gettler — ryan inc.

June 11, 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 June 7, 1991 Site Update report prepared for the above referenced location. The report documents the results of the ground-water sampling conducted during the second quarter of 1991.

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

Sincerely,

John Werfal
Project Manager

enclosure

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
5251 Hopyard Road
Pleasanton, California
WIC 204-6138-0907

763301-10

June 7, 1991

GeoStrategies Inc.
2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545

June 7, 1991

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

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 second 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.

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.

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 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 0.009.

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 April 16, 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 6.7 and 0.19 ppm, respectively. Benzene concentrations detected in Wells S-1, S-3 and S-4 ranged from 0.0007 to 2.6 ppm. TPH-Diesel concentrations detected in Wells S-1 and S-3 were 2.6 and 0.14 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.

Quality Control

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

If you have any questions, please call.

GeoStrategies Inc. by,

Robert A. Lauritzen
Geologist

John F. Vargas
Senior Geologist
R.G. 5046

REGISTERED GEOLOGIST
JOHN F. VARGAS
NO. 5046
STATE OF CALIFORNIA

RAL/JFV/kjj

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

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

QC Review:

763301-10

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	16-Apr-91	3	28.5	326.73	9.18	----	317.55	2	7.26	67.9	2820
S-2	16-Apr-91	3	24.6	326.59	9.06	----	317.53	4	7.19	65.0	3920
S-3	16-Apr-91	3	24.9	327.38	8.95	----	318.43	3	7.09	65.4	3070
S-4	16-Apr-91	3	24.4	327.38	8.93	----	318.45	2	7.56	64.2	1392
S-5	16-Apr-91	3	24.7	327.76	10.00	----	317.76	4	7.15	62.5	1400
S-6	16-Apr-91	3	25.5	326.56	9.05	----	317.51	2	7.22	66.3	1128
S-7	16-Apr-91	3	25.3	326.49	9.09	----	317.40	2	6.92	67.3	5500
S-8	16-Apr-91	3	25.3	325.32	7.87	----	317.45	4	6.85	65.4	5700

Notes:
1. Static water elevations referenced to Mean Sea Level (MSL).
2. Physical parameter measurements represent stabilized values.
3. pH values reported in pH units.
4. 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)	TPH-D (PPM)
S-1	16-Apr-91	25-Apr-91	6.7	2.6	0.014	0.58	0.25	2.6 *
S-2	16-Apr-91	24-Apr-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
S-3	16-Apr-91	24-Apr-91	0.19	0.012	0.0008	0.0062	0.0015	0.14 *
S-4	16-Apr-91	24-Apr-91	<0.05	0.0007	<0.0005	<0.0005	<0.0005	<0.05
S-5	16-Apr-91	24-Apr-91	<0.05	<0.0005	<0.0005	<0.0005	0.0008	<0.05
S-6	16-Apr-91	24-Apr-91	<0.05	<0.0005	<0.0005	<0.0005	0.0006	<0.05
S-7	16-Apr-91	24-Apr-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05
S-8	16-Apr-91	24-Apr-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
TPH-D = Total Petroleum Hydrocarbons calculated as Diesel

PPM = Parts Per Million
SD = Duplicate Sample
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.

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

TABLE 2

GROUND-WATER ANALYSIS DATA

WELL NO	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	TPH-D (PPM)
SD-1	16-Apr-91	25-Apr-91	7.0	2.7	0.014	0.61	0.24	3.4 *
TB	----	24-Apr-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.05

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
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
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
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

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)
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
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
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
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
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

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)
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
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
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

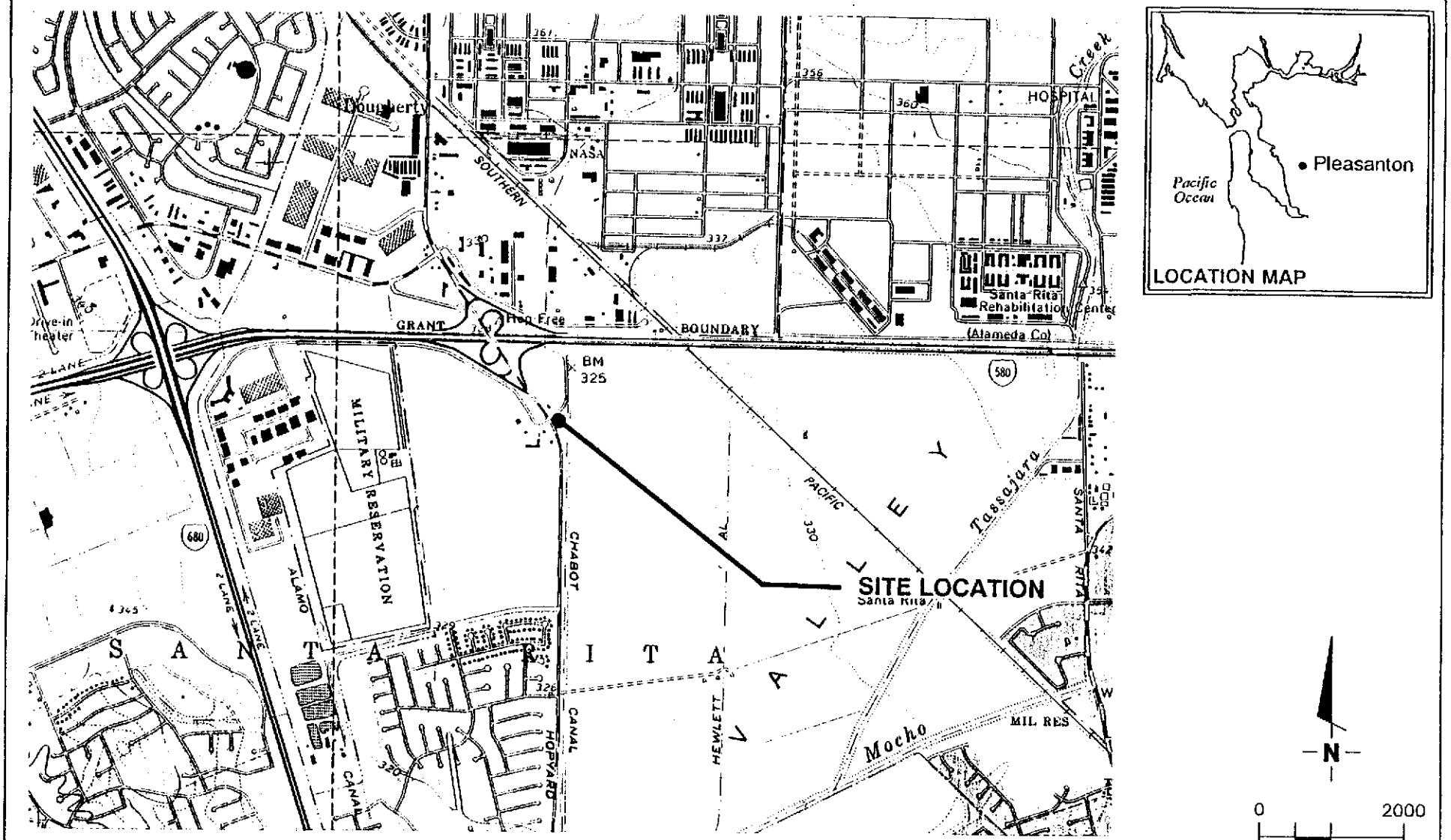
TABLE 3

HISTORICAL GROUND-WATER QUALITY DATABASE

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.



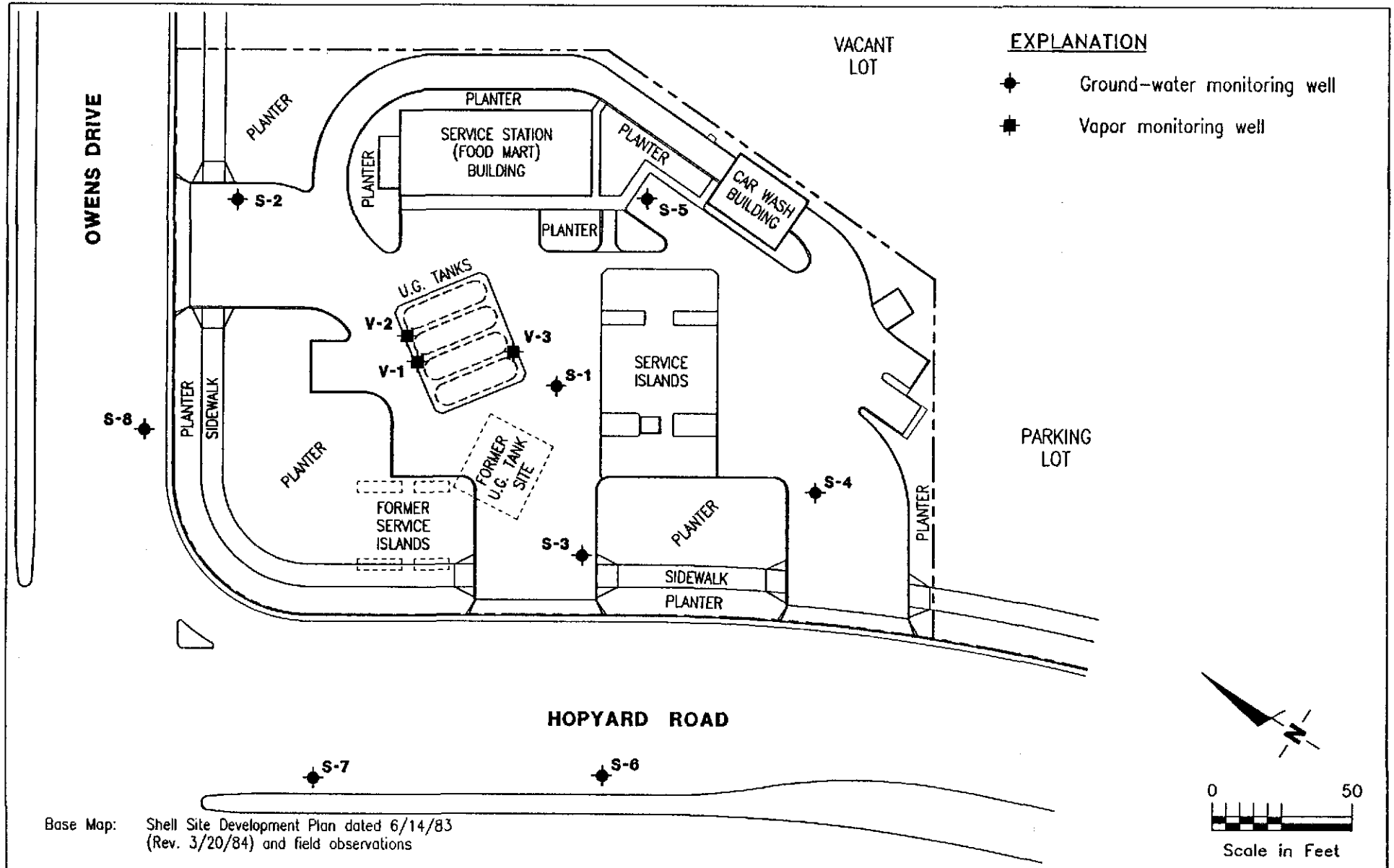
Base Map: USGS Topographic Map

GeoStrategies Inc.

VICINITY MAP
Shell Service Station
5251 Hopyard Road
Pleasanton, California

PLATE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7633	RG/CEG	12/90	



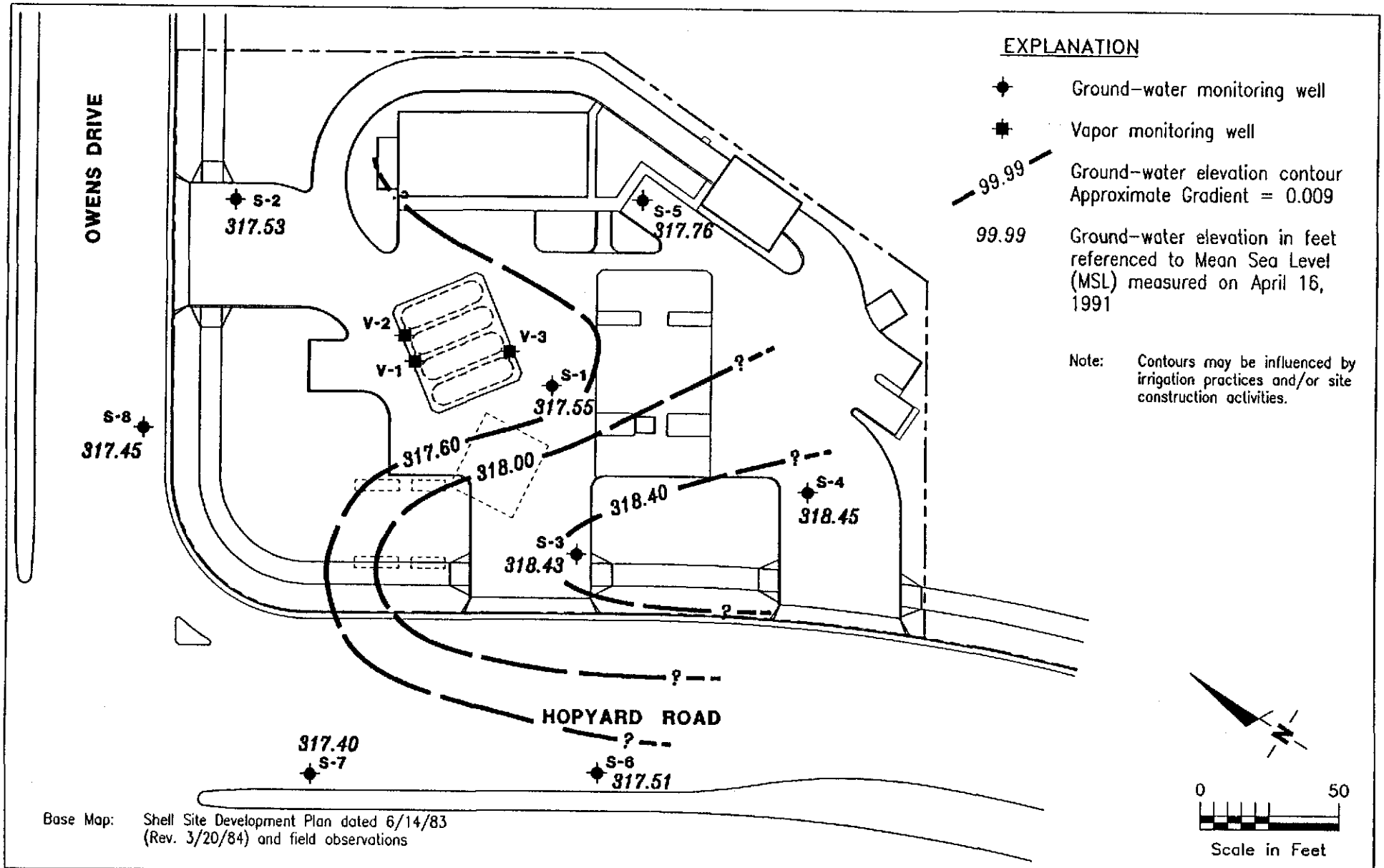
Base Map: Shell Site Development Plan dated 6/14/83 (Rev. 3/20/84) and field observations

GeoStrategies Inc.

SITE PLAN
Shell Service Station
5251 Hopyard Road
Pleasanton, California

PLATE **2**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
763301-10		5/91	

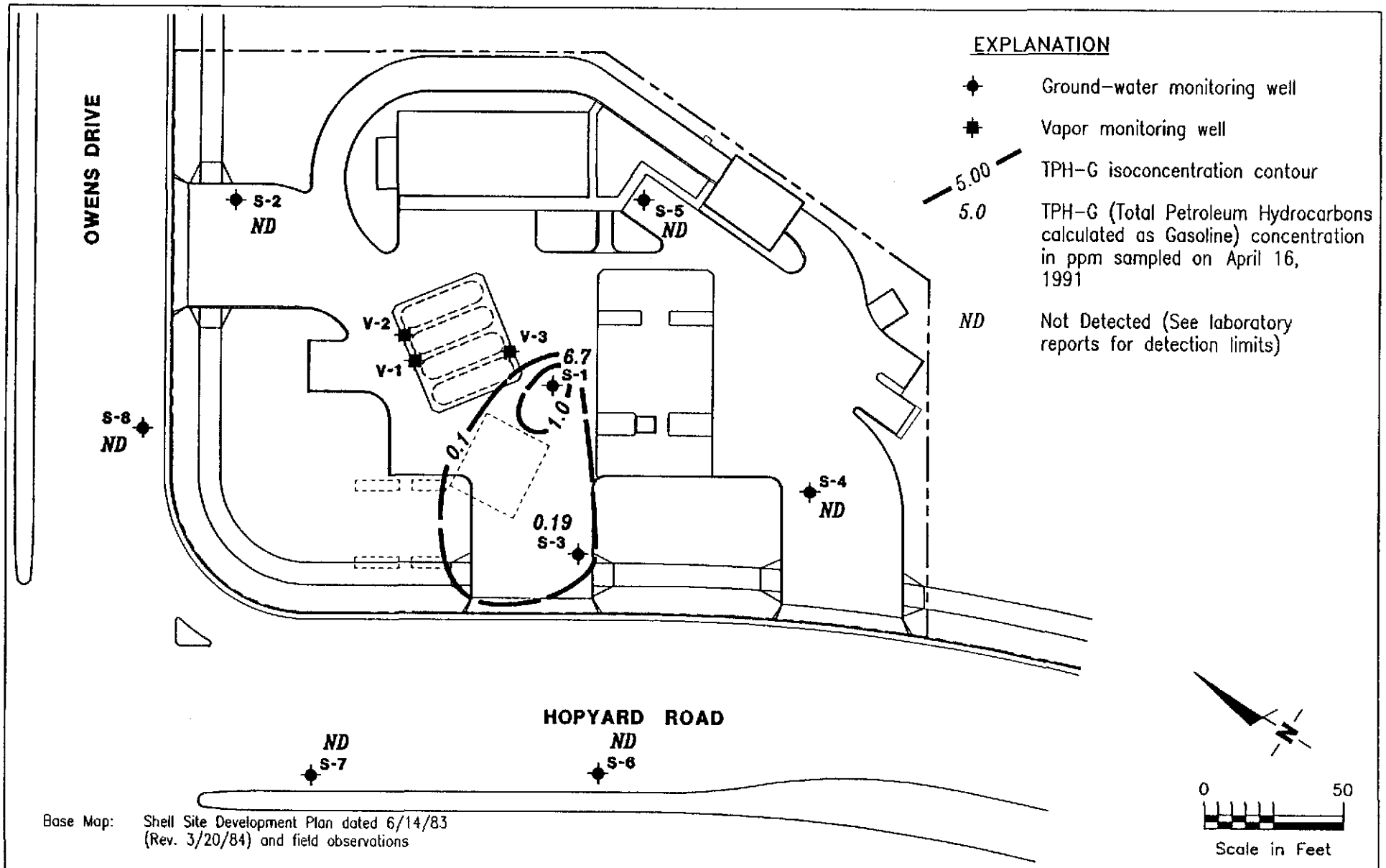


GeoStrategies Inc.

POTENTIOMETRIC MAP
Shell Service Station
5251 Hopyard Road
Pleasanton, California

PLATE **3**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
763301-10	RAL	5/91	



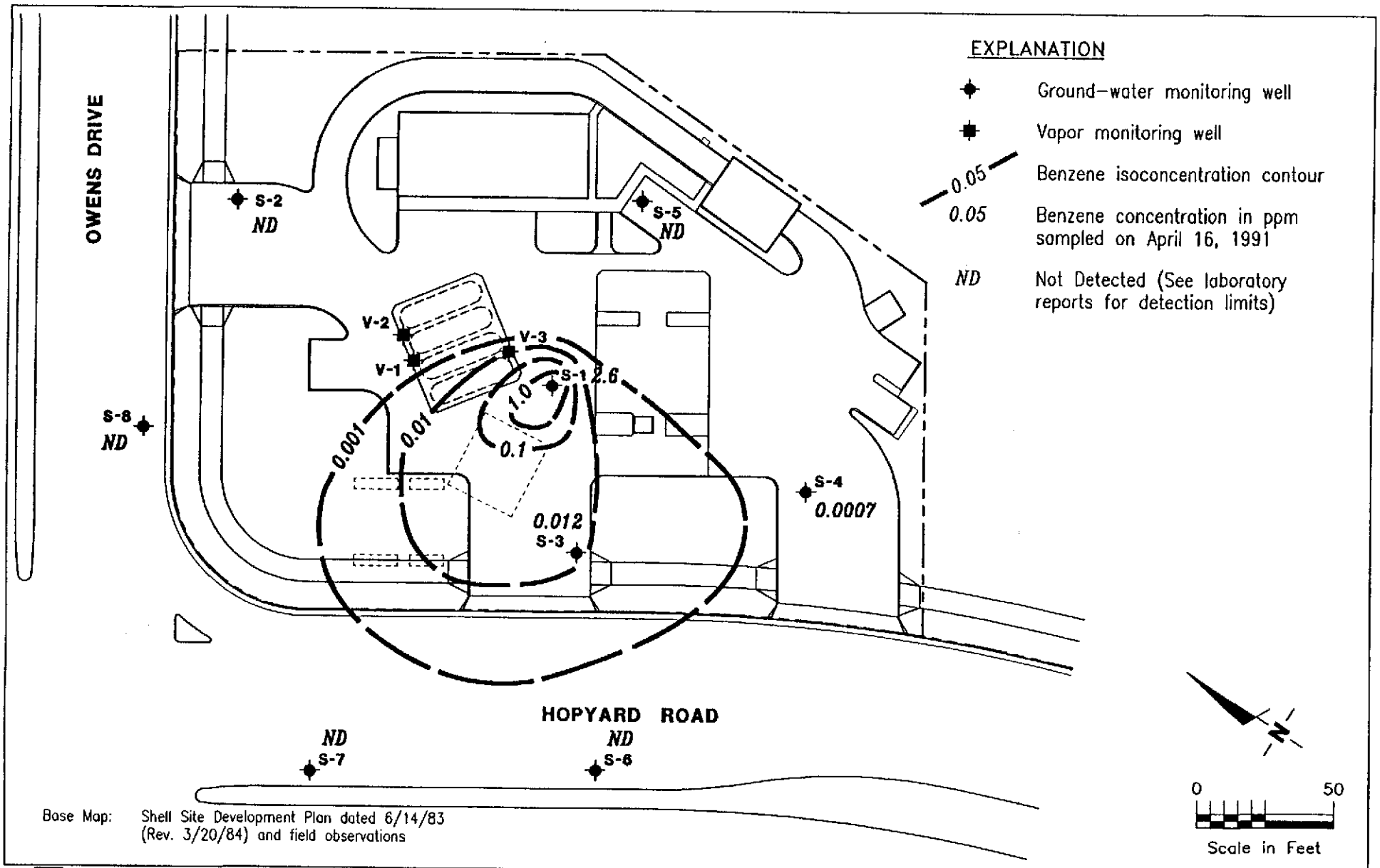
Base Map: Shell Site Development Plan dated 6/14/83 (Rev. 3/20/84) and field observations

GeoStrategies Inc.

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

PLATE **4**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
763301-10	RAL	5/91	



GeoStrategies Inc.

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

PLATE **5**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
763301-10	RAL	5/91	

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

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

Date: 05/06/91

Work Order: T1-04-255 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: 04/17/91
Number of Samples: 5
Sample Type: aqueous

TABLE OF CONTENTS FOR ANALYTICAL RESULTS

Reviewed and Approved:

Suzanne Veaudry
Project Manager

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleasanton

Work Order: T1-04-255

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-1
SAMPLE DATE: 04/16/91
LAB SAMPLE ID: T104255-01
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2, Low Boiling Hydrocarbons
Cool pH > 2, High Boiling Hydrocarbons

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/25/91
Low Boiling Hydrocarbons	Mod.8015		04/25/91
High Boiling Hydrocarbons	Mod.8015	04/22/91	04/24/91

PARAMETER	DETECTION LIMIT	DETECTED	
Low Boiling Hydrocarbons calculated as Gasoline	1.0	6.7	
BTEX			
Benzene	0.01	2.6	
Toluene	0.01	0.014	
Ethylbenzene	0.01	0.58	
Xylenes (total)	0.01	0.25	
High Boiling Hydrocarbons calculated as Diesel	0.05	2.6	#

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleasanton

Work Order: T1-04-255

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-2
SAMPLE DATE: 04/16/91
LAB SAMPLE ID: T104255-02
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/23/91
Low Boiling Hydrocarbons	Mod.8015		04/23/91
High Boiling Hydrocarbons	Mod.8015	04/22/91	04/24/91

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Plsnton

Work Order: T1-04-255

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-3
SAMPLE DATE: 04/16/91
LAB SAMPLE ID: T104255-03
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2, Low Boiling Hydrocarbons
Cool pH > 2, High Boiling Hydrocarbons

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/23/91
Low Boiling Hydrocarbons	Mod.8015		04/23/91
High Boiling Hydrocarbons	Mod.8015	04/22/91	04/24/91

PARAMETER	DETECTION LIMIT	DETECTED	
Low Boiling Hydrocarbons calculated as Gasoline	0.5	0.19	
BTEX			
Benzene	0.0005	0.012	
Toluene	0.0005	0.0008	
Ethylbenzene	0.0005	0.0062	
Xylenes (total)	0.0005	0.0015	
High Boiling Hydrocarbons calculated as Diesel	0.05	0.14	#

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Plsnton

Work Order: T1-04-255

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-4
SAMPLE DATE: 04/16/91
LAB SAMPLE ID: T104255-04
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/23/91
Low Boiling Hydrocarbons	Mod.8015		04/23/91
High Boiling Hydrocarbons	Mod.8015	04/22/91	04/24/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	None
BTEX		
Benzene	0.0005	0.0007
Toluene	0.0005	None
Ethylbenzene	0.0005	None
Xylenes (total)	0.0005	None
High Boiling Hydrocarbons calculated as Diesel	0.05	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleasanton

Work Order: T1-04-255

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-5
SAMPLE DATE: 04/16/91
LAB SAMPLE ID: T104255-05
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/23/91
Low Boiling Hydrocarbons	Mod.8015		04/23/91
High Boiling Hydrocarbons	Mod.8015	04/22/91	04/24/91

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	0.0008
High Boiling Hydrocarbons calculated as Diesel	0.05	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Bopyard, Plsnton

Work Order: T1-04-255

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T104255-06A
EXTRACTION DATE: 04/22/91
ANALYSIS DATE: 04/23/91
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	2327.	2204.	93.	88.	6.

SURROGATES	LS %Rec	LSD %Rec
nC32	58.	54.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Plsnton

Work Order: T1-04-255

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T104255-06A
EXTRACTION DATE:
ANALYSIS DATE: 04/20/91
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	50.0	44.5	100.	89.	12.
Toluene	ND<0.5	50.0	47.0	42.5	94.	85.	10.
Ethyl benzene	ND<0.5	50.0	45.1	41.1	90.	82.	9.
Xylenes	ND<0.5	150.	107.	97.3	71.	65.	9.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	96.	96.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Plsnton

Work Order: T1-04-255

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T104255-06B
EXTRACTION DATE:
ANALYSIS DATE: 04/22/91
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	49.2	48.1	98.	96.	2.
Toluene	ND<0.5	50.0	51.8	50.8	104.	102.	2.
Ethyl benzene	ND<0.5	50.0	55.6	54.4	111.	109.	2.
Xylenes	ND<0.5	150.	142.	139.	95.	93.	2.

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleaton

Work Order: T1-04-255

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T104255-06C
EXTRACTION DATE:
ANALYSIS DATE: 04/24/91
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	51.5	47.1	103.	94.	9.
Toluene	ND<0.5	50.0	52.4	47.2	105.	94.	11.
Ethyl benzene	ND<0.5	50.0	49.8	45.5	100.	91.	9.
Xylenes	ND<0.5	150.	140.	127.	93.	85.	9.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	101.	101.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Plsnton

Work Order: T1-04-255

TEST CODE TPHN TEST NAME TPH High Boiling by 8015

The method of analysis for high boiling hydrocarbons s 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.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

RECEIVED
MAY 06 1991
GETTLER-RYAN INC.
GENERAL CONTRACTORS

CERTIFICATE OF ANALYSIS

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

Date: 05/06/91

Work Order: T1-04-261 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: 04/17/91
Number of Samples: 5
Sample Type: aqueous

TABLE OF CONTENTS FOR ANALYTICAL RESULTS

Reviewed and Approved:

Suzanne Veaudry
Project Manager

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleasanton

Work Order: T1-04-261

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-6**
SAMPLE DATE: **04/16/91**
LAB SAMPLE ID: **T104261-01**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/22/91
Low Boiling Hydrocarbons	Mod.8015		04/22/91
High Boiling Hydrocarbons	Mod.8015	04/02/91	04/24/91

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	0.0006
High Boiling Hydrocarbons calculated as Diesel	0.05	None

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleasanton

Work Order: T1-04-261

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-7
SAMPLE DATE: 04/16/91
LAB SAMPLE ID: T104261-02
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/22/91
Low Boiling Hydrocarbons	Mod.8015		04/22/91
High Boiling Hydrocarbons	Mod.8015	04/22/91	04/24/91

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleasanton

Work Order: T1-04-261

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: S-8
SAMPLE DATE: 04/16/91
LAB SAMPLE ID: T104261-03
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/22/91
Low Boiling Hydrocarbons	Mod.8015		04/22/91
High Boiling Hydrocarbons	Mod.8015	05/22/91	04/24/91

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleasanton

Work Order: T1-04-261

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: SD-1
SAMPLE DATE: 04/16/91
LAB SAMPLE ID: T104261-04
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2, Low Boiling Hydrocarbons
Cool pH > 2, High Boiling Hydrocarbons

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/25/91
Low Boiling Hydrocarbons	Mod.8015		04/25/91
High Boiling Hydrocarbons	Mod.8015	04/22/91	04/24/91

PARAMETER	DETECTION LIMIT	DETECTED	
Low Boiling Hydrocarbons calculated as Gasoline	0.05	7.0	
BTEX			
Benzene	0.0005	2.7	
Toluene	0.0005	0.014	
Ethylbenzene	0.0005	0.61	
Xylenes (total)	0.0005	0.24	
High Boiling Hydrocarbons calculated as Diesel	0.05	3.4	#

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleanton

Work Order: T1-04-261

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: Trip Blank
SAMPLE DATE: not spec
LAB SAMPLE ID: T104261-05
SAMPLE MATRIX: aqueous
RECEIPT CONDITION: Cool pH < 2

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		04/22/91
Low Boiling Hydrocarbons	Mod.8015		04/22/91
High Boiling Hydrocarbons	Mod.8015	04/22/91	04/24/91

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleanton

Work Order: T1-04-261

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T104261-06A
EXTRACTION DATE: 04/22/91
ANALYSIS DATE: 04/23/91
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	2327.	2204.	93.	88.	6.

SURROGATES	LS %Rec	LSD %Rec
nC32	58.	54.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleasanton

Work Order: T1-04-261

TEST NAME: **Spike and Spike Duplicates**

SAMPLE ID: **Quality Control**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T104261-06A**
EXTRACTION DATE:
ANALYSIS DATE: **04/20/91**
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	50.0	44.5	100.	89.	12.
Toluene	ND<0.5	50.0	47.0	42.5	94.	85.	10.
Ethyl benzene	ND<0.5	50.0	45.1	41.1	90.	82.	9.
Xylenes	ND<0.5	150.	107.	97.3	71.	65.	9.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	96.	96.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleasanton

Work Order: T1-04-261

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T104261-06B
EXTRACTION DATE:
ANALYSIS DATE: 04/24/91
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	51.5	47.1	103.	94.	9.
Toluene	ND<0.5	50.0	52.4	47.2	105.	94.	11.
Ethyl benzene	ND<0.5	50.0	49.8	45.5	100.	91.	9.
Xylenes	ND<0.5	150.	140.	127.	93.	85.	9.

SURROGATES	MS %Rec	MSD %Rec
1,3-Dichlorobenzene	101.	101.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 05/06/91
Client Work ID: GR3633, 5251 Hopyard, Pleaton

Work Order: T1-04-261

TEST CODE **TPHN** TEST NAME **TPH High Boiling by 8015**

The method of analysis for high boiling hydrocarbons s 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.

ENVIRONMENTAL DIVISION

COMPANY Shell JOB NO.

JOB LOCATION 5251 Hopyard Rd/Owens

CITY Pleasanton PHONE NO. (415) 783-7500

AUTHORIZED Tom Paulson DATE 4-16-91 P.O. NO. 3633.01

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED		SAMPLE CONDITION LAB ID
S-1	5	liquid	4-16-91 / 1120	TH(gas) BTXE	Diesel	Cool
S-2			/ 1055			
S-3			/ 1200			
S-4			/ 1142			
S-5			/ 1224			
S-6			/ 1026			
S-7			/ 1056			
S-8			/ 1030			
SD-1	↓		↓ / "		↓	
Trip Blank	1		"	"		
Trip Blank	1	↓	"	"	Diesel	↓

RELINQUISHED BY: [signature] 4-16-91 1400

RECEIVED BY: Refrig #1 4-16-91 1400

RELINQUISHED BY: [signature] Refrig #1 CE:CC

RECEIVED BY: [signature] 4-17-91 CE:C

RELINQUISHED BY: [signature] 4-17-91 13:25

RECEIVED BY LAB: [signature] 4/17/91 13:25

DESIGNATED LABORATORY: IT (SCV) DHS #: 137

REMARKS: Normal TAT

VIC#: 2021-6138-0907

Shell Engr.: Jack Brastad

DATE COMPLETED 4-16-91 FOREMAN [signature]

ORIGINAL