HYDRO
ENVIRONMENTAL
TECHNOLOGIES, INC.

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November 11, 1993 **12-008**

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

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

Dear Mr. Kirk,

Hydro-Environmental Technologies, Inc. (HETI) is pleased to present this report on the third 1993 ground water sampling event 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 September 22, 1993. A copy of this report has been forwarded to the Pleasanton Fire Department and to the Regional Board.

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 eight ground water monitoring wells present on-site.

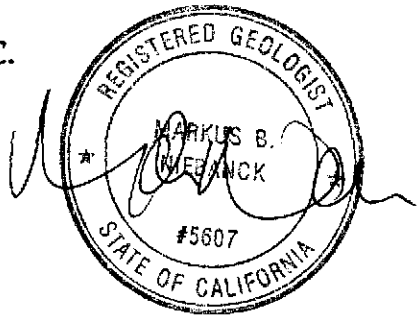
Results of the Third 1993 Ground Water Sampling
Ground Water Gradient:
The depth to ground water was measured in all wells by the Shell sampling contractor, Blaine Tech Services (Blaine), on September 22, 1993. These measurements were combined with previously established well head elevations to yield ground water elevations (Table 1, Figure 2). Ground water gradient was fairly flat with some overall movement to the north. As shown on Table 1, ground water elevations have increased slightly since the sampling visit in April, 1993.

Ground Water Analytical Data:
Monitoring wells S-1, S-3, S-5, S-6 and S-8 (Figure 3) were sampled during this event. Analytical results indicate that no detectable concentrations of petroleum hydrocarbons were present in the samples collected from wells S-5 or S-6. This is the second consecutive occurrence of non-detectable concentrations for samples collected from well S-5 and S-6. Low boiling point hydrocarbons (TPH-Gas), volatile aromatic hydrocarbons (BTEX) and medium boiling point hydrocarbons (TPHd) were detected in the samples collected from S-1 and S-3. Only TPHd was detected in

the samples collected from S-8. Blaine sampling and analytical data is presented as an attachment to this report. Current and historical analytical results are presented in Table 1.

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. Inspector Ted Klenk, Pleasanton Fire Department
Mr. Rich Hiett, SF Bay RWQCB

Table 1

SUMMARY OF GROUND WATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS

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

Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	TPHd (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
S-2	10/16/89	—	—	—	<50	<100	<0.5	<1	<1	<3
	1/5/90	—	—	—	<50	<100	<0.5	<0.5	<0.5	<1
	4/11/90	—	—	—	<50	NA	<0.5	<0.5	<0.5	<1
	7/12/90	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/25/90	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/25/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	4/16/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	7/24/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/18/91	326.59	8.83	317.76	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/23/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	4/27/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	7/17/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/16/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/23/93	326.59	8.10	318.49	<50	140*+	<0.5	<0.5	<0.5	<0.5
	4/28/93	326.59	9.06	317.53	<50	<50	<0.5	<0.5	<0.5	<0.5
	9/22/93	326.59	8.91	317.68	NA	NA	NA	NA	NA	NA
	To be sampled annually. Next sampling date 7/94.									
S-3	5/11/89	—	—	—	2600	1400	330	14	220	200
	7/20/89	327.38	9.55	317.83	9700	2200	2300	30	880	160
	10/16/89	—	—	—	3400	2800	700	8.0	360	60
	1/5/90	—	—	—	860	1600	140	1.6	78	2.0
	4/11/90	—	—	—	1000	NA	210	<2	150	13

Table 1

SUMMARY OF GROUND WATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS

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

Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	TPHd (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
S-3	7/12/90	—	—	—	2800	2000	490	8.5	210	81
	10/25/90	—	—	—	1200	860	120	<2.5	82	5.1
	1/25/91	—	—	—	870	330	230	<2.5	130	<2.5
	4/16/91	—	—	—	190	140*	12	0.8	6.2	1.5
	7/24/91	—	—	—	1700	1200*	450	4.4	150	2.9
	10/18/91	327.38	9.64	317.74	1900	500	370	3.1	120	220
	1/23/92	—	—	—	2000	650*	580	3.0	200	<0.5
	4/27/92	—	—	—	1100	230*	150	<3	76	14
	7/17/92	—	—	—	810	58	200	<2.5	57	3.8
	10/16/92	—	—	—	440	190@	79	1.8	18	4.6
	1/23/93	327.38	8.81	318.57	670	170**	79	1.5	46	15
	4/28/93	327.38	9.87	317.51	2000	<50	300	3.4	210	38
	9/22/93	327.38	9.65	317.73	4800	670*	2000	34	150	51
S-4	5/11/89	—	—	—	<50	<100	<0.5	<1	<1	<3
	7/20/89	327.38	8.03	319.35	<50	<100	<0.5	<1	<1	<3
	10/16/89	—	—	—	<50	<100	<0.5	<1	<1	<3
	1/5/90	—	—	—	<50	<100	<0.5	<0.5	<0.5	<1
	4/11/90	—	—	—	<50	NA	<0.5	<0.5	<0.5	<1
	7/12/90	—	—	—	<50	<50	<0.5	1.7	<0.5	2.1
	10/25/90	—	—	—	<50	<50	<0.5	<0.5	<0.5	0.6
	1/25/91	—	—	—	<50	<50	<0.5	1.5	<0.5	2.8
	4/16/91	—	—	—	<50	<50	0.7	<0.5	<0.5	<0.5

Table 1

SUMMARY OF GROUND WATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS

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

Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	TPHd (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
S-4	7/24/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/18/91	327.38	8.82	318.56	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/23/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	4/27/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	7/17/92	—	—	—	<500	74	<0.5	<0.5	<0.5	<0.5
	10/16/92	—	—	—	<500	<50	<0.5	<0.5	<0.5	<0.5
	1/23/93	327.38	8.32	319.06	<500	94*+	<0.5	<0.5	<0.5	<0.5
	4/28/93	327.38	9.76	317.62	<50	<50	<0.5	<0.5	<0.5	<0.5
	9/22/93	327.38	9.30	318.08	NA	NA	NA	NA	NA	NA
	To be sampled annually. Next sampling date 7/94.									
S-5	5/11/89	—	—	—	50	<100	<0.5	<1	1.0	3.0
	7/20/89	327.76	9.62	318.14	<50	<100	10	<1	<1	<3
	10/16/89	—	—	—	<50	<100	<0.5	<1	<1	<3
	1/5/90	—	—	—	<50	<100	<0.5	<0.5	<0.5	<1
	4/11/90	—	—	—	<50	NA	0.5	3.4	0.8	4.0
	7/12/90	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/25/90	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/25/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	0.7
	4/16/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	0.8
	7/24/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/18/91	327.76	10.00	317.76	120^	<50	43	<0.5	1.0	0.7
	1/23/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5

Table 1

SUMMARY OF GROUND WATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS

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

Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	TPHd (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
S-5	4/27/92	—	—	—	50	<50	<0.5	<0.5	<0.5	0.6
	7/17/92	—	—	—	<50	70	<0.5	<0.5	<0.5	<0.5
	10/16/92	—	—	—	230	57	13	<0.5	4.9	4.3
	1/23/93	327.76	8.88	318.88	<50	150*+	<0.5	<0.5	<0.5	<0.5
	4/30/93	327.76	10.20	317.56	<50	<50	<0.5	<0.5	<0.5	<0.5
	9/22/93	327.76	9.92	317.84	<50	<50	<0.5	<0.5	<0.5	<0.5
S-6	11/15/89	—	—	—	<50	<100	<0.5	<0.5	<0.5	<1
	1/5/90	—	—	—	<50	<100	<0.5	0.5	<0.5	<1
	4/11/90	—	—	—	<50	NA	<0.5	<0.5	<0.5	<1
	7/12/90	—	—	—	<50	<50	<0.5	0.5	<0.5	0.6
	10/25/90	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/25/91	—	—	—	<50	<50	<0.5	1.7	<0.5	2.8
	4/16/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	0.6
	7/24/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	0.5
	10/18/91	326.56	8.84	317.72	<50	<50	<0.5	<0.5	<0.5	0.5
	1/23/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	0.5
	4/27/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	7/17/92	—	—	—	400	130	<0.5	<0.5	<0.5	<0.5
	10/16/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/23/93	326.56	7.82	318.74	<50	230*+	<0.5	<0.5	<0.5	<0.5
	4/28/93	326.56	9.00	317.56	<50	<50	<0.5	<0.5	<0.5	<0.5
	9/22/93	326.56	8.61	317.95	<50	<50	<0.5	<0.5	<0.5	<0.5

Table 1

SUMMARY OF GROUND WATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS

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

Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	TPHd (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
S-7	1/15/89	—	—	—	<50	<100	<0.5	<0.5	<0.5	<1
	11/15/89	—	—	—	<50	<100	<0.5	<0.5	<0.5	<1
	1/5/90	—	—	—	<50	NA	<0.5	<0.5	<0.5	<1
	4/11/90	—	—	—	<50	NA	<0.5	<0.5	<0.5	0.7
	7/12/90	—	—	—	<50	<50	<0.5	0.6	<0.5	1.0
	10/25/90	—	—	—	<50	<50	<0.5	0.5	<0.5	<0.5
	1/25/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	4/16/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	7/24/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/18/91	326.49	8.92	317.57	<50	140&	<0.5	<0.5	<0.5	<0.5
	1/23/92	—	—	—	<50	140&	<0.5	<0.5	<0.5	<0.5
	4/27/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	7/17/92	—	—	—	<50	<50	<0.5	1.8	0.6	4.1
	10/16/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/23/93	326.49	8.06	318.43	<50	110*+	<0.5	<0.5	<0.5	<0.5
	4/28/93	326.49	8.94	317.55	<50	<50	<0.5	<0.5	<0.5	<0.5
	9/22/93	326.49	8.57	317.92	NA	NA	NA	NA	NA	NA
	To be sampled annually. Next sampling date 7/94.									
S-8	11/15/89	—	—	—	<50	<100	<0.5	<0.5	<0.5	<1
	1/5/90	—	—	—	<50	<100	<0.5	<0.5	<0.5	<1
	4/11/90	—	—	—	<50	NA	<0.5	<0.5	<0.5	<1
	7/12/90	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5

Table 1

SUMMARY OF GROUND WATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS

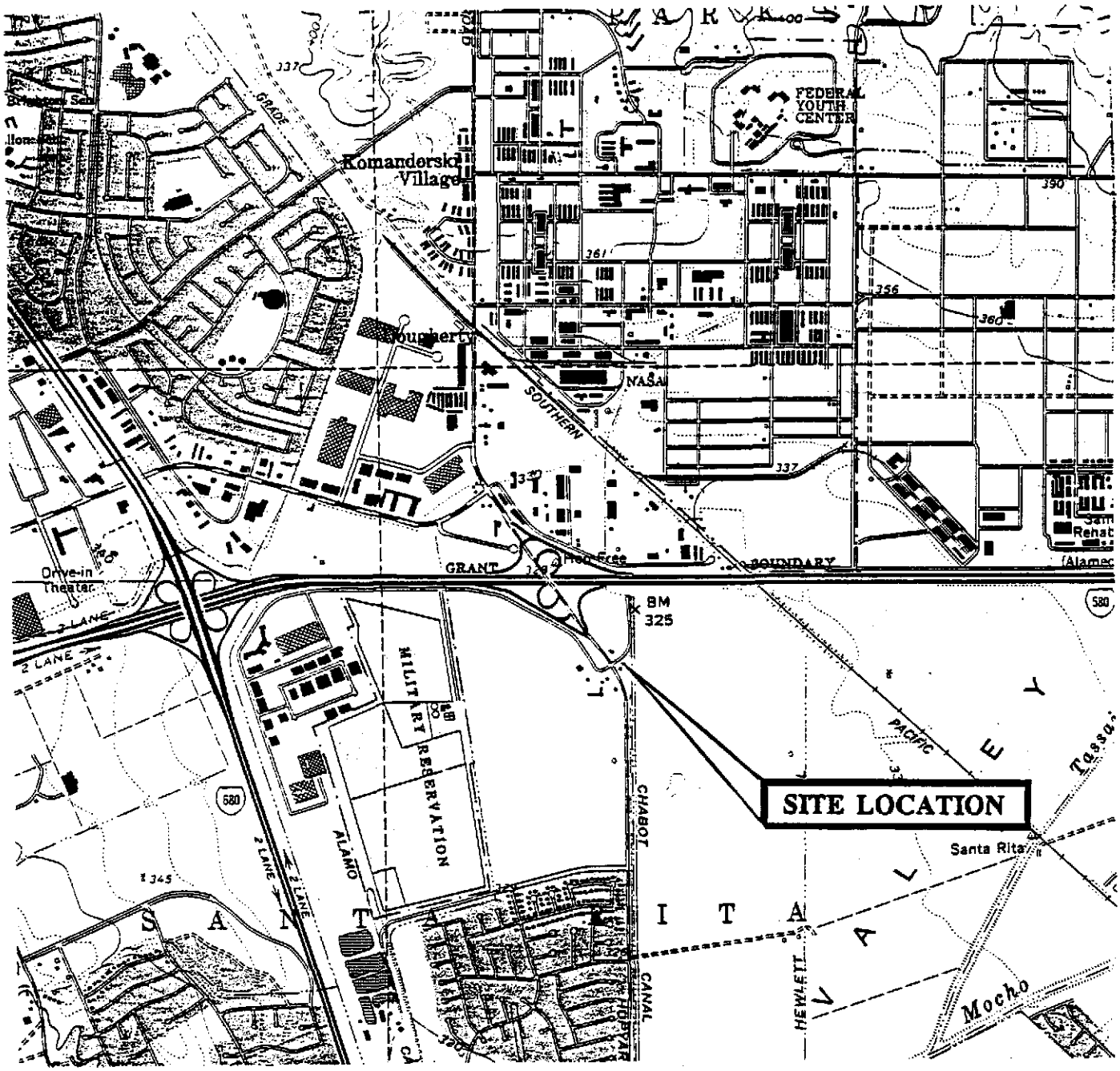
Former Shell Service Station
5251 Hopyard Road
Pleasanton, California
WIC#204-6138-0907

Well Number	Sampling Date	TOB (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	TPHd (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
S-8	10/25/90	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/25/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	4/16/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	7/24/91	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	10/18/91	325.32	7.62	317.70	<50	360&	<0.5	<0.5	<0.5	<0.5
	1/23/92	—	—	—	<50	90	<0.5	<0.5	<0.5	<0.5
	4/27/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	7/21/92	—	—	—	53	<50	<0.5	1.0	<0.5	1.8
	10/16/92	—	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5
	1/23/93	325.32	7.00	318.32	<50	<50	<0.5	<0.5	<0.5	<0.5
	4/28/93	325.32	7.77	317.55	<50	<50	<0.5	<0.5	<0.5	<0.5
	9/22/93	325.32	7.67	317.65	<50	160	<0.5	<0.5	<0.5	<0.5
V-1	12/14/88	—	—	—	770	4500	6.4	21	9.0	87
V-2	12/14/88	—	—	—	160	1000	3.8	<1	<1	4.0
V-3	12/14/88	—	—	—	140	800	9.0	<1	<1	3.0

Notes :

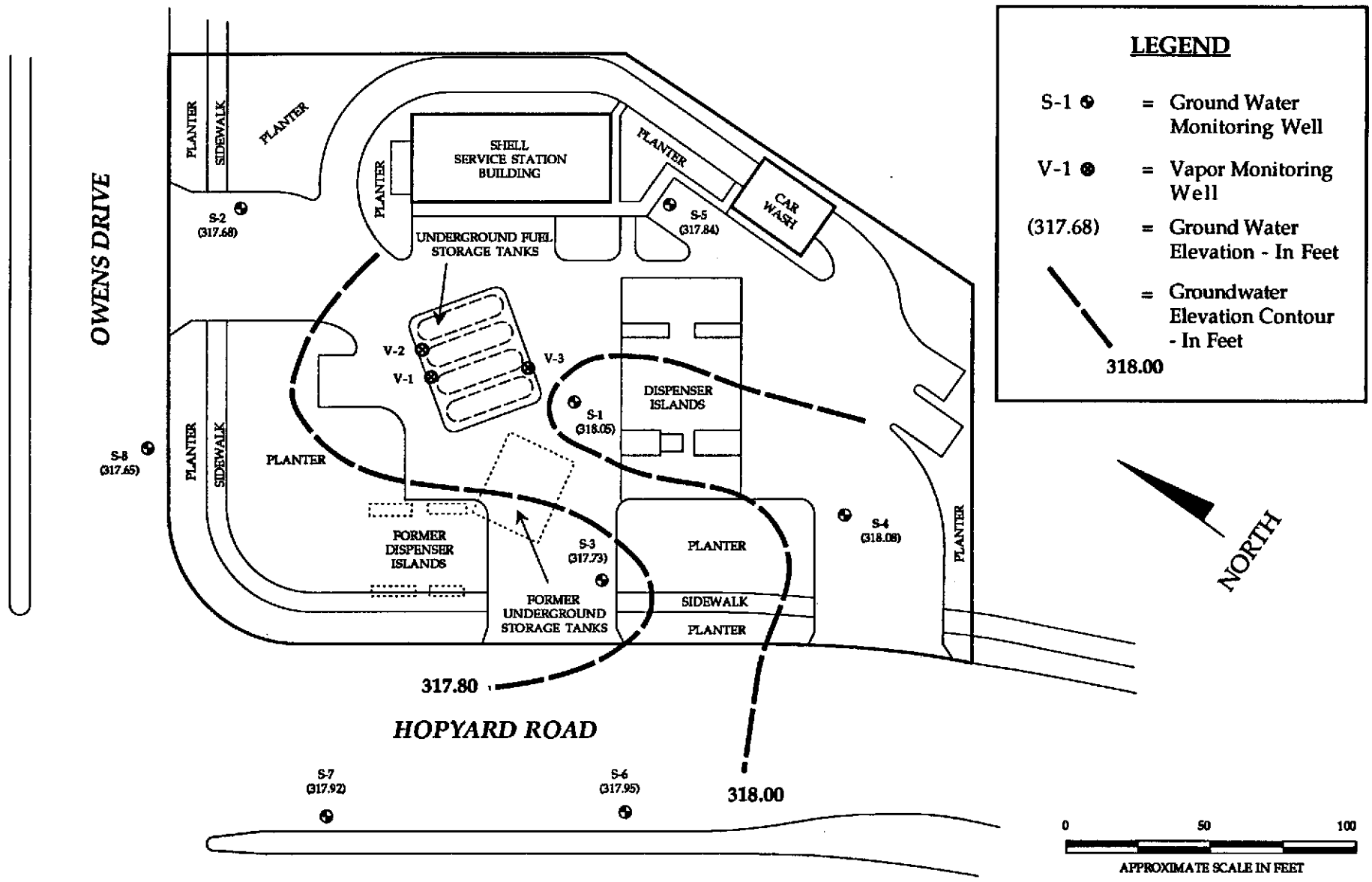
TOB	Top of well casing referenced to mean sea level
DTW :	Depth to water
GWE :	Ground water elevation
TPHg :	Total low-to-medium boiling point petroleum hydrocarbons by EPA Method 8015 (DHS-modified)
TPHd	Total high boiling point hydrocarbons by EPA method 8015
BTEX :	Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8020
NA:	Not analyzed
#	Ethylbenzene and xylenes were combined in January 1988, well S-1.
*	Compounds detected as diesel appear to be the less volatile constituents of gasoline.
**	Concentration reported as diesel includes a heavier petroleum product.
^	Compounds detected within the chromatographic range of gasoline but not characteristic of the standard gasoline pattern.
&	Compounds detected within the chromatographic range of diesel but not characteristic of the standard diesel pattern.
+	The chromatographic pattern of the purgeable hydrocarbons found in the sample is similar to the pattern of weathered gasoline.
*+	The concentration reported as diesel primarily due to the presence of a heavier petroleum product.
@	The concentration reported as diesel primarily due to the presence of a lighter petroleum product.

FIGURES



SOURCE:
USGS 7.5 MINUTE SERIES
DUBLIN QUADRANGLE
PHOTOREVISED 1980

HYDR-ENVIRONMENTAL TECHNOLOGIES, INC.	**SITE LOCATION MAP** Shell Service Station 5251 Hopyard Road Pleasanton, California WIC #204-6138-0907	Figure 1 12-008 6/93



BASED ON SITE PLAN/POTENTIOMETRIC MAP BY GEOSTRATEGIES INC. DATED 3/93, AND DATA COLLECTED 9/22/93.

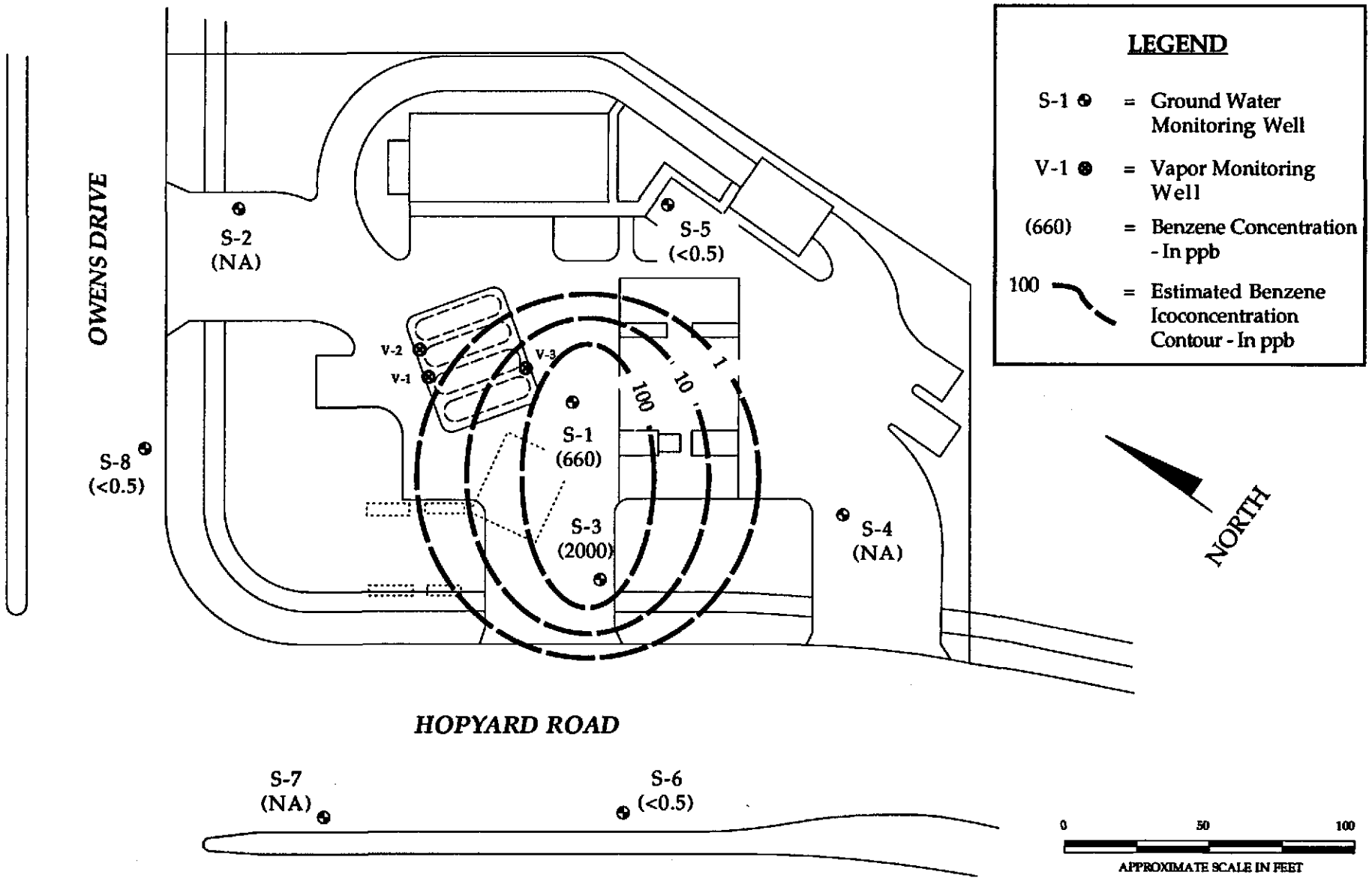
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

SITE PLAN/GROUND WATER ELEVATION MAP

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

Figure 2

12-008 10/93



BASED ON ANALYTICAL DATA FROM GROUND WATER SAMPLES COLLECTED 9/22/93

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

BENZENE ISOCONCENTRATION MAP
Shell Service Station
5251 Hopyard Road
Pleasanton, California
WIC # 204-6138-0907

Figure 3

12-008 10/93

APPENDIX A

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

RECEIVED OCT 1 4 1993

October 8, 1993

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

Attn: Daniel T. Kirk

SITE:
Shell WIC #204-6138-0907
5251 Hopyard Road
Pleasanton, California

QUARTER:
3rd quarter of 1993

QUARTERLY GROUNDWATER SAMPLING REPORT 930915-F-1

This report contains data collected during routine inspection, gauging and sampling of groundwater monitoring wells performed by Blaine Tech Services, Inc. in reponse 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 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.

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 are removed in cases where more evacuation is needed to achieve stabilization of water parameters and when requested by the local implementing agency. Less water may be removed 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. Effluent water from purging and on-site equipment cleaning is collected and transported to Shell's Martinez Manufacturing Complex in Martinez, California.

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 sites 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.

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/lpn

attachments: table of well gauging data
chain of custody
certified analytical report

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

TABLE OF WELL GAUGING DATA

WELL I.D.	DATA COLLECTION DATE	MEASUREMENT REFERENCED TO	QUALITATIVE OBSERVATIONS (sheen)	DEPTH TO FIRST IMMISCIBLES LIQUID (FPZ) (feet)	THICKNESS OF IMMISCIBLES LIQUID ZONE (feet)	VOLUME OF IMMISCIBLES REMOVED (ml)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)
S-1	9/22/93	TOB	ODOR	NONE	--	--	8.68	29.94
S-2	9/22/93	TOB	--	NONE	--	--	8.91	24.57
S-3 *	9/22/93	TOB	ODOR	NONE	--	--	9.65	24.83
S-4	9/22/93	TOB	--	NONE	--	--	9.30	24.54
S-5	9/22/93	TOB	--	NONE	--	--	9.92	24.72
S-6	9/22/93	TOB	--	NONE	--	--	8.61	26.04
S-7	9/22/93	TOB	--	NONE	--	--	8.57	25.36
S-8	9/22/93	TOB	--	NONE	--	--	7.67	25.24

* Sample DUP was a duplicate sample taken from well S-3.

9309201 (18) (10/29)

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 930915 F1

Date: 9/15/93
Page 1 of 1

Site Address: 5251 Hopyard Pleasanton

WIC#: 204 6138 0907

Shell Engineer: Dan Kirk — Phone No: 925 675-6169, Fax #: 675-6172

Consultant Name & Address: Blaine Tech Services

Consultant Contact: Jim Keller — Phone No: 408 995 5535, Fax #: 293 8773

Comments:

Sampled by:

Printed Name: Tom Flory

LAB: ANAMETRIX

CHECK ONE (1) BOX ONLY — C1/D1

- Quarterly Monitoring ☒ 6441
- Site Investigation ☐ 6441
- Soil Closure/Disposal ☐ 6442
- Water Closure/Disposal ☐ 6443
- Soil/Air Rem. or Sys. O & M ☐ 6462
- Water Rem. or Sys. O & M ☐ 6463
- Other ☐

TURN AROUND TIME

- 24 hours ☐
- 48 hours ☐
- 15 days ☒ (Normal)
- Other ☐ ____

NOTE: Notify Lab as soon as Possible of 24/48 hr. TAT.

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-1	9/15/93			X		5		X				X						
2	S-3	"			"		5		X				X						
3	S-5	"			"		5		X				X						
4	S-6	"			"		5		X				X						
5	S-8	"			"		5		X				X						
6	DUP	"			"		5		X				X						
7	TB	V			V		2						X						

Relinquished By (signature)	Printed Name	Date / Time	Received (signature)	Printed Name	Date / Time
	Tom Flory	9-14-93 1300	Benny S. Carrizosa	Benny S. Carrizosa	9-16-93 1300
Benny S. Carrizosa	Benny S. Carrizosa	9-14-93 1313		Maria Rangel	9/14/93 13:13
		Date: Time:			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
Suite E
San Jose, CA 95131
Tel: 408-432-8192
Fax: 408-432-8198

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

Workorder # : 9309201
Date Received : 09/16/93
Project ID : 204-6138-0907
Purchase Order: MOH-B813

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

ANAMETRIX ID	CLIENT SAMPLE ID
9309201- 1	S-1
9309201- 2	S-3
9309201- 3	S-5
9309201- 4	S-6
9309201- 5	S-8
9309201- 6	DUP
9309201- 7	TB

This report consists of 9 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.

Corinne Pham for
Sarah Schoen,Ph.D.
Laboratory Director

09/27/93
Date

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

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

Workorder # : 9309201
Date Received : 09/16/93
Project ID : 204-6138-0907
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9309201- 1	S-1	WATER	09/15/93	TPHd
9309201- 2	S-3	WATER	09/15/93	TPHd
9309201- 3	S-5	WATER	09/15/93	TPHd
9309201- 4	S-6	WATER	09/15/93	TPHd
9309201- 5	S-8	WATER	09/15/93	TPHd
9309201- 6	DUP	WATER	09/15/93	TPHd
9309201- 1	S-1	WATER	09/15/93	TPHgBTEX
9309201- 2	S-3	WATER	09/15/93	TPHgBTEX
9309201- 3	S-5	WATER	09/15/93	TPHgBTEX
9309201- 4	S-6	WATER	09/15/93	TPHgBTEX
9309201- 5	S-8	WATER	09/15/93	TPHgBTEX
9309201- 6	DUP	WATER	09/15/93	TPHgBTEX
9309201- 7	TB	WATER	09/15/93	TPHgBTEX

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

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

Workorder # : 9309201
Date Received : 09/16/93
Project ID : 204-6138-0907
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentrations reported as diesel for samples S-1, S-3, and DUP are primarily due to the presence of a lighter petroleum product of hydrocarbon range C6-C12, possibly gasoline.

Cheryl Boelman 9/25/93
Department Supervisor Date

CR Patel 09127193
Chemist Date

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

Anametrix W.O.: 9309201
Matrix : WATER
Date Sampled : 09/15/93

Project Number : 204-6138-0907
Date Released : 09/25/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# S-1 -01	Sample I.D.# S-3 -02	Sample I.D.# S-5 -03	Sample I.D.# S-6 -04	Sample I.D.# S-8 -05
Benzene	0.5	660	2000	ND	ND	ND
Toluene	0.5	28	34	ND	ND	ND
Ethylbenzene	0.5	160	150	ND	ND	ND
Total Xylenes	0.5	17	51	ND	ND	ND
TPH as Gasoline	50	3000	4800	ND	ND	ND
% Surrogate Recovery		131%	116%	118%	115%	121%
Instrument I.D.		HP8	HP12	HP8	HP8	HP8
Date Analyzed		09/20/93	09/23/93	09/20/93	09/20/93	09/20/93
RLMF		25	25	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.

Reggie Davisson 9/27/93
Analyst / Date

Cheryl Burmes 9/27/93
Supervisor / Date

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

Anametrix W.O.: 9309201
Matrix : WATER
Date Sampled : 09/15/93

Project Number : 204-6138-0907
Date Released : 09/25/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# DUP -06	Sample I.D.# TB -07	Sample I.D.# BS2001E2 BLANK	Sample I.D.# BS2301E2 BLANK
Benzene	0.5	1900	ND	ND	ND
Toluene	0.5	28	ND	ND	ND
Ethylbenzene	0.5	140	ND	ND	ND
Total Xylenes	0.5	46	ND	ND	ND
TPH as Gasoline	50	5100	ND	ND	ND
% Surrogate Recovery		117%	118%	117%	106%
Instrument I.D.		HP12	HP8	HP8	HP12
Date Analyzed		09/23/93	09/20/93	09/20/93	09/23/93
RLMF		25	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.

PRPatel 09127193
Analyst Date

Cheryl Bateman 9/25/93
Supervisor Date

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

Anametrix W.O.: 9309201
Matrix : WATER
Date Sampled : 09/15/93
Date Extracted: 09/21/93

Project Number : 204-6138-0907
Date Released : 09/25/93
Instrument I.D.: HP23

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (ug/L)	Amount Found (ug/L)	Surrogate Recovery
9309201-01	S-1	09/23/93	50	610	69%
9309201-02	S-3	09/23/93	50	670	71%
9309201-03	S-5	09/23/93	50	ND	67%
9309201-04	S-6	09/23/93	50	ND	70%
9309201-05	S-8	09/23/93	50	160	70%
9309201-06	DUP	09/23/93	50	640	72%
BS2111F1	METHOD BLANK	09/23/93	50	ND	70%

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.

Anametrix control limits for recovery of surrogate C25 are 30-130

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

J R Patel 09/27/93
Analyst Date

Cheryl Balmer 9/25/93
Supervisor Date

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

Sample I.D. : 204-6138-0907 S-5
Matrix : WATER
Date Sampled : 09/15/93
Date Analyzed : 09/20/93

Anametrix I.D. : 09201-03MS
Analyst : AH
Supervisor : CM
Date Released : 09/25/93
Instrument I.D.: HP8

COMPOUND	SPIKE AMT (ug/L)	SAMPLE CONC (ug/L)	REC MS	%REC MS	REC MD (ug/L)	%REC MD	RPD	%REC LIMITS
BENZENE	20.0	0.0	16.6	83%	17.3	87%	4%	45-139
TOLUENE	20.0	0.0	18.5	93%	19.0	95%	3%	51-138
ETHYLBENZENE	20.0	0.0	19.3	97%	19.9	99%	3%	48-146
TOTAL XYLENES	20.0	0.0	19.5	98%	19.9	99%	2%	50-139
p-BFB				99%		103%		61-139

* Quality control established by Anametrix, Inc.

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

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: MS2001E3
Matrix	: WATER	Analyst	: BRE
Date Sampled	: N/A	Supervisor	: CJ
Date Analyzed	: 09/20/93	Date Released	: 09/25/93
		Instrument ID	: HP8

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	18.1	91%	52-133
Toluene	20.0	19.5	98%	57-136
Ethylbenzene	20.0	20.5	102%	56-139
TOTAL Xylenes	20.0	20.8	104%	56-141
P-BFB			113%	61-139

* Limits established by Anametrix, Inc.

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

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: MS230ÎE3
Matrix	: WATER	Analyst	: RD
Date Sampled	: N/A	Supervisor	: os
Date Analyzed	: 09/23/93	Date Released	: 09/25/93
		Instrument ID	: HP12

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	22.5	113%	52-133
Toluene	20.0	23.5	118%	57-136
Ethylbenzene	20.0	25.1	126%	56-139
TOTAL Xylenes	20.0	25.0	125%	56-141
P-BFB			122%	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
Matrix : WATER
Date Sampled : N/A
Date Extracted: 09/21/93
Date Analyzed : 09/22/93

Anametrix I.D. : MS2111F1
Analyst : AR
Supervisor : CS
Date Released : 09/25/93
Instrument I.D.: HP23

COMPOUND	SPIKE AMT (ug/L)	LCS REC (ug/L)	% REC LCS	LCSD REC (ug/L)	% REC LCSD	RPD	% REC LIMITS
DIESEL	1250	1160	93%	1110	89%	-4%	47-130
SURROGATE			78%		74%		30-130

*Quality control established by Anametrix, Inc.

WELL GAUGING DATA

930915-F-1 Shell WIC # 204-6138-0907

Project # ~~930915-F-1~~ Date 9/22/93 Client S.O.C

Site 5257 Hopyard, pleasanton Sampler JMJ

Well I.D.	Well Size (in.)	Sheen/ Odor	Depth to Immisible Liquid (feet)	Thickness of Immisible Liquid (ft.)	Volume of Immisibles Removed (ml)	Depth to Water (feet)	Depth to Well Bottom (feet)	Measured to: Top of Pipe or Grade
S-1	3					8.68	29.94	Grade
S-2	3					8.91	24.57	
S-3	3					9.65	24.83	
S-4	3					9.30	24.54	
S-5	3					9.92	24.72	
S-6	3					8.61	26.04	
S-7	3					8.57	25.36	
S-8	3					7.67	25.24	

SHELL WELL MONITORING DATA SHEET

Project #: 930915F1	Wic # 2046138 0907
Sampler: Tom Flory	Date Sampled: 9-15-93
Well I.D. 5-1	Well Diameter: (circle one) 2 (3) 4 6 ___
Total Well Depth: Before 29.95 After	Depth to Water: Before 8.57 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC (Grade) Other --	

Volume Conversion Factor (VCF):
$(12 \times (d^2/4) \times \pi)/231$
where
12 = in/foot
d = diameter (in.)
π = 3.1416
231 = inch³/gal

Well dia.	VCF
2"	= 0.16
3"	= 0.37
4"	= 0.65
6"	= 1.47
10"	= 4.08
12"	= 5.87

8.0	x	3	=	24.0
1 Case Volume		Specified Volumes		gallons

Purging: Bailer ☐ Middleburg ☒ Electric Submersible ☐ (BTS Dedicated) Suction Pump ☐ Type of Installed Pump ___

Sampling: Bailer ☐ Middleburg ☐ Electric Submersible ☐ Suction Pump ☐ Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1420	69.5	7.7	2400	28.5	8.0	Strong
1428	68.6	7.5	2400	13.9	16.0	odor
1436	69.5	7.4	2400	9.7	24.0	
[redacted]						

Did Well Dewater? no If yes, gals. Gallons Actually Evacuated: 24.0

Sampling Time: 1450

Sample I.D.: 5-1 Laboratory: (A)

Analyzed for: TRH6/BTEX/TRH0

Duplicate I.D.: Cleaning Blank I.D.:

Analyzed for:

Shipping Notations:

Additional Notations:

SHELL WELL MONITORING DATA SHEET

Project #: 930915F1	Wic # 204613809 07
Sampler: Tom Flory	Date Sampled: 9-15-93
Well I.D.: S-3	Well Diameter: (circle one) 2 (3) 4 6 ___
Total Well Depth: Before 24.86 After	Depth to Water: Before 9.58 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC (Grade) Other --	

Volume Conversion Factor (VCF):

$(12 \times (d^2/4) \times \pi)/231$

Where

12 = in./feet
d = diameter (in.)
π = 3.1416
231 = in^3/gal

Well dia.	VCF
2"	= 0.16
3"	= 0.37
4"	= 0.65
6"	= 1.47
10"	= 4.08
12"	= 5.87

1 Case Volume	x Specified Volumes	= gallons
5.5	3	16.5

Purging: Bailer ☐ Middleburg ☑ Electric Submersible ☐ Suction Pump ☐ Type of Installed Pump BTS DEDICATED

Sampling: Bailer ☐ Middleburg ☐ Electric Submersible ☐ Suction Pump ☐ Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1340	69.3	7.2	1700	8.2	5.5	Strong odor
1347	69.1	7.2	2000	4.1	11.0	" "
1353	69.0	7.2	1900	3.7	16.5	" "
[redacted]						

Did Well Dewater? no If yes, gals. Gallons Actually Evacuated: 17

Sampling Time: 1355

Sample I.D.: S-3 Laboratory: (A)

Analyzed for: TPH6/BTEX/TPHD

Duplicate I.D.: DUP Cleaning Blank I.D.:

Analyzed for: TPH6/BTEX/TPHD

Shipping Notations:

Additional Notations:

SHELL WELL MONITORING DATA SHEET

Project #: 930915 F1	Wic # 204 6138 0907
Sampler: Tom Flory	Date Sampled: 9-15-93
Well I.D.: S-5	Well Diameter: (circle one) 2 (3) 4 6 ___
Total Well Depth: Before 24.73 After	Depth to Water: Before 9.90 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC (Grade) Other --	

Volume Conversion Factor (VCF):
$(12 \times (d^2/4) \times \pi)/231$
Where
12 = in/foot
d = diameter (in.)
π = 3.1416
231 = in³/gal

Well dia.	VCF
2"	= 0.16
3"	= 0.37
4"	= 0.65
6"	= 1.47
10"	= 4.08
12"	= 5.87

5.5	x	3	=	16.5
1 Case Volume		Specified Volumes		gallons

Purging: Bailer ☐ Middleburg ☑ Electric Submersible ☐ Suction Pump ☐ Type of Installed Pump BTS DEDICATED

Sampling: Bailer ☑ Middleburg ☐ Electric Submersible ☐ Suction Pump ☐ Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1505	70.6	7.9	1100	136.9	5.5	
1511	68.5	7.5	1000	25.6	11	
1517	67.1	7.2	1000	7.8	16.5	

Did Well Dewater? N If yes, gals. Gallons Actually Evacuated: 17

Sampling Time: 1520

Sample I.D.: S-5 Laboratory: A

Analyzed for: TPHG/BTEX/TPHD

Duplicate I.D.: Cleaning Blank I.D.:

Analyzed for:

Shipping Notations:

Additional Notations:

SHELL WELL MONITORING DATA SHEET

Project #: 930915F1	Wic # 204 6138 0907
Sampler: Tom Floey	Date Sampled: 9-15-93
Well I.D. S-6	Well Diameter: (circle one) 2 (3) 4 6 ___
Total Well Depth: Before 26.06 After	Depth to Water: Before 8.55 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC (Grade) Other --	

Volume Conversion Factor (VCF):

$$(12 \times (d^2/4) \times \pi)/231$$

Where
12 = in/foot
d = diameter (in.)
π = 3.1416
231 = in3/gal

Well dia.	VCF
2"	= 0.16
3"	= 0.37
4"	= 0.65
6"	= 1.47
10"	= 4.08
12"	= 5.87

1 Case Volume		Specified Volumes	=	gallons
6.5	x	3		19.5

Purging: Bailer ☐ BTS
Middleburg ☑
Electric Submersible ☐ DEDICATED
Suction Pump ☐
Type of Installed Pump _____

Sampling: Bailer ☑
Middleburg ☐
Electric Submersible ☐
Suction Pump ☐
Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1310	71.6	7.7	1300	24.4	7	
1318	72.2	7.8	500	13.2	14	
1325	72.3	7.9	400	15.0	20	

Did Well Dewater? no If yes, gals. Gallons Actually Evacuated: 20

Sampling Time: 1330

Sample I.D.: S-6 Laboratory: (A)

Analyzed for: TPH G/BTEX/TPH D

Duplicate I.D.: Cleaning Blank I.D.:

Analyzed for:

Shipping Notations:

Additional Notations:

SHELL WELL MONITORING DATA SHEET

Project #: 930915 F1	Wic # 204 6138 0907
Sampler: Tom Flory	Date Sampled: 9-15-93
Well I.D.: S-8	Well Diameter: (circle one) 2 (3) 4 6 ___
Total Well Depth: Before 25.23 After	Depth to Water: Before 7.60 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC (Grade) Other --	

Volume Conversion Factor (VCF):

$(12 \times (d^2/4) \times \pi)/231$

Where

12 = in./foot
d = diameter (in.)
π = 3.1416
231 = in³/gal

Well dia.	VCF
2"	= 0.16
3"	= 0.37
4"	= 0.65
6"	= 1.47
10"	= 4.08
12"	= 5.87

1 Case Volume		Specified Volumes		gallons
6.5	x	3	=	19.5

Purging: Bailer ☐ Middleburg ☑ Electric Submersible ☐ Suction Pump ☐ Type of Installed Pump BTS Dedicated

Sampling: Bailer ☑ Middleburg ☐ Electric Submersible ☐ Suction Pump ☐ Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
12.43	68.3	7.1	3200	42.8	6.5	
1250	68.1	7.1	3100	12.1	13.0	
1258	68.3	7.1	3800	30.5	19.5	

Did Well Dewater? no If yes, gals. Gallons Actually Evacuated: 20

Sampling Time: 1301

Sample I.D.: S-8 Laboratory: (BP)

Analyzed for: TPHG / BTEX / TPHD

Duplicate I.D.: Cleaning Blank I.D.:

Analyzed for:

Shipping Notations:

Additional Notations: