROGATES					MS %Rec	MSD %Rec	
1,3-Dichlorobenzene					121	119	

Company: Shell Oil Company

Date: 02/11/92

Client Work ID: G6719 999 San Pablo Av, Albany

Work Order: T2-01-186

## TEST CODE QC TEST NAME Quality Control

Quality control (QC) samples are analyzed and used to assess the laboratory control measures. Routine QC samples include method blanks, spikes and duplicates. The purpose of the method blank (MB) analysis is to demonstrate that artifacts of the test do not yield false positives. The laboratory control spike (LS) and /or matrix spike (MS) analysis is used to evaluate the ability of the test to recover analytes of interest, i.e. accuracy. Accuracy is expressed as percent (%) recovery. The laboratory spike duplicate (LSD), matrix spike duplicate (MSD), or duplicate sample (DUP) is used to determine the precision of the test, by comparing the result from the original spike (or sample) to the duplicate spike (or sample). Precision is expressed as relative percent difference (RPD).

The results of appropriate QC samples from QC batches associated with the listed samples are included in this report.

## 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.



**SHELL OIL COMPANY**  
RETAIL ENVIRONMENTAL ENGINEERING - WEST

**CHAIN OF CUSTODY RECORD**

Serial No.: TD-01-186

Date:  
Page 1 of 2

Site Address:  
999 San Pablo Avenue, Albany, CA

WIC#: 204-0079-0109

Shell Engineer: Kurt Miller  
Phone No. (510) 685-3853  
Fax #: 685-3853

Consultant Name & Address: 1938 Junction Ave.  
EMCON ASSOC. San Jose, CA 95131

Consultant Contact: David Larsen  
Phone No. (408) 453-2269  
Fax #: 453-2269

Comments:

Sampled By: X John D Wataha  
Printed Name: X JOHN WATAHA

Sample ID	Date	Soil	Water	Air	No. of conts.
S-4	01-28-92		X		3
S-7			X		3
S-3			X		3
S-1			X		3
S-6			X		3
S-2			X		3
S-5	NO SAMPLE		X		3

**Analysis Required**

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal												

LAB: IT Analytical - San Jose

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input checked="" type="checkbox"/> 5461	5461	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/> 5441	5441	48 hours <input type="checkbox"/>
Soil for disposal <input type="checkbox"/> 5442	5442	15 days <input checked="" type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/> 5443	5443	Other <input type="checkbox"/>
Air Sample- Sys O&M <input type="checkbox"/> 5452	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/> 5453	5453	
Other <input type="checkbox"/>		

Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
40 ML	HCl	N		<u>cool</u> <u>ITAS-S 1-28-92</u>

Relinquished By (signature): <u>X John D Wataha</u>	Printed name: <u>X JOHN WATAHA</u>	Date: <u>01-28-92</u>	Received (signature): <u>M. LeGrande</u>	Printed name: <u>M. LeGrande</u>	Date: <u>1-28</u>
Relinquished By (signature):	Printed name:	Date: <u>1710</u>	Received (signature):	Printed name:	Date: <u>1710</u>
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:

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

Last Revision Date: 10/15/91



**SHELL OIL COMPANY**  
RETAIL ENVIRONMENTAL ENGINEERING - WEST

**CHAIN OF CUSTODY RECORD**

Serial No.: 72-01-186

Date:  
Page 2 of 2

Site Address:  
999 San Pablo Avenue, Albany, CA  
WIC#: 204-0079-0109  
Shell Engineer:  
Kurt Miller  
Phone No. (510)  
Fax #: 685-3853  
Consultant Name & Address:  
1438 Junction Ave  
ENICON ASSOC. San Jose, CA 95131  
Consultant Contact:  
David Larsen  
Phone No. (408)  
Fax #: 453-2269

**Analysis Required**

LAB: IT Analytical - San Jose

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input type="checkbox"/>	5461	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	5441	48 hours <input type="checkbox"/>
Soil for disposal <input type="checkbox"/>	5442	15 days <input type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input type="checkbox"/>
Air Sample - Sys O&M <input type="checkbox"/>	5452	
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input type="checkbox"/>		

NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.

Comments:

Sampled By: X John A Wataha  
Printed Name: X JOHN WATAHA

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal
X	X	X		
X	X	X		

Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
<u>40 gal</u>	<u>HCl</u>	<u>N</u>		<u>good JIM/S</u> <u>1-21-92</u>
<u>↓</u>	<u>↓</u>	<u>↓</u>		<u>↓</u>

Sample ID	Date	Soil	Water	Air	No. of conls.
<u>TB</u>	<u>01-28-92</u>		<u>X</u>		<u>1</u>
<u>SD-3</u>	<u>↓</u>		<u>X</u>		<u>3</u>

Relinquished By (signature): X John A Wataha  
Printed name: X JOHN WATAHA  
Date: 01-28-92  
Time: 1700

Received (signature): M. LeGrande  
Printed name: M. LeGrande  
Date: 1-28  
Time: 1710

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