



September 5, 1991

Mr. Rick Mueller  
City of Pleasanton  
Pleasanton Fire Department  
Post Office Box 520  
Pleasanton, California 94566-0802

Reference: Shell Service Station  
5251 Hopyard Road  
Pleasanton, California  
WIC 204-6138-0907

Mr. Mueller:

As requested by Mr. Jack Brastad of Shell Oil Company, we are forwarding a copy of the September 3, 1991 Site Update report prepared for the above referenced location. The report documents the results of the ground-water sampling conducted during the third quarter of 1991.

Should have any questions or comments please do not hesitate to call.

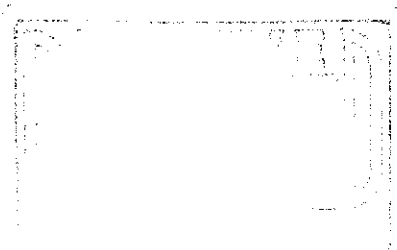
Sincerely,

A handwritten signature in dark ink, appearing to read 'John Werfal', is written over a faint, dotted rectangular box.

John Werfal  
Project Manager

enclosure

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





**GeoStrategies Inc.**

**SITE UPDATE**

Shell Service Station  
5251 Hopyard Road  
Pleasanton, California  
WIC 204-6138-0907

763301-11

September 3, 1991



**GeoStrategies Inc.**

2140 WEST WINTON AVENUE  
HAYWARD, CALIFORNIA 94545

(415) 352-4800

September 3, 1991

RECEIVED

SEP 04 1991

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

GETTLER-RYAN INC.  
GENERAL CONTRACTORS

Attn: Mr. John Werfal

Re: SITE UPDATE  
Shell Service Station  
5251 Hopyard Road  
Pleasanton, 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 eight ground-water monitoring wells at the site; Wells S-1 through S-8. There are also three vadose zone wells; Wells V-1 through V-3 (Plate 2). These wells were installed between 1988 and 1989 by Pacific Environmental Group and GSI. The old underground storage tanks were replaced in January 1988. Wells S-1 through S-5 are on site. Wells S-6 through S-8 are off site. These wells have been installed to evaluate the vertical and horizontal extent of petroleum hydrocarbons in soils and shallow groundwater beneath the site. *nd!*

Quarterly monitoring and sampling of wells began in 1988. Ground-water samples have been analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) and Total Petroleum Hydrocarbons calculated as Diesel (TPH - Diesel) according to EPA Method 8015 (Modified), and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) according to EPA Method 8020.

# GeoStrategies Inc.

Gettler-Ryan Inc.  
September 3, 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  $\pm 0.01$  foot. Elevations referenced to Mean Sea Level (MSL) are presented in Table 1. Water-level data were used to construct a quarterly potentiometric map (Plate 3). The approximate shallow ground-water flow is to the northwest at a calculated gradient of 0.004. Well S-1 was not used in contouring due to anomalous water level.

### 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 not detected in any of the wells this quarter.

### Ground-water Analytical Data

Ground-water samples were collected on July 24, 1991. The samples were analyzed for TPH-Gasoline and TPH-Diesel according 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 and S-3 at concentrations of 8.8 and 1.7 ppm, respectively. Benzene concentrations detected in Wells S-1 and S-3 were 2.3 and 0.45 ppm, respectively. TPH-Diesel concentrations detected in Wells S-1 and S-3 were 3.8 and 1.2 ppm, respectively. 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. Historical chemical analytical data are presented on Table 3.

# GeoStrategies Inc.

Gettler-Ryan Inc.  
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## Quality Control

Quality Control (QC) samples for this quarter's sampling included a trip blank and a duplicate sample (SD-1). The duplicate sample was collected as a split (second) sample to assess laboratory analytical precision. The trip blank was prepared in the laboratory using organic-free water to evaluate laboratory handling procedures of samples. The results of QC sample analyses are presented in Table 2.

If you have any questions, please call.

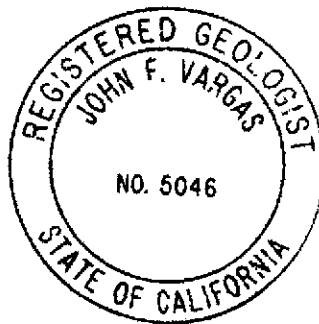
GeoStrategies Inc. by,

*Ellen C. Fostersmith*

Ellen C. Fostersmith  
Geologist

*John F. Vargas*

John F. Vargas  
Senior Geologist  
R.G. 5046



ECF/JFV/kjj

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

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

QC Review: *JH*

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	24-Jul-91	3	28.4	326.73	10.39	----	316.34	2	7.08	67.9	3030
S-2	24-Jul-91	3	24.6	326.59	9.10	----	317.49	5	7.31	64.2	4090
S-3	24-Jul-91	3	24.8	327.38	9.92	----	317.46	2	7.11	66.5	3150
S-4	24-Jul-91	3	24.4	327.38	9.10	----	318.28	2	7.52	67.4	1400
S-5	24-Jul-91	3	24.8	327.76	10.15	----	317.61	3	7.95	64.4	1455
S-6	24-Jul-91	3	25.4	326.56	8.93	----	317.63	2	7.85	68.4	1172
S-7	24-Jul-91	3	25.4	326.49	9.14	----	317.35	2	7.38	68.9	2830
S-8	24-Jul-91	3	25.2	325.32	7.87	----	317.45	3	7.17	68.2	6110

- Notes: 1. Static water elevations referenced to Mean Sea Level (MSL).  
 2. Physical parameter measurements represent stabilized values.

TABLE 2

## GROUND-WATER ANALYSES DATA

WELL NO	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	TPH-D (PPM)
S-1	24-Jul-91	31-Jul-91	8.8	2.3	0.03	0.64	0.22	3.8*
S-2	24-Jul-91	31-Jul-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
S-3	24-Jul-91	02-Aug-91	1.7	0.45	0.0044	0.15	0.0029	1.2*
S-4	24-Jul-91	31-Jul-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
S-5	24-Jul-91	31-Jul-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
S-6	24-Jul-91	31-Jul-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
S-7	24-Jul-91	31-Jul-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
S-8	24-Jul-91	31-Jul-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
SD-1	24-Jul-91	31-Jul-91	9.3	2.6	0.028	0.69	0.28	----
TB	----	31-Jul-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05

## 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

TPH-D = Total Petroleum Hydrocarbons calculated as Diesel

SD = Duplicate Sample

TB = Trip Blank

- Notes: 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.  
 3. Analysis date for TPH-G and BTEX compounds.

\* Compounds detected and calculated as diesel appear to be the less volatile constituents of gasoline.

TABLE 3

## HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	TPH-D (PPM)	OIL (PPM)
06-Jan-88	S-1	0.6	0.22	<0.005	----	<0.02	<0.05	<0.2
14-Dec-88	S-1	17.	5.1	0.04	0.57	0.20	8.	N/A
30-Mar-89	S-1	8.2	2.9	<0.02	0.33	0.16	3.6	N/A
20-Jul-89	S-1	21.	6.2	1.5	1.1	0.7	8.5	N/A
16-Oct-89	S-1	16.	3.9	0.89	1.2	0.9	11.	N/A
05-Jan-90	S-1	8.2	2.3	0.10	0.66	0.32	6.5	N/A
11-Apr-90	S-1	11.	3.0	0.12	0.83	0.52	N/A	N/A
12-Jul-90	S-1	20.	4.4	0.96	1.3	1.2	8.0	N/A
25-Oct-90	S-1	6.0	1.4	0.14	0.60	0.32	3.5	N/A
25-Jan-91	S-1	2.5	0.46	<0.025	0.13	0.036	1.5	N/A
16-Apr-91	S-1	6.7	2.6	0.014	0.58	0.25	2.6*	N/A
24-Jul-91	S-1	8.8	2.3	0.03	0.64	0.22	3.8*	N/A
11-May-89	S-2	<0.05	<0.0005	<0.001	<0.001	<0.003	<0.1	N/A
20-Jul-89	S-2	<0.05	<0.0005	<0.001	<0.001	<0.003	<0.1	N/A
16-Oct-89	S-2	<0.05	<0.0005	<0.001	<0.001	<0.003	<0.1	N/A
05-Jan-90	S-2	<0.050	<0.0005	<0.0005	<0.0005	<0.001	<0.1	N/A
11-Apr-90	S-2	<0.050	<0.0005	<0.0005	<0.0005	<0.001	N/A	N/A
12-Jul-90	S-2	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
25-Oct-90	S-2	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
25-Jan-91	S-2	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
16-Apr-91	S-2	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
24-Jul-91	S-2	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
11-May-89	S-3	2.6	0.33	0.014	0.22	0.20	1.4	N/A
20-Jul-89	S-3	9.7	2.3	0.03	0.88	0.16	2.2	N/A
16-Oct-89	S-3	3.4	0.70	0.008	0.36	0.06	2.8	N/A
05-Jan-90	S-3	0.86	0.14	0.0016	0.078	0.002	1.6	N/A
11-Apr-90	S-3	1.0	0.21	<0.002	0.15	0.013	N/A	N/A



TABLE 3

## HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	TPH-D (PPM)	OIL (PPM)
12-Jul-90	S-3	2.8	0.49	0.0085	0.21	0.081	2.0	N/A
24-Oct-90	S-3	1.2	0.12	<0.0025	0.082	0.0051	0.86	N/A
25-Jan-91	S-3	0.87	0.23	<0.0025	0.13	<0.0025	0.33	N/A
16-Apr-91	S-3	0.19	0.012	0.0008	0.0062	0.0015	0.14*	N/A
24-Jul-91	S-3	1.7	0.45	0.0044	0.15	0.0029	1.2*	N/A
11-May-89	S-4	<0.05	<0.0005	<0.001	<0.001	<0.003	<0.1	N/A
20-Jul-89	S-4	<0.05	<0.0005	<0.001	<0.001	<0.003	<0.1	N/A
16-Oct-89	S-4	<0.05	<0.0005	<0.001	<0.001	<0.003	<0.1	N/A
05-Jan-90	S-4	<0.050	<0.0005	<0.0005	<0.0005	<0.001	<0.1	N/A
11-Apr-90	S-4	<0.050	<0.0005	<0.0005	<0.0005	<0.001	N/A	N/A
12-Jul-90	S-4	<0.05	<0.0005	0.0017	<0.0005	0.0021	<0.05	N/A
25-Oct-90	S-4	<0.05	<0.0005	<0.0005	<0.0005	0.0006	<0.05	N/A
25-Jan-91	S-4	<0.05	<0.0005	0.0015	<0.0005	0.0028	<0.05	N/A
16-Apr-91	S-4	<0.05	0.0007	<0.0005	<0.0005	<0.0005	<0.05	N/A
24-Jul-91	S-4	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
11-May-89	S-5	0.05	<0.0005	<0.001	0.001	0.003	<0.1	N/A
20-Jul-89	S-5	<0.05	0.01	<0.001	<0.001	<0.003	<0.1	N/A
16-Oct-89	S-5	<0.05	<0.0005	<0.001	<0.001	<0.003	<0.1	N/A
05-Jan-90	S-5	<0.050	<0.0005	<0.0005	<0.0005	<0.001	<0.1	N/A
11-Apr-90	S-5	<0.050	0.0005	0.0034	0.0008	0.004	N/A	N/A
12-Jul-90	S-5	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
25-Oct-90	S-5	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
25-Jan-91	S-5	<0.05	<0.0005	<0.0005	<0.0005	0.0007	<0.05	N/A
16-Apr-91	S-5	<0.05	<0.0005	<0.0005	<0.0005	0.0008	<0.05	N/A
24-Jul-91	S-5	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
15-Nov-89	S-6	<0.050	<0.0005	<0.0005	<0.0005	<0.001	<0.1	N/A
05-Jan-90	S-6	<0.050	<0.0005	0.0005	<0.0005	<0.001	<0.1	N/A

TABLE 3

## HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	TPH-D (PPM)	OIL (PPM)
11-Apr-90	S-6	<0.050	<0.0005	<0.0005	<0.0005	<0.001	N/A	N/A
12-Jul-90	S-6	<0.05	<0.0005	0.0005	<0.0005	0.0006	<0.05	N/A
25-Oct-90	S-6	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
25-Jan-91	S-6	<0.05	<0.0005	0.0017	<0.0005	0.0028	<0.05	N/A
16-Apr-91	S-6	<0.05	<0.0005	<0.0005	<0.0005	0.0006	<0.05	N/A
24-Jul-91	S-6	<0.05	<0.0005	<0.0005	<0.0005	0.0005	<0.05	N/A
15-Nov-89	S-7	<0.050	<0.0005	<0.0005	<0.0005	<0.001	<0.1	N/A
05-Jan-90	S-7	<0.050	<0.0005	<0.0005	<0.0005	<0.001	<0.1	N/A
11-Apr-90	S-7	<0.050	<0.0005	<0.0005	<0.0005	<0.001	N/A	N/A
12-Jul-90	S-7	<0.05	<0.0005	0.0006	<0.0005	0.0007	N/A	N/A
25-Oct-90	S-7	<0.05	<0.0005	0.0005	<0.0005	0.0010	<0.05	N/A
25-Jan-91	S-7	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
16-Apr-91	S-7	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
24-Jul-91	S-7	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
15-Nov-89	S-8	<0.050	<0.0005	<0.0005	<0.0005	<0.001	<0.1	N/A
05-Jan-90	S-8	<0.050	<0.0005	<0.0005	<0.0005	<0.001	<0.1	N/A
11-Apr-90	S-8	<0.050	<0.0005	<0.0005	<0.0005	<0.001	N/A	N/A
12-Jul-90	S-8	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
25-Oct-90	S-8	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
25-Jan-91	S-8	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
16-Apr-91	S-8	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
24-Jul-91	S-8	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05	N/A
14-Dec-88	V-1	0.77	0.0064	0.021	0.009	0.087	4.5	N/A
14-Dec-88	V-2	0.16	0.0038	<0.001	<0.001	0.004	1.0	N/A
14-Dec-88	V-3	0.14	0.0087	<0.001	<0.001	0.003	0.8	N/A

TABLE 3

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HISTORICAL GROUND-WATER QUALITY DATABASE

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Current Regional Water Quality Control Board Maximum Contaminant Levels

Benzene 0.001 ppm    Xylenes 1.750 ppm    Ethylbenzene 0.680 ppm

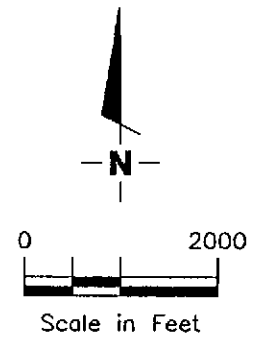
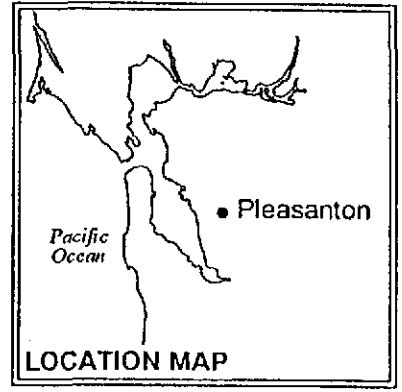
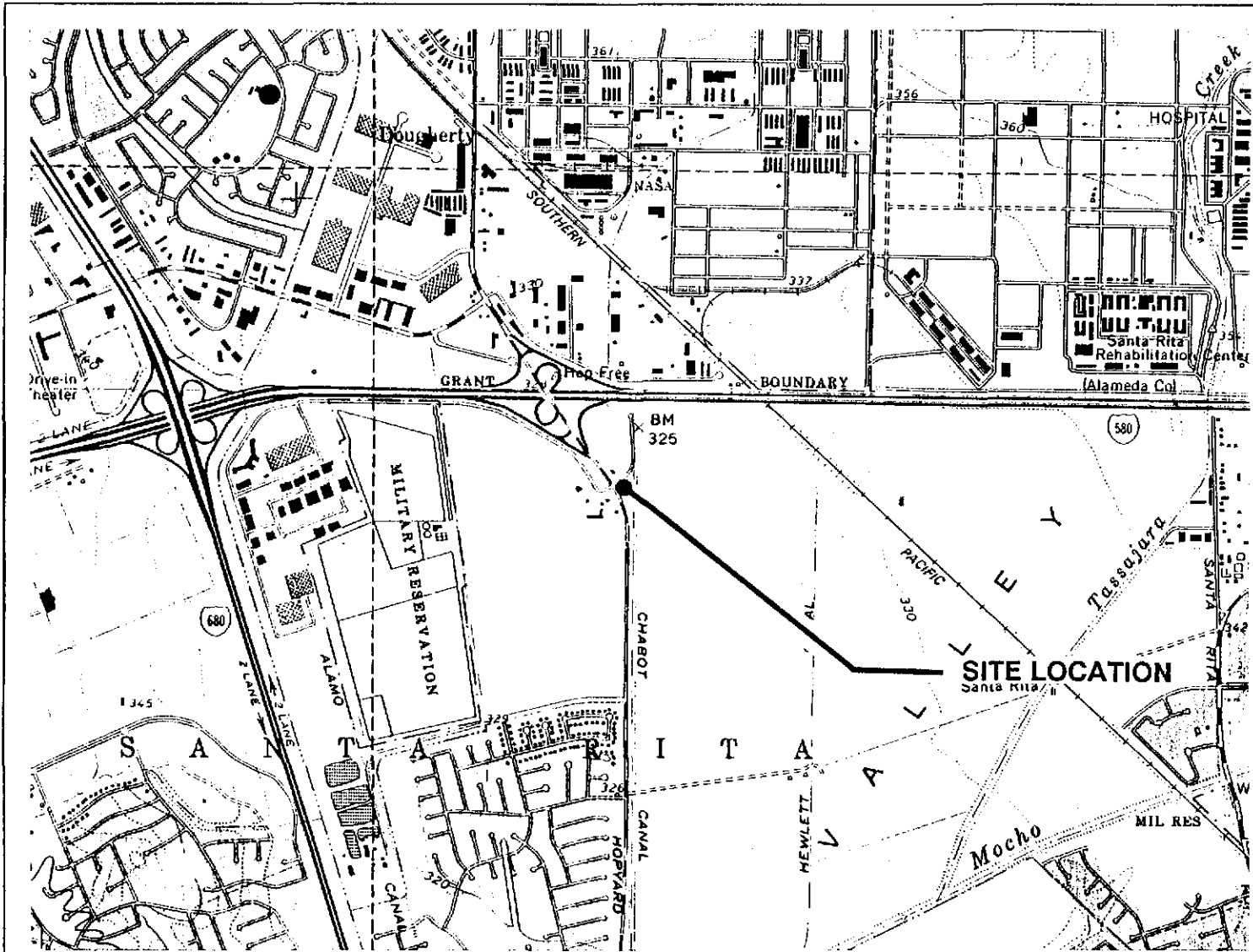
Current DHS Action Levels    Toluene 0.1000 ppm

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline

PPM = Parts Per Million

\*        Compounds detected and calculated as diesel appear to be the less  
volatile constituents of gasoline.

- 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).
3. Ethylbenzene and Xylenes were combined in January 1988 in well S-1.



Base Map: USGS Topographic Map



GeoStrategies Inc.

VICINITY MAP  
 Shell Service Station  
 5251 Hopyard Road  
 Pleasanton, California

PLATE

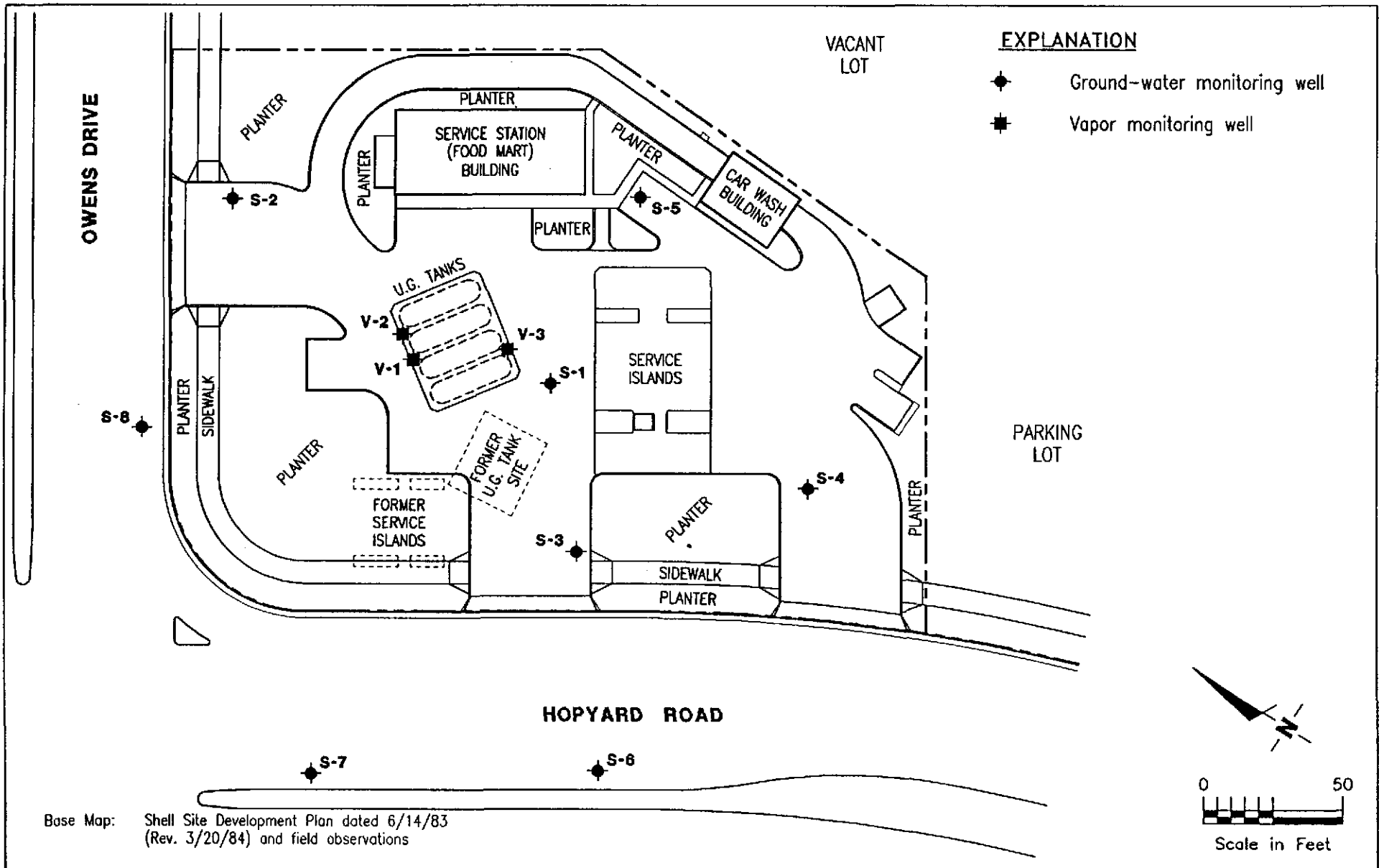
1

JOB NUMBER  
 7633

REVIEWED BY RG/CEG

DATE  
 12/90

REVISED DATE



**EXPLANATION**

- ◆ Ground-water monitoring well
- Vapor monitoring well

Base Map: Shell Site Development Plan dated 6/14/83  
(Rev. 3/20/84) and field observations



GeoStrategies Inc.

**SITE PLAN**  
Shell Service Station  
5251 Hopyard Road  
Pleasanton, California

PLATE

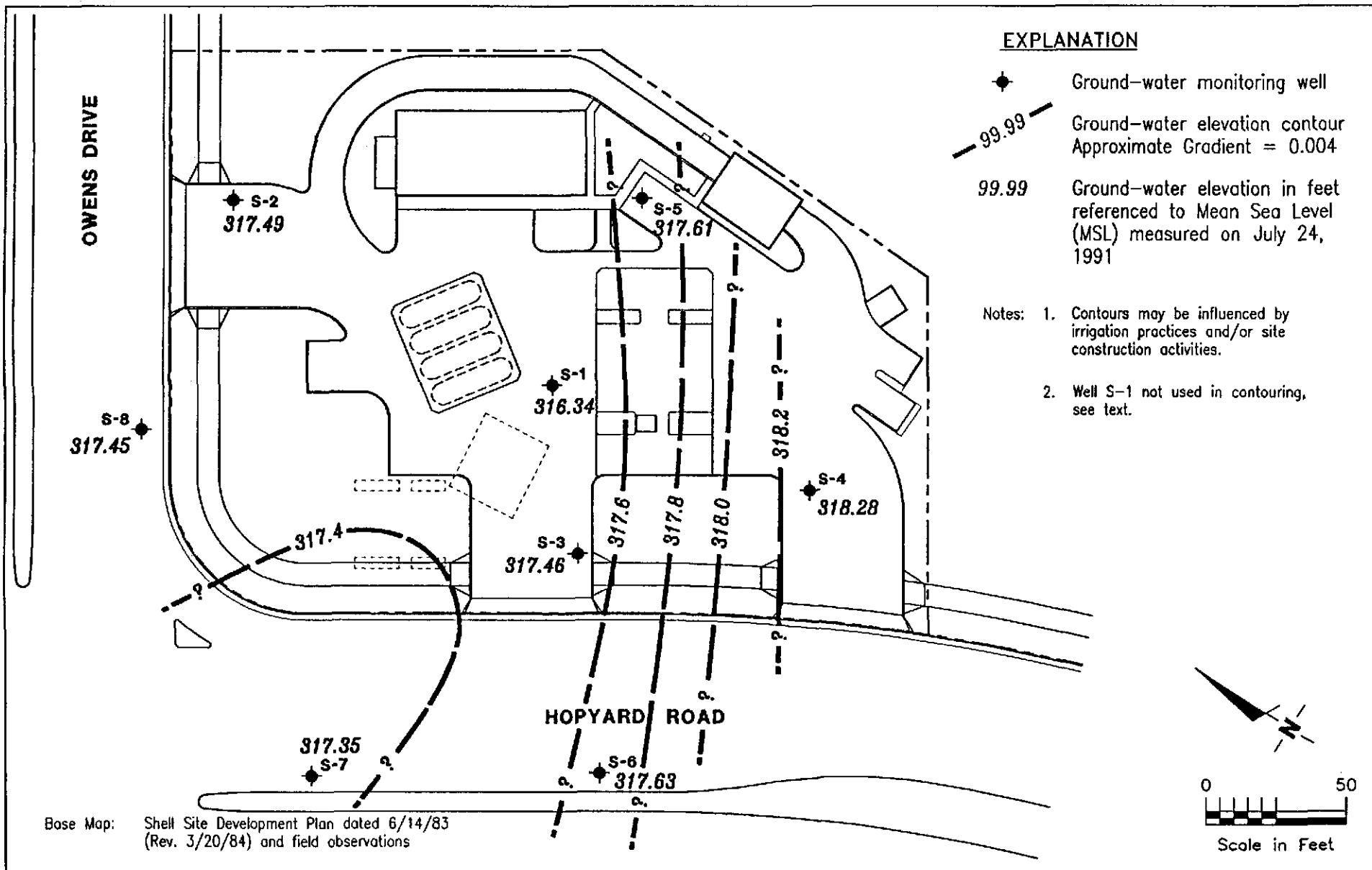
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JOB NUMBER  
763301-11

REVIEWED BY  
EFS

DATE  
9/91

REVISED DATE



GeoStrategies Inc.

POTENTIOMETRIC MAP  
Shell Service Station  
5251 Hopyard Road  
Pleasanton, California

PLATE

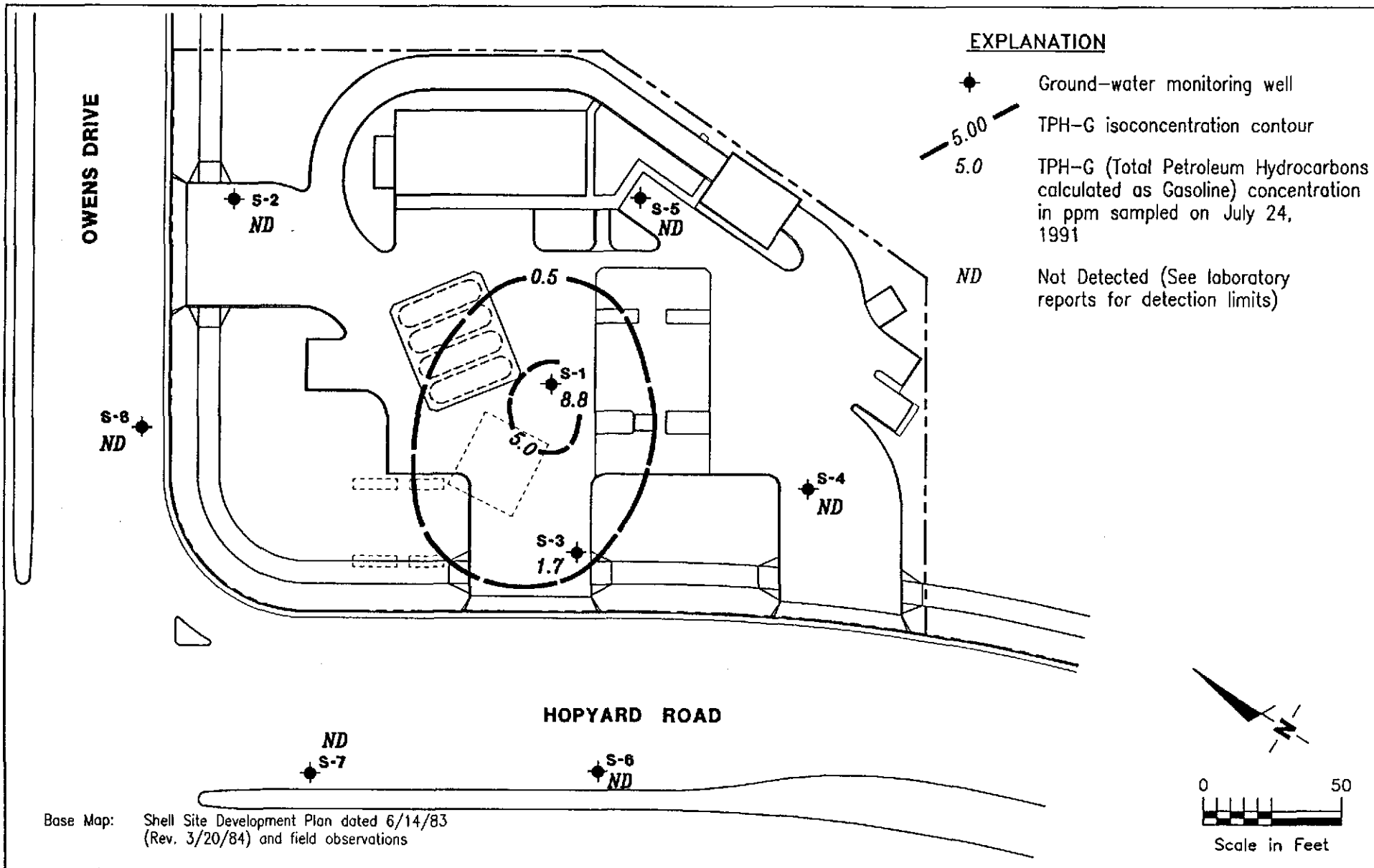
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JOB NUMBER  
763301-11

REVIEWED BY  
EPS

DATE  
9/91

REVISED DATE



GeoStrategies Inc.

**TPH-G ISOCONCENTRATION MAP**  
 Shell Service Station  
 5251 Hopyard Road  
 Pleasanton, California

PLATE

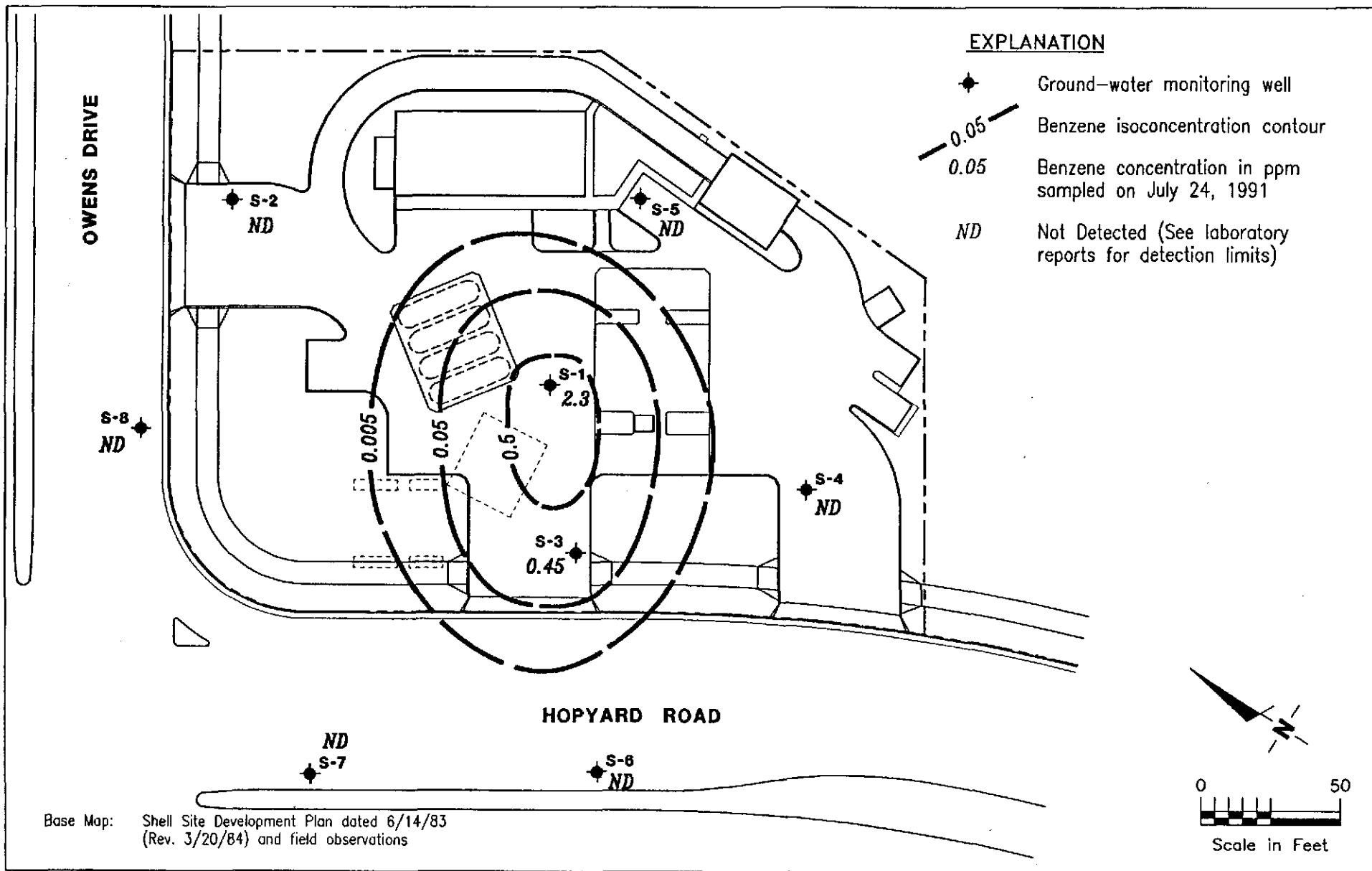
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JOB NUMBER  
763301-11

REVIEWED BY  
E PS

DATE  
9/91

REVISED DATE



GeoStrategies Inc.

**BENZENE ISOCONCENTRATION MAP**  
 Shell Service Station  
 5251 Hopyard Road  
 Pleasanton, California

PLATE

**5**

JOB NUMBER  
763301-11

REVIEWED BY  
EFS

DATE  
9/91

REVISED DATE





# ANALYTICAL SERVICES

# RECEIVED

AUG 14 1991

## CERTIFICATE OF ANALYSIS

GETTLER-RYAN INC.  
GENERAL CONTRACTORS

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

Date: 08/09/91

Work Order: T1-07-339

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

This is the Certificate of Analysis for the following samples:

Client Work ID: GR3633, 5251 Hopyard, Plsnton

Date Received: 07/25/91

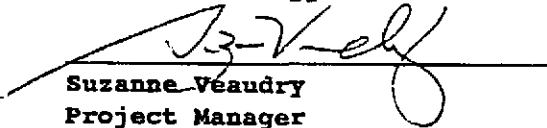
Number of Samples: 7

Sample Type: aqueous

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	T1-07-339-01	S-1
3	T1-07-339-02	S-2
4	T1-07-339-03	S-3
5	T1-07-339-04	S-4
6	T1-07-339-05	S-5
7	T1-07-339-06	S-6
8	T1-07-339-07	S-7
11	T1-07-339-08	Quality Control

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: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-339

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-1  
 SAMPLE DATE: 07/24/91  
 LAB SAMPLE ID: T107339-01  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH <2 LBH  
 RECEIPT CONDITION: Cool pH >2 HBH

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/31/91
Low Boiling Hydrocarbons	Mod.8015		07/31/91
High Boiling Hydrocarbons	Mod.8015	07/31/91	08/03/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	1.0	8.8
BTEX		
Benzene	0.01	2.3
Toluene	0.01	0.03
Ethylbenzene	0.01	0.64
Xylenes (total)	0.01	0.22
High Boiling Hydrocarbons calculated as Diesel	0.05	3.8 #

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	115.
1,3-Dichlorobenzene (BTEX)	103.
nC32 (Diesel)	40.

Comments:

# Compounds detected and calculated as diesel appear to be the less volatile constituents of gasoline.

Company: Shell Oil Company

Date: 08/09/91

Client Work ID: GR3633, 5251 Hopyard, Plsnton

Work Order: T1-07-339

## TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-2

SAMPLE DATE: 07/24/91

LAB SAMPLE ID: T107339-02

SAMPLE MATRIX: aqueous

RECEIPT CONDITION: Cool pH &lt; 2

## RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/31/91
Low Boiling Hydrocarbons	Mod.8015		07/31/91
High Boiling Hydrocarbons	Mod.8015	07/31/91	08/03/91

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
High Boiling Hydrocarbons calculated as Diesel	0.05	None

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	112.
1,3-Dichlorobenzene (BTEX)	100.
nC32 (Diesel)	56.

Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-339

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-3  
 SAMPLE DATE: 07/24/91  
 LAB SAMPLE ID: T107339-03  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		08/02/91
Low Boiling Hydrocarbons	Mod.8015		08/02/91
High Boiling Hydrocarbons	Mod.8015	07/31/91	08/04/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	1.7
BTEX		
Benzene	0.0005	0.45
Toluene	0.0005	0.0044
Ethylbenzene	0.0005	0.15
Xylenes (total)	0.0005	0.0029
High Boiling Hydrocarbons calculated as Diesel	0.05	1.2 #

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	101.
1,3-Dichlorobenzene (BTEX)	99.
nC32 (Diesel)	57.

Comments:

# Compounds detected and calculated as diesel appear to be the less volatile constituents of gasoline.

Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-339

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-4  
 SAMPLE DATE: 07/24/91  
 LAB SAMPLE ID: T107339-04  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/31/91
Low Boiling Hydrocarbons	Mod.8015		07/31/91
High Boiling Hydrocarbons	Mod.8015	07/31/91	08/04/91

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
High Boiling Hydrocarbons calculated as Diesel	0.05	None

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	113.
1,3-Dichlorobenzene (BTEX)	97.
nC32 (Diesel)	48.

Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-339

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-5  
 SAMPLE DATE: 07/24/91  
 LAB SAMPLE ID: T107339-05  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/31/91
Low Boiling Hydrocarbons	Mod.8015		07/31/91
High Boiling Hydrocarbons	Mod.8015	07/31/91	08/04/91

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
High Boiling Hydrocarbons calculated as Diesel	0.05	None

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	111.
1,3-Dichlorobenzene (BTEX)	99.
nC32 (Diesel)	59.

Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-339

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-6  
 SAMPLE DATE: 07/24/91  
 LAB SAMPLE ID: T107339-06  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/31/91
Low Boiling Hydrocarbons	Mod.8015		07/31/91
High Boiling Hydrocarbons	Mod.8015	07/31/91	08/04/91

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
High Boiling Hydrocarbons calculated as Diesel	0.05	None

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	109.
1,3-Dichlorobenzene (BTEX)	98.
nC32 (Diesel)	68.

Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-339

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-7  
 SAMPLE DATE: 07/24/91  
 LAB SAMPLE ID: T107339-07  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/31/91
Low Boiling Hydrocarbons	Mod.8015		07/31/91
High Boiling Hydrocarbons	Mod.8015	07/31/91	08/04/91

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
High Boiling Hydrocarbons calculated as Diesel	0.05	None

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	112.
1,3-Dichlorobenzene (BTEX)	100.
nC32 (Diesel)	63.



Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Planton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-339

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control  
 SAMPLE DATE: not spec  
 LAB SAMPLE ID: T107339-08A  
 EXTRACTION DATE: 07/31/91  
 ANALYSIS DATE: 08/03/91  
 ANALYSIS METHOD: Mod.8015

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
Diesel	None	2500.	1784.	1681.	71.	67.	6.
SURROGATES					LS %Rec	LSD %Rec	
nC32					29.	34.	

Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-339

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control  
 SAMPLE DATE: not spec  
 LAB SAMPLE ID: T107339-08A  
 EXTRACTION DATE:  
 ANALYSIS DATE: 07/30/91  
 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	46.4	47.6	93.	95.	2.
Toluene	ND<0.5	50.0	47.4	49.5	95.	99.	4.
Ethyl benzene	ND<0.5	50.0	47.6	49.1	95.	98.	3.
Xylenes	ND<0.5	150.	138.	144.	92.	96.	4.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	97.	98.

Company: Shell Oil Company

Date: 08/09/91

Client Work ID: GR3633, 5251 Hopyard, Plsnton

Work Order: T1-07-339

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control

SAMPLE DATE: not spec

LAB SAMPLE ID: T107339-08B

EXTRACTION DATE:

ANALYSIS DATE: 07/31/91, 08/01/91

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	46.3	46.7	93.	93.	0
Toluene	ND<0.5	50.0	46.6	47.2	93.	94.	1.
Ethyl benzene	ND<0.5	50.0	46.9	47.9	94.	96.	2.
Xylenes	ND<0.5	150.	148.	151.	99.	101.	2.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	99.	100.

Company: Shell Oil Company  
Date: 08/09/91  
Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
SAN JOSE, CA

Work Order: T1-07-339

---

TEST CODE TPHN TEST NAME TPH High Boiling by 8015

The method of analysis for high boiling hydrocarbons is taken from the LUFT field manual. Samples are extracted with solvent and examined by gas chromatography using a flame ionization detector. Results in soils are corrected for moisture content and are reported on a dry soil basis unless otherwise noted.

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.



# ANALYTICAL SERVICES

# RECEIVED

AUG 12 1991

## CERTIFICATE OF ANALYSIS GETTLER-RYAN INC. GENERAL CONTRACTORS

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

Date: 08/09/91

Work Order: T1-07-340

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

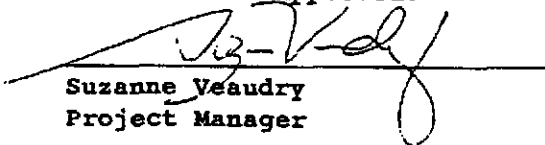
This is the Certificate of Analysis for the following samples:

Client Work ID: GR3633, 5251 Hopyard, Plsnton  
Date Received: 07/25/91  
Number of Samples: 3  
Sample Type: aqueous

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	T1-07-340-01	S-8
3	T1-07-340-02	SD-1
4	T1-07-340-03	Trip Blank
6	T1-07-340-04	Quality Control

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: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-340

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-8  
 SAMPLE DATE: 07/24/91  
 LAB SAMPLE ID: T107340-01  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/31/91
Low Boiling Hydrocarbons	Mod.8015		07/31/91
High Boiling Hydrocarbons	Mod.8015	07/31/91	08/04/91

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
High Boiling Hydrocarbons calculated as Diesel	0.05	None

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	119.
1,3-Dichlorobenzene (BTEX)	100.
nC32 (Diesel)	71.

Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-340

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: SD-1  
 SAMPLE DATE: 07/24/91  
 LAB SAMPLE ID: T107340-02  
 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		07/31/91
Low Boiling Hydrocarbons	Mod.8015		07/31/91

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Low Boiling Hydrocarbons calculated as Gasoline	1.0	9.3
BTEX		
Benzene	0.01	2.6
Toluene	0.01	0.028
Ethylbenzene	0.01	0.69
Xylenes (total)	0.01	0.28

<u>SURROGATES</u>	<u>% REC</u>
1,3-Dichlorobenzene (Gasoline)	118.
1,3-Dichlorobenzene (BTEX)	102.

Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-340

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: Trip Blank  
 SAMPLE DATE: not spec  
 LAB SAMPLE ID: T107340-03  
 SAMPLE MATRIX: aqueous  
 RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		07/31/91
Low Boiling Hydrocarbons	Mod.8015		07/31/91
High Boiling Hydrocarbons	Mod.8015	07/31/91	08/04/91

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
High Boiling Hydrocarbons calculated as Diesel	0.05	None

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	109.
1,3-Dichlorobenzene (BTEX)	105.
nC32 (Diesel)	71.



Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-340

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control  
 SAMPLE DATE: not spec  
 LAB SAMPLE ID: T107340-04A  
 EXTRACTION DATE: 07/31/91  
 ANALYSIS DATE: 08/03/91  
 ANALYSIS METHOD: Mod.8015

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
Diesel	None	2500.	1784.	1681.	71.	67.	6.
SURROGATES					LS %Rec	LSD %Rec	
nC32					29.	34.	

Company: Shell Oil Company  
 Date: 08/09/91  
 Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
 SAN JOSE, CA

Work Order: T1-07-340

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control  
 SAMPLE DATE: not spec  
 LAB SAMPLE ID: T107340-04A  
 EXTRACTION DATE:  
 ANALYSIS DATE: 07/30/91  
 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	46.4	47.6	93.	95.	2.
Toluene	ND<0.5	50.0	47.4	49.5	95.	99.	4.
Ethyl benzene	ND<0.5	50.0	47.6	49.1	95.	98.	3.
Xylenes	ND<0.5	150.	138.	144.	92.	96.	4.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	97.	98.

Company: Shell Oil Company

Date: 08/09/91

Client Work ID: GR3633, 5251 Hopyard, Plsnton

IT ANALYTICAL SERVICES  
SAN JOSE, CA

Work Order: T1-07-340

---

TEST CODE TPHN      TEST NAME TPH High Boiling by 8015

The method of analysis for high boiling hydrocarbons is taken from the LUFT field manual. Samples are extracted with solvent and examined by gas chromatography using a flame ionization detector. Results in soils are corrected for moisture content and are reported on a dry soil basis unless otherwise noted.

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.

COMPANY Shell T1-07-340 JOB NO.

JOB LOCATION 5251 Hopyard Rd

CITY Pleasanton PHONE NO. 783-7500

AUTHORIZED Tom Paulson DATE 7-24-91 P.O. NO. 3633.01

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
S-1	<del>5</del> 4	H <sub>2</sub> O	7-24-91 / 1134	THL (gas) BTXE, TPH-Divided	Cool
S-2	5		/ 857		
S-3			/ 1124		
S-4			/ 1102		
S-5			/ 1052		
S-6			/ 1025		
S-7			/ 1032		
S-8			/ 1040		
SD-1	<del>5</del> 3		/ -		No Presel
Trip Blank	2		-		"

RELINQUISHED BY: [Signature] 7/24/91 1300 RECEIVED BY: [Signature] 7/24/91 1300

RELINQUISHED BY: Refrig #1 7-25-91 09:00 RECEIVED BY: [Signature] 7-25-91 09:00

RELINQUISHED BY: [Signature] 7-25-91 10:45 RECEIVED BY LAB: Joann DeHemert 7-25-91 10:45

DESIGNATED LABORATORY: IT (sev) DHS #: 137

REMARKS: NORMAL TAT WIC # 204-6138-0907  
Eng: J BRASTAD  
Exp: 5461

DATE COMPLETED 7/24/91 FOREMAN [Signature]