Shell Oil Company

EAST BAY MARKETING DISTRICT

P O Box 4023
Concord, CA 94524
(415) 676-1414

90 DEC 31 AM 11:31

December 28, 1990

~~Ms. Pam Evans~~
County of Alameda
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

SUBJECT: FORMER SHELL SERVICE STATION
15275 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA

Dear Ms. Evans:

Enclosed is a copy of the December 26, 1990 Site Update report prepared for the subject location. The report presents the results of the ground-water sampling conducted during the fourth quarter of 1990.

If you should have any questions or comments regarding this project please do not hesitate to call me at (415) 675-6127.

Very truly yours,

Jack Brastad
Senior Engineer

enclosure

cc: Mr. Tom Callaghan, Regional Water Quality Control Board
Mr. John Werfal, Gettler-Ryan Inc.

GeoStrategies Inc.

SITE UPDATE

Former Shell Service Station
15275 Washington Avenue
San Leandro, California

Report No. 7615-10

December 26, 1990

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

December 26, 1990

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

Attn: Mr. John Werfal

Re: SITE UPDATE
Former Shell Service Station
15275 Washington Avenue
San Leandro, California

Gentlemen:

This Site Update report describes the results of the fourth quarterly ground-water sampling for 1990 performed by Gettler-Ryan Inc. (G-R) in accordance with the current monitoring plan for the site (Plate 1). Field work was conducted in compliance with current G-R ground-water sampling procedures which are included in the GeoStrategies Inc. (GSI) report dated October 2, 1990, and State of California Water Resources Control Board (SWRCB) guidelines for performing investigations related to leaking underground fuel tanks.

In June 1985, four ground-water monitoring wells (S-1 through S-4) were installed by EMCON Associates (EMCON) to assess soil and ground-water conditions beneath the site (Plate 2). Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) were detected in ground-water samples collected from Wells S-1, S-2, and S-4 with concentrations ranging from 0.52 to 32 parts per million (ppm). Well S-3 contained floating product approximately 0.5 feet in measured thickness. TPH-Gasoline results from soil samples taken from the borings ranged from none detected (ND) to 3,900 ppm.

In August 1986, four soil borings (S-A through S-D) were drilled within the underground fuel tank complex prior to tank removal. TPH-Gasoline concentrations in soil samples ranged from ND to 1,700 ppm. Boring S-B was converted to a temporary tank backfill monitoring well. Boring S-A was drilled adjacent to the former waste oil tank. No waste oil was detected in the analyzed soil samples. A report for this phase of work was prepared by EMCON, dated September 12, 1986.

In June 1987, the underground fuel storage tanks were removed. The temporary tank backfill well S-B was also removed during construction. All site wells were inaccessible from June to August of 1987, due to these construction activities. Monitoring wells S-2 and S-4 were destroyed during construction activities.

Between December 1986 and April 1989, thirteen ground-water monitoring wells (S-5 through S-17) were installed on- and off-site. The ground-water monitoring well network has been monitored quarterly since September 1988. Historically, petroleum hydrocarbon concentrations appear to be declining.

In October 1988, a soil gas survey was conducted by Tracer Research Corporation (TRC) at fifteen off-site locations. The sample locations lie to the south of the site along Lewelling Boulevard and in the adjacent property to the west. The highest soil vapor concentrations were detected to the south of the site along Lewelling Boulevard.

In March 1990, an aquifer test was conducted. The aquifer test involved a variable discharge test using Well SR-1 and slug-tests of several wells. The aquifer test indicated low-yield conditions in the shallow aquifer. The aquifer test results are included in the GSI report dated June 29, 1990.

CURRENT QUARTERLY SAMPLING RESULTS

Potentiometric Data

On October 18, 1990, depth to water was measured in each well prior to ground-water sampling. Measurements were made with an electronic oil-water interface probe. Static water-levels were measured from the surveyed top of well box and recorded to the nearest ±0.01 foot. Depth to shallow groundwater ranged from 8.10 to 9.20 feet below grade which corresponds to a range in elevations from 11.99 to 13.11 feet above Mean Sea Level (MSL). A potentiometric contour map was prepared from the water-level measurements (Plate 3). The local shallow hydraulic gradient was calculated to be 0.005 with shallow ground-water flow to the southwest. The potentiometric data is included in Table 1 and Appendix A.

Floating Product Measurements

Each well was checked for the presence of floating product with an electronic oil-water interface probe. The probe detects the presence of floating product and allows thickness of floating product to be measured to the nearest ±0.01 foot. Each well was also checked with a clean, clear, acrylic bailer to visually confirm interface probe results and to check for the presence of a product sheen. **A product sheen was observed in Well S-3.** Floating product or product sheens were not observed in the other wells.

CHEMICAL ANALYTICAL DATA

Ground-water samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) according to EPA Method 8015 (Modified) and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) according to EPA Method 8020. Chemical analyses were performed by International Technology (IT) Analytical Services, a State-certified environmental laboratory located in San Jose, California.

TPH-Gasoline was detected in water samples from Wells S-1, S-2, S-5, S-9, S-10, S-13, S-14, S-17 and SR-1, at concentrations ranging from 0.08 to 44. parts per million (ppm). Wells S-6, S-7, S-8, S-11, S-12, S-15 and S-16 were reported as none-detected (ND) for TPH-Gasoline. Benzene was detected at concentrations ranging from 0.005 to 3.5 ppm in Wells SR-1, S-1, S-3, S-5, S-9, S-14 and S-17. Benzene concentrations in these wells exceed the current Regional Water Quality Control Board (RWQCB) Maximum Contaminant Levels (MCL). Benzene concentrations in Wells S-6, S-7, S-8, S-10, S-11, S-12, S-13, S-15 and S-16 were reported as ND. TPH-Gasoline and benzene data were plotted and contoured and are presented on Plates 4 and 5, respectively. The chemical analytical results are included as Appendix A.

Hydrocarbons are primarily concentrated onsite in the vicinity of Well S-3. In addition, hydrocarbons are found downgradient to the south in the vicinity of Well S-14. The chemical distribution south of the site indicates that petroleum hydrocarbons may be originating from an off-site source to the south. TPH-Gasoline and benzene were detected in Well S-14 at concentrations of 1.8 and 0.77 ppm, respectively. TPH-Gasoline and benzene have not been identified in Wells S-11 and S-12 since November 1988 and May 1989. Since Wells S-11 and S-12 are upgradient of Well S-14 and closer to the site, petroleum hydrocarbons in Well S-14 do not appear to have originated from the Shell site. Historical chemical analytical data are presented in Appendix B.

Quality Control

Quality control samples for this quarter included a trip blank (TB), a field blank (SF-5) and a duplicate sample (SD-16). The trip blank was prepared in the IT Laboratory using organic-free water to evaluate laboratory handling and analytical procedures. A field blank was prepared in the laboratory and poured in the field using organic-free water to evaluate field sampling procedures. A duplicate sample was collected as a split (second) sample to quantitatively assess laboratory procedures and analytical precision. The analytical results are included in the IT Laboratory chemical analytical reports (Appendix A). The G-R Groundwater Sampling Forms and Chain-of-Custody forms are also included in Appendix A.

Chemical analyses performed on the trip blank and field blank did not detect any measurable levels of TPH-Gasoline or BTEX. These results indicate that proper laboratory handling techniques were followed and that no hydrocarbons were introduced into the samples during sampling or transport, or from ambient field conditions.

Precision of QC data was assessed by calculating the Relative Percent Difference (RPD) between the duplicate sample (SD-16) and the corresponding sample (S-1). The RPD for TPH-Gasoline and benzene was calculated to be 8.4% and 15%, respectively. These RPD values are within the acceptable range of precision.

SUMMARY

The following summarizes the quarterly sampling results presented in this report:

- G-R conducted quarterly ground-water sampling on October 18, 1990.
- Potentiometric data collected on October 18, 1990 indicate that shallow groundwater flows to the southwest at a calculated gradient of 0.005.
- A product sheen was observed in Well S-3. Floating product was not observed in the other ground-water monitoring wells.
- TPH-Gasoline was identified in Wells S-1, S-2, S-5, S-9, S-10, S-13, S-14, S-17 and SR-1 at concentrations ranging from 0.08 to 44 ppm.
- Benzene was identified above the MCL set by the State of California in Wells S-1, S-3, S-5, S-9, S-14, S-17 and SR-1 at concentrations ranging from 0.005 to 3.5 ppm.
- Hydrocarbons are primarily concentrated onsite in the vicinity of Well S-3. In addition hydrocarbons are found downgradient (to the south) in the vicinity of Well S-14.

PLANNED SITE ACTIVITIES

The following activities are scheduled for the next quarter:

- Water levels, floating product and product sheen measurements will be recorded on a weekly basis. Selected data will be used to prepare a potentiometric map across the site. The ground-water gradient will be calculated.

- The ground-water monitoring network will be sampled quarterly and analyzed for TPH-Gasoline according to EPA Method 8015 (Modified) and BTEX according to EPA Method 8020. These data will be used to prepare isoconcentration maps for TPH-Gasoline and benzene.

- GSI proposed one additional ground-water monitoring well north of Well S-17 as outlined in the aquifer test report dated June 29, 1990 to further delineate the hydrocarbon plume in this direction. The location of the proposed ground-water monitoring well is shown on Plate 2.

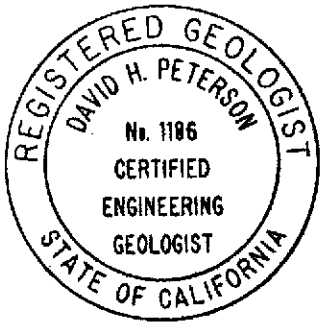
- A Site Update report will be prepared by GSI discussing site activities for the first quarter, January through March 1991.

If you have any questions, please call.

GeoStrategies Inc. by,

John Vargas
Geologist

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



JFV/DHP/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: G-R Groundwater Sampling Report
Appendix B: Historical Analytical Data

QC Review: _____

Report No. 7615-10

TABLE 1

GROUND-WATER ANALYSIS DATA

WELL NO	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	WELL ELEV (FT)	STATIC WATER ELEV (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
S-1	18-Oct-90	31-Oct-90	0.08	0.0050	<0.0005	<0.0005	0.0030	21.55	13.00	----	8.55
S-3	18-Oct-90	31-Oct-90	44.	3.5	0.65	2.4	11.	21.14	12.67	sheen	8.47
S-5	18-Oct-90	31-Oct-90	12.	3.2	0.04	0.72	0.90	21.41	12.38	----	9.03
S-6	18-Oct-90	31-Oct-90	<0.05	<0.0005	0.0007	<0.0005	0.0008	22.02	12.82	----	9.20
S-7	18-Oct-90	31-Oct-90	<0.05	<0.0005	<0.0005	0.0005	0.0041	21.47	12.64	----	8.83
S-8	18-Oct-90	30-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	20.72	12.28	----	8.44
S-9	18-Oct-90	30-Oct-90	0.39	0.14	0.0007	0.0033	0.024	20.96	12.50	----	8.46
S-10	18-Oct-90	31-Oct-90	0.14	<0.0005	0.0007	<0.0005	0.0070	20.86	12.28	----	8.58
S-11	18-Oct-90	31-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	0.0005	21.26	12.06	----	9.20

CURRENT REGIONAL WATER QUALITY CONTROL BOARD MAXIMUM CONTAMINANT LEVELS
Benzene 0.001 ppm Xylenes 1.750 ppm Ethylbenzene 0.68 ppm

CURRENT DHS ACTION LEVELS
Toluene 0.100 ppm

TPH-G = Total Petroleum Hydrocarbons as Gasoline
PPM = Parts Per Million SD = Duplicate Sample SF = Field Blank SR = Recovery Well TB = Trip Blank

* Results reported as TPH-G are due to one compound present in the sample which is not characteristic of the gasoline standard

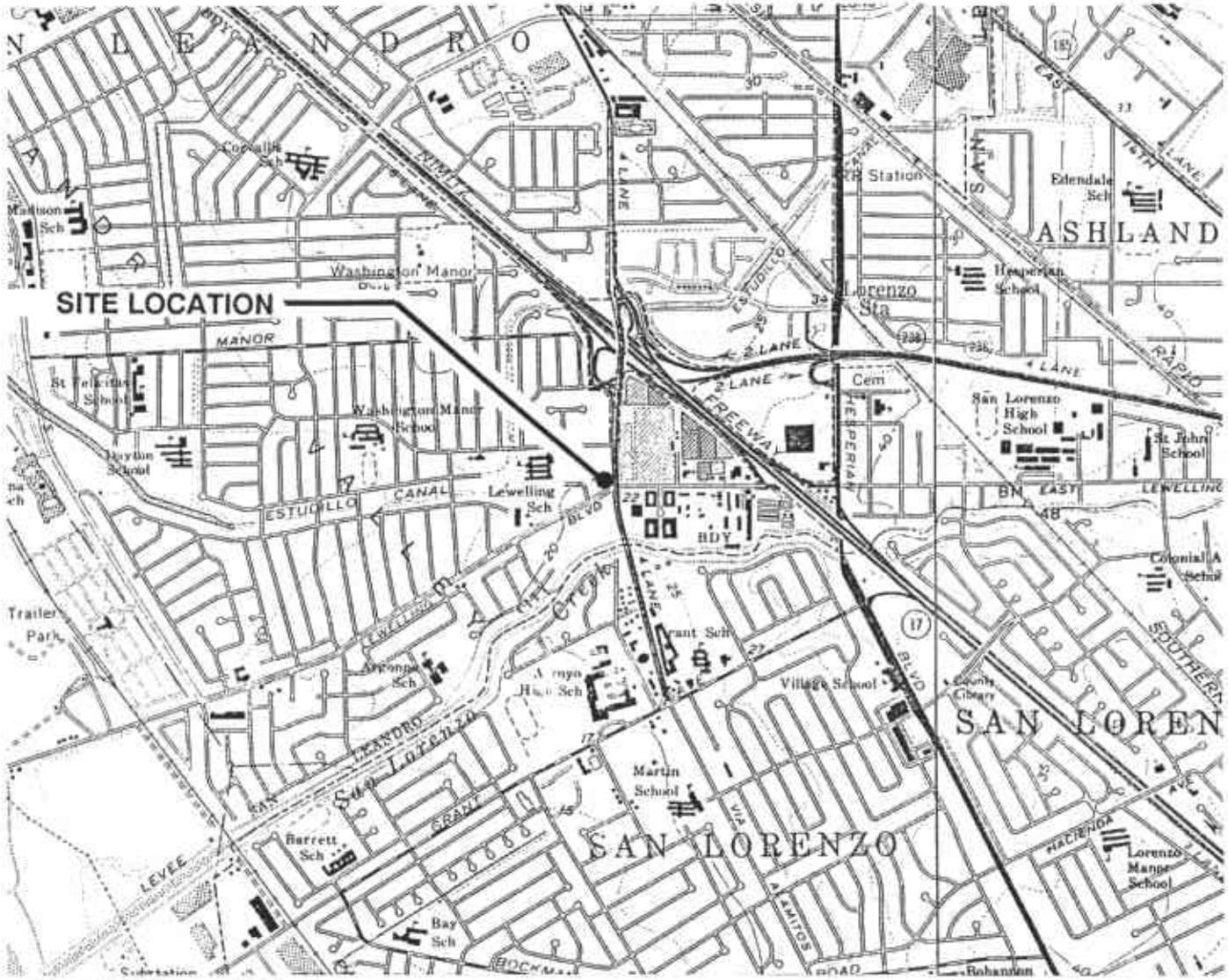
Note: 1. All data shown as <x are reported as ND (none detected).
2. Static Water Elevations referenced to mean sea level (MSL). Elevations are corrected for free product using a correction factor of 0.8.
3. DHS Action Levels and MCLs are subject to change pending State review.

Report No. 7615-10

TABLE 1

GROUND-WATER ANALYSIS DATA

WELL NO	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	WELL ELEV (FT)	STATIC WATER ELEV (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
S-12	18-Oct-90	31-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	21.05	12.15	----	8.90
S-13*	18-Oct-90	30-Oct-90	0.13	<0.0005	<0.0005	<0.0005	<0.0005	20.57	11.99	----	8.58
S-14	18-Oct-90	30-Oct-90	1.8	0.77	0.013	0.017	0.12	20.44	12.34	----	8.10
S-15	18-Oct-90	31-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	22.22	13.11	----	9.11
S-16	18-Oct-90	31-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	21.82	12.92	----	8.90
S-17	18-Oct-90	31-Oct-90	0.39	0.010	0.062	0.022	0.11	20.95	12.24	----	8.71
SR-1	18-Oct-90	31-Oct-90	1.3	0.28	0.0066	0.11	0.13	21.45	----	----	8.81
SD-16	18-Oct-90	31-Oct-90	0.091	0.00063	<0.0005	<0.0005	0.0039	----	----	----	----
SF-5	18-Oct-90	31-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	----	----	----	----
TB	18-Oct-90	30-Oct-90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	----	----	----	----



N

Base Map: USGS Topographic Map

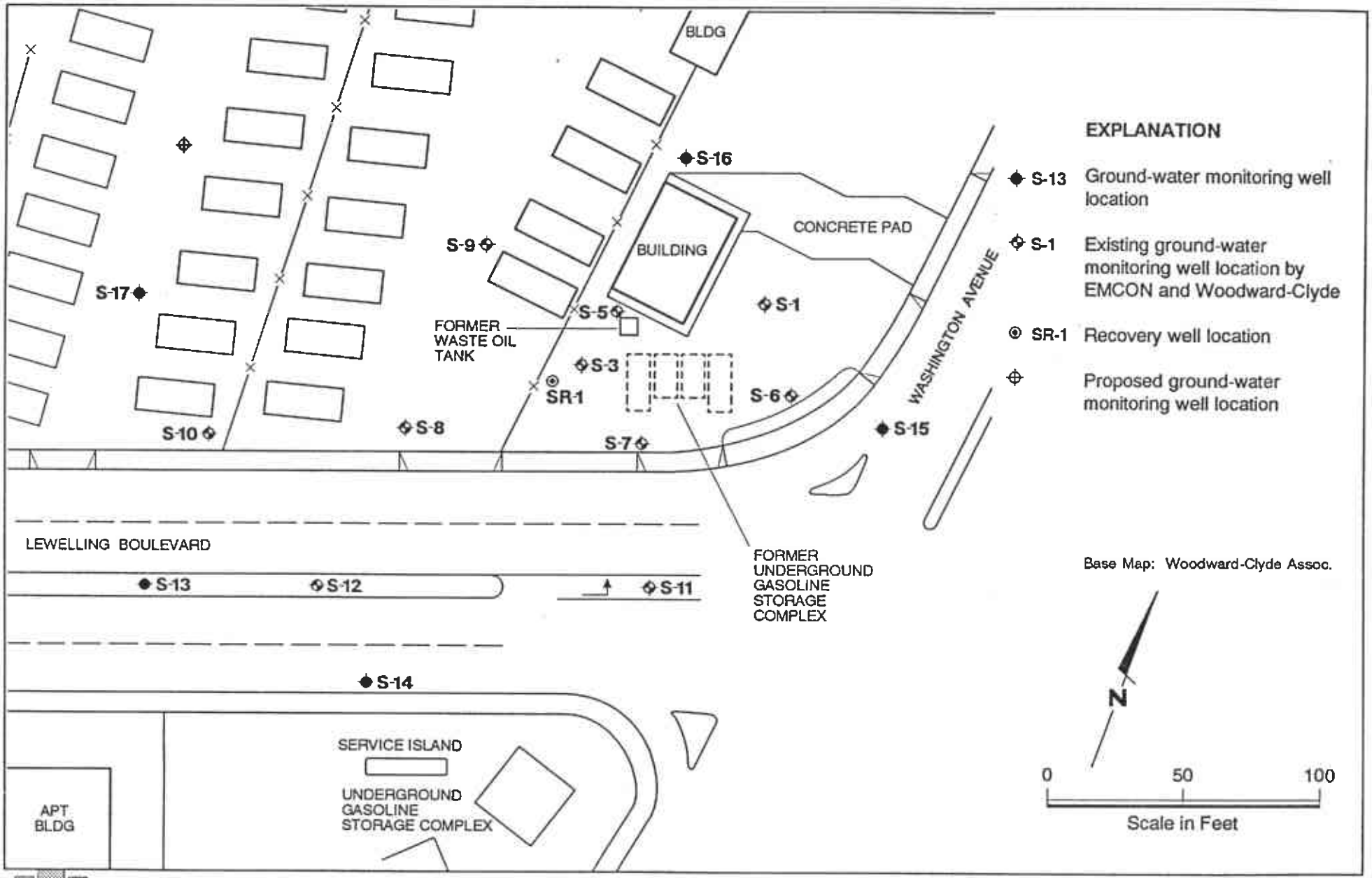
Approximate Scale : 1" = 2000'

GeoStrategies Inc.

Vicinity Map
Former Shell Service Station
15275 Washington Avenue
San Leandro, California

PLATE
1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7615		11/89		

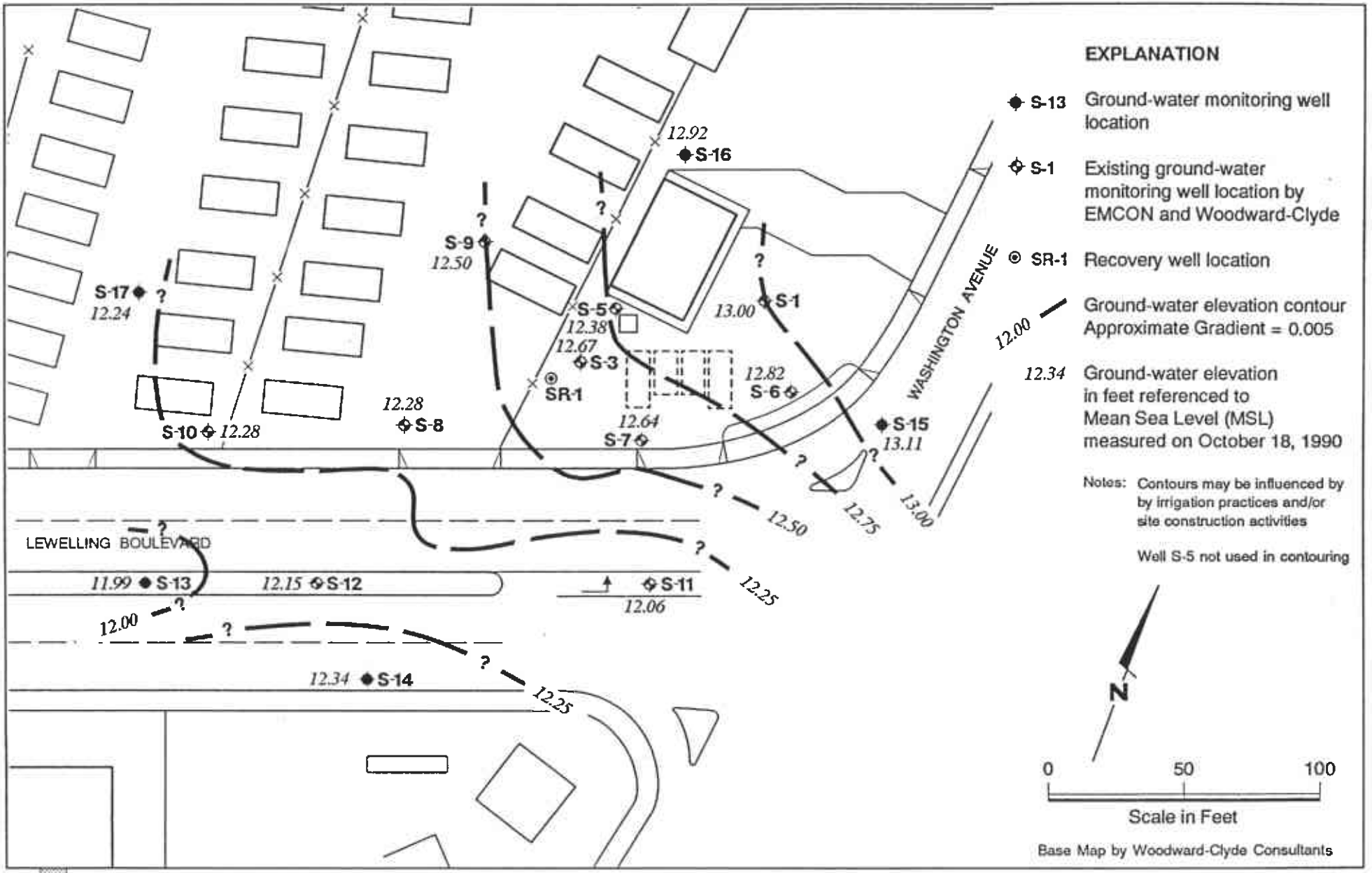


GeoStrategies Inc.

Site Plan
Former Shell Service Station
15275 Washington Avenue
San Leandro, California

PLATE
2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7615	DHR	12/90		

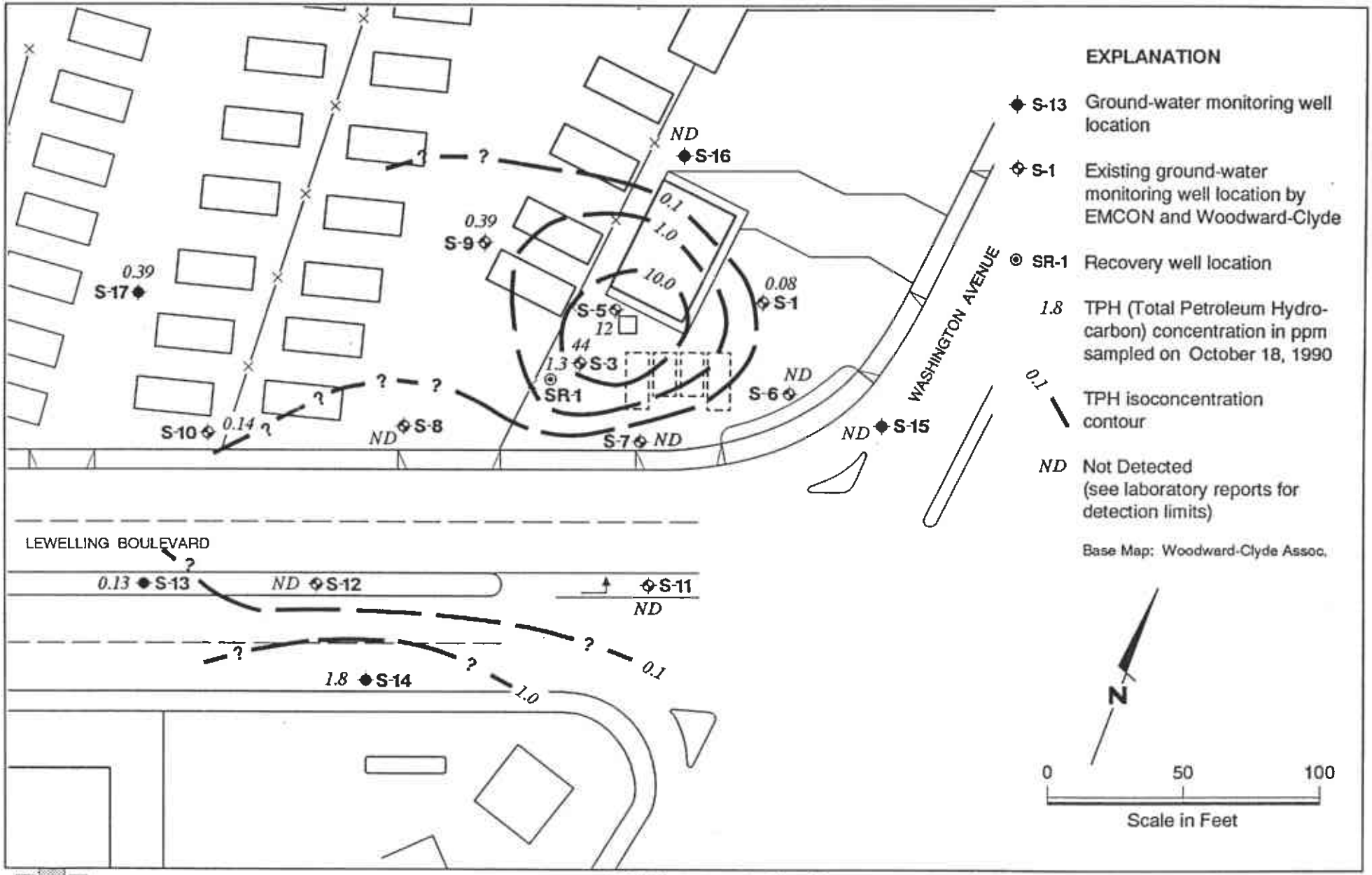


GeoStrategies Inc.

Potentiometric Map
Former Shell Service Station
15275 Washington Avenue
San Leandro, California

PLATE
3

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7615	DHP	12/90		

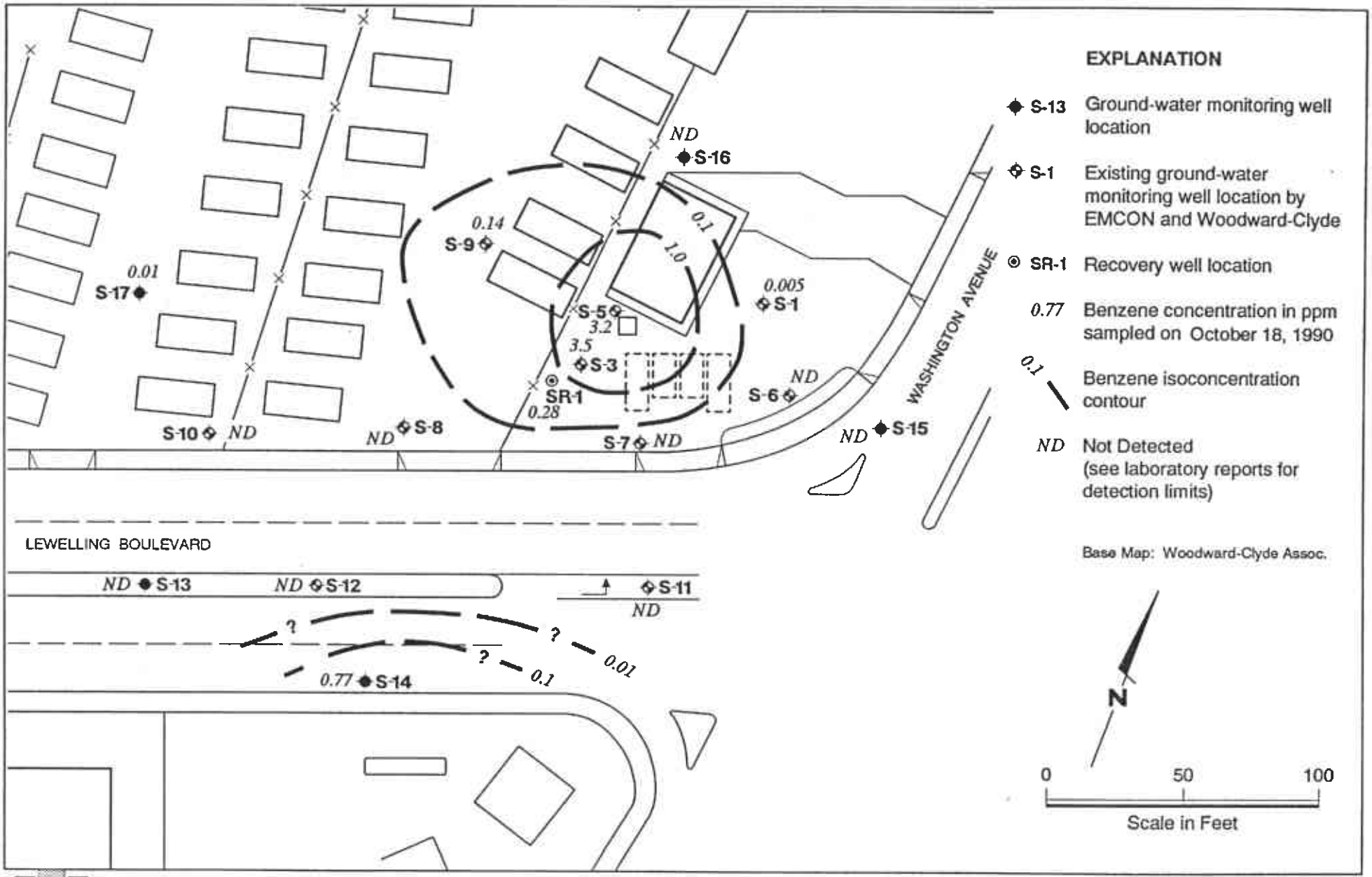


GeoStrategies Inc.

TPH Isoconcentration Map
Former Shell Service Station
15275 Washington Avenue
San Leandro, California

PLATE
4

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7615	DHP	12/90		



GeoStrategies Inc.

Benzene Isoconcentration Map
Former Shell Service Station
15275 Washington Avenue
San Leandro, California

PLATE
5

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7615	DHP	12/90		

APPENDIX A

GETTLER-RYAN INC.

GROUNDWATER SAMPLING PROCEDURES

gettler — ryan inc.

November 8, 1990

GROUNDWATER SAMPLING REPORT

Referenced Site: Former Shell Service Station
15275 Washington Avenue
San Leandro, California

Sampling Dates: October 18 and 19, 1990

This report presents the results of the quarterly groundwater sampling and analytical program conducted by Gettler-Ryan Inc. on October 18 and 19, 1990 at the referenced location. The site, located on the northwest corner of Washington Avenue and Lewelling Boulevard, is no longer an operating service station. The former station had underground storage tanks which contained petroleum products.

There are currently seven groundwater monitoring wells on site and nine off site at the locations shown on the attached site map. Prior to sampling, each well was inspected for total well depth, water level, and presence of separate phase product using an electronic interface probe. A clean acrylic bailer was used to visually confirm the presence and thickness of separate phase product. Groundwater depths ranged from 8.10 to 9.20 feet below grade. A product sheen was observed in well S-3.

The wells were then purged and sampled. The purge water was contained in drums for proper disposal. Standard sampling procedure calls for a minimum of four case volumes to be purged from each well. Each well was purged while pH, temperature, and conductivity measurements were monitored for stability. Details of the final well purging results are presented on the attached Table of Monitoring Data. In cases where a well dewatered or less than four case volumes were purged, groundwater samples were obtained after the physical parameters had stabilized. Under such circumstances the sample may not represent actual formation water, due to low flow conditions.

Samples were collected, using Teflon bailers, in properly cleaned and laboratory prepared containers. All sampling equipment was thoroughly cleaned after each well was sampled and steam cleaned upon completion of work at the site. The samples were labeled, stored on blue ice, and transported to the laboratory for analysis. A field blank (SF-5) and a trip blank, supplied by the laboratory, were included and analyzed to assess quality control. A duplicate sample (SD-16), was submitted without well designation to assess laboratory performance. Analytical results for the blanks are included in the Certified Analytical Report (CAR's). Chain of custody records were established noting sample identification numbers, time, date, and custody signatures.

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

The samples were analyzed at International Technology Corporation - Santa Clara Valley Laboratory, located at 2055 Junction Avenue, San Jose, California. The laboratory is assigned a California DHS-HMTL Certification number of 137. The results are presented as a Certified Analytical Report, a copy of which is attached to this report.

Tom Paulson
Sampling Manager

attachments

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	S-1 SD-16	S-3	S-5	S-6	S-7	S-8
Date Sampled:	10/18/90	10/18/90	10/18/90	10/18/90	10/18/90	10/18/90
Casing Diameter (inches)	3	3	3	3	3	3
Total Well Depth (feet)	20.0	15.3	18.4	24.6	20.8	24.2
Depth to Water (feet)	8.55	8.47	9.03	9.20	8.83	8.44
Free Product (feet)	none	sheen	none	none	none	none
Reason Not Sampled	----	----	----	----	----	----
Calculated 3 Case Vol.(gal.)	17.4	10.4	14.2	23.4	18.2	23.9
Did Well Dewater?	no	no	no	yes	yes	yes
Volume Evacuated (gal.)	22.0	13.0	18.0	12.0	12.0	12.0
Purging Device	Diaphram	Suction	Suction	Diaphram	Suction	Suction
Sampling Device	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer
Time	11:50	11:02	12:09	12:25	11:25	09:55
Temperature (F)*	----	----	----	----	----	----
pH*	7.47	6.76	6.83	7.62	7.18	7.31
Conductivity (umhos/cm)*	1289	1018	1479	1153	1277	1630

* Indicates Stabilized Value

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	S-9	S-10	S-11	S-12	S-13	S-14 **
Date Sampled:	10/18/90	10/18/90	10/18/90	10/18/90	10/18/90	10/19/90
Casing Diameter (inches)	3	3	3	3	3	3
Total Well Depth (feet)	17.9	18.1	22.5	24.0	23.9	22.9
Depth to Water (feet)	8.46	8.58	9.20	8.90	8.58	8.10
Free Product (feet)	none	none	none	none	none	none
Reason Not Sampled	----	----	----	----	----	----
Calculated 3 Case Vol.(gal.)	14.3	14.4	20.2	22.9	23.3	22.5
Did Well Dewater?	yes	yes	yes	yes	no	no
Volume Evacuated (gal.)	9.0	10.0	13.0	17.0	31.0	29.0
Purging Device	Suction	Diaphram	Diaphram	Suction	Suction	Suction
Sampling Device	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer
Time	10:27	10:50	09:50	09:28	09:21	08:21
Temperature (F)*	----	----	----	----	----	67.8
pH*	7.02	7.20	7.47	7.26	7.47	7.38
Conductivity (umhos/cm)*	1538	1080	1240	1272	1354	1347

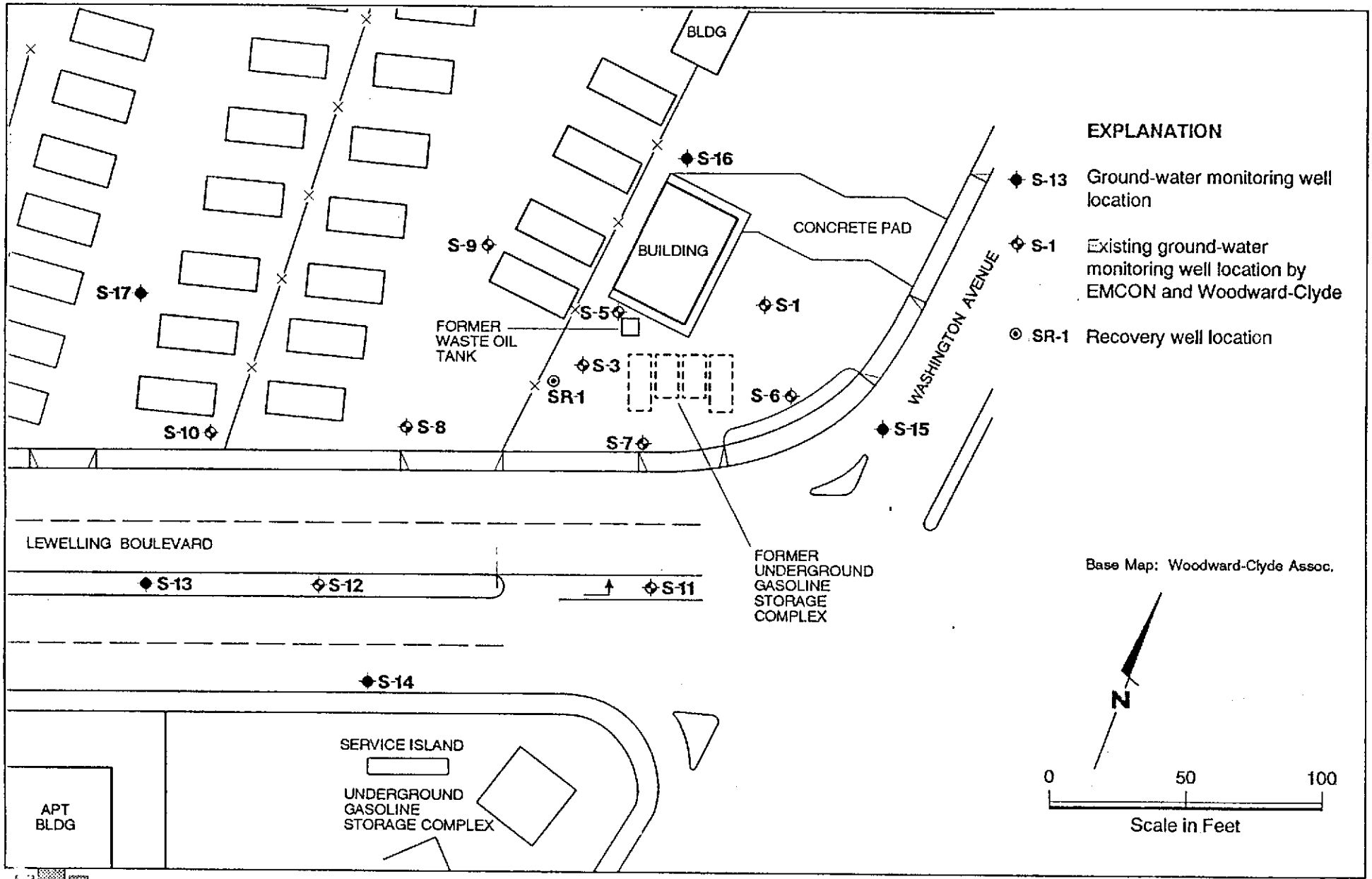
* Indicates Stabilized Value

** Well S-14 was monitored and sampled 10/19/90

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	S-15	S-16	S-17	SR-1
Date Sampled:	10/18/90	10/18/90	10/18/90	10/18/90
Casing Diameter (inches)	3	3	3	6
Total Well Depth (feet)	23.5	22.2	24.3	21.2
Depth to Water (feet)	9.11	8.90	8.71	8.81
Free Product (feet)	none	none	none	none
Reason Not Sampled	----	----	----	----
Calculated 3 Case Vol.(gal.)	21.9	20.2	23.7	74.4
Did Well Dewater?	no	no	no	no
Volume Evacuated (gal.)	29.0	26.0	29.0	94.0
Purging Device	Diaphram	Diaphram	Diaphram	Suction
Sampling Device	Bailer	Bailer	Bailer	Bailer
Time	13:09	11:30	10:25	12:45
Temperature (F)*	----	----	----	----
pH*	7.59	7.37	7.54	7.02
Conductivity (umhos/cm)*	1033	1470	1354	1649

* Indicates Stabilized Value



GeoStrategies Inc.

Site Plan
Former Shell Service Station
15275 Washington Avenue
San Leandro, California

PLATE

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
615		11/89		

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

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

Date: 11/01/90

Work Order: TO-10-249

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

This is the Certificate of Analysis for the following samples:

Client Work ID: GR3615, 15275 Washington S.L.
Date Received: 10/19/90
Number of Samples: 1
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: 11/01/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-249

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-14**
SAMPLE DATE: **10/19/90**
LAB SAMPLE ID: **T010249-01**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/30/90
Low Boiling Hydrocarbons	Mod.8015		10/30/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.5	1.8
BTEX		
Benzene	0.005	0.77
Toluene	0.005	0.013
Ethylbenzene	0.005	0.017
Xylenes (total)	0.005	0.12

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/01/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-249

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

The method of analysis for low boiling hydrocarbons is taken from E.P.A. Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatograhy using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethylbenzene and xylenes.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

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

Date: 11/06/90

Work Order: T0-10-246 P.O. Number: MOH 880-021 Vendor #I0002402

This is the Certificate of Analysis for the following samples:

Client Work ID: GR3615, 15275 Washington S.L.
Date Received: 10/19/90
Number of Samples: 10
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: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-1**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010246-01**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**0.08**
BTEX		
Benzene	0.0005	**0.0050**
Toluene	0.0005	**None**
Ethylbenzene	0.0005	**None**
Xylenes (total)	0.0005	**0.0030**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-6**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010246-02**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**None**
BTEX		
Benzene	0.0005	**None**
Toluene	0.0005	**0.0007**
Ethylbenzene	0.0005	**None**
Xylenes (total)	0.0005	**0.0008**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-10**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010246-03**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	—8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**0.14**
BTEX		
Benzene	0.0005	**None**
Toluene	0.0005	**0.0007**
Ethylbenzene	0.0005	**None**
Xylenes (total)	0.0005	**0.0070**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-11**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010246-04**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	—8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

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	**0.0005**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: T0-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-12**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010246-05**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

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**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-15**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010246-06**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	Mod.8015		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

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**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-16**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010246-07**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-17**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010246-08**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**0.39**
BTEX		
Benzene	0.0005	**0.010**
Toluene	0.0005	**0.062**
Ethylbenzene	0.0005	**0.022**
Xylenes (total)	0.0005	**0.11**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **SD-16**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **TO10246-09**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**0.091**
BTEX		
Benzene	0.0005	**0.0063**
Toluene	0.0005	**None**
Ethylbenzene	0.0005	**None**
Xylenes (total)	0.0005	**0.0039**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **Trip Blank**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T010246-10**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/30/90
Low Boiling Hydrocarbons	Mod.8015		10/30/90

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**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-246

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

The method of analysis for low boiling hydrocarbons is taken from E.P.A. Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatograhy using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethylbenzene and xylenes.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

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

Date: 11/06/90

Work Order: TO-10-245

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

This is the Certificate of Analysis for the following samples:

Client Work ID: GR3615, 15275 Washington S.L.
Date Received: 10/19/90
Number of Samples: 8
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: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-245

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-3**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010245-01**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	5.0	**44.**
BTEX		
Benzene	0.05	**3.5**
Toluene	0.05	**0.65**
Ethylbenzene	0.05	**2.4**
Xylenes (total)	0.05	**11.**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-245

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-5**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010245-02**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	—8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	1.0	12.
BTEX		
Benzene	0.01	3.2
Toluene	0.01	0.04
Ethylbenzene	0.01	0.72
Xylenes (total)	0.01	0.90

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-245

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-7**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010245-03**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

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	**0.0005**
Xylenes (total)	0.0005	**0.0041**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: T0-10-245

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-8**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010245-04**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	—8020		10/30/90
Low Boiling Hydrocarbons	Mod.8015		10/30/90

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-245

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-9**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **TO10245-05**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	—8020		10/30/90
Low Boiling Hydrocarbons	Mod.8015		10/30/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**0.39**
BTEX		
Benzene	0.0005	**0.14**
Toluene	0.0005	**0.0007**
Ethylbenzene	0.0005	**0.0033**
Xylenes (total)	0.0005	**0.024**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-245

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-13**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010245-06**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/30/90
Low Boiling Hydrocarbons	Mod.8015		10/30/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**0.13**
BTEX		
Benzene	0.0005	**None**
Toluene	0.0005	**None**
Ethylbenzene	0.0005	**None**
Xylenes (total)	0.0005	**None**

Results reported for sample S-13 as gasoline are due to one compound present in the sample which is not characteristic of the standard gasoline chromatographic pattern.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-245

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **SR-1**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **T010245-07**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**1.3**
BTEX		
Benzene	0.0005	**0.28**
Toluene	0.0005	**0.0066**
Ethylbenzene	0.0005	**0.11**
Xylenes (total)	0.0005	**0.13**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-245

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **SF-5**
SAMPLE DATE: **10/18/90**
LAB SAMPLE ID: **TO10245-08**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	—8020		10/31/90
Low Boiling Hydrocarbons	Mod.8015		10/31/90

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**

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 11/06/90
Client Work ID: GR3615, 15275 Washington S.L.

Work Order: TO-10-245

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

The method of analysis for low boiling hydrocarbons is taken from E.P.A. Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatograhy using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethylbenzene and xylenes.

TO.10.245

Kettler - Ryan Inc. ENVIRONMENTAL DIVISION

Chain of Custody

COMPANY Shell JOB NO.

JOB LOCATION 15275 Washington

CITY San Leandro PHONE NO. 783-7500

AUTHORIZED Tom Paulson DATE 10-18-90 P.O. NO. 3615

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
S-3	3	liquid	10-18-90/11:02	TrICE (gas) BTXE	Cool & Pres. 10/19/90
S-5			/12:09		
S-7			/11:25		
S-8			/9:55		
S-9			/10:27		
S-13			/9:21		
SR-1			/12:45		
SF-5			/12:09		

RELINQUISHED BY: 10-18-90 15:35

RECEIVED BY: Refrig # 1 10-18-90 15:50

RELINQUISHED BY: 10-19-90 11:05

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB: Josephine DeCarli 10/19/90 11:05

DESIGNATED LABORATORY: IT (SCV) DHS #: 137

REMARKS: W.C # 204-6852-1008 Engr: Diane Lundquist.
Exp Code. 5440

DATE COMPLETED FOREMAN

ORIGINAL

Settler - Ryan Inc. — TO-10-246 — ENVIRONMENTAL DIVISION — **Chain of Custody**

COMPANY Shell Oil Co — JOB NO.

JOB LOCATION 15275 Washington/Lewelling

CITY San Leandro — PHONE NO. 783-7500

AUTHORIZED Tom Paulson — DATE 10-18-90 — P.O. NO. 3615

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
S-1	3	Liquid	10-18-90/1150	THC(Gas) BTXE	Cool & Pr 10/19/90
S-6			/1225		
S-10			/1050		
S-11			/0950		
S-12			/0928		
S-15			/1305		
S-16			/1130		
S-17			/1025		
SD-16			/—		
TripBlank	1		/—		

RELINQUISHED BY: Randall M. Hedquist 10-18-90 (1535) — RECEIVED BY: Refrig #1 10/19/90 1538

RELINQUISHED BY: [signature] 10-19-90 11:05 — RECEIVED BY:

RELINQUISHED BY: — RECEIVED BY LAB: Josephine DeCarli, 10/19/90 11:05

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

REMARKS: WIC # 204-C852-1008

Normal TAT

Exp Code 5440

Engr: Diane Lundquist

DATE COMPLETED 10-18-90 — FOREMAN [signature]

ORIGINAL

Gettler - Ryan Inc. — ENVIRONMENTAL DIVISION — TC-10-249 — **Chain of Custody**

COMPANY Shell — JOB NO.

JOB LOCATION ~~1800 Powell St.~~ 15275 Washington/Lewelling

CITY San Leandro — PHONE NO. 783-7500

AUTHORIZED Tom Paulson — DATE 10-19-90 — P.O. NO. 3615

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
S-14	3	liquid	10-19-90/8:21	TH, Cages) BTXE	Cool & D. 10/19/90

RELINQUISHED BY: John P. Zwerneyb 10-19-90 13:28 — RECEIVED BY:

RELINQUISHED BY: — RECEIVED BY:

RELINQUISHED BY: — RECEIVED BY LAB: Josephine DeCarli 10/19/90 13:28

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

REMARKS: WIC # 204-6852-1008 Exp. Code 5440
Eng Diane Lundquist
Normal TAT

DATE COMPLETED 10-19-90 — FOREMAN John P. Zwerneyb

ORIGINAL

APPENDIX B

HISTORICAL CHEMICAL ANALYTICAL DATA

HISTORICAL GROUNDWATER QUALITY DATABASE

APPENDIX B

SAMPLE DATE	SAMPLE POINT	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	E.B. (PPM)	XYLENES (PPM)
08-Jul-85	S-1	0.52	N/A	N/A	N/A	N/A
06-Sep-88	S-1	<0.05	<0.0005	<0.001	<0.001	<0.003
16-Nov-88	S-1	<0.05	<0.0005	<0.001	<0.001	<0.003
27-Feb-89	S-1	<0.05	0.0005	<0.001	<0.001	<0.003
04-May-89	S-1	<0.05	0.001	<0.001	<0.001	<0.003
10-Aug-89	S-1	<0.05	0.0007	<0.001	<0.001	<0.003
10-Oct-89	S-1	<0.05	<0.0005	<0.001	<0.001	<0.003
25-Jan-90	S-1	<0.050	<0.0005	<0.0005	<0.0005	<0.001
18-Apr-90	S-1	<0.050	<0.0005	<0.0005	<0.0005	<0.001
23-Jul-90	S-1	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
18-Oct-90	S-1	0.08	0.0050	<0.0005	<0.0005	0.0030
08-Jul-85	S-2	2.20	N/A	N/A	N/A	N/A
06-Sep-88	S-3	96.	3.4	9.5	2.7	17.
16-Nov-88	S-3	70.	4.6	8.4	2.5	13.
27-Feb-89	S-3	32.	2.4	3.1	1.5	6.4
04-May-89	S-3	47.	4.4	6.3	2.4	15.
09-Aug-89	S-3	110.	5.7	5.7	3.2	19.
10-Oct-89	S-3	52.	4.6	3.3	2.6	15.
25-Jan-90	S-3	420.	5.2	4.1	6.7	34.
18-Apr-90	S-3	58.	3.8	1.4	2.4	12.
23-Jul-90	S-3	49.	3.4	1.8	2.3	12.
18-Oct-90	S-3	44.	3.5	0.65	2.4	11.
08-Jul-85	S-4	32.	N/A	N/A	N/A	N/A
08-Jan-87	S-5	7.8	0.38	0.510	----	1.0
06-Sep-88	S-5	7.	2.6	0.06	0.4	0.7
16-Nov-88	S-5	3.	0.66	0.06	0.12	0.22
27-Feb-89	S-5	5.7	2.	0.22	0.26	0.32
04-May-89	S-5	9.	3.	0.6	0.63	1.7
09-Aug-89	S-5	5.1	1.1	<0.05	0.27	0.4
10-Oct-89	S-5	15.	3.3	0.16	0.83	2.2
25-Jan-90	S-5	12.	2.4	0.36	0.57	1.4
18-Apr-90	S-5	5.2	1.1	0.04	0.30	0.46
23-Jul-90	S-5	5.5	1.3	0.14	0.32	0.73
18-Oct-90	S-5	12.	3.2	0.04	0.72	0.90
16-Nov-88	S-6	0.05	0.0007	<0.001	<0.001	<0.003
27-Feb-89	S-6	<0.05	<0.0005	<0.001	<0.001	<0.003
04-May-89	S-6	<0.05	<0.0005	<0.001	<0.001	<0.003
10-Aug-89	S-6	<0.05	<0.0005	<0.001	<0.001	<0.003
10-Oct-89	S-6	<0.05	<0.0005	<0.001	<0.001	<0.003
25-Jan-90	S-6	<0.050	<0.0005	<0.0005	<0.0005	<0.001
18-Apr-90	S-6	<0.050	<0.0005	0.0006	<0.0005	0.001
23-Jul-90	S-6	<0.05	<0.0005	0.0009	<0.0005	0.0018

HISTORICAL GROUNDWATER QUALITY DATABASE
APPENDIX B

SAMPLE DATE	SAMPLE POINT	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	E.B. (PPM)	XYLENES (PPM)
18-Oct-90	S-6	<0.05	<0.0005	0.0007	<0.0005	0.0008
16-Nov-88	S-7	0.1	0.0051	0.015	0.002	0.013
27-Feb-89	S-7	0.05	0.0005	0.003	0.001	0.011
04-May-89	S-7	<0.05	<0.0005	<0.001	<0.001	<0.003
10-Aug-89	S-7	<0.05	<0.0005	<0.001	<0.001	<0.003
10-Oct-89	S-7	<0.05	<0.0005	<0.001	<0.001	<0.003
25-Jan-90	S-7	<0.050	<0.0005	<0.0005	<0.0005	<0.001
18-Apr-90	S-7	<0.050	<0.0005	<0.0005	<0.0005	<0.001
23-Jul-90	S-7	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
18-Oct-90	S-7	<0.05	<0.0005	<0.0005	0.0005	0.0041
16-Nov-88	S-8	0.21	0.005	<0.001	0.001	0.005
27-Feb-89	S-8	<0.05	0.0024	<0.001	<0.001	<0.003
03-May-89	S-8	<0.05	0.0075	<0.001	0.002	<0.003
09-Aug-89	S-8	<0.05	0.0006	<0.001	<0.001	<0.003
09-Oct-89	S-8	<0.05	<0.0005	<0.001	<0.001	<0.003
25-Jan-90	S-8	<0.050	<0.0005	<0.0005	<0.0005	<0.001
18-Apr-90	S-8	<0.050	<0.0005	<0.0005	<0.0005	<0.001
23-Jul-90	S-8	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
18-Oct-90	S-8	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
16-Nov-88	S-9	1.4	0.069	0.003	0.052	0.18
27-Feb-89	S-9	1.6	0.24	0.004	0.13	0.18
03-May-89	S-9	2.6	0.47	0.01	0.24	0.48
09-Aug-89	S-9	0.52	0.073	<0.01	0.04	<0.03
09-Oct-89	S-9	0.38	0.082	<0.001	0.046	0.013
25-Jan-90	S-9	0.75	0.14	0.0012	0.069	0.075
18-Apr-90	S-9	0.68	0.15	0.0017	0.050	0.037
23-Jul-90	S-9	0.49	0.094	0.0012	0.032	0.024
18-Oct-90	S-9	0.39	0.14	0.0007	0.0033	0.024
16-Nov-88	S-10	0.33	0.0005	<0.001	0.001	0.011
27-Feb-89	S-10	0.14	<0.0005	<0.003	0.002	0.006
03-May-89	S-10	0.22	<0.0005	0.001	0.002	0.007
09-Aug-89	S-10	<0.05	<0.0005	<0.001	<0.001	<0.003
09-Oct-89	S-10	0.17	<0.0005	<0.001	<0.001	<0.003
25-Jan-90	S-10	<0.050	<0.0005	<0.0005	0.0011	0.004
18-Apr-90	S-10	<0.050	<0.0005	0.0009	<0.0005	0.002
23-Jul-90	S-10	0.59	<0.0005	<0.0005	0.0019	0.019
18-Oct-90	S-10	0.14	<0.0005	0.0007	<0.0005	0.0070
16-Nov-88	S-11	<0.05	<0.0005	<0.001	<0.001	<0.003
27-Feb-89	S-11	<0.05	<0.0005	<0.001	<0.001	<0.003
03-May-89	S-11	<0.05	<0.0005	<0.001	<0.001	<0.003
09-Aug-89	S-11	<0.05	<0.0005	<0.001	<0.001	<0.003
09-Oct-89	S-11	<0.05	<0.0005	<0.001	<0.001	<0.003

HISTORICAL GROUNDWATER QUALITY DATABASE

APPENDIX B

SAMPLE DATE	SAMPLE POINT	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	E.B. (PPM)	XYLENES (PPM)
25-Jan-90	S-11	<0.050	<0.0005	<0.0005	<0.0005	<0.001
18-Apr-90	S-11	<0.050	<0.0005	<0.0005	<0.0005	<0.001
23-Jul-90	S-11	<0.05	<0.0005	0.0006	<0.0005	0.0011
18-Oct-90	S-11	<0.05	<0.0005	<0.0005	<0.0005	0.0005
16-Nov-88	S-12	0.05	0.0035	<0.001	<0.001	<0.003
27-Feb-89	S-12	<0.05	0.0008	<0.001	<0.001	<0.003
03-May-89	S-12	<0.05	<0.0005	<0.001	<0.001	<0.003
09-Aug-89	S-12	<0.05	<0.0005	<0.001	<0.001	<0.003
09-Oct-89	S-12	<0.05	<0.0005	<0.001	<0.001	<0.003
25-Jan-90	S-12	<0.050	<0.0005	<0.0005	<0.0005	<0.001
18-Apr-90	S-12	<0.050	<0.0005	<0.0005	<0.0005	<0.001
23-Jul-90	S-12	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
18-Oct-90	S-12	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
03-May-89	S-13	0.15	0.0049	0.004	0.002	0.014
09-Aug-89	S-13	0.11	0.0029	<0.001	<0.001	<0.003
09-Oct-89	S-13	0.077	0.0014	<0.001	<0.001	<0.003
25-Jan-90	S-13	0.051	0.0005	<0.0005	<0.0005	<0.001
18-Apr-90	S-13	0.085	0.0087	<0.0005	<0.0005	<0.001
23-Jul-90	S-13	0.08	0.0008	<0.0005	<0.0005	<0.0005
18-Oct-90	S-13	0.13	<0.0005	<0.0005	<0.0005	<0.0005
03-May-89	S-14	5.3	0.75	0.4	0.200	0.800
09-Aug-89	S-14	1.8	0.54	0.14	0.042	0.050
09-Oct-89	S-14	1.0	0.36	0.06	0.020	0.030
25-Jan-90	S-14	0.64	0.16	0.077	0.017	0.039
18-Apr-90	S-14	1.2	0.20	0.11	0.030	0.096
23-Jul-90	S-14	5.0	0.43	0.34	0.14	0.66
19-Oct-90	S-14	1.8	0.77	0.013	0.017	0.12
03-May-89	S-15	<0.05	<0.0005	<0.001	<0.001	<0.003
09-Aug-89	S-15	<0.05	<0.0005	<0.001	<0.001	<0.003
09-Oct-89	S-15	<0.05	<0.0005	<0.001	<0.001	<0.003
25-Jan-90	S-15	<0.050	<0.0005	<0.0005	<0.0005	<0.001
18-Apr-90	S-15	<0.050	<0.0005	<0.0005	<0.0005	<0.001
23-Jul-90	S-15	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
18-Oct-90	S-15	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
04-May-89	S-16	0.38	0.044	0.003	0.002	<0.003
10-Aug-89	S-16	<0.05	0.0006	<0.001	<0.001	<0.003
10-Oct-89	S-16	<0.05	<0.0005	<0.001	<0.001	<0.003
25-Jan-90	S-16	0.24	0.16	0.0033	0.0008	0.011
18-Apr-90	S-16	<0.050	0.0010	<0.0005	<0.0005	<0.001
23-Jul-90	S-16	<0.05	0.0011	<0.0005	<0.0005	<0.0005
18-Oct-90	S-16	<0.05	<0.0005	<0.0005	<0.0005	<0.0005

HISTORICAL GROUNDWATER QUALITY DATABASE

APPENDIX B

SAMPLE DATE	SAMPLE POINT	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	E.B. (PPM)	XYLENES (PPM)
03-May-89	S-17	<0.05	<0.005	<0.001	<0.001	<0.003
09-Aug-89	S-17	<0.05	<0.0005	<0.001	<0.001	<0.003
09-Oct-89	S-17	<0.05	<0.0005	<0.001	<0.001	<0.003
25-Jan-90	S-17	<0.050	<0.0005	<0.0005	<0.0005	<0.001
18-Apr-90	S-17	<0.050	<0.0005	<0.0005	<0.0005	<0.001
23-Jul-90	S-17	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
18-Oct-90	S-17	0.39	0.010	0.062	0.022	0.11
22-Mar-89	SR-1	5.4	1.1	0.23	0.35	1.3
25-Jan-90	SR-1	2.2	0.47	0.12	0.11	0.51
18-Apr-90	SR-1	1.0	0.13	0.047	0.047	0.22
23-Jul-90	SR-1	3.2	0.47	0.32	0.17	0.87
18-Oct-90	SR-1	1.3	0.28	0.0066	0.11	0.13

TPH = Total Petroleum Hydrocarbons
E.B. = Ethylbenzene
PPM = Parts per million
N/A = Not analyzed
NOTE: All data shown as <X are reported as ND (none detected)