HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

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93 AUG 11 PM 3:44

August 5, 1993

12-003

Mr. Dan Kirk
Shell Oil Company
P. O. Box 5278
Concord, California 94520

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

Dear Mr. Kirk,

Hydro-Environmental Technologies, Inc. (HETI) is pleased to present report on the second quarter 1993 ground water sampling at the referenced location (Figure 1). Information presented in this report is based on the results of laboratory analysis of ground water samples collected by the Shell Oil Company (Shell) sampling contractor on May 29, 1993. A copy of this report has been forwarded to the Alameda County Department of Environmental Health and to the Regional Board.

Executive Summary

- Field data indicate that the local ground water gradient measured this quarter is similar to previous quarters, with water moving predominantly towards the northeast.
- The ground water elevation beneath the site has decreased from the last quarter by approximately one foot.
- Analytical results of ground water samples collected during this monitoring event indicate that concentrations of dissolved petroleum hydrocarbons have decreased in wells S-5, S-8 and S-10.

Site Description

Project history and background information has been presented in investigative reports prepared during the site characterization phase of this project. There are currently seven ground water monitoring wells present on-site (Figure 2).

Results of the Second Quarter, 1993 Ground Water Sampling

Ground Water Gradient:

The depth to ground water in all monitoring wells was measured by the Shell sampling contractor, Blaine Tech Services, Inc. (Blaine), on May 29, 1993. These measurements were combined with previously established well head elevations to yield a ground water gradient map (Figure 3). Water table elevations are recorded in Table 1.

As shown on Figure 3, the ground water gradient is predominantly towards the northeast at a gradient of approximately 12 %. This flow direction is consistent with that measured during previous phases of the site investigation. However, the ground water gradient becomes flat in the northern part of the site and may reverse off site. As shown on Table 1, ground water has decreased approximately one foot since the sampling visit in Febuary, 1993. The ground water elevation in S-13 decreased by three feet. This is historically anomalous and consequently this well was not used to define contours on Figure 3.

Ground Water Analytical Data:

Analytical results indicate that detectable concentrations of petroleum hydrocarbons were detected in samples collected from monitoring wells S-5, S-8, S-10, S-12, S-13 and S-14 on May 29, 1993. However, concentrations of low boiling point hydrocarbons (TPH-g) and volatile aromatic hydrocarbons (BTEX) have decreased in wells S-5, S-8 and S-10. Additionally, benzene was not detected in well S-14 for the third consecutive quarter. Blaine sampling and analytical data is presented as an attachment to this report. Current and historical analytical results are presented in Table 1.

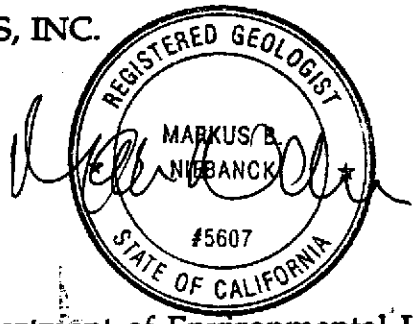
Recommendations

- As referenced in previously submitted reports, the subject site is located on property formerly operated as an industrial landfill. Sampling and analytical data formerly submitted to Alameda County, Department of Environmental Health by Shell and by others indicate that the ground water in the vicinity of this facility was degraded by this former operation prior to the construction of the Shell service station. Based on this information, it is recommended that all investigative and monitoring activity be considered complete following submittal of the next quarterly report.

HYDRO
ENVIRONMENTAL
TECHNOLOGIES, INC.

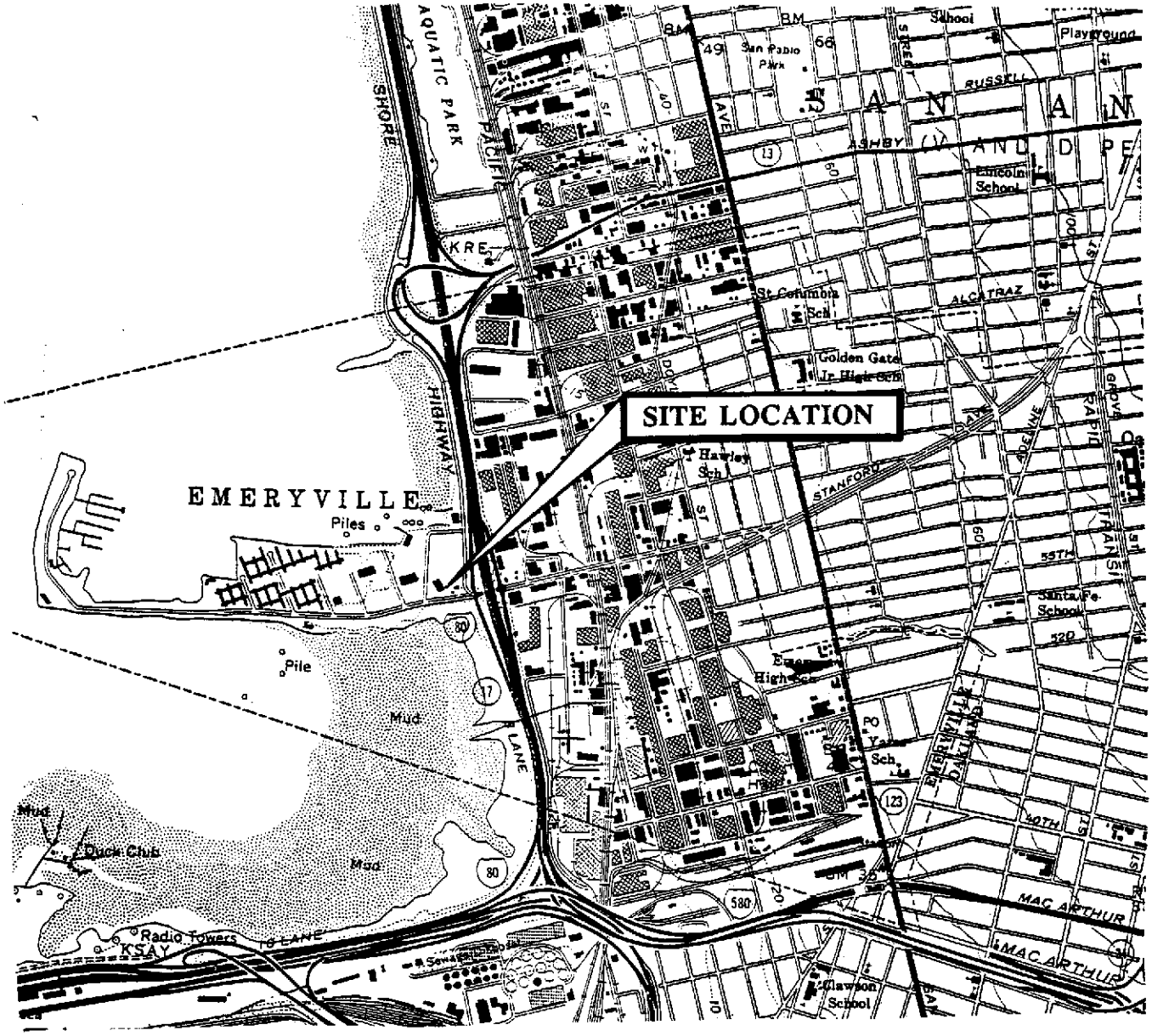
All information and interpretation in this report is presented in accordance with currently accepted professional practices. This report has been prepared for the sole use of Shell Oil Company. Any reliance on the information presented herein by third parties will be at such parties' sole risk. HETI is pleased to be of continued service to Shell. If you have any questions or comments regarding this report, please do not hesitate to call.

Very truly yours,
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.



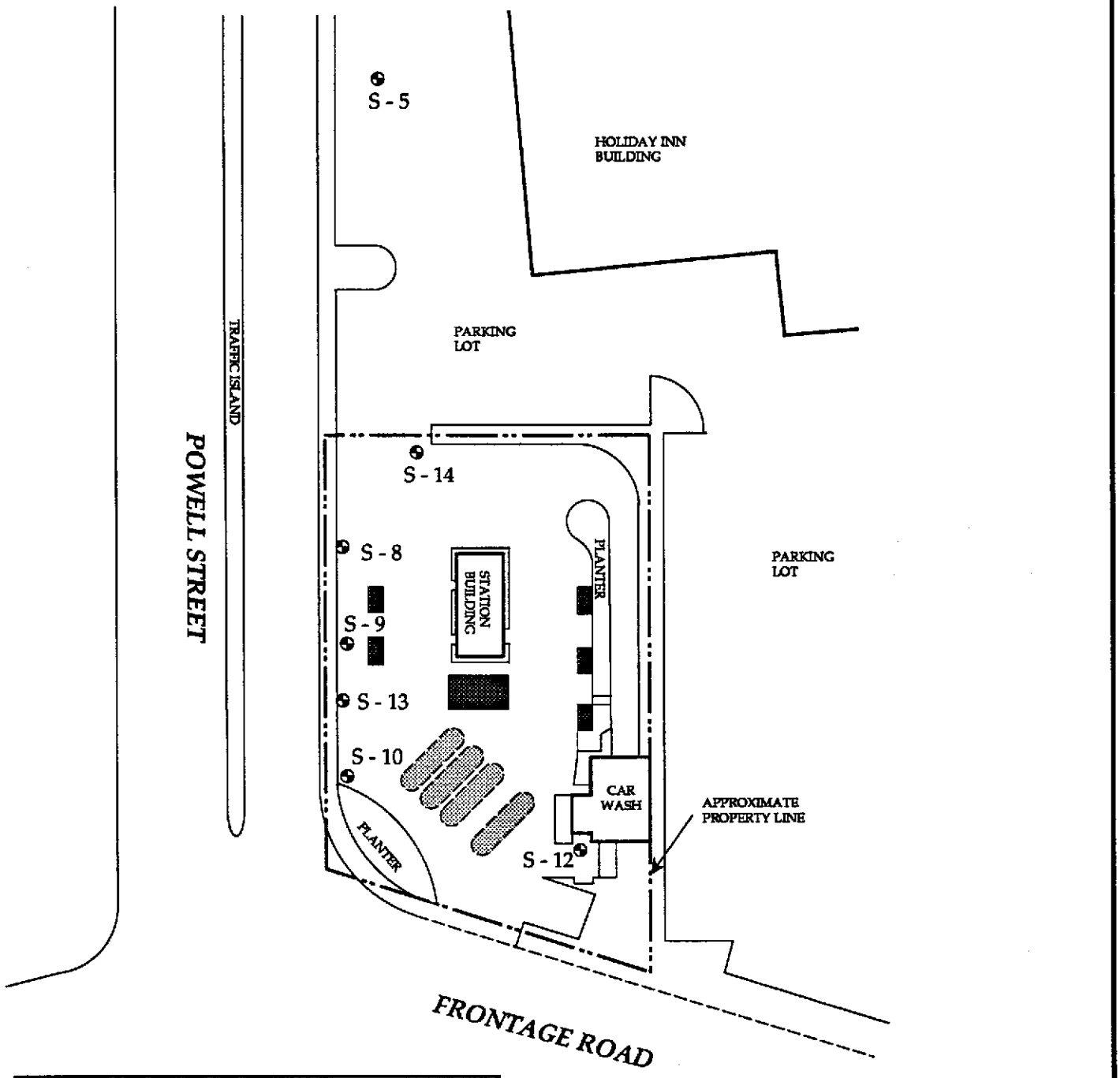
Markus B. Niebanck, R. G.
Western Regional Manager

cc. Ms. Susan Hugo, Alameda County Department of Environmental Health
Mr. Rich Hiett, SF Bay RWQCB



SOURCE:
USGS 7.5 MINUTE SERIES
OAKLAND WEST QUADRANGLE
PHOTOREVISED 1980

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.	SITE LOCATION MAP Shell Service Station 1800 Powell Street Emeryville, California WIC # 204-2495-0101	Figure 1 12-003 7/93



EXPLANATION

S - 1 = Monitoring Well

= Underground Fuel Storage Tanks

= Service Islands

NORTH

0 40 80

APPROXIMATE SCALE IN FEET

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

SITE PLAN

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

Figure 2

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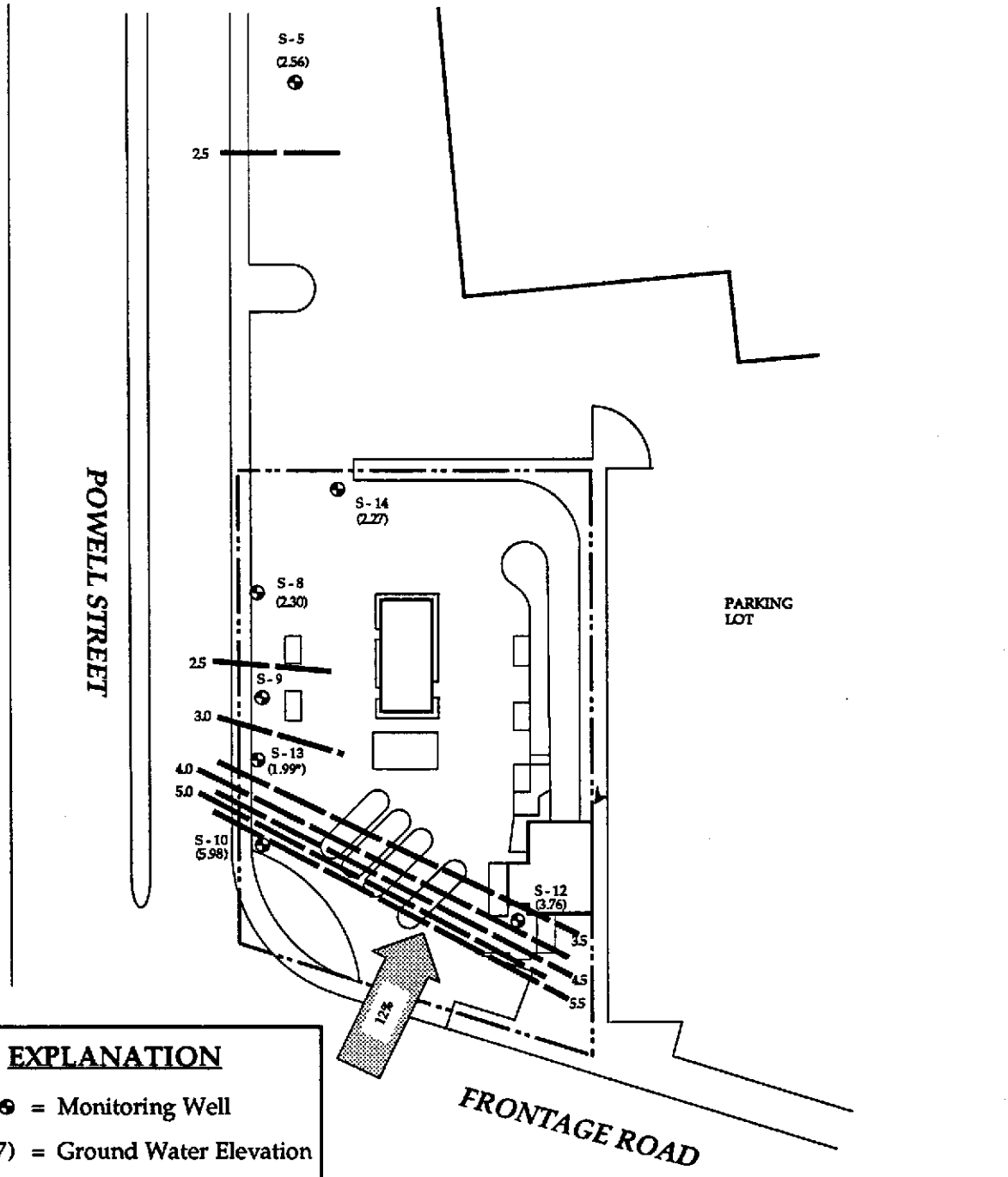

EXPLANATION

S-1 = Monitoring Well

(2.27) = Ground Water Elevation

(1.99*) = Elevation not used to Define Contours See Text for Explanation

5.5 = Ground Water Elevation Contour

12% = Approximate Ground Water Gradient

BASED ON DATA COLLECTED 5/29/93

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

GROUND WATER CONTOUR MAP

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

Figure 3

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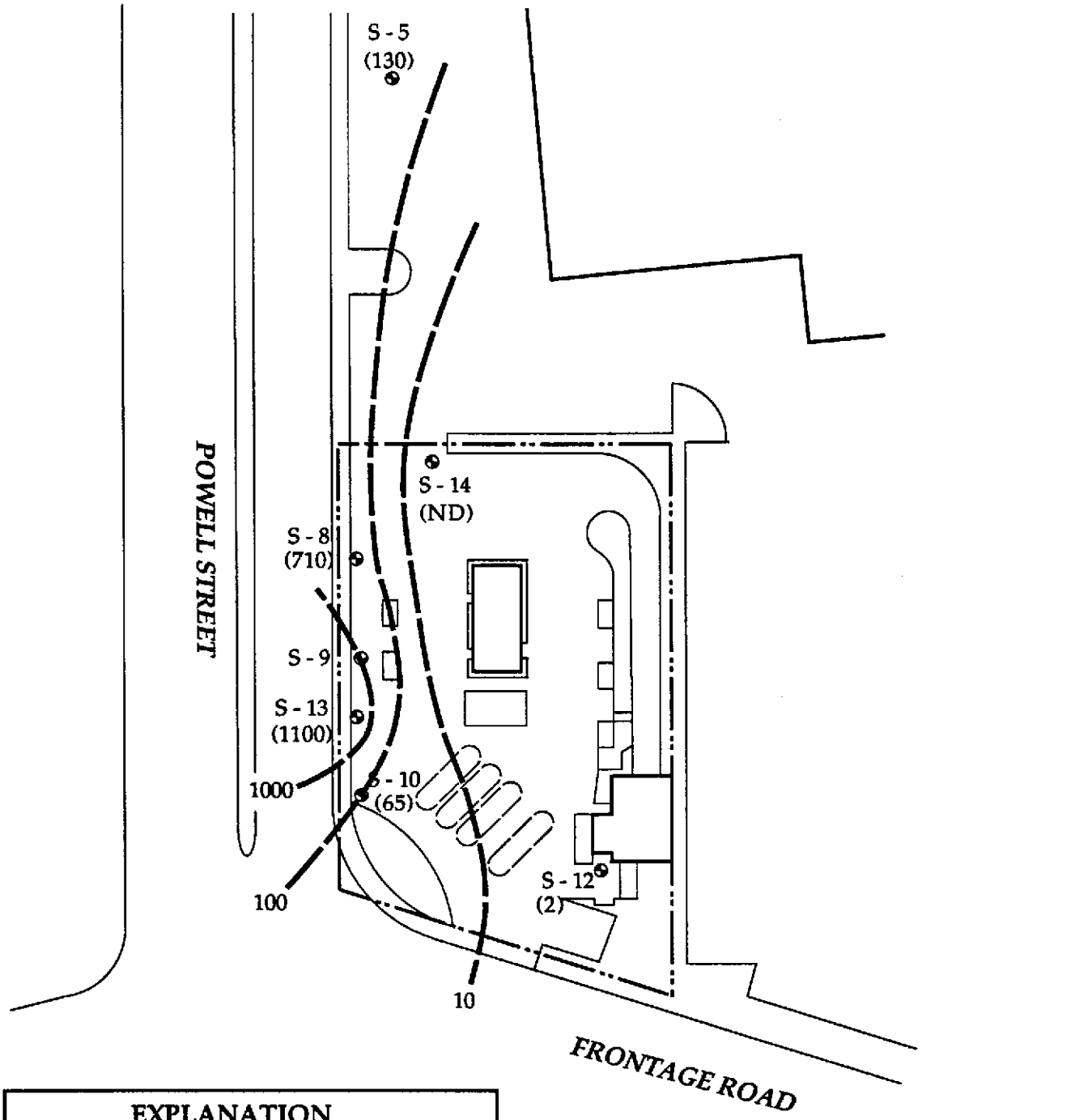

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

BENZENE CONCENTRATION MAP
Shell Service Station
1800 Powell Street
Emeryville, California
WIC # 204-2495-0101

Figure 4

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TABLES

Table 1

SUMMARY OF GROUND WATER ELEVATIONS AND WATER SAMPLE ANALYTICAL RESULTS

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

Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TPHd (ppb)	TPHmo (ppb)
S-5	10/27/88	11.72	—	—	3000	660	20	20	70	NA	NA
	2/10/89	11.72	—	—	2900	550	20	20	30	NA	NA
	4/28/89	11.72	—	—	4300	750	10	20	<30	NA	NA
	7/7/89	11.72	—	—	1500	300	8.0	7	9	NA	NA
	10/25/89	11.72	—	—	2100	760	10	40	50	NA	NA
	1/4/90	11.72	—	—	1300	520	9.0	8	10	NA	NA
	7/6/90	11.72	8.36	3.36	1400	500	10	4	<10	NA	NA
	10/19/90	11.72	—	—	4200	1100	9.0	14	7	NA	NA
	1/14/91	11.72	—	—	4500	1100	15	30	25	6100	NA
	4/23/91	11.72	—	—	2800	500	8.0	14	10	NA	NA
	7/8/91	11.72	9.15	2.57	3200	1000	16	9	12	NA	NA
	10/11/91	11.72	9.67	2.05	1700	16	5.7	5.2	8.9	NA	NA
	2/12/92	11.72	9.00	2.72	1300	300	5.0	<5.0	<5	NA	NA
	5/11/92	11.72	8.61	3.11	1900	490	<5.0	<5.0	<5	NA	NA
	9/1/92	11.72	9.61	2.11	6700	760	26	<25	<25	NA	NA
	12/4/92	11.72	9.47	2.25	2900	890	5.3	7.3	13	NA	NA
	2/17/93	11.72	8.29	3.43	1300	280	3.0	3.4	9.4	NA	NA
	5/29/93	11.72	9.16	2.56	460	130	<0.5	<0.5	2.9	NA	NA
S-6	10/27/88	—	—	—	6000	1700	50	80	420	NA	NA
	2/10/89	—	—	—	2800	740	20	20	140	NA	NA
	4/28/89	—	—	—	6500	2400	30	50	210	NA	NA
	7/7/89	—	—	—	3700	1700	34	55	200	NA	NA
	10/25/89	—	—	—	<50	23	<5.0	<5.0	10	NA	NA
	11/10/89	—	—	—	Well abandoned						
S-7	10/27/88	—	—	—	50	1.1	<1.0	<1.0	4	NA	NA
	2/10/89	—	—	—	50	0.9	<1.0	<1.0	<3	NA	NA
	4/28/89	—	—	—	<50	1.0	<1.0	<1.0	<3	NA	NA
	7/7/89	—	—	—	70	2.2	<1.0	<1.0	<3	NA	NA
	10/25/89	—	—	—	6200	2200	130	190	660	NA	NA
	11/10/89	—	—	—	Well abandoned						

Table 1

SUMMARY OF GROUND WATER ELEVATIONS AND WATER SAMPLE ANALYTICAL RESULTS

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

Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TPHd (ppb)	TPHmo (ppb)
S-8	10/27/88	12.76	---	---	1000	610	9	1.0	42	NA	NA
	2/10/89	12.76	---	---	500	160	5	<2.0	17	NA	NA
	4/28/89	12.76	---	---	2700	1500	20	10	40	NA	NA
	7/7/89	12.76	---	---	440	180	5	2.0	12	NA	NA
	10/25/89	12.76	---	---	2000	1100	17	5.0	70	NA	NA
	1/4/90	12.76	---	---	1900	1300	20	<10	70	NA	NA
	7/6/90	12.76	9.50	3.26	1600	920	30	<10	60	NA	NA
	10/19/90	12.76	---	---	1400	640	<10	<10	30	NA	NA
	1/14/91	12.76	---	---	670	190	5.8	<0.5	19	760	600
	4/23/91	12.76	---	---	2400	740	54	5.7	59	NA	NA
	7/8/91	12.76	10.45	2.31	1100	450	15	<2.5	42	NA	NA
	10/11/91	12.76	10.83	1.93	340	4	0.6	<0.5	17	NA	NA
	2/12/92	12.76	10.44	2.32	<1000	260	<10	<10	11	NA	NA
	5/11/92	12.76	10.17	2.59	1800	700	14	<5.0	46	NA	NA
	9/1/92	12.76	10.81	1.95	Floating product					NA	NA
	12/4/92	12.76	10.81	1.95	960	250	4.3	<2.5	14	NA	NA
	2/17/93	12.76	9.65	3.11	2700	800	35	10	83	NA	NA
	5/29/93	12.76	10.46	2.30	960	710	25	84	80	NA	NA
S-9	10/27/88	12.75	---	---	Floating product: thickness not measured						
	2/10/89	12.75	---	---	Floating product: 1.30 feet measured thickness						
	4/28/89	12.75	---	---	Floating product: 1.25 feet measured thickness						
	7/7/89	12.75	---	---	Floating product: 1.20 feet measured thickness						
	10/25/89	12.75	---	---	Floating product: unable to measure accurately						
	1/4/90	12.75	---	---	Floating product: unable to measure accurately						
	4/12/90	12.75	---	---	Floating product: unable to measure accurately						
	7/6/90	12.75	9.67	3.08	Floating product: unable to measure accurately						
	10/19/90	12.75	---	---	Floating product: unable to measure accurately						
	1/14/91	12.75	---	---	Floating product: unable to measure accurately						
	4/23/91	12.75	---	---	Floating product: unable to measure accurately						
	7/8/91	12.75	---	---	Floating product: unable to measure accurately						
	10/11/91	12.75	22.30	-9.55	Floating product: unable to measure accurately. Very slow recharge.						

Table 1

SUMMARY OF GROUND WATER ELEVATIONS AND WATER SAMPLE ANALYTICAL RESULTS

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

Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TPHd (ppb)	TPHmo (ppb)
S-10	10/27/88	12.58	—	—	700000	37000	100000	20000	110000	NA	NA
	2/10/89	12.58	—	—	6500	480	700	100	1800	NA	NA
	4/28/89	12.58	—	—	13000	1300	500	600	3700	NA	NA
	7/7/89	12.58	—	—	14000	1300	310	270	2400	NA	NA
	10/25/89	12.58	—	—	4200	580	34	4.0	440	NA	NA
	1/4/90	12.58	—	—	1700	360	10	7.8	170	NA	NA
	4/12/90	12.58	—	—	Floating product: 0.01 feet measured thickness						
	7/6/90	12.58	9.16	3.42	Floating product: 0.01 feet measured thickness						
	10/19/90	12.58	—	—	Floating product: 0.03 feet measured thickness						
	1/14/91	12.58	—	—	Floating product: 0.03feet measured thickness						
	4/23/91	12.58	—	—	Floating product: 0.01 feet measured thickness						
	7/8/91	12.58	9.41	3.17	Floating product: 0.03 feet measured thickness						
	10/11/91	12.58	7.77	4.81	Not sampled: insufficient recharge						
	2/12/92	12.58	6.41	6.17	1200	470	16	<5.0	14	NA	NA
	5/11/92	12.58	9.04	3.54	1100	100	6	4.0	19	NA	NA
	9/1/92	12.58	9.38	3.20	Floating product: 0.01 feet measured thickness						
	12/4/92	12.58	6.89	5.69	Floating product						
	2/17/93	12.58	7.34	5.24	530	89	8.5	1.6	4.5	NA	NA
	5/29/93	12.58	6.60	5.98	240	65	3.8	2.2	8.6	NA	NA
S-12	11/17/89	12.84	—	—	<250	18	<2.0	<2.0	<5	1400	NA
	1/4/90	12.84	—	—	<250	24	2.0	<2.0	<5	NA	NA
	7/6/90	12.84	8.27	4.57	80	15	0.7	<0.5	2	NA	NA
	10/19/90	12.84	—	—	150	12	9.0	<0.5	3.6	NA	NA
	1/14/91	12.84	—	—	120	3.6	0.8	<0.5	2.9	1000	600
	4/23/91	12.84	—	—	100	3.7	3.8	0.8	11	820^	800
	7/8/91	12.84	9.50	3.34	70	2.5	0.8	<0.5	2.4	NA	NA
	10/11/91	12.84	9.90	2.94	220	2.1	0.7	<0.5	1.2	2500	5100
	2/12/92	12.84	9.43	3.41	110	0.8	<0.5	<0.5	1.3	2500	1400
	5/11/92	12.84	8.65	4.19	140	0.8	0.8	<0.5	2.5	3800^	NA
	9/1/92	12.84	9.86	2.98	190	3.0	15	0.5	4.5	2600^	NA
	12/4/92	12.84	9.93	2.91	180	1.2	1.0	1.0	7.7	3900^	NA

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SUMMARY OF GROUND WATER ELEVATIONS AND WATER SAMPLE ANALYTICAL RESULTS

Shell Service Station
1800 Powell Street
Emeryville, California
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Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TPHd (ppb)	TPHmo (ppb)
S-12	2/17/93	12.84	8.08	4.76	350*	0.6	<0.5	0.5	5.5	2100^	NA
	5/29/93	12.84	9.08	3.76	290	2.0	1.6	4.4	6.0	2200	NA
S-13	11/17/89	12.59	---	---	1900	700	160	70	340	2000	5000
	1/4/90	12.59	---	---	2800	1400	130	10	500	NA	NA
	7/6/90	12.59	9.47	3.12	3100	1800	60	40	270	NA	NA
	10/24/90	12.59	---	---	3400	1500	28	28	250	NA	NA
	1/14/91	12.59	---	---	1900	830	15	<10	99	900	1600
	4/23/91	12.59	---	---	2900*	1100	20	30	140	770**	640
	7/8/91	12.59	10.38	2.21	1500	880	10	6.0	160	NA	NA
	10/11/91	12.59	10.78	1.81	480	830	15	<0.5	120	2400	4900
	2/12/92	12.59	10.48	2.11	1300	510	<10	<10	86	1300	1300
	5/11/92	12.59	9.48	3.11	1000	470	<5.0	<5.0	50	1300^	NA
	9/1/92	12.59	10.74	1.85	Free product						
	12/4/92	12.59	10.30	2.29	900	290	4.6	<2.5	20	2400^	NA
	2/17/93	12.59	7.60	4.99	840*	310	3.5	<2.5	27	1200^	NA
	5/29/93	12.59	10.60	1.99^^	2100	1100	19	50	350	4600	NA
S-14	11/17/89	12.69	---	---	<250	3.0	<2.0	<2.0	<5	<400	3000
	1/4/90	12.69	---	---	<250	3.0	2.0	<2.0	<5	NA	NA
	4/23/91	12.69	---	---	1200	7.4	2.7	15	110	18000**	<5000
	7/8/91	12.69	10.32	2.37	190	6.5	0.6	1.9	26	NA	NA
	10/11/91	12.69	10.77	1.92	4900	7.0	1.2	<0.5	25	21000	<500
	2/12/92	12.69	10.40	2.29	370	4.6	<2.5	<2.5	26	12000*	2500
	5/11/92	12.69	9.66	3.03	660	2.9	<2.5	<2.5	24	2200^	NA
	9/1/92	12.69	10.74	1.95	700	3.2	<2.5	<2.5	15	7900	NA
	12/4/92	12.69	10.69	2.00	210	<0.5	<0.5	0.8	6.8	11000^	NA
	2/17/93	12.69	9.69	3.00	130*	<0.5	<0.5	<0.5	4.4	5700^	NA
	5/29/93	12.69	10.42	2.27	770	<0.5	<0.5	<0.5	4.5	5200	NA

Notes :

TOB :	Top of well box referenced to mean sea level
DTW :	Depth to water
GWE :	Ground water elevation. Ground water elevation data available for certain dates only.
TPHg :	Total petroleum hydrocarbons as gasoline by EPA Method 8015 (modified)
BTEX :	Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8020
TPHd:	Total petroleum hydrocarbons as diesel by EPA Method 8015 (modified)
TPHmo	Total petroleum hydrocarbons as motor oil by EPA Method 8015 (modified)
NA :	Not analyzed
*	Compounds detected within the chromatographic range of gasoline but not characteristic of the standard gasoline pattern.
^	Compounds detected within the chromatographic range of diesel with pattern typical of weathered diesel.
**	Compounds detected within the chromatographic range of diesel appears to include gasoline compounds.
^^	Groundwater elevation was not used to define contours on Figure 3. See text

APPENDIX A

RECEIVED JUN 2 5 1993

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 9513
(408) 995-553
FAX (408) 293-877

12-003
Reports by

June 21, 1993

Shell Oil Company
P.O. Box 5278
Concord, CA 94520-9998

Attn: Daniel T. Kirk

SITE:
Shell WIC # 204-2495-0101
1800 Powell Street
Emeryville, California

QUARTER:
2nd quarter of 1993

QUARTERLY GROUNDWATER SAMPLING REPORT 930529-Y-1

This report contains data collected during routine inspection, gauging and sampling of groundwater monitoring wells performed by Blaine Tech Services, Inc. in response to the request of the consultant who is overseeing work at this site on behalf of our mutual client, Shell Oil Company. Data collected in the course of our field work is presented in a TABLE OF WELL GAUGING DATA. The field information was collected during our preliminary gauging and inspection of the wells, the subsequent evacuation of each well prior to sampling, and at the time of sampling.

Measurements taken include the total depth of the well and the depth to water. The surface of the water was further inspected for the presence of immiscibles which may be present as a thin film (a sheen on the surface of the water) or as a measurable free product zone (FPZ). At intervals during the evacuation phase, the purge water was monitored with instruments that measure electrical conductivity (EC), potential hydrogen (pH), temperature (degrees Fahrenheit), and turbidity (NTU). In the interest of simplicity, fundamental information is tabulated here, while the bulk of the information is turned over directly to the consultant who is making professional interpretations and evaluations of the conditions at the site.

TABLE OF WELL GAUGING DATA

WELL I.D.	WELL DIAMETER (inches)	DATA COLLECTION DATE	MEASUREMENTS REFERENCED TO	QUALITATIVE OBSERVATIONS (sheen)	DEPTH TO FIRST IMMISCIBLE LIQUID (FPZ) (feet)	THICKNESS OF IMMISCIBLE LIQUID ZONE (feet)	VOLUME OF IMMISCIBLES REMOVED (ml)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)
S-5 *	8	05-29-93	GRADE	--	NONE	--	--	9.16	12.36
S-8	3	05-29-93	GRADE	ODOR	NONE	--	--	10.46	18.82
S-10	6	05-29-93	GRADE	SHEEN/ODOR	NONE	--	--	6.60	19.70
S-12	3	05-29-93	GRADE	--	NONE	--	--	9.08	24.44
S-13	3	05-29-93	GRADE	ODOR	NONE	--	--	10.60	20.90
S-14	3	05-29-93	GRADE	--	NONE	--	--	10.42	24.0

* Sample DUP was a duplicate sample taken from well S-5.

STANDARD PROCEDURES

Evacuation

Groundwater wells are thoroughly purged before sampling to insure that the sample is collected from water that has been newly drawn into the well from the surrounding geologic formation. The selection of equipment to evacuate each well is based on the physical characteristics of the well and what is known about the performance of the formation in which the well has been installed. There are several suitable devices which can be used for evacuation. The most commonly employed devices are air or gas actuated pumps, electric submersible pumps, and hand or mechanically actuated bailers. Our personnel frequently employ USGS/Middleburg positive displacement pumps or similar air actuated pumps which do not agitate the water standing in the well.

Normal evacuation removes three case volumes of water from the well. More than three case volumes of water may be removed in cases where more evacuation is needed to achieve stabilization of water parameters. Less than three case volumes of water may be obtained in cases where the well dewaters and does not recharge to 80% of its original volume within two hours and any additional time our personnel have reason to remain at the site. In such cases, our personnel return to the site within twenty four hours and collect sample material from the water which has recharged into the well case.

Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site.

Free Product Skimmer

The column headed, VOLUME OF IMMISCIBLES REMOVED (ml) is included in the TABLE OF WELL GAUGING DATA to cover situations where a free product skimming device must be removed from the well prior to gauging. Skimmers are installed in wells with a free product zone on the surface of the water. The skimmer is a free product recovery device which often prevents normal well gauging and free product zone measurements. The 2.0" and 3.0" PetroTraps fall into the category of devices that obstruct normal gauging. In cases where the consultant elects to have our personnel pull the skimmers out of the well and gauge the well, our personnel perform the additional task of draining the accumulated free product out of the PetroTrap before putting it back in the well. This recovered free product is measured and logged in the VOLUME OF IMMISCIBLES REMOVED column. Gauging at such site is performed in accordance with specific directions from the professional consulting firm overseeing work at the site on Shell's behalf.

Sample Containers

Sample material is collected in specially prepared containers which are provided by the laboratory that performs the analyses.

Sampling

Sample material is collected in stainless steel bailer type devices normally fitted with both a top and a bottom check valve. Water is promptly decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA standard for handling volatile organic and semi-volatile compounds.

Following collection, samples are promptly placed in an ice chest containing prefrozen blocks of an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

Sample Designations

All sample containers are identified with a site designation and a discrete sample identification number specific to that particular groundwater well. Additional standard notations (e.g. time, date, sampler) are also made on the label. Either the requested analyses or the specific analytes are written on the sample label (e.g. TPH-G, BTEX).

Chain of Custody

Samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under a standard Shell Oil Company chain of custody. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of the person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

Hazardous Materials Testing Laboratory

The samples obtained at this site were delivered to Anametrix, Inc. in San Jose, California. Anametrix, Inc. is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1234.

Objective Information Collection

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc.

performs no consulting and does not become involved in the marketing or installation of remedial systems of any kind. Blaine Tech Services, Inc. is concerned only with the generation of objective information, not with the use of that information to support evaluations and recommendations concerning the environmental condition of the site. Even the straightforward interpretation of objective analytical data is better performed by interested regulatory agencies, and those engineers and geologists who are engaged in the work of providing professional opinions about the site and proposals to perform additional investigation or design remedial systems.

Reportage

Submission of this report and the attached laboratory report to interested regulatory agencies is handled by the consultant in charge of the project. Any professional evaluations or recommendations will be made by the consultant under separate cover.

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/kkl

attachments: chain of custody
certified analytical report

cc: Hydro Environmental Technologies, Inc.
2363 Mariner Square Drive, Suite 243
Alameda, CA 94501
ATTN: Markus B. Niebanck

9306015 (18) (10/5)

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No:

Date:
Page 1 of 1

Site Address: 1800 Powell St. Emeryville CA.
WIC#: 204-2495-0101
Shell Engineer: Dan T. Kirk — Phone No.: 510 — Fax #: 675-6171
Consultant Name & Address: Blaine Tech Services
Consultant Contact: Jim Keller — Phone No.: 408 — Fax #: 995-5535
Comments:
Sampled by: Joe Carrera
Printed Name: JOE Carrera

LAB: Anametrix

CHECK ONE (1) BOX ONLY	C1/D1	TURN AROUND TIME
Quarterly Monitoring	X 8441	24 hours ☐
Site Investigation	☐ 8441	48 hours ☐
Soil Closure/Disposal	☐ 8442	10 days ☒ (Normal)
Water Closure/Disposal	☐ 8443	Other ☐ ____
Soil/Air Rem. or Sys. O & M	☐ 8442	NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.
Water Rem. or Sys. O & M	☐ 8443	
Other	☐	

Analysis Required

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
(1) S-5	5-29			X		3	X		X									
(2) S-8						3	X		X									
(3) S-10						3	X		X									
(4) S-12						3	X	X	X									
(5) S-13						3	X	X	X									
(6) S-14.						3	X	X	X									
(7) DUP.						3	X		X									
(8) TRIP.						2	X		X									

Relinquished By (signature)	Printed Name	Date	Time	Received (signature)	Printed Name	Date	Time
Joe Carrera	JOE Carrera	6-7-93	16:35	Benny S. Carrizosa	BENNY S. CARRIZOSA	6-7-93	16:35
Benny S. Carrizosa	BENNY S. CARRIZOSA	6-7-93	16:55	Maria Barajas	Maria Barajas	6/7/93	16:55
Relinquished By (signature):	Printed Name:	Date:	Time:	Received (signature):	Printed Name:	Date:	Time:

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

Inchcape Testing Services
Anametrix Laboratories

1961 Concourse Drive #E
San Jose, CA 95131
Tel: 408-432-8192
Fax: 408-432-8198

MR. JIM KELLER
BLAINE TECH
985 TIMOTHY STREET
SAN JOSE, CA 95133

Workorder # : 9306015
Date Received : 06/01/93
Project ID : 204-2495-0101
Purchase Order: MOH-B813

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9306015- 1	S-5
9306015- 2	S-8
9306015- 3	S-10
9306015- 4	S-12
9306015- 5	S-13
9306015- 6	S-14
9306015- 7	DUP
9306015- 8	TRIP

This report consists of 8 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

06-15-93
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. JIM KELLER
BLAINE TECH
985 TIMOTHY STREET
SAN JOSE, CA 95133

Workorder # : 9306015
Date Received : 06/01/93
Project ID : 204-2495-0101
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9306015- 4	S-12	WATER	05/29/93	TPHd
9306015- 5	S-13	WATER	05/29/93	TPHd
9306015- 6	S-14	WATER	05/29/93	TPHd
9306015- 1	S-5	WATER	05/29/93	TPHgBTEX
9306015- 2	S-8	WATER	05/29/93	TPHgBTEX
9306015- 3	S-10	WATER	05/29/93	TPHgBTEX
9306015- 4	S-12	WATER	05/29/93	TPHgBTEX
9306015- 5	S-13	WATER	05/29/93	TPHgBTEX
9306015- 6	S-14	WATER	05/29/93	TPHgBTEX
9306015- 7	DUP	WATER	05/29/93	TPHgBTEX
9306015- 8	TRIP	WATER	05/29/93	TPHgBTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. JIM KELLER
BLAINE TECH
985 TIMOTHY STREET
SAN JOSE, CA 95133

Workorder # : 9306015
Date Received : 06/01/93
Project ID : 204-2495-0101
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentration reported as gasoline for sample S-14 is primarily due to the presence of a heavier petroleum product of hydrocarbon range C10-C14.
- The concentrations reported as diesel for samples S-12, S-13 and S-14 are due to the presence of a combination of diesel and a heavier petroleum product of hydrocarbon range C18-C36.

Cheryl Balmer 6/15/93
Department Supervisor Date

Charlotte Buck 6-15-93
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9306015
Matrix : WATER
Date Sampled : 05/29/93

Project Number : 204-2495-0101
Date Released : 06/15/93

	Reporting Limit	Sample I.D.# S-5	Sample I.D.# S-8	Sample I.D.# S-10	Sample I.D.# S-12	Sample I.D.# S-13
COMPOUNDS	(ug/L)	-01	-02	-03	-04	-05
Benzene	0.5	130	710	65	2.0	1100
Toluene	0.5	ND	25	3.8	1.6	19
Ethylbenzene	0.5	ND	84	2.2	4.4	50
Total Xylenes	0.5	2.9	80	8.6	6.0	350
TPH as Gasoline	50	460	960	240	290	2100
% Surrogate Recovery		139%	149%	135%	137%	108%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		06/09/93	06/09/93	06/09/93	06/09/93	06/09/93
RLMF		5	10	2	1	25

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Charles M Bunch 6-15-93
Analyst Date

Cheryl Beeman 6/15/93
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9306015
Matrix : WATER
Date Sampled : 05/29/93

Project Number : 204-2495-0101
Date Released : 06/15/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# S-14 -06	Sample I.D.# DUP -07	Sample I.D.# TRIP -08	Sample I.D.# BU0801E3 BLANK	Sample I.D.# BU0901E3 BLANK
Benzene	0.5	ND	120	ND	ND	ND
Toluene	0.5	ND	2.1	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND	ND
Total Xylenes	0.5	4.5	3.1	ND	ND	ND
TPH as Gasoline	50	770	420	ND	ND	ND
% Surrogate Recovery		97%	130%	133%	123%	130%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		06/09/93	06/09/93	06/08/93	06/08/93	06/09/93
RLMF		2	2	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Charlotte Burch 6-15-93
Analyst Date

Cheryl Balmer 6/15/93
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9306015
Matrix : WATER
Date Sampled : 05/29/93
Date Extracted: 06/09/93

Project Number : 204-2495-0101
Date Released : 06/15/93
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (ug/L)	Amount Found (ug/L)
9306015-04	S-12	06/11/93	51	2200
9306015-05	S-13	06/15/93	250	4600
9306015-06	S-14	06/15/93	250	5200
BU0911F1	METHOD BLANK	06/10/93	50	ND

Note : Reporting limit is obtained by multiplying the dilution factor times 50 ug/L.
ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Analyst Date 6/15/93

Supervisor Date 6/15/93

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: LCSW0608
Matrix	: WATER	Analyst	: IS
Date Sampled	: N/A	Supervisor	: os
Date Analyzed	: 06/08/93	Date Released	: 06/14/93
		Instrument I.D.	: HP12

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	500	420	84%	67-127
p-BFB			106%	61-139

* Quality control established by Anametrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/PID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: LCSW0609
Matrix	: WATER	Analyst	: IS
Date Sampled	: N/A	Supervisor	: CP
Date Analyzed	: 06/09/93	Date Released	: 06/15/93
		Instrument I.D.	: HP12

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	18.8	94%	52-133
Toluene	20.0	22.4	112%	57-136
Ethylbenzene	20.0	25.4	127%	56-139
TOTAL Xylenes	20.0	25.1	126%	61-139
P-BFB			115%	61-139

* Limits established by Anametrix, Inc.

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 3510 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: MU0911F1
Matrix	: WATER	Analyst	: IS
Date Sampled	: N/A	Supervisor	: CA
Date Extracted	: 06/09/93	Date Released	: 06/15/93
Date Analyzed	: 06/10/93	Instrument I.D.	: HP9

COMPOUND	SPIKE AMT (ug/L)	LCS REC (ug/L)	% REC LCS	LCSD REC (ug/L)	% REC LCSD	RPD	% REC LIMITS
DIESEL	1250	650	52%	630	50%	-3%	47-130

*Quality control established by Anametrix, Inc.