Weiss Associates
Environmental and Geologic Services
5500 Shellmound Street, Emeryville, CA 94608-2411
Fax: 510-547-5043 Phone: 510-450-6000

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July 14, 1993

Jennifer Eberle
Alameda County Department
of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621-1426

Re: ACDEH STID #1107
Shell Service Station
WIC #204-6001-0109
29 Wildwood Avenue
Piedmont, California
WA Job #81-463-203

Dear Ms. Eberle:

This letter describes recently completed and anticipated activities at the Shell service station referenced above (Figure 1). This status report satisfies the quarterly reporting requirements prescribed by California Administrative Code Title 23 Waters, Chapter 3, Subchapter 16, Article 5, Section 265.d. Included below are descriptions and results of activities performed in the second quarter 1993 and proposed work for the third quarter 1993.

Second Quarter 1993 Activities:

- Blaine Tech Services, Inc. (BTS) San Jose, California measured ground water depths in five of the six wells and collected water samples from all six wells. The ground water depth was not measured in well E-4 since it is a flowing artesian well. BTS' report describing these activities and the analytic report for the ground water samples are included as Attachment A.

- Weiss Associates (WA) compiled the ground water elevation and analytic data (Tables 1 and 2, respectively) and prepared a ground water elevation contour map (Figure 2).

- WA attempted to install a ground water monitoring well at the proposed location on Grand Avenue downgradient of the site (Figure 2). However, a well could not be installed because an unmarked, large diameter, concrete storm sewer was encountered at about 5 ft depth in the only area that was free of utilities. There

appears to be no other location where a monitoring well can be installed in this vicinity due to underground utilities.

- BTS measured dissolved oxygen concentrations in ground water in all site wells (Table 2). The lower dissolved oxygen concentrations in wells MW-2 and MW-3 relative to the other shallow-zone wells indicate that natural hydrocarbon biodegredation is occurring.

Anticipated Third Quarter 1993 Activities:

- WA will submit a report presenting the results of third quarter 1993 ground water sampling and ground water depth measurements. The report will include tabulated ground water elevation and analytic data, dissolved oxygen concentrations and a ground water elevation contour map.

Conclusions and Recommendations

As we previously discussed, WA recommends continued measurement of dissolved oxygen concentrations in ground water to monitor the progress of hydrocarbon biodegradation by naturally occurring microorganisms.

Please call if you have any questions.

Sincerely,
Weiss Associates

J. Michael Asport
Technical Assistant

N. Scott MacLeod, R.G.
Project Geologist

JMA/NSM:jma

J:\SHELL\450\QMRPTS\463QMJU3.WP

Attachments: Figures
Tables
A - BTS' Ground Water Monitoring Report

cc: Dan Kirk, Shell Oil Company, P.O. Box 5278, Concord, California 94520-9998
Lester Feldman, Regional Water Quality Control Board - San Francisco Bay, 2101 Webster Street, Suite 500, Oakland, California 94612

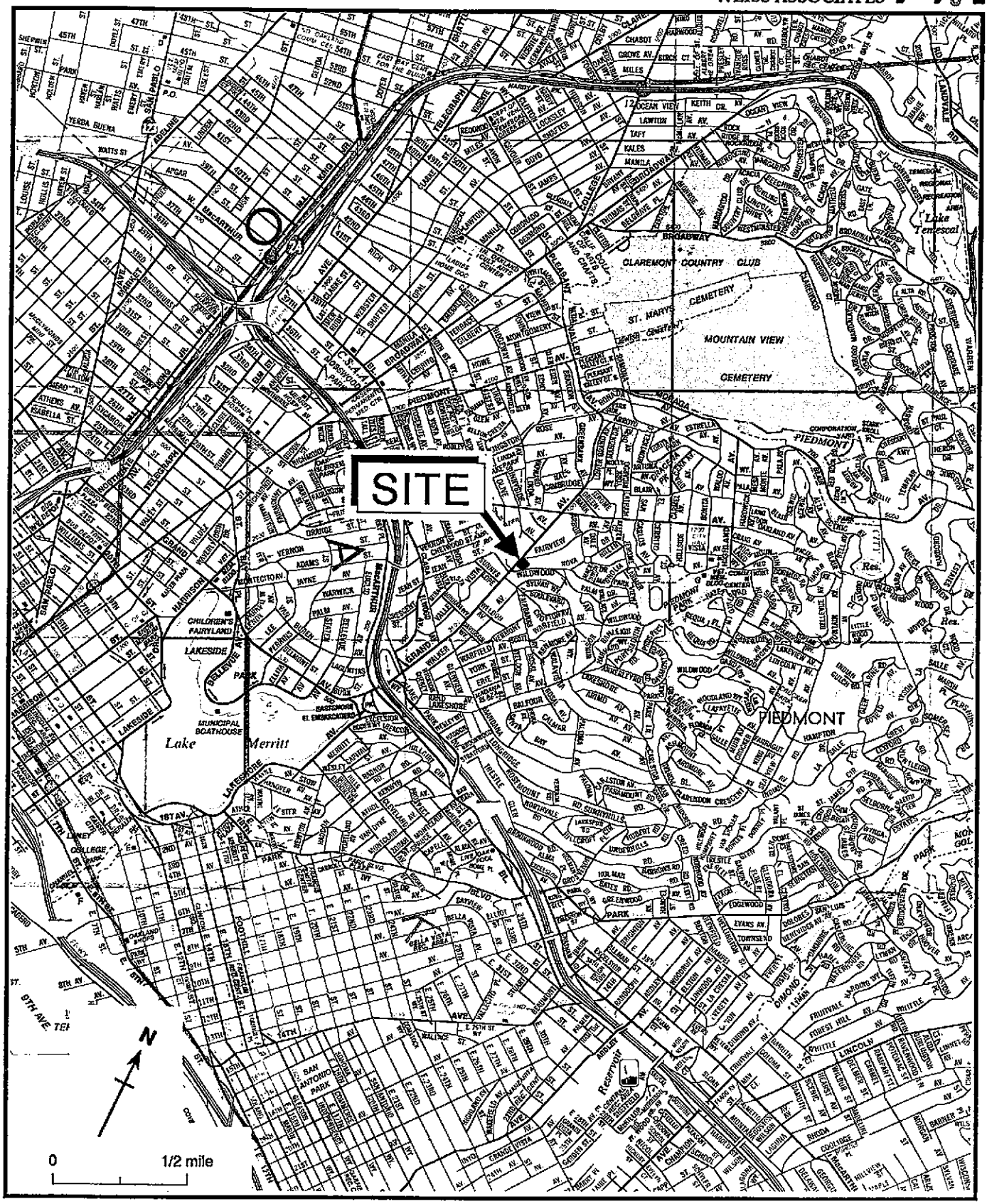

Figure 1. Site Location Map - Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California

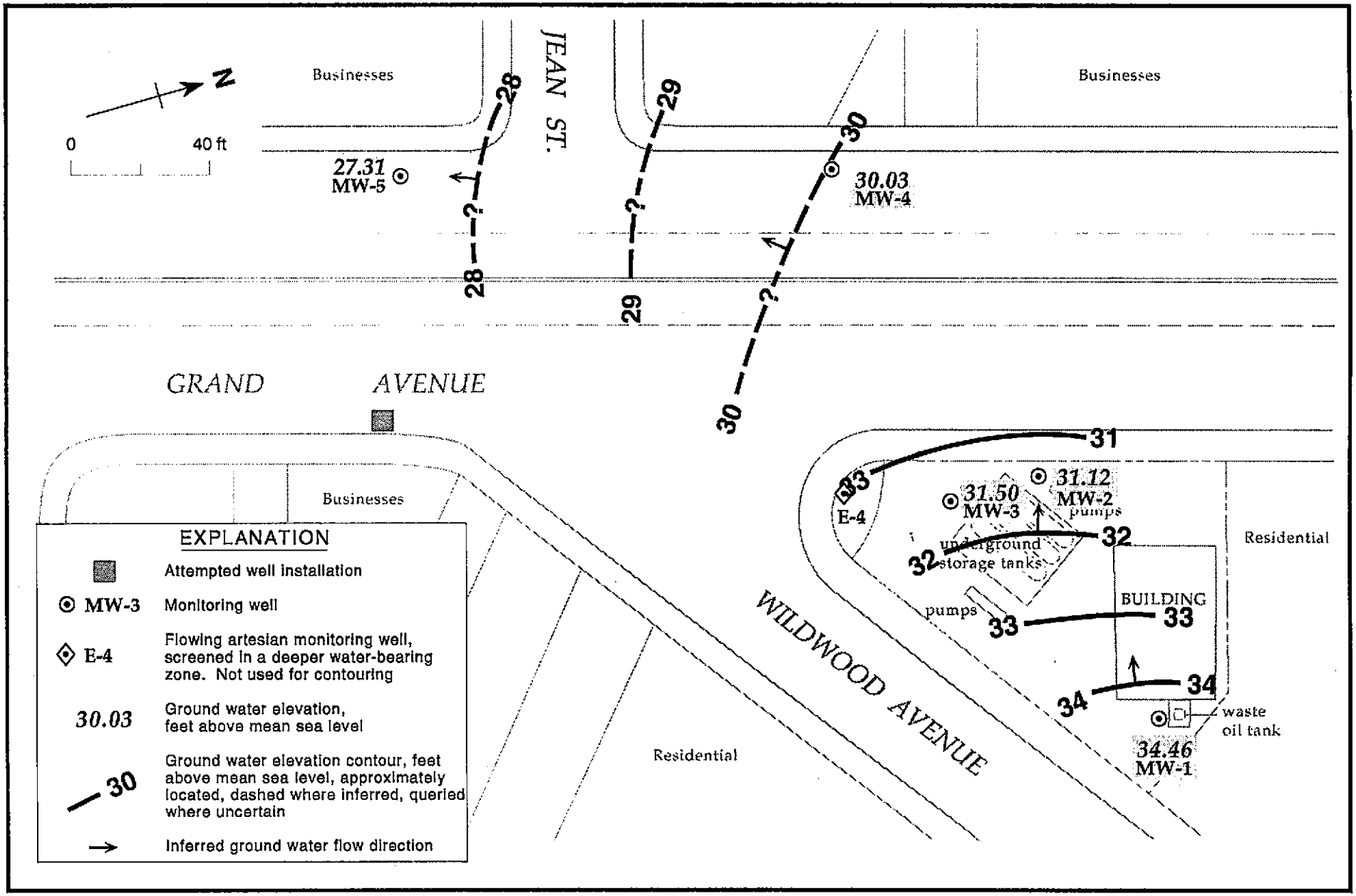

Figure 2. Monitoring Well Locations and Ground Water Elevation Contours - May 3, 1993 - Shell Service Station, WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California

TABLE 1. Ground Water Elevations - Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-1	07/12/89	37.96	2.76	35.20
	01/30/90		3.10	34.86
	04/27/90		3.24	34.72
	07/31/90		4.26	33.70
	10/30/90		4.25	33.71
	01/31/91		3.66	34.30
	04/30/91		3.46	34.50
	07/30/91		4.14	33.82
	10/29/91		3.96	34.00
	01/20/92		3.59	34.37
	04/14/92		3.18	31.71
	07/21/92		4.17	33.79
	10/02/92		4.29	33.67
	01/20/93		2.32	35.64
	05/03/93		3.50	34.46
MW-2	07/12/89	34.89	3.66	31.23
	01/30/90		3.49	31.40
	04/27/90		3.79	31.10
	07/31/90		4.03	30.86
	10/30/90		4.21	30.68
	01/31/91		4.09	30.80
	04/30/91		3.95	30.94
	07/30/91		4.07	30.82
	10/29/91		4.11	30.78
	01/20/92		3.86	31.03
	04/14/92		3.66	34.30
	07/21/92		3.92	30.97
	10/02/92		4.45	30.44
	01/20/93		3.74	31.15
	05/03/93		3.77	31.12
MW-3	07/12/89	35.00	3.83	31.17
	01/30/90		3.24	31.76
	04/27/90		4.02	30.98
	07/31/90		4.31	30.69
	10/30/90		4.52	30.48
	01/31/91		4.33	30.67
	04/30/91		3.79	31.21
	07/30/91		4.37	30.63
	10/29/91		4.00	31.00
	01/20/92		3.87	31.13
	04/14/92		3.15	31.85
	07/21/92		4.17	30.83
	10/02/92		4.43	30.57

— Table 2 continues on next page —

TABLE 1. Ground Water Elevations - Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
	01/20/93		2.20	32.80
	05/03/93		3.50	31.50
MW-4	01/30/90	33.73	4.50	29.23
	04/27/90		3.62	30.11
	07/31/90		4.19	29.54
	10/30/90		4.19	29.54
	01/31/91		4.49	29.24
	04/30/91		4.02	29.71
	07/30/91		4.39	29.34
	10/29/91		3.75	29.98
	01/20/92		3.94	29.79
	04/14/92		3.71	30.02
	07/21/92		4.02	29.71
	10/02/92		4.13	29.60
	01/20/93		3.10	30.63
	05/03/93		3.70	30.03
MW-5	01/30/90	31.38	7.12	24.26
	04/27/90		4.19	27.19
	07/31/90		4.09	27.29
	10/30/90		4.39	26.99
	01/31/91		4.49	26.89
	04/30/91		4.27	27.11
	07/30/91		4.32	27.06
	10/29/91		3.79	27.59
	01/20/92		4.09	27.29
	04/14/92		4.12	27.26
	07/21/92		4.13	27.25
	10/02/92		4.30	27.08
	01/20/93		3.12	28.26
	05/03/93		4.07	27.31
E-4	07/12/89	34.63	a	>39.13
	01/30/90		b	>34.63
	04/27/90		b	>34.63
	07/31/90		b	>34.63
	10/30/90		b	>34.63
	01/31/91		b	>34.63
	04/30/91		b	>34.63
	07/30/91		b	>34.63
	10/29/91		b	>34.63
	01/20/92		b	>34.63
	04/14/92		b	>34.63
	07/21/92		b	>34.63

— Table 2 continues on next page —

TABLE 1. Ground Water Elevations - Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
	10/02/92		b	>34.63
	01/20/93		b	>34.63
	05/03/93		b	>34.63

a = Well E-4 is a flowing artesian well. The potentiometric surface was greater than 4.5 ft above ground surface.
b = Well E-4 potentiometric surface was higher than the top of well casing.

Table 2. Analytic Results for Ground Water, Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	B	E	T	X	HVOCs	Dissolved Oxygen[a]
			<----------parts per million (mg/L)---------->						
MW-1	07/12/89	2.76	<0.05	<0.0005	<0.001	<0.001	<0.003	b	---
	01/30/90	3.10	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/27/90	3.24	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/31/90	4.26	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/30/90	4.25	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/31/91	3.66	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/30/91	3.46	<0.05	0.0008	0.0006	<0.0005	0.0012	---	---
	07/30/91	4.14	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/29/91	3.96	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/92	3.59	<0.03	<0.0003	<0.0003	<0.0003	<0.0003	---	---
	04/14/92	3.18	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/21/92	4.17	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/02/92	4.29	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/93	2.32	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	05/04/93	3.50	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	1.93
MW-2	07/12/89	3.66	0.060	0.0027	<0.001	<0.001	<0.003	b	---
	01/30/90	3.49	<0.05	0.0066	0.00054	<0.0005	0.00093	---	---
	04/27/90	3.79	0.060	0.0021	<0.0005	<0.0005	<0.0005	---	---
	07/31/90	4.03	0.070	0.0015	<0.0005	<0.0005	<0.0005	---	---
	10/30/90	4.21	0.070	<0.0005	<0.0005	0.0007	0.0016	---	---
	01/31/91	4.09	0.080	<0.0005	0.0009	<0.0005	0.0019	---	---
	04/30/91	3.95	0.10	0.0059	0.0007	0.0006	0.0020	---	---
	07/30/91	4.07	<0.05	<0.0005	<0.0005	<0.0007	<0.0005	---	---
	10/29/91	4.11	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/92	3.86	<0.03	0.00084	<0.00041	<0.0003	<0.00048	---	---
	04/14/92	3.66	0.07	0.016	0.0031	<0.0005	0.0021	---	---
	07/21/92	3.92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/02/92	4.45	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/93	3.74	<0.05	0.0038	0.00052	<0.0005	<0.0005	---	---
	05/04/93	3.77	0.68[c]	0.0028	<0.0005	<0.0005	<0.0005	---	0.90
MW-3	07/12/89	3.83	3.9	0.38	0.099	0.041	0.030	e	---
	01/30/90	3.24	5.5	0.44	0.079	0.035	0.13	---	---
	04/27/90	4.02	4.5	0.31	0.037	0.026	0.11	---	---
	07/31/90	4.31	3.5	0.21	0.0084	0.017	0.062	---	---
	10/30/90	4.52	2.3	0.061	<0.0005	<0.0005	0.028	---	---
	01/31/91	4.33	4.1	0.30	0.019	0.020	0.081	---	---
	04/30/91	3.79	3.8	0.37	0.0086	0.019	0.060	---	---
	07/30/91	4.37	3.3	0.16	0.015	0.013	0.087	---	---
	10/29/91	4.00	1.0	0.035	0.0029	0.0028	0.0081	---	---
	01/20/92	3.87	6.9	0.38	0.047	0.018	0.048	---	---
	04/14/92	3.15	6.0	0.48	0.041	0.038	0.055	---	---

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Table 2. Analytic Results for Ground Water, Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	B	E	T	X	HVOCs	Dissolved Oxygen*
			<----------parts per million (mg/L)---------->						
	07/21/92	4.17	3.7	0.33	0.03	0.013	0.023	---	---
	10/02/92	4.43	4.2	0.26	0.013	0.010	0.012	---	---
	01/20/93	2.20	4.2	0.36	0.032	0.015	0.026	---	---
	01/20/93[dup]	2.20	3.9	0.37	0.032	0.015	0.026	---	---
	05/04/93	3.50	12	0.29	0.12	0.52	0.62	---	0.63
MW-4	01/31/90	4.50	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/27/90	3.62	0.13[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/31/90	4.19	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/30/90	4.19	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/31/91	4.49	0.05[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/30/91	4.02	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	e	---
	07/30/91	4.39	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/29/91	3.75	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/92	3.94	<0.03	<0.0003	<0.0003	<0.0003	<0.0003	---	---
	04/14/92	3.71	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/21/92	4.02	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/02/92	4.13	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/93	3.10	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	05/04/93	3.70	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	1.74
MW-5	01/31/90	7.12	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/27/90	4.19	0.21[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/31/90	4.09	0.090	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/30/90	4.39	0.10	0.0008	0.0006	0.0007	0.0014	---	---
	01/31/91	4.49	0.080[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/30/91	4.27	0.09	<0.0005	<0.0005	<0.0005	<0.0005	f	---
	07/30/91	4.37	0.09	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/29/91	3.79	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/92	4.09	<0.03	<0.0003	<0.0003	<0.0003	<0.0003	---	---
	04/14/92	4.12	<0.05[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/21/92	4.13	0.074[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/02/92	4.30	0.076[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/93	3.12	0.072[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	05/04/93	4.07	0.07[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	1.62
	05/04/93[dup]	4.07	0.08[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
E-4	07/12/89	g	<0.05	<0.0005	<0.001	<0.001	<0.003	---	---
	01/31/90	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/27/90	g	0.12[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/31/90	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/30/90	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---

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Table 2. Analytic Results for Ground Water, Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	B	E	T	X	HVOCs	Dissolved Oxygen[a]
			<----------parts per million (mg/L)---------->						
	01/31/91	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/30/91	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	a	---
	07/30/91	g	<0.05	<0.0005	<0.0005	0.0006	<0.0005	---	---
	10/29/91	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/92	g	<0.03	<0.0003	<0.0003	<0.0003	<0.0003	---	---
	04/14/92	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/21/92	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/02/92	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/93	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	05/04/93	g	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	0.63
Trip Blank	07/12/89		<0.05	<0.0005	<0.001	<0.001	<0.003	---	---
	01/31/90		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/27/90		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/31/90		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/30/90		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/31/91		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	04/30/91		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	07/30/91		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/29/91		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/02/92		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/20/93		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	05/03/93		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
Bailer Blank	04/27/90		0.11[c]	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	01/31/91		<0.05	<0.0005	<0.0005	<0.0005	<0.0005	---	---
	10/02/92		ND	ND	ND	ND	ND	---	---
DTSC MCLs			NE	0.001	0.680	0.10[h]	1.750	i	

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Table 2. Analytic Results for Ground Water, Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California (continued)

Abbreviations:

TPH-G = Total Petroleum Hydrocarbons as Gasoline by Modified EPA Method 8015
B = Benzene by EPA Method 602 or 8020
E = Ethylbenzene by EPA Method 602 or 8020
T = Toluene by EPA Method 602 or 8020
X = Xylenes by EPA Method 602 or 8020
HVOCs = Halogenated volatile organic compounds by EPA Method 601 or 624
--- = Not analyzed
NE = Not established
DTSC MCLs = California Department of Toxic Substances Control maximum contaminant levels for drinking water
<n = Not detected above detection limit of n ppm

Notes:

a = No HVOCs detected.
b = Field measurement of dissolved oxygen concentration (ppm)
c = Chromatogram contained discrete peaks; not representative of gasoline
d = BETX detected at 0.41, 0.097, 0.036 and 0.30 ppm, respectively, by EPA Method 624.
e = 0.015 ppm tetrachloroethene (PCE), 0.0041 ppm trichloroethene (TCE) and 0.0034 ppm trans-1,2-dichloroethene (DCE) detected
f = 0.22 ppm PCE, 0.022 ppm TCE and 0.017 ppm DCE detected
g = Artesian well; potentiometric surface above top-of-casing elevation.
h = DTSC recommended action level for drinking water; MCL not established.
i = DTSC MCLs for PCE = 0.005 ppm; TCE = 0.005 ppm; DCE = 0.01 ppm.

ATTACHMENT A

BTS' GROUND WATER MONITORING REPORT

BLAINE
TECH SERVICES INC.

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

May 24, 1993

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

Attn: Daniel T. Kirk

SITE:
Shell WIC # 204-6001-0109
29 Wildwood Avenue
Piedmont, California

QUARTER:
2nd quarter of 1993

QUARTERLY GROUNDWATER SAMPLING REPORT 930503-A-2

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)
MW-1	4	05-03-93	TOP OF PIPE	--	NONE	--	--	3.50	13.16
MW-2	4	05-03-93	TOP OF PIPE	--	NONE	--	--	3.77	12.56
MW-3	4	05-03-93	TOP OF PIPE	ODOR	NONE	--	--	3.50	9.06
MW-4	4	05-03-93	TOP OF PIPE	--	NONE	--	--	3.70	12.52
MW-5 *	4	05-03-93	TOP OF PIPE	--	NONE	--	--	4.07	16.07
E-4	3	05-03-93	TOP OF PIPE	--	NONE	--	--	0	34.26

* Sample DUP was a duplicate sample taken from well MW-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

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: chain of custody
certified analytical report

cc: Weiss Associates
5500 Shellmound Street
Emeryville, CA 94608-2411
ATTN: Michael Asport

17:30 pm

9305052 (18)

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No:_____

Date: 5/4/93
Page 1 of 1

Site Address: 29 Wildwood Ave. Piedmont

WIC#: 204-6001-0109

Shell Engineer: Daniel Kirk — Phone No.: — Fax #:

Consultant Name & Address: Blaine Technical Services

Consultant Contact: Glenn Bennett — Phone No.: — Fax #:

Comments:

Sampled by: Jeff Curtis

Printed Name: Jeff Curtis

LAB: ANAMETRIX

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) MW-1	5/4			X		3	X		X			X							Ground Water	
(2) MW-2	5/4			X		3	X		X			X							GW	
(3) MW-3	5/4			X		3			X			X							GW	
(4) MW-4	5/4			X		3			X			X							GW	
(5) MW-5	5/3			X		3			X			X							GW	
(6) Dup.	5/3	mn		X		3			X			X								
(7) E-4	5/4			X		3			X			X							GW	
(8) Trip	5/3			X		2			X			X								

CHECK ONE (1) BOX ONLY — CT/DT

- Quarterly Monitoring ☒ 6461
- Site Investigation ☐ 6461
- Soil Closure/Disposal ☐ 6462
- Water Closure/Disposal ☐ 6463
- 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 hrs. TAT.

Relinquished By (signature)	Printed Name	Date	Time	Received (signature)	Printed Name	Date	Time
[signature]	Jeff Curtis	5-4-93	1515	Benny S. Carrasco	Benny S. Carrasco	5-5-93	1515
Benny S. Carrasco	Benny S. Carrasco	5-5-93	1600	[signature]	Maria Barajas	5/6/93	1600
		Date:				Date:	
		Time:				Time:	

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

ANAMETRIX INC
Environmental & Analytical Chemistry

Part of INCHCAPE ENVIRONMENTAL

REPORT

MR. GLEN BENNETT
BLAINE TECH
985 TIMOTHY STREET
SAN JOSE, CA 95133

Workorder # : 9305052
Date Received : 05/06/93
Project ID : 204-6001-0109
Purchase Order: MOH-B813

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

ANAMETRIX ID	CLIENT SAMPLE ID
9305052- 1	MW-1
9305052- 2	MW-2
9305052- 3	MW-3
9305052- 4	MW-4
9305052- 5	MW-5
9305052- 6	DUP
9305052- 7	E-4
9305052- 8	TRIP

This report consists of 6 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.

Nancy Kent for

Sarah Schoen, Ph.D.
Laboratory Director

5-20-93
Date

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

MR. GLEN BENNETT
BLAINE TECH
985 TIMOTHY STREET
SAN JOSE, CA 95133

Workorder # : 9305052
Date Received : 05/06/93
Project ID : 204-6001-0109
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9305052- 1	MW-1	WATER	05/04/93	TPHg/BTEX
9305052- 2	MW-2	WATER	05/04/93	TPHg/BTEX
9305052- 3	MW-3	WATER	05/04/93	TPHg/BTEX
9305052- 4	MW-4	WATER	05/04/93	TPHg/BTEX
9305052- 5	MW-5	WATER	05/03/93	TPHg/BTEX
9305052- 6	DUP	WATER	05/03/93	TPHg/BTEX
9305052- 7	E-4	WATER	05/04/93	TPHg/BTEX
9305052- 8	TRIP	WATER	05/03/93	TPHg/BTEX

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

MR. GLEN BENNETT
BLAINE TECH
985 TIMOTHY STREET
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Workorder # : 9305052
Date Received : 05/06/93
Project ID : 204-6001-0109
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentrations reported as gasoline for samples MW-2, MW-5 and DUP are primarily due to the presence of a discrete hydrocarbon peak not indicative of gasoline.

Department Supervisor Date

Chemist 5.20.93 Date

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

Anametrix W.O.: 9305052
Matrix : WATER
Date Sampled : 05/03 & 04/93

Project Number : 204-6001-0109
Date Released : 05/19/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-1 -01	Sample I.D.# MW-2 -02	Sample I.D.# MW-3 -03	Sample I.D.# MW-4 -04	Sample I.D.# MW-5 -05
Benzene	0.5	ND	2.5	290	ND	ND
Toluene	0.5	ND	ND	520	ND	ND
Ethylbenzene	0.5	ND	ND	120	ND	ND
Total Xylenes	0.5	ND	ND	620	ND	ND
TPH as Gasoline	50	ND	680	12000	ND	70
% Surrogate Recovery		89%	110%	124%	97%	94%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		05/11/93	05/11/93	05/17/93	05/11/93	05/11/93
RLMF		1	1	25	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.

Peggie Dawson 5/19/93
Analyst Date

Supervisor Date

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

Anametrix W.O.: 9305052 Project Number : 204-6001-0109
Matrix : WATER Date Released : 05/19/93
Date Sampled : 05/03 & 04/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# DUP -06	Sample I.D.# E-4 -07	Sample I.D.# TRIP -08	Sample I.D.# BY1101E3 BLANK	Sample I.D.# BY1701E3 BLANK
Benzene	0.5	ND	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND	ND	ND
TPH as Gasoline	50	80	ND	ND	ND	ND
% Surrogate Recovery		90%	97%	89%	86%	104%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		05/11/93	05/11/93	05/11/93	05/11/93	05/17/93
RLMF		1	1	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.

Peggie Davison 5/19/93
Analyst Date

Supervisor Date

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

Sample I.D.	: 204-6001-0109 MW-5	Anametrix I.D.	: 05052-05
Matrix	: WATER	Analyst	: RD
Date Sampled	: 05/03/93	Supervisor	: [illegible]
Date Analyzed	: 05/11/93	Date Released	: 05/19/93
		Instrument ID	: HP12

COMPOUND	SPIKE AMT (ug/L)	SAMPLE AMT (ug/L)	REC MS (ug/L)	% REC MS	REC MD (ug/L)	% REC MD	RPD	% REC LIMITS
GASOLINE	500	70	540	94%	530	92%	-2%	48-149
P-BFB				109%		105%		61-139

* Limits established by Anametrix, Inc.

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.	: LCSW0511
Matrix	: WATER	Analyst	: RD
Date Sampled	: N/A	Supervisor	:
Date Analyzed	: 05/11/93	Date Released	: 05/19/93
		Instrument I.D.	: HP12

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	500	450	90%	67-127
SURROGATE			89%	61-139

* Quality control established by Anametrix, Inc.