gettler — ryan inc.

May 1, 1991

Ms. Susan Hugo
Alameda County
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

91 MAY -3 AM 11:46

Reference: Shell Service Station
1800 Powell Street
Emeryville, California
WIC 204-2495-0101

Ms. Hugo:

As requested by Mr. Jack Brastad of Shell Oil Company, we are forwarding a copy of the Site Update report, dated April 29, 1991, for the above referenced location. The report presents the results of the ground-water sampling conducted during the first quarter of 1991.

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

Sincerely,

John Werfal
Project Manager

enclosure

cc: Mr. Thomas Callaghan, S.F. 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
1800 Powell Street
Emeryville, California
WIC 204-2495-0101

760501-10

April 29, 1991

RECEIVED
APR 3 0 1991
GETTLER-RYAN INC.
GENERAL CONTRACTORS

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

April 29, 1991

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

Attn: Mr. John Werfal

Re: SITE UPDATE
Shell Service Station
1800 Powell Street
Emeryville, California

Gentlemen:

This Site Update has been prepared by GeoStrategies Inc. (GSI) and presents the results of the 1991 first quarter ground-water sampling performed by Gettler-Ryan Inc. (G-R) for the above-referenced site (Plate 1). This report also includes results of a land-use survey and tidal study. 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 (SWRCB) guidelines.

SITE BACKGROUND

There are currently seven monitoring wells in the site vicinity; Wells S-5, S-8, S-9, S-10, S-12, S-13 and S-14 (Plate 2). Five of these wells were installed prior to 1982 and boring logs are unavailable. GSI installed Wells S-12 through S-14 in 1989. Wells S-1 through S-4 and S-11 were redesignated as tank backfill wells S-A through S-E, respectively. Wells S-8 through S-10 and S-12 through S-14 are on site and Well S-5 is off site. These wells were 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) according to EPA Method 8015 (Modified) and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) according to EPA Method 8020.

Floating product has been observed in Well S-9 since June 1986. Due to the highly viscous nature of this floating product, an accurate thickness can not be measured in Well S-9 at this time.

CURRENT QUARTERLY SAMPLING RESULTS

Potentiometric Data

Prior to ground-water sampling, depth to water-level measurements were obtained in each well using an electronic oil-water interface probe. Static ground-water levels were measured from the surveyed top of well box and recorded to ±0.01 foot. Ground-water elevations relative to Mean Sea Level (MSL) are presented in Table 1. Shallow ground-water flow is to the south-southeast. The calculated hydraulic gradient is 0.01.

Floating Product Measurements

Each well was checked for the presence of floating product using a portable oil-water interface probe. A clear acrylic bailer was used to confirm interface probe results. Floating product was measured in Wells S-10 (0.03 feet) and S-14 (0.01 feet) this quarter.

Ground-water Analytical Data

Ground-water samples were collected on January 14, 1991. The samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline), as Oil (TPH-Oil) and as Diesel (TPH-Diesel) according to EPA Method 8015 (Modified), and for Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) according to EPA Method 8020 by International Technology (IT), a California state-certified laboratory located in San Jose, California.

TPH-Gasoline was detected in Wells S-5, S-8, S-12 and S-13 at concentrations ranging from 0.12 to 4.5 parts per million (ppm). Benzene concentrations in these same wells ranged from 0.0036 to 1.1 ppm. TPH-Diesel was detected in Wells S-5, S-8, S-12 and S-13 at concentrations ranging from 0.76 to 6.1 ppm. TPH-Oil was detected in Wells S-8, S-12 and S-13 at concentrations ranging from 0.6 to 1.6 ppm. These data are summarized in Table 1 and included in Appendix A. A chemical concentration map for TPH-Gasoline and benzene concentrations is presented on Plate 4. Historical chemical analytical data are presented in Table 2.

Quality Control

The quality control sample for this quarter's sampling was a trip blank. This sample was prepared in the laboratory using organic-free water to evaluate laboratory and field handling procedures.

LAND-USE SURVEY

This historical land-use survey identifies potential contamination sources in the vicinity of the study area. The survey was done by reviewing documents at the San Francisco Regional Water Quality Control Board (RWQCB), aerial photographs, city directories, newspaper articles, Sanborn insurance maps and telephone conversations with Emeryville Historical Society personnel. The documents researched are listed in the reference section of this report.

The site is built on artificial fill consisting of imported clayey and sandy soil, and industrial and construction waste and refuse. Filling began in 1884 when Paraffine Company (Paraffine) bought ten acres on the Emeryville waterfront. Filling was terminated in 1969 due to environmental concerns for the Bay. Based on available boring log data, the fill material at the Shell Service Station site extends to an approximate depth of at least 10 feet and appears continuous across the site.

In 1972, a Holiday Inn was built west of the Shell Service Station. J.Q. Industries requested an environmental site assessment to be performed for the Holiday Inn property. The results of this assessment are presented in the Certified Engineering and Testing Company, Inc. (CETCO) report dated August 21, 1989. CETCO drilled two soil borings on the Holiday Inn property to assess subsurface contamination and material composition. Refuse (i.e. concrete, brick and plastic) was encountered to a depth of approximately 6 feet below grade in both borings.

GSI drilled soil borings S-12, S-13 and S-14 at the Shell site in 1989. Tar paper was encountered at 4.5 and 9.0 feet and refuse at 4.5 in Boring S-12. Refuse and tar paper was encountered at 6.0 and 9.5 feet in Boring S-13 and 9.0 feet in Boring S-14. These borings were subsequently completed as monitoring wells S-12, S-13, and S-14. These findings are presented in the GSI report dated Feb. 2, 1990.

Paraffine began production in 1884. Products manufactured by Paraffine included: linoleum and other hard-surfaced floor coverings, roofing and building materials, paints, varnishes, lacquers and enamels. A 1949 aerial photograph shows two above-ground storage tanks located across from Paraffine on filled tidal land. These tanks (A&B, Plate 5) were located approximately 700 feet north of the present Shell site. Eleven more tanks (designated as C, Plate 5) and a group of buildings were located at the northeast corner of Powell Street and Interstate 80. Due to the nature of products manufactured and stored by Paraffine, it is believed that these tanks contained one or more of the following products: varnish, linseed oil, thinner, and paints.

A 1957 aerial photograph shows the area of the Shell site completely filled, with dumping of various waste material. Dumping still continued to the west of the Shell site. All above-ground storage tanks previously observed in the 1949 photograph are still present in the 1957 photograph.

In a 1969 aerial photograph, all of the above-ground tanks observed in earlier photographs had been removed. Buildings on the northeast corner of Powell and Highway 80 had also been removed. The removal of tanks and buildings is related to the closure of Paraffine in the 1960's.

By 1970, land use in the area began to convert from industrial complexes to hotels, condominiums, restaurants and business buildings.

Potential off-site contamination sources include the ten sites listed below. All ten sites listed below were reported in the CETCO report dated June 16, 1988 and are presented on Plate 5. When available, information regarding the ten sites were checked by GSI for accuracy.

1) Paraffine Industrial Plant
There is known soil contamination at this Environmental Protection Agency (EPA) Superfund Clean-up site. Heavy metals such as lead, zinc and iron have been detected in relatively high concentrations.

2) American Bitumals and Asphalt
This abandoned site is located at 1520 Powell Street. Vinyl chloride, hydrocarbons and dichloroethylene have been detected in monitoring wells. This site is part of the EPA Superfund Clean-up effort.

3) Pfizer Inc.
This abandoned EPA Superfund Clean-up site is located at 4650 Shellmound Street. A leaking underground tank has contaminated the soil with hydrocarbons. Remedial action has been used to remove the tank. The Pfizer site has been used in the manufacturing of paint pigments.

4) Westinghouse Electric Company
This abandoned site has been identified by California Department of Health Service (DHS) for clean-up. Polychlorinated biphenyls (PCB's) have been discharged into the soil. The areal extent of this PCB discharge has not been delineated, although off-site contamination has been identified. No clean-up completion dates have been projected by the DHS.

5) P.I.E. Nationwide Truck Facility
This facility is located at 5500 Eastshore Freeway. The soils were contaminated by fuel hydrocarbons. Waste oil, gas and diesel tanks have been removed.

6) Bayport Development
Soil samples submitted for chemical analyses contained concentrations of lead and zinc which exceed the California Toxic Threshold limit at this location (64th St. and La Coste St., north of the Paraffine plant). This site is currently being developed for office buildings.

7) City of Emeryville (Market Place)
This site is located at the corner of Shellmound and Powell Street. The RWQCB reported this as the site of a leaking underground fuel storage tank.

8) Michel and Pelton
Underground fuel tanks have been removed and remedial clean-up of contaminated soils has been completed at this property, located at 5743 Landregan. The RWQCB may recommend that wells be installed to monitor groundwater on this site.

9) Scwabacker-Frey
An underground diesel fuel storage tank leak was reported at this address, 5733 Pelladeauk, in January 1987. Two soil samples collected at approximately 11 feet below ground in the tank excavation contained 270 ppm and 540 ppm diesel. This site is currently under investigation by the RWQCB.

10) Nielsen Freight Lines
This property is located at Christie and 64th Street. Recent oil spills (1987), together with hydrocarbon contamination from earlier industrial operations (tar and paint components) have occurred. This property is being developed for a retail structure. Minor remedial action is being required on the property.

TIDAL AND GROUND-WATER LEVEL SURVEY

A comparison of tidal and ground-water levels was performed to evaluate tidal influence, if any, on ground-water levels beneath the site. The water levels were recorded using a pressure transducer connected to an In-Situ HERMIT Datalogger, Model SE2000 (Hermit). Tidal data were derived from a San Francisco Bay tide book.

The Hermit monitoring of groundwater in the on-site monitoring well began on the afternoon of July 10, 1990, and continued for 3,970 minutes. Water levels in the monitoring well were recorded every ten minutes. On July 13, 1990, the ground-water level monitoring was stopped. Tidal data and ground-water level measurements are presented on the Tidal Survey Plot (Plate 6). As shown on Plate 6, ground-water levels appear to be influenced by daily tidal fluctuations, although there is a lag time of approximately 400-500 minutes between high tide and higher ground-water levels.

Data from the tidal and ground-water level survey indicate that ground-water levels are not significantly influenced by daily tidal fluctuations. The maximum difference in water levels observed during the tidal and ground-water survey was approximately 0.10 feet.

DISCUSSION AND CONCLUSIONS

Information reviewed in the Land-Use Survey indicate that soils beneath the site are primarily fill material consisting of industrial and construction waste. Boring log data substantiate that tar paper and other refuse were encountered to approximately 10 feet below grade. Based on review of aerial photographs, the fill soils beneath the Shell Service Station were placed between 1949 and 1957. Prior to this filling, the bay water in this area was likely to have been brackish. Since a relatively permeable fill was placed in this area to raise the land surface above MSL, the "shallow" aquifer appears to be the artificial fill placed in an area previously submerged by bay water.

Given present and historic land use within the vicinity of the Emeryville Peninsula, it does not appear that the shallow groundwater is likely to be used as a potable, industrial or agricultural water source. It is also suspected that sustained pumping of the shallow groundwater in the area will induce intrusion of saline water from San Francisco Bay, degrading the overall quality of the water. This is because the "shallow" aquifer is an artificial fill, possibly connected hydraulically to the bay. Lastly, the soil in this area liquefied during the October 17, 1989 Loma Prieta earthquake. Evidence of this liquefaction was observed in several sections of Interstate 80 near Powell Street. Liquefaction cracks may allow surface contaminants to penetrate this shallow aquifer.

Based on historical land use, chemical analyses of groundwater from the site, it is our opinion that concentrations of petroleum hydrocarbons found in the groundwater should not seriously degrade the present quality of shallow groundwater.

If you have any questions, please call.

GeoStrategies Inc. by,

Timothy J. Walker
Geologist

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

REGISTERED GEOLOGIST
DAVID H. PETERSON
No. 1186
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

TJW/DHP/kjj

Plate 1. Vicinity Map
Plate 2. Site Plan
Plate 3. Potentiometric Map
Plate 4. TPH-Gasoline/Benzene Concentration Map
Plate 5. Potential Contamination Source Map
Plate 6. Tidal Survey Plot

Appendix A: Laboratory Analytical Report
Chain-of-Custody

QC Review:

760501-10

References

Aerial Photographs, Pacific Aerial Survey. Dates: 1949 (AV-28-11-36), 1957 (AV-253-07-20), 1969 (AV-902-05-12), 1973 (AV-1100-06-19). Scale 1:12000. Black and White photographs.

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TABLE 2

HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE WELL	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	TPH-D (PPM)	OIL (PPM)
27-Oct-88	S-8	1.	0.61	0.009	0.001	0.042	N/A	N/A
10-Feb-89	S-8	0.5	0.16	0.005	<0.002	0.017	N/A	N/A
28-Apr-89	S-8	2.7	1.5	0.02	0.01	0.04	N/A	N/A
07-Jul-89	S-8	0.44	0.18	0.005	0.002	0.012	N/A	N/A
25-Oct-89	S-8	2.	1.1	0.017	0.005	0.07	N/A	N/A
04-Jan-90	S-8	1.9	1.3	0.02	<0.01	0.07	N/A	N/A
06-Jul-90	S-8	1.6	0.92	0.03	<0.01	0.06	N/A	N/A
19-Oct-90	S-8	1.4	0.64	<0.01	<0.01	0.03	N/A	N/A
14-Jan-91	S-8	0.67	0.19	0.0058	<0.0005	0.019	0.76	0.6
27-Oct-88	S-10	700.	37.	100.	20.	110.	N/A	N/A
10-Feb-89	S-10	6.5	0.48	0.7	0.1	1.8	N/A	N/A
28-Apr-89	S-10	13.	1.3	0.5	0.6	3.7	N/A	N/A
07-Jul-89	S-10	14.	1.3	0.31	0.27	2.4	N/A	N/A
25-Oct-89	S-10	4.2	0.58	0.034	0.044	0.44	N/A	N/A
04-Jan-90	S-10	1.7	0.36	0.010	0.0078	0.17	N/A	N/A
17-Nov-89	S-12	<0.25	0.018	<0.002	<0.002	<0.005	1.4	N/A
04-Jan-90	S-12	<0.25	0.024	0.002	<0.002	<0.005	N/A	N/A
06-Jul-90	S-12	0.08	0.015	0.0007	<0.0005	0.002	N/A	N/A
19-Oct-90	S-12	0.15	0.012	0.009	<0.0005	0.0036	N/A	N/A
14-Jan-90	S-12	0.12	0.0036	0.0008	<0.0005	0.0029	1.0	0.6
17-Nov-89	S-13	1.9	0.70	0.16	0.07	0.34	2.0	5.
04-Jan-90	S-13	2.8	1.4	0.13	0.010	0.50	N/A	N/A
06-Jul-90	S-13	3.1	1.8	0.06	0.04	0.27	N/A	N/A
24-Oct-90	S-13	3.4	1.5	0.028	0.028	0.25	N/A	N/A
14-Jan-90	S-13	1.9	0.83	0.015	<0.01	0.099	0.9	1.6
17-Nov-89	S-14	<0.25	0.003	<0.002	<0.002	<0.005	<0.4	3.
04-Jan-90	S-14	<0.25	0.003	0.002	<0.002	<0.005	N/A	N/A

TABLE 2

HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE WELL	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	TPH-D (PPM)	OIL (PPM)
27-Oct-88	S-5	3.	0.66	0.02	0.02	0.07	N/A	N/A
10-Feb-89	S-5	2.9	0.55	0.02	0.02	0.03	N/A	N/A
28-Apr-89	S-5	4.3	0.75	0.01	0.02	<0.03	N/A	N/A
07-Jul-89	S-5	1.5	0.30	0.008	0.007	0.009	N/A	N/A
25-Oct-89	S-5	2.1	0.76	0.01	0.04	0.05	N/A	N/A
04-Jan-90	S-5	1.3	0.52	0.009	0.008	0.01	N/A	N/A
06-Jul-90	S-5	1.4	0.5	0.01	0.004	<0.01	N/A	N/A
19-Oct-90	S-5	4.2	1.1	0.009	0.014	0.007	N/A	N/A
14-Jan-91	S-5	4.5	1.1	0.015	0.030	0.025	6.1	N/A
27-Oct-88	S-6	6.	1.7	0.05	0.08	0.42	N/A	N/A
10-Feb-89	S-6	2.8	0.74	0.02	0.02	0.14	N/A	N/A
28-Apr-89	S-6	6.5	2.4	0.03	0.05	0.21	N/A	N/A
07-Jul-89	S-6	3.7	1.7	0.034	0.055	0.20	N/A	N/A
25-Oct-89	S-6	<0.05	0.023	<0.005	<0.005	0.01	N/A	N/A
27-Oct-88	S-7	0.05	0.0011	<0.001	<0.001	0.004	N/A	N/A
10-Feb-89	S-7	0.05	0.0009	<0.001	<0.001	<0.003	N/A	N/A
28-Apr-89	S-7	<0.05	0.001	<0.001	<0.001	<0.003	N/A	N/A
07-Jul-89	S-7	0.07	0.0022	<0.001	<0.001	<0.003	N/A	N/A
25-Oct-89	S-7	6.2	2.2	0.13	0.19	0.66	N/A	N/A
27-Oct-88	S-8	1.	0.61	0.009	0.001	0.042	N/A	N/A
10-Feb-89	S-8	0.5	0.16	0.005	<0.002	0.017	N/A	N/A
28-Apr-89	S-8	2.7	1.5	0.02	0.01	0.04	N/A	N/A
07-Jul-89	S-8	0.44	0.18	0.005	0.002	0.012	N/A	N/A
25-Oct-89	S-8	2.	1.1	0.017	0.005	0.07	N/A	N/A
04-Jan-90	S-8	1.9	1.3	0.02	<0.01	0.07	N/A	N/A
06-Jul-90	S-8	1.6	0.92	0.03	<0.01	0.06	N/A	N/A
19-Oct-90	S-8	1.4	0.64	<0.01	<0.01	0.03	N/A	N/A

TABLE 1

GROUNDWATER ANALYSIS DATA

WELL NO	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	TPH-D (PPM)	TPH-O (PPM)	WELL ELEV (FT)	STATIC WATER ELEV (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
S-5	14-Jan-91	22-Jan-91	4.5	1.1	0.015	0.030	0.025	6.1 *	<10	11.72	2.49	----	9.23
S-8	14-Jan-91	25-Jan-91	0.67	0.19	0.0058	<0.0005	0.019	0.76 *	0.6	12.76	2.48	----	10.28
S-9	----	----	----	----	----	----	----	----	----	12.75	----	----	----
S-10	----	----	----	----	----	----	----	----	----	12.58	2.14	0.03	10.46
S-12	14-Jan-91	22-Jan-91	0.12	0.0036	0.0008	<0.0005	0.0029	1.0 *	0.6	12.84	3.10	----	9.74
S-13	14-Jan-91	23-Jan-91	1.9 *	0.83	0.015	<0.01	0.099	0.9 *	1.6	12.59	1.37	----	11.22
S-14	----	----	----	----	----	----	----	----	----	12.69	2.28	0.01	10.41
TB	----	22-Jan-91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA	----	----	----	----

CURRENT REGIONAL WATER QUALITY CONTROL BOARD MAXIMUM CONTAMINANT LEVELS
Benzene 0.001 ppm Xylenes 1.750 ppm Ethylbenzene 0.680 ppm

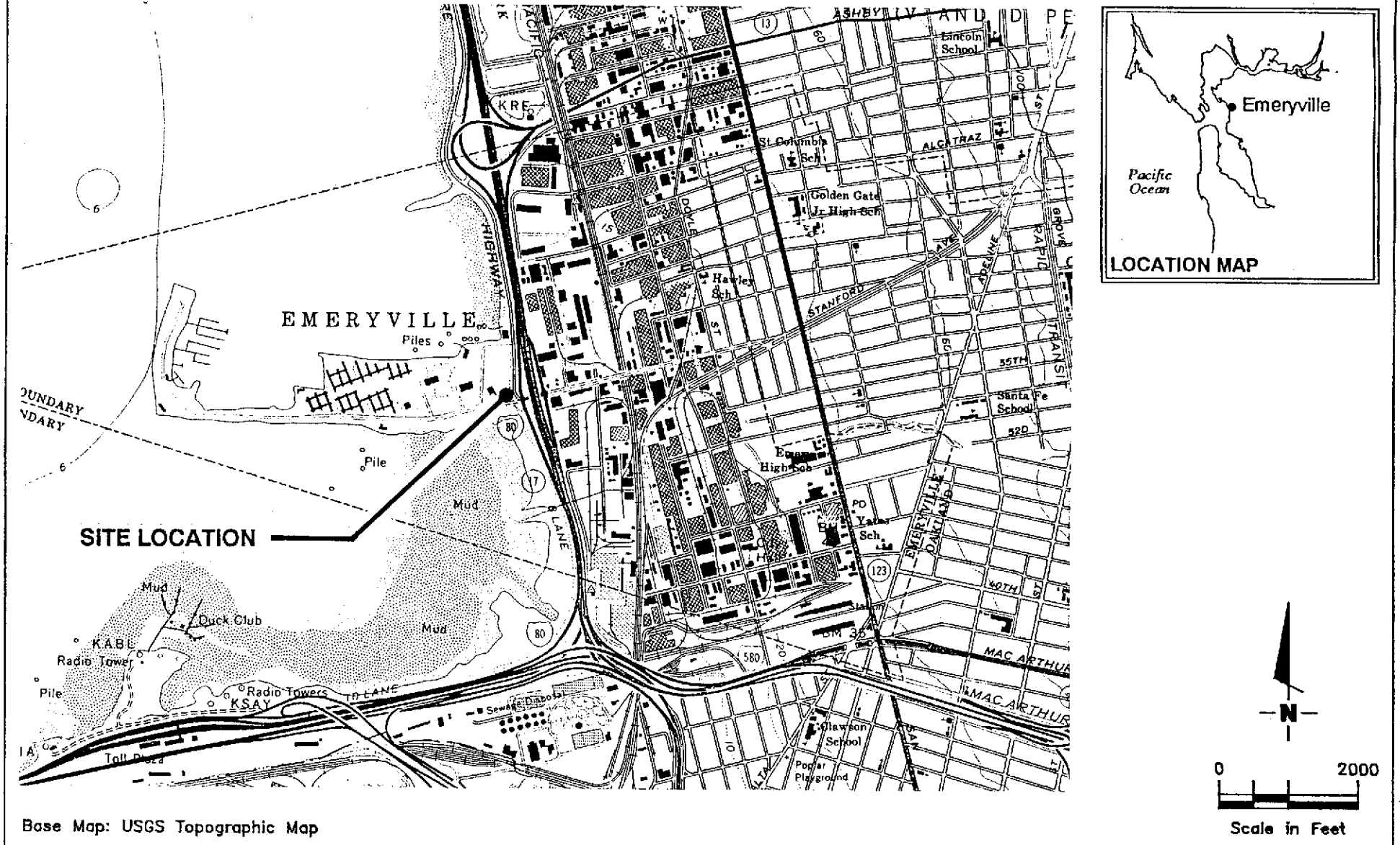
CURRENT DHS ACTION LEVELS
Toluene 0.1000 ppm

TPH-G = Total Petroleum Hydrocarbons as Gasoline
TPH-D = Total Petroleum Hydrocarbons as Diesel
TPH-O = Total Petroleum Hydrocarbons as Oil

PPM = Parts Per Million
NA = Not Analyzed
TB = Trip Blank

* See analytical laboratory report for specific laboratory comment regarding this analytical result.

Note: 1. All data shown as <x is reported as ND (none detected).
2. Water level elevations referenced to mean sea level (MSL).
3. DHS Action Levels and MCLs are subject to change pending State review.



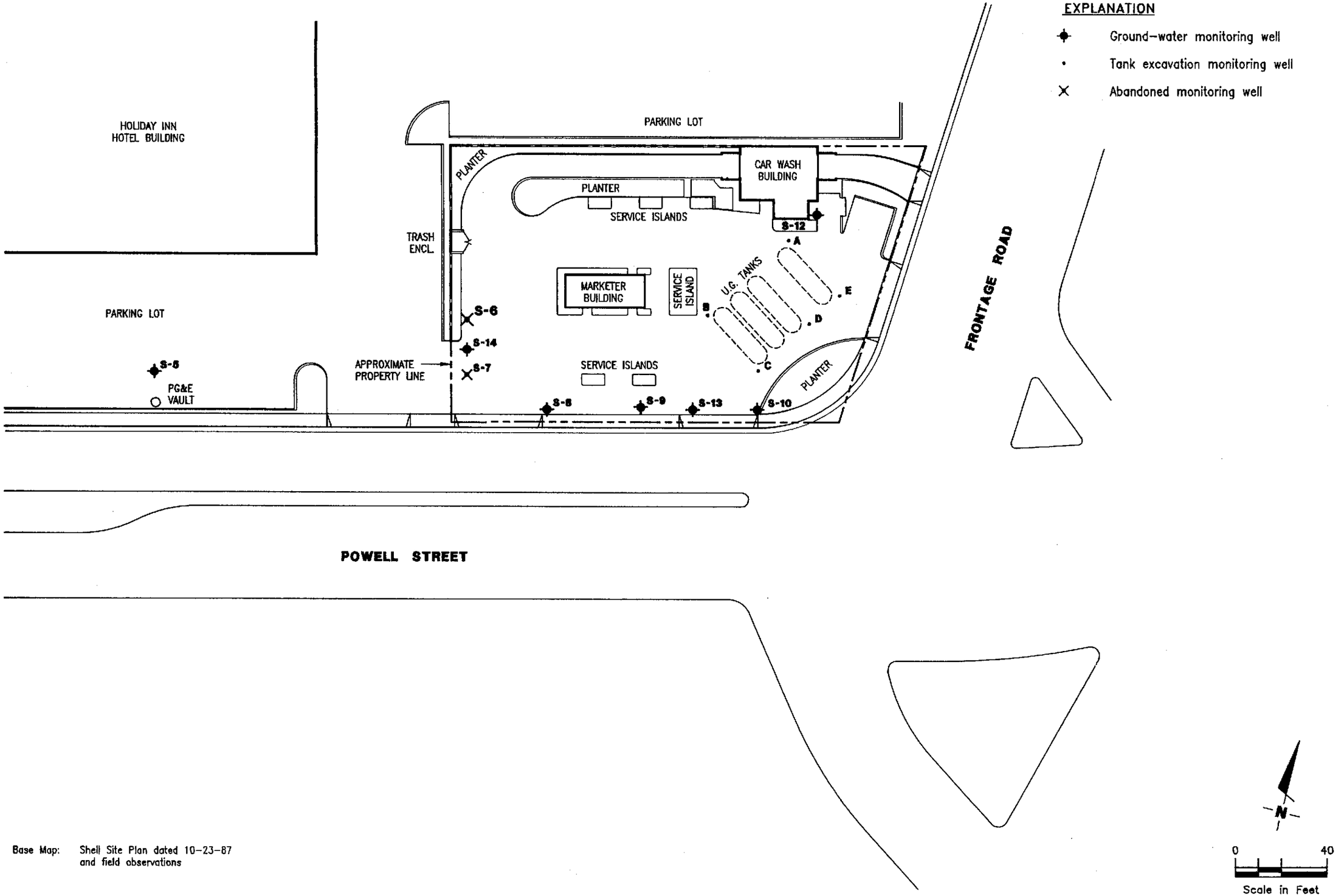
Base Map: USGS Topographic Map

GeoStrategies Inc.

VICINITY MAP
Shell Service Station
1800 Powell Street
Emeryville, California

PLATE 1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7605			



Base Map: Shell Site Plan dated 10-23-87 and field observations

PLATE 2

SITE PLAN
Shell Service Station
1800 Powell Street
Emeryville, California

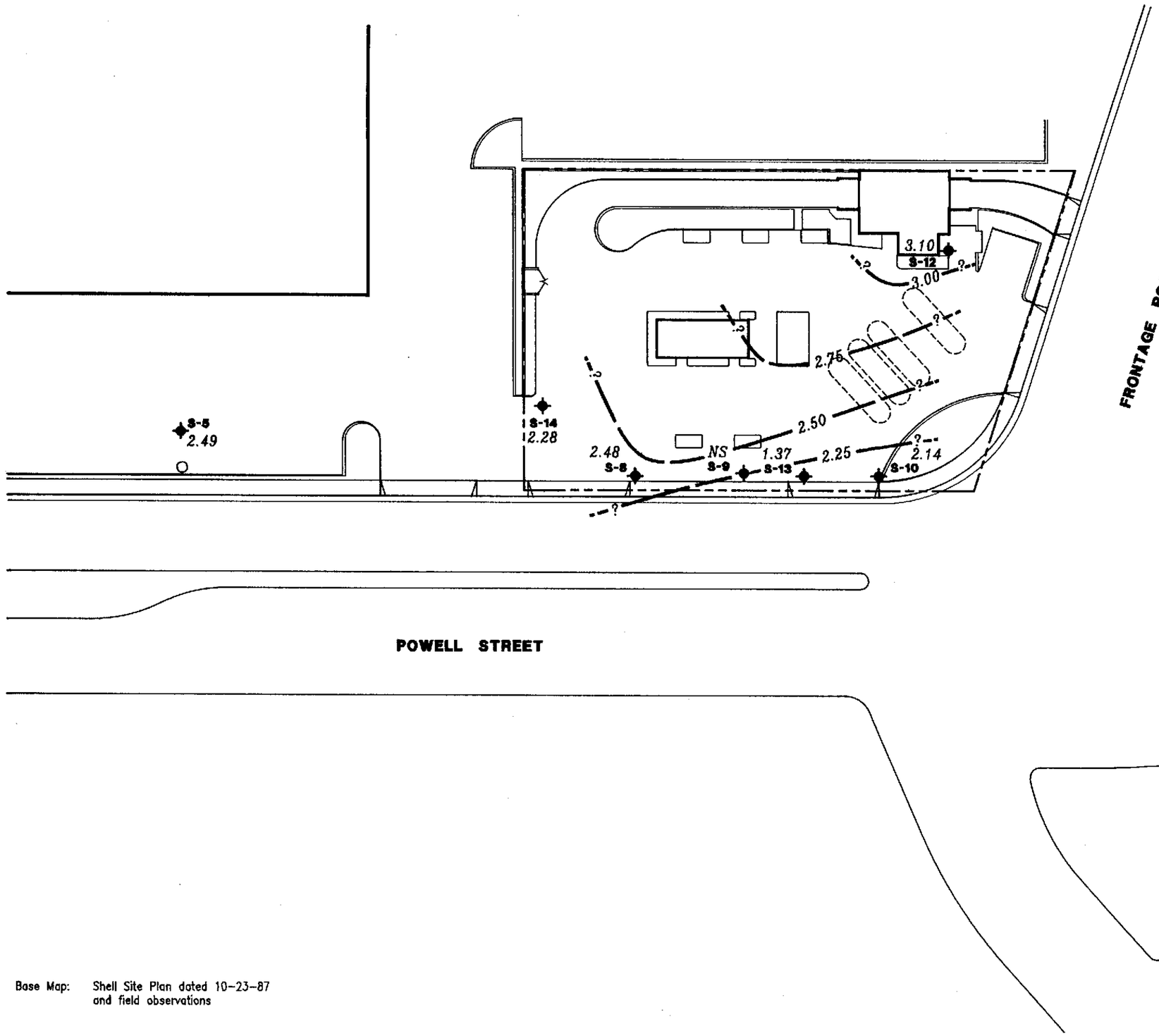
GeoStrategies Inc.

REVISED DATE

DATE 4/91

REVIEWED BY

JOB NUMBER 760501-10



EXPLANATION

- Ground–water monitoring well
- 99.99 — Ground–water elevation contour Approximate Gradient = 0.01
- *99.99* — Ground–water elevation in feet referenced to Mean Sea Level (MSL) measured on January 14, 1991
- *NS* — Not Sampled

Notes: 1. Contours may be influenced by irrigation practices and/or site construction activities.

2. Well S–5 water elevation not used in contouring.

Base Map: Shell Site Plan dated 10–23–87 and field observations

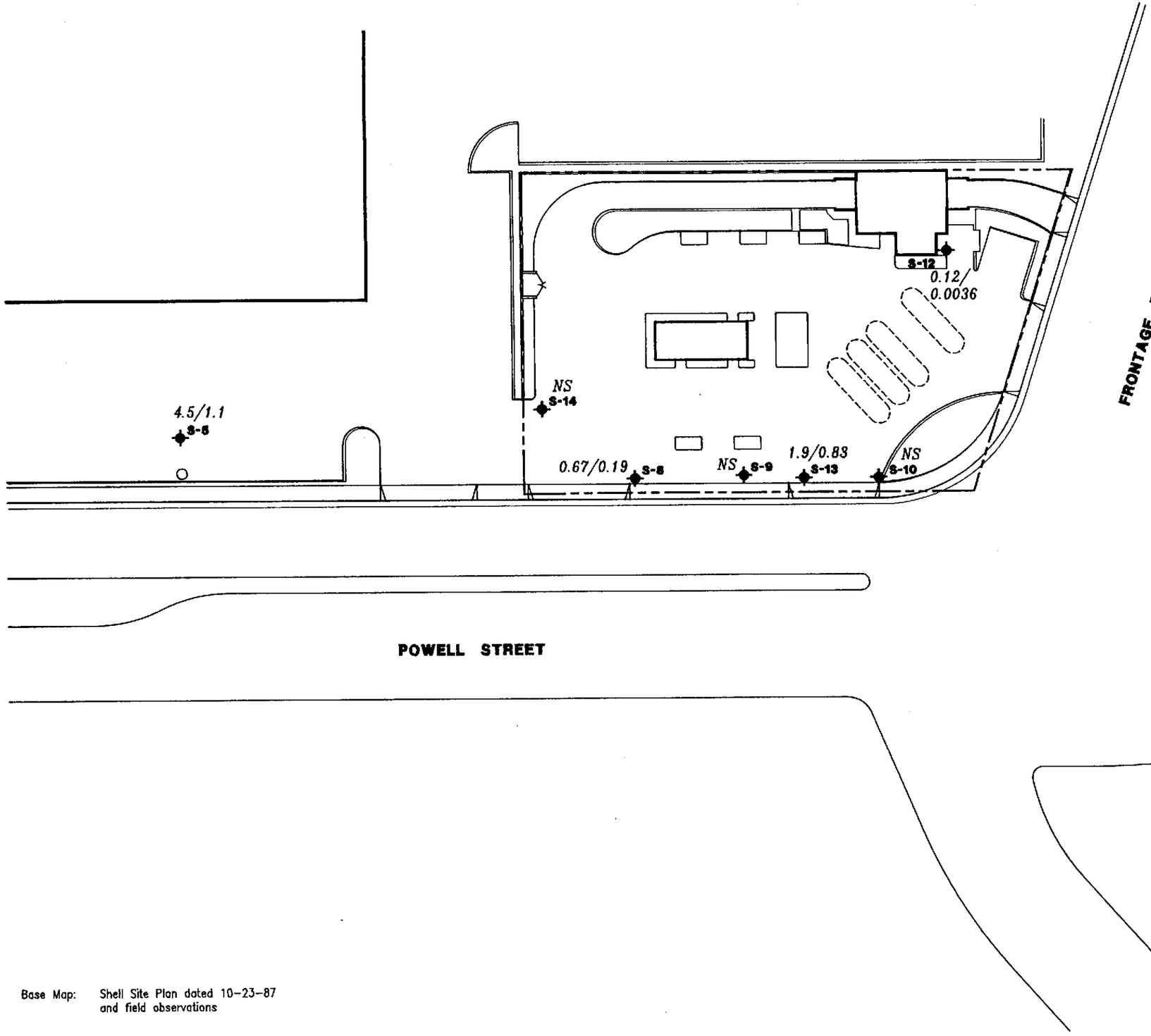
0 40
Scale in Feet

PLATE 3

POTENTIOMETRIC MAP
Shell Service Station
1800 Powell Street
Emeryville, California

GeoStrategies Inc.

JOB NUMBER 760501–10
REVIEWED BY
DATE 4/91
REVISED DATE



EXPLANATION

- ✦ Ground-water monitoring well
- *99/9.9* TPH-G (Total Petroleum Hydrocarbons calculated as Gasoline)/Benzene concentrations in ppm sampled on January 14, 1991
- *NS* Not Sampled

Base Map: Shell Site Plan dated 10-23-87 and field observations

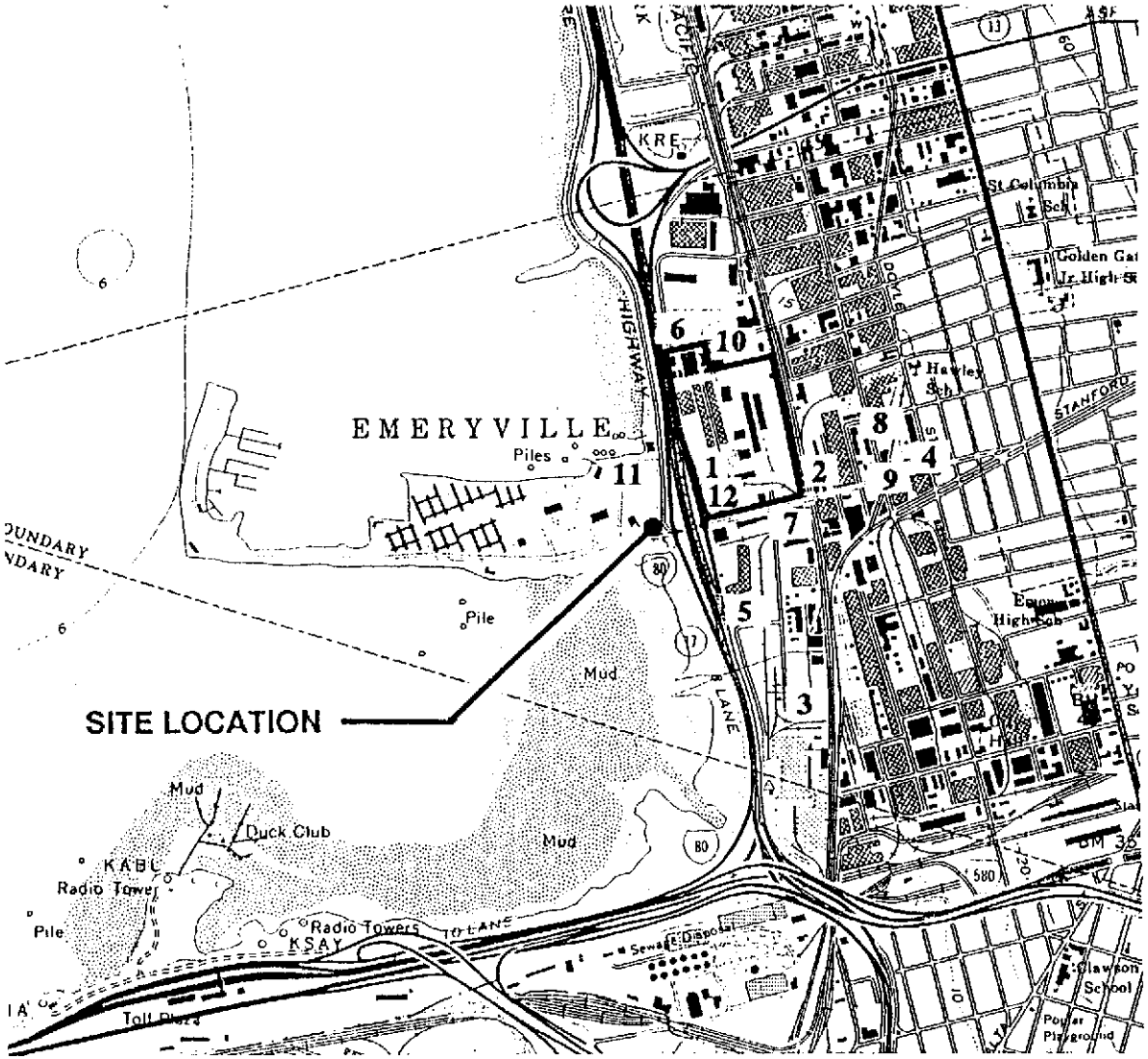
0 40
Scale in Feet

PLATE 4

TPH-G/BENZENE CONCENTRATION MAP
Shell Service Station
1800 Powell Street
Emeryville, California

DATE 4/91
REVISED DATE
REVIEWED BY
JOB NUMBER 760501-10

GeoStrategies Inc.



Base Map: USGS Topographic Map

EXPLANATION

1	Paraffin Company
2	American Bitumals and Asphalt
3	Pfizer Inc.
4	Westinghouse Electric Company
5	PIE Nationwide Truck Facility
6	Bayport Development
7	City of Emeryville
8	Michel and Pelton
9	Schwabacker - Frey
10	Nielson Freight Line
11	Tank A and B
12	Tank C

N

0 2000

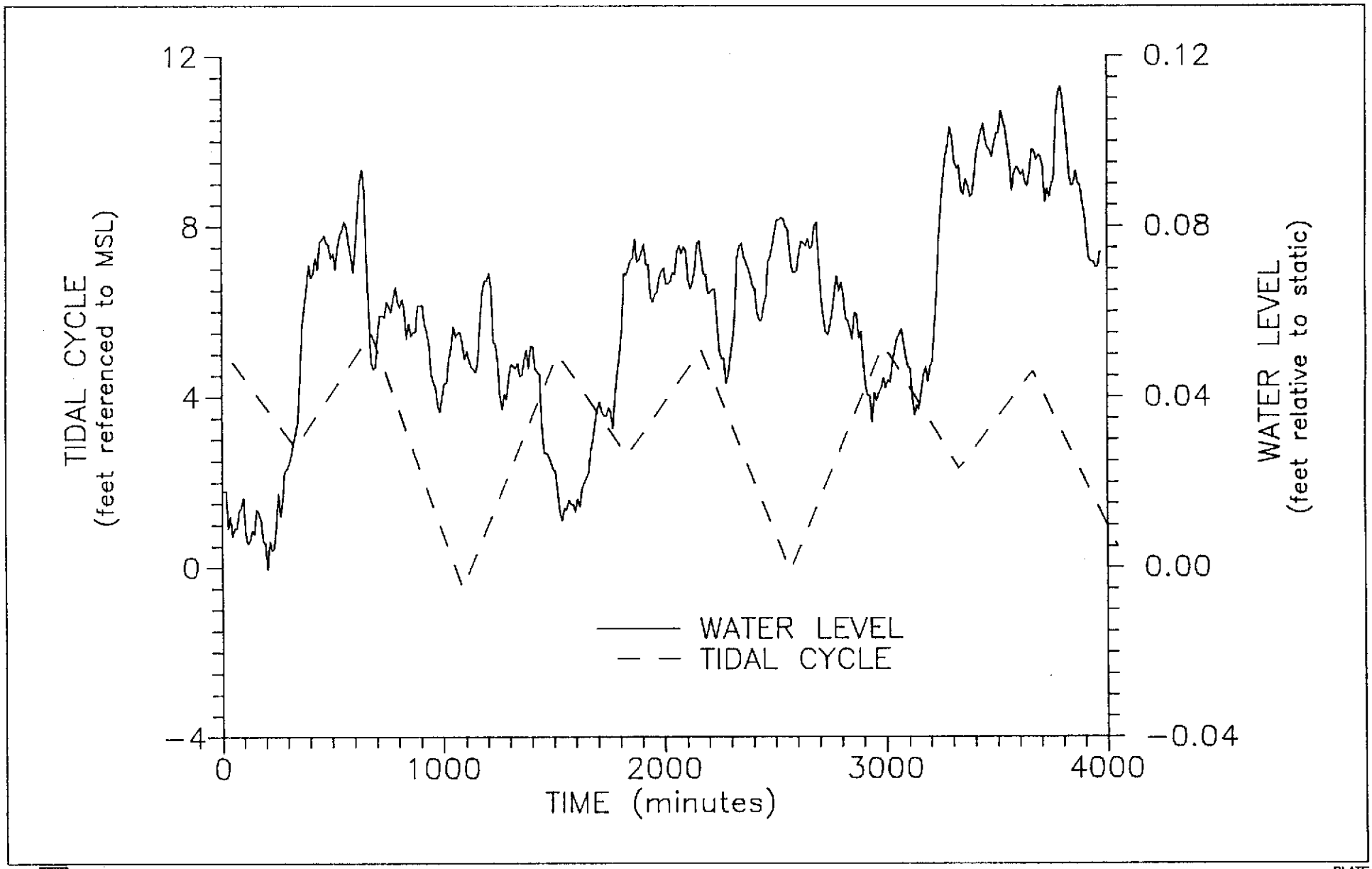
Scale in Feet

GeoStrategies Inc.

Potential Contaminant Source Map
Shell Service Station
1800 Powell Street
Emeryville, California

PLATE
5

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
760501-10		4/91	



GeoStrategies Inc.

TIDAL SURVEY PLOT
Shell Service Station
1800 Powell Street
Emeryville, California

PLATE
6

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
760501−10		4/91	

APPENDIX A
ANALYTICAL LABORATORY REPORT
CHAIN-OF-CUSTODY

gettler — ryan inc.

February 8, 1991

GROUNDWATER SAMPLING REPORT

Referenced Site: Shell Service Station
1800 Powell Street
Emeryville, California

Sampling Date: January 14, 1991

This report presents the results of the quarterly groundwater sampling and analytical program conducted by Gettler-Ryan Inc. on January 14, 1991 at the referenced location. The site is occupied by an operating service station located on the northwest corner of Powell Street and I-80. The service station has underground storage tanks containing regular leaded, unleaded and super unleaded gasoline products and diesel.

There are currently six groundwater monitoring wells and five tank backfill wells on site, and one well off site at the locations shown on the attached site map. Prior to sampling, the monitoring wells were inspected for total well depth, water levels, 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 9.23 to 11.22 feet below grade. Separate phase product was observed in wells S-10 and S-14. Well S-9 contained a tar-like substance and was not monitored or sampled.

Wells that did not contain separate phase product 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 groundwater 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 trip blank supplied by the laboratory, was included and analyzed to assess quality control. Analytical results for the blank 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 by 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 E630. 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-5	S-8	S-9	S-10	S-12	S-13
Casing Diameter (inches)	6	3	3	6	3	3
Total Well Depth (feet)	12.1	19.2	----	----	24.4	20.0
Depth to Water (feet)	9.23	10.28	----	10.46 **	9.74	11.22
Free Product (feet)	none	none	----	0.03	none	none
Reason Not Sampled	----	----	----	free product	----	----
Calculated 4 Case Vol.(gal.)	17.22	13.5	----	----	22.2	13.4
Did Well Dewater?	no	no	----	----	no	yes
Volume Evacuated (gal.)	25.0	16.0	----	----	28.0	10.0
Purging Device	Suction	Suction	----	----	Suction	Suction
Sampling Device	Bailer	Bailer	----	----	Bailer	Bailer
Time	14:29	13:59	----	----	13:13	13:35
Temperature (F)*	62.6	70.5	----	----	68.1	70.5
pH*	6.71	6.87	----	----	6.66	6.82
Conductivity (umhos/cm)*	2900	8880	----	----	4790	10060

* Indicates Stabilized Value

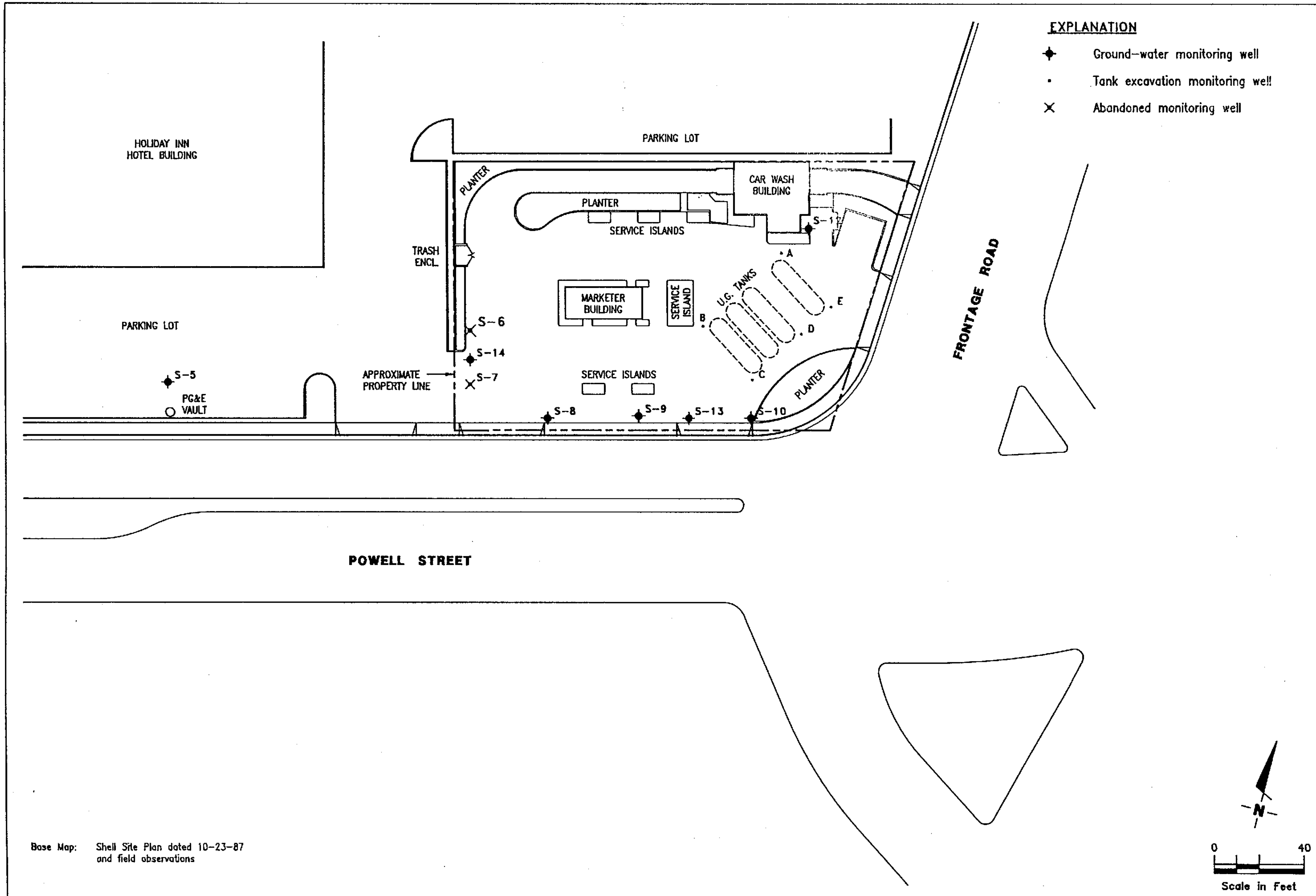
** Not corrected for presence of free product

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	S-14
Casing Diameter (inches)	3
Total Well Depth (feet)	----
Depth to Water (feet)	10.41 **
Free Product (feet)	0.01
Reason Not Sampled	free product
Calculated 4 Case Vol.(gal.)	----
Did Well Dewater?	----
Volume Evacuated (gal.)	----
Purging Device	----
Sampling Device	----
Time	----
Temperature (F)*	----
pH*	----
Conductivity (umhos/cm)*	----

* Indicates Stabilized Value

** Not corrected for presence of free product



SITE PLAN
Shell Service Station
1800 Powell Street
Emeryville, California

GeoStrategies Inc.

PLATE 2

DATE 12/90

REVISED DATE

REVIEWED BY RG/CEG

JOB NUMBER 7605

RECEIVED
FEB 05 1991
GETTLER-RYAN INC.
GENERAL CONTRACTORS

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

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

Date: 02/05/91

Work Order: T1-01-131 P.O. Number: MOH 880-021 Vendor #I0002402

This is the Certificate of Analysis for the following samples:

Client Work ID: GR3605, 1800 Powell, Emeryvle
Date Received: 01/16/91
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: 02/05/91
Client Work ID: GR3605, 1800 Powell, Emeryvle

Work Order: T1-01-131

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-5**
SAMPLE DATE: **01/14/91**
LAB SAMPLE ID: **T101131-01**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		01/22/91
Low Boiling Hydrocarbons	Mod.8015		01/22/91
High Boiling Hydrocarbons	Mod.8015	01/28/91	02/01/91

PARAMETER	DETECTION LIMIT	DETECTED	
Low Boiling Hydrocarbons calculated as Gasoline	0.5	**4.5**	
BTEX			
Benzene	0.005	**1.1**	
Toluene	0.005	**0.015**	
Ethylbenzene	0.005	**0.030**	
Xylenes (total)	0.005	**0.025**	
High Boiling Hydrocarbons calculated as Diesel	0.1	**6.1**	+
calculated as Oil	10.	**None**	

Comments:
+ Results include compounds apparently due to gasoline as well as those due to diesel.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 02/05/91
Client Work ID: GR3605, 1800 Powell, Emeryvle

Work Order: T1-01-131

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-8**
SAMPLE DATE: **01/14/91**
LAB SAMPLE ID: **T101131-02**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		01/25/91
Low Boiling Hydrocarbons	Mod.8015		01/25/91
High Boiling Hydrocarbons	Mod.8015	01/28/91	02/01/91

PARAMETER	DETECTION LIMIT	DETECTED	
Low Boiling Hydrocarbons calculated as Gasoline	0.05	**0.67**	
BTEX			
Benzene	0.01	**0.19**	
Toluene	0.0005	**0.0058**	
Ethylbenzene	0.0005	**None**	
Xylenes (total)	0.0005	**0.019**	
High Boiling Hydrocarbons calculated as Diesel	0.05	**0.76**	+
calculated as Oil	0.5	**0.6**	

Comments:
+ Results include compounds apparently due to gasoline as well as those due to diesel.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 02/05/91
Client Work ID: GR3605, 1800 Powell, Emeryvle

Work Order: T1-01-131

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-12**
SAMPLE DATE: **01/14/91**
LAB SAMPLE ID: **T101131-03**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		01/22/91
Low Boiling Hydrocarbons	Mod.8015		01/22/91
High Boiling Hydrocarbons	Mod.8015	01/18/91	01/23/91

PARAMETER	DETECTION LIMIT	DETECTED	
Low Boiling Hydrocarbons calculated as Gasoline	0.05	0.12	
BTEX			
Benzene	0.0005	0.0036	
Toluene	0.0005	0.0008	
Ethylbenzene	0.0005	None	
Xylenes (total)	0.0005	0.0029	
High Boiling Hydrocarbons			
calculated as Diesel	0.05	1.0	+
calculated as Oil	0.5	0.6	

Comments:
+ Results include compounds apparently due to gasoline as well as those due to diesel.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 02/05/91
Client Work ID: GR3605, 1800 Powell, Emeryvle

Work Order: T1-01-131

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **S-13**
SAMPLE DATE: **01/14/91**
LAB SAMPLE ID: **T101131-04**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		01/23/91
Low Boiling Hydrocarbons	Mod.8015		01/23/91
High Boiling Hydrocarbons	Mod.8015	01/28/91	02/01/91

PARAMETER	DETECTION LIMIT	DETECTED	
Low Boiling Hydrocarbons calculated as Gasoline	1.0	1.9	&
BTEX			
Benzene	0.01	0.83	
Toluene	0.01	0.015	
Ethylbenzene	0.01	None	
Xylenes (total)	0.01	0.099	
High Boiling Hydrocarbons			
calculated as Diesel	0.05	0.9	+
calculated as Oil	0.5	1.6	

Comments:
+ Results include compounds apparently due to gasoline as well as those due to diesel.
& Compounds detected and calculated as low boiling hydrocarbons consist of compounds eluting within the chromatographic range of gasoline, but are not characteristic of the standard gasoline standard pattern.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 02/05/91
Client Work ID: GR3605, 1800 Powell, Emeryvle

Work Order: T1-01-131

TEST NAME: **Petroleum Hydrocarbons**

SAMPLE ID: **Trip Blank**
SAMPLE DATE: **not spec**
LAB SAMPLE ID: **T101131-05**
SAMPLE MATRIX: **aqueous**
RECEIPT CONDITION: **Cool pH < 2**

RESULTS in Milligrams per Liter:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		01/22/91
Low Boiling Hydrocarbons	Mod.8015		01/22/91

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

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company
Date: 02/05/91
Client Work ID: GR3605, 1800 Powell, Emeryvle

Work Order: T1-01-131

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.

Samples S-5, S-8 and S-13 had no or low surrogate recoveries. They were re-extracted and still had no or low surrogate recoveries. Samples were reported and since both times we had similar results, surrogate recoveries are due to matrix effect.

Gettler-Ryan Inc. — T1-01-131 — ENVIRONMENTAL DIVISION — **Chain of Custody**

COMPANY Shell Oil Co. JOB NO.

JOB LOCATION 1800 Powell St

CITY Emeryville PHONE NO. 783-7500

AUTHORIZED Tom Paulson DATE 1-14-91 P.O. NO. 3605

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED		SAMPLE CONDITION LAB ID
S-5	5	Liquid	1-14-91/14:29	THC gas BTXE	Diesel	OK COOL @ 4/6
S-8	↓	↓	/ 13:59	↓	↓	↓
S-12	↓	↓	/ 13:~~38~~ 13	↓	↓	↓
S-13	↓	↓	/ 13:35	↓	↓	↓
Trip	1	↓	—	↓	—	↓

RELINQUISHED BY: John P. Zwerzyski 1-14-91 15:25 RECEIVED BY: Refrig #1

RELINQUISHED BY: Refrig #1 1-15-91 07:30 RECEIVED BY: [illegible] 1-15-91 07:30

RELINQUISHED BY: [illegible] 1-16-91 15:25 RECEIVED BY LAB: Jason J. Koehn 1-16-91 1525

DESIGNATED LABORATORY: IT (SCV) DHS #: E630

REMARKS: W.C no. 204-2495-0101 AE
Exp. Code 5440
Eng. Diane Lundquist
Normal TAT

DATE COMPLETED 1-14-91 FOREMAN John P. Zwerzyski

ORIGINAL