



July 16, 1995

Jennifer Eberle
Alameda County Department of Environmental Health
Hazardous Materials Division
1131 Harbor Bay Parkway, Second Floor
Alameda, California 94502-6577

95 AUG - 1 PM 3:20
ENVIRONMENTAL
HEALTH DIVISION

Re: **Second Quarter 1995**
Shell Service Station
WIC #204-6001-0109
29 Wildwood Avenue
Piedmont, California
WA Job #81-0463-205

Dear Ms. Eberle:

On behalf of Shell Oil Products Company, Weiss Associates (WA) has prepared this status report to satisfy the quarterly reporting requirements prescribed by California Administrative Code Title 23 Waters, Division 3, Chapter 16, Article 5, Section 2652.d. Because the site's ground water is sampled semi-annually, the site wells were not sampled this quarter. WA will continue to submit quarterly updates to your agency. I trust this submittal meets your needs. Please call me if you have any questions.

Sincerely,
Weiss Associates

Thomas Fojut
Project Geologist

cc: Dan Kirk, Shell Oil Products Company, PO Box 4023, Concord, California 94524
TF/:tf
1438121.00439289.DOC



HAZMAT
54 JUL -6 PM 3:49

June 16, 1994

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 #81-463-104

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 1994 and proposed work for the third quarter 1994.

Second Quarter 1994 Activities:

- Blaine Tech Services, Inc. (BTS) San Jose, California measured ground water depths and collected water samples from the site wells. 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).
- BTS measured dissolved oxygen concentrations in ground water in all site wells (Table 2). The dissolved oxygen concentrations are similar to last quarter and are more than sufficient to support natural hydrocarbon biodegradation. BTS will continue to measure dissolved oxygen concentrations.

How is O₂ measured? Concentrations are all over the map!!

Anticipated Third Quarter 1994 Activities:

- WA will submit a report presenting the results of third quarter 1994 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

The dissolved oxygen concentrations appear adequate for biochemical oxidation. According to Barker et al,¹ approximately 20 μg of dissolved oxygen are required for complete biochemical oxidization of 1 μg BETX in naturally occurring ground water. Based on the 7,290 to 12,460 $\mu\text{g}/\ell$ dissolved oxygen measured in ground water beneath the site, biochemical oxidation of about 360 to 620 $\mu\text{g}/\ell$ BETX is possible. Since BETX concentrations in ground water from all site wells fall within this range, there appears to be more than sufficient dissolved oxygen for biochemical oxidation of the hydrocarbons. Therefore, as we discussed in previous reports, WA recommends continued measurement of dissolved oxygen concentrations in ground water to monitor the progress of hydrocarbon biodegradation by naturally occurring microorganisms.

¹ Barker, J.F., et al, 1987, Natural Attenuation of Aromatic Hydrocarbons in a Shallow Sand Aquifer, Ground Water Monitoring Review, 7(1):64-71.

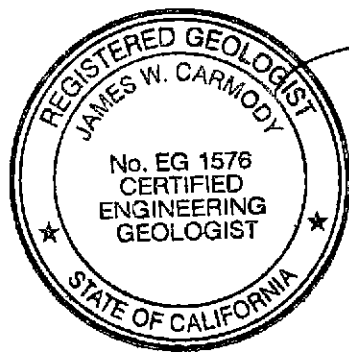
Jennifer Eberle
June 16, 1994


3

Weiss Associates 

Please call if you have any questions.

Sincerely,
Weiss Associates




J. Michael Asport
Technical Assistant


James W. Carmody, C.E.G.
Senior Hydrogeologist

JMA/JWC:jma

J:\SHELL\450\QMRPTS\463QMMY4.WP

Attachments: A - BTS' Ground Water Monitoring Report

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

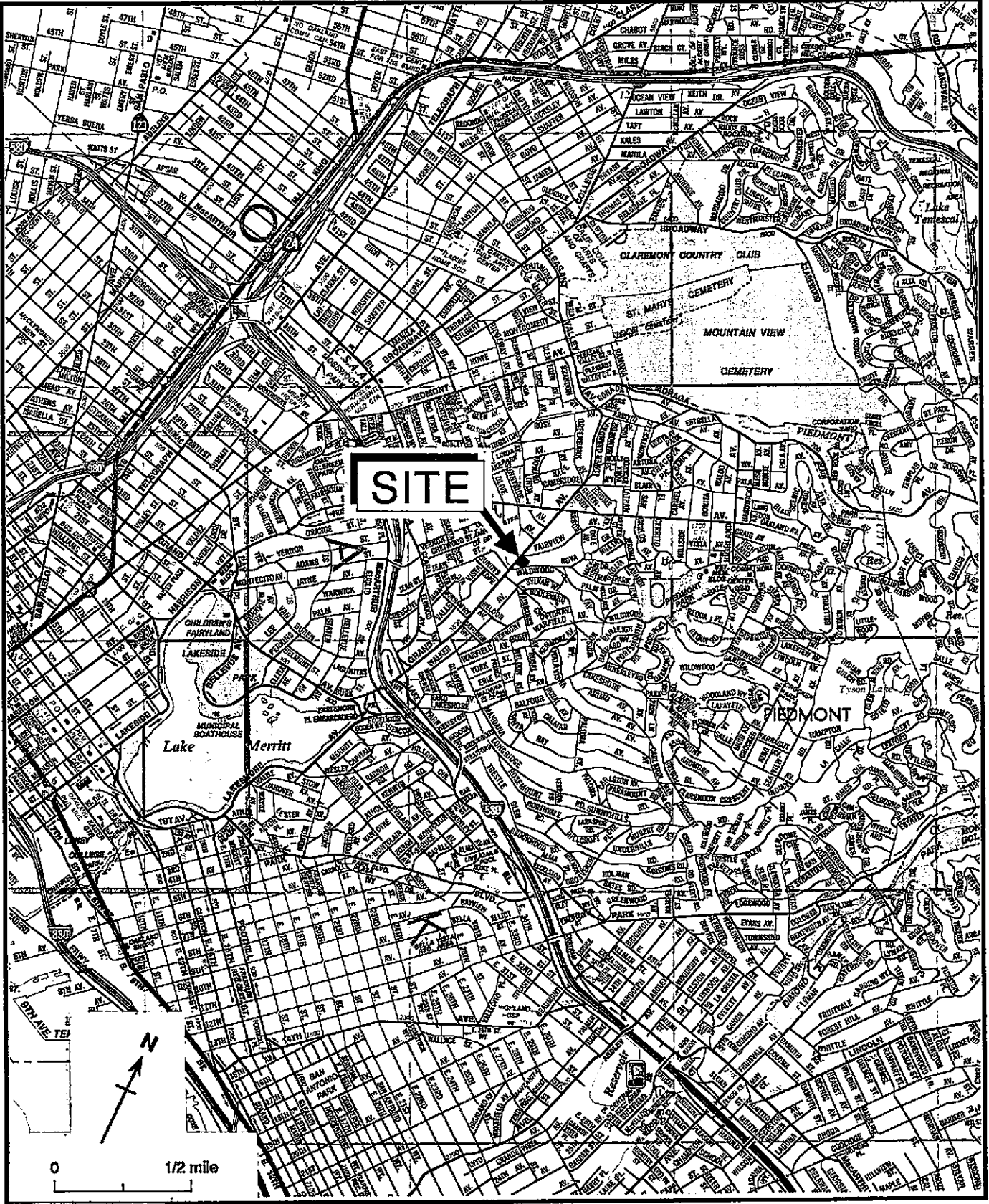
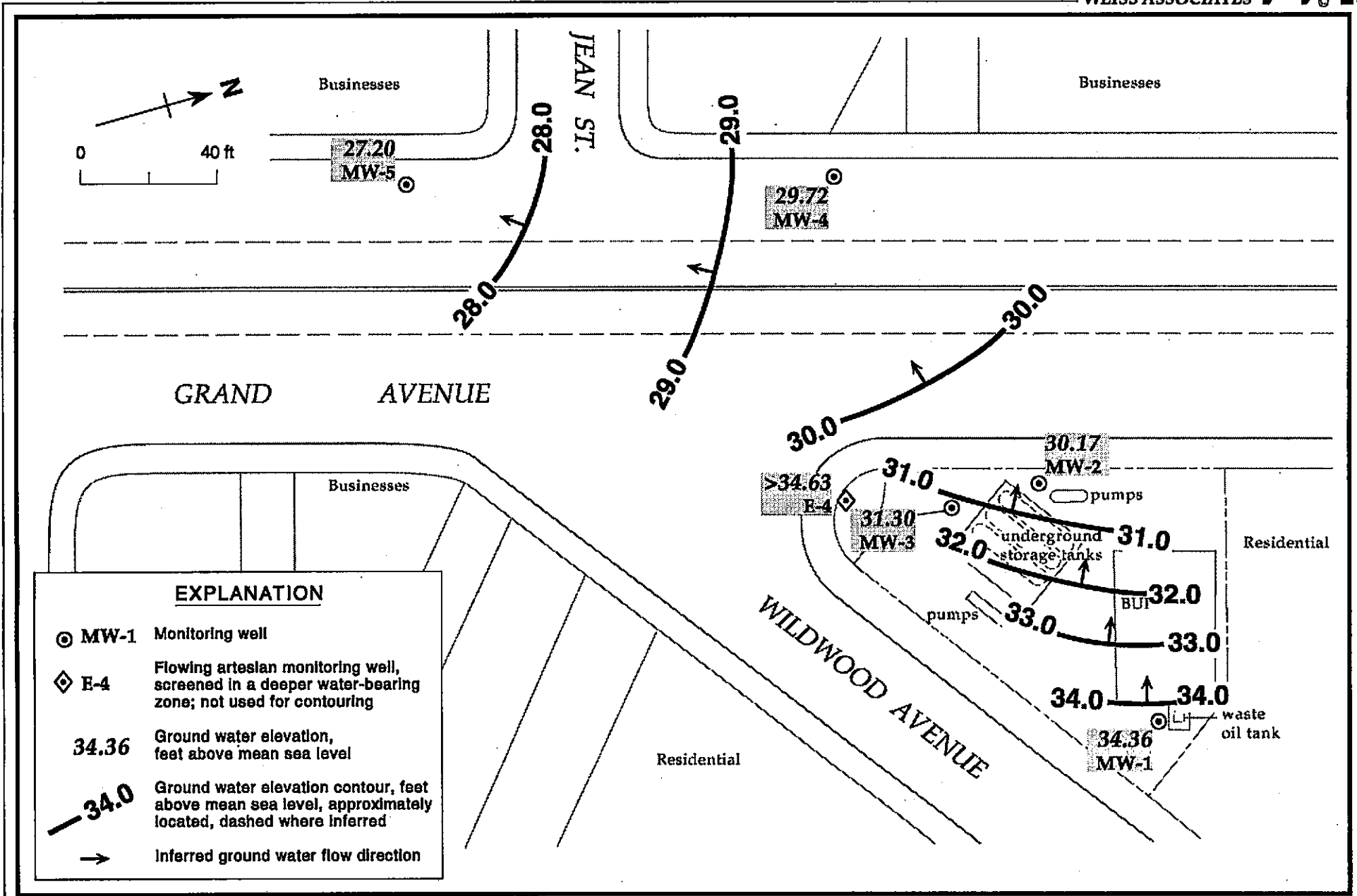


Figure 1. Site Location Map - Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California



EXPLANATION

- ⊙ MW-1 Monitoring well
- ◇ E-4 Flowing artesian monitoring well, screened in a deeper water-bearing zone; not used for contouring
- 34.36 Ground water elevation, feet above mean sea level
- 34.0 Ground water elevation contour, feet above mean sea level, approximately located, dashed where inferred
- Inferred ground water flow direction

Figure 2. Monitoring Well Locations and Ground Water Elevation Contours - April 12, 1994 - 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 |
| | 06/28/93 | | 3.76 | 34.20 |
| | 07/21/93 | | 4.09 | 33.87 |
| | 10/19/93 | | 3.58 | 34.38 |
| | 01/20/94 | | --- | --- |
| | 04/12/94 | | | 3.60 |
| 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 |
| | 06/28/93 | | 3.96 | 30.93 |
| | 07/21/93 | | 4.39 | 30.50 |
| 10/19/93 | 3.92 | 30.97 | | |

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) |
|---------|-----------------|--|---------------------|---------------------------------------|
| | 01/20/94 | | 4.45 | 30.44 |
| | 04/12/94 | | 4.72 | 30.17 |
| 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 |
| | 01/20/93 | | 2.20 | 32.80 |
| | 05/03/93 | | 3.50 | 31.50 |
| | 06/28/93 | | 4.08 | 30.92 |
| | 07/21/93 | | 4.12 | 30.88 |
| | 10/19/93 | | 4.20 | 30.80 |
| | 01/20/94 | | 4.08 | 30.92 |
| | 04/12/94 | | 3.70 | 31.30 |
| 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 |
| | 06/28/93 | | 3.81 | 29.92 |
| | 07/21/93 | | 3.81 | 29.92 |

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) |
|---------|-----------------|--|---------------------|---------------------------------------|
| | 10/19/93 | | 3.94 | 29.79 |
| | 01/20/94 | | 4.00 | 29.73 |
| | 04/12/94 | | 4.01 | 29.72 |
| 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 |
| | 06/28/93 | | 4.08 | 27.30 |
| | 07/21/93 | | 4.05 | 27.33 |
| | 10/19/93 | | 4.20 | 27.18 |
| | 01/20/94 | | 4.40 | 26.98 |
| | 04/12/94 | | 4.18 | 27.20 |
| 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 |
| | 10/02/92 | | b | > 34.63 |
| | 01/20/93 | | b | > 34.63 |
| | 05/03/93 | | b | > 34.63 |
| | 06/28/93 | | b | > 34.63 |

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) |
|---------|-----------------|--|---------------------|---------------------------------------|
| | 07/21/93 | | b | > 34.63 |
| | 10/19/93 | | b | > 34.63 |
| | 01/20/94 | | b | > 34.63 |
| | 04/12/94 | | b | > 34.63 |

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

b = Well E-4 potentiometric surface was higher than the top of the 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 | Dissolved Oxygen ^a |
|----------|-----------------------|---------------------|------------------|------|-------|------|--------|-------------------------------|
| | | | | | | | | |
| MW-1 | 07/12/89 | 2.76 | <50 | <0.5 | <1 | <1 | <3 | --- |
| | 01/30/90 | 3.10 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/27/90 | 3.24 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/31/90 | 4.26 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/30/90 | 4.25 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/31/91 | 3.66 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/30/91 | 3.46 | <50 | 0.8 | 0.6 | <0.5 | 1.2 | --- |
| | 07/30/91 | 4.14 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/29/91 | 3.96 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/92 | 3.59 | <30 | <0.3 | <0.3 | <0.3 | <0.3 | --- |
| | 04/14/92 | 3.18 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/21/92 | 4.17 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/02/92 | 4.29 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/93 | 2.32 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 05/04/93 | 3.50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 1,930 |
| | 07/21/93 | 4.09 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 4,640 |
| | 10/19/93 | 3.58 | 50 | <0.5 | <0.5 | <0.5 | <0.5 | 4,310 |
| | 01/20/94 ^c | --- | --- | --- | --- | --- | --- | --- |
| 04/12/94 | 3.60 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 7,460 | |
| MW-2 | 07/12/89 | 3.66 | 60 | 2.7 | <1 | <1 | <3 | --- |
| | 01/30/90 | 3.49 | <50 | 6.6 | 0.54 | <0.5 | 0.93 | --- |
| | 04/27/90 | 3.79 | 60 | 2.1 | <0.5 | <0.5 | <0.5 | --- |
| | 07/31/90 | 4.03 | 70 | 1.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/30/90 | 4.21 | 70 | <0.5 | <0.5 | 0.7 | 1.6 | --- |
| | 01/31/91 | 4.09 | 80 | <0.5 | 0.9 | <0.5 | 1.9 | --- |
| | 04/30/91 | 3.95 | 100 | 5.9 | 0.7 | 0.6 | 2.0 | --- |
| | 07/30/91 | 4.07 | <50 | <0.5 | <0.5 | <0.7 | <0.5 | --- |
| | 10/29/91 | 4.11 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/92 | 3.86 | <30 | 0.84 | <0.41 | <0.3 | <0.48 | --- |
| | 04/14/92 | 3.66 | 70 | 16 | 3.1 | <0.5 | 2.1 | --- |
| | 07/21/92 | 3.92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/02/92 | 4.45 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/93 | 3.74 | <50 | 3.8 | 0.52 | <0.5 | <0.5 | --- |
| | 05/04/93 | 3.77 | 680 ^d | 2.8 | <0.5 | <0.5 | <0.5 | 900 |
| | 07/21/93 | 4.39 | <50 | 8.0 | 1.8 | 1.2 | 7.9 | 5,880 |
| | 10/19/93 | 3.92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 5,700 |
| | 01/20/94 | 4.45 | <50 | 1.5 | <0.5 | <0.5 | <0.5 | 3,200 |
| 04/12/94 | 4.72 | <50 | 2.3 | <0.5 | <0.5 | <0.5 | 11,380 | |
| MW-3 | 07/12/89 | 3.83 | 3,900 | 380 | 99 | 41 | 30 | --- |
| | 01/30/90 | 3.24 | 5,500 | 440 | 79 | 35 | 130 | --- |
| | 04/27/90 | 4.02 | 4,500 | 310 | 37 | 26 | 110 | --- |

Weiss Associates



-- Table 2 continues on next page --

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 | Dissolved Oxygen ^a |
|---------|-------------------------|---------------------|------------------|------|------|------|------|-------------------------------|
| | | | | | | | | |
| | 07/31/90 | 4.31 | 3,500 | 210 | 8.4 | 17 | 62 | --- |
| | 10/30/90 | 4.52 | 2,300 | 610 | <0.5 | <0.5 | 28 | --- |
| | 01/31/91 | 4.33 | 4,100 | 300 | 19 | 20 | 81 | --- |
| | 04/30/91 | 3.79 | 3,800 | 370 | 8.6 | 19 | 60 | --- |
| | 07/30/91 | 4.37 | 3,300 | 160 | 15 | 13 | 87 | --- |
| | 10/29/91 | 4.00 | 1,000 | 35 | 2.9 | 2.8 | 8.1 | --- |
| | 01/20/92 | 3.87 | 6,900 | 380 | 47 | 18 | 48 | --- |
| | 04/14/92 | 3.15 | 6,000 | 480 | 41 | 38 | 55 | --- |
| | 07/21/92 | 4.17 | 3,700 | 330 | 30 | 13 | 23 | --- |
| | 10/02/92 | 4.43 | 4,200 | 260 | 13 | 10 | 12 | --- |
| | 01/20/93 | 2.20 | 4,200 | 360 | 32 | 15 | 26 | --- |
| | 01/20/93 ^{dup} | 2.20 | 3,900 | 370 | 32 | 15 | 26 | --- |
| | 05/04/93 | 3.50 | 12,000 | 290 | 120 | 520 | 620 | 630 |
| | 07/21/93 | 4.12 | 2,000 | 170 | <10 | 12 | 11 | 4,340 |
| | 07/21/93 ^{dup} | 4.12 | 2,000 | 170 | <10 | 10 | 14 | --- |
| | 10/19/93 | 4.20 | 2,000 | 240 | <0.5 | <0.5 | <0.5 | 5,740 |
| | 01/20/94 | 4.08 | 4,200 | 280 | <10 | <10 | <10 | 4,100 |
| | 01/20/94 ^{dup} | 4.08 | 3,800 | 250 | <10 | <10 | <10 | 4,100 |
| | 04/12/94 | 3.70 | 4,700 | 380 | <10 | <10 | <10 | 10,620 |
| | 04/12/94 ^{dup} | 3.70 | 3,400 | 170 | <25 | <25 | <25 | --- |
| MW-4 | 01/31/90 | 4.50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/27/90 | 3.62 | 130 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/31/90 | 4.19 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/30/90 | 4.19 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/31/91 | 4.49 | 50 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/30/91 | 4.02 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/30/91 | 4.39 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/29/91 | 3.75 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/92 | 3.94 | <30 | <0.3 | <0.3 | <0.3 | <0.3 | --- |
| | 04/14/92 | 3.71 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/21/92 | 4.02 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/02/92 | 4.13 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/93 | 3.10 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 05/04/93 | 3.70 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 1,740 |
| | 07/21/93 | 3.81 | <50 | 0.56 | <0.5 | <0.5 | <0.5 | 4,510 |
| | 10/10/93 | 3.94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 5,750 |
| | 01/20/94 | 4.00 | <50 | 0.71 | <0.5 | <0.5 | <0.5 | 4,400 |
| | 04/12/94 | 4.01 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 7,290 |
| MW-5 | 01/31/90 | 7.12 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/27/90 | 4.19 | 210 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/31/90 | 4.09 | 90 | <0.5 | <0.5 | <0.5 | <0.5 | --- |

Weiss Associates



-- Table 2 continues on next page --

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 | Dissolved Oxygen ¹ |
|------------|-------------------------|---------------------|------------------|------|------|------|------|-------------------------------|
| | | | | | | | | |
| | 10/30/90 | 4.39 | 100 | 0.8 | 0.6 | 0.7 | 1.4 | --- |
| | 01/31/91 | 4.49 | 80 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/30/91 | 4.27 | 90 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/30/91 | 4.37 | 90 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/29/91 | 3.79 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/92 | 4.09 | <30 | <0.3 | <0.3 | <0.3 | <0.3 | --- |
| | 04/14/92 | 4.12 | <50 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/21/92 | 4.13 | 74 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/02/92 | 4.30 | 76 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/93 | 3.12 | 72 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 05/04/93 | 4.07 | 70 ^c | <0.5 | <0.5 | <0.5 | <0.5 | 1,620 |
| | 05/04/93 ^{dup} | 4.07 | 80 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/21/93 | 4.05 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 3,460 |
| | 10/19/93 | 4.20 | 51 | <0.5 | <0.5 | <0.5 | <0.5 | 3,820 |
| | 01/20/94 | 4.40 | 90 | <0.5 | <0.5 | <0.5 | <0.5 | 4,200 |
| | 04/12/94 | 4.18 | 67 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| E-4 | 07/12/89 | d | <50 | <0.5 | <1 | <1 | <3 | --- |
| | 01/31/90 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/27/90 | d | 120 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/31/90 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/30/90 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/31/91 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/30/91 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/30/91 | d | <50 | <0.5 | <0.5 | 0.6 | <0.5 | --- |
| | 10/29/91 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/92 | d | <30 | <0.3 | <0.3 | <0.3 | <0.3 | --- |
| | 04/14/92 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/21/92 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/02/92 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/93 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 05/04/93 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 630 |
| | 07/21/93 | d | <50 | 5.4 | 1.0 | 0.72 | 4.4 | 5,440 |
| | 10/19/93 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 5,630 |
| | 01/20/94 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/12/94 | d | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 9,410 |
| Trip Blank | 07/12/89 | | <50 | <0.5 | <1 | <1 | <3 | --- |
| | 01/31/90 | | <50 | <0.5 | <.5 | <0.5 | <0.5 | --- |
| | 04/27/90 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/31/90 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/30/90 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/31/91 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |

Weiss Associates



-- Table 2 continues on next page --

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 | Dissolved Oxygen ^a |
|-----------|--------------|---------------------|------------------|------|------|------------------|-------|-------------------------------|
| | | | | | | | | |
| | 04/30/91 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/30/91 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/29/91 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/02/92 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/93 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 05/03/93 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 07/21/93 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/19/93 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 01/20/94 | | <50 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 04/12/94 | | <50 | <0.5 | <0.5 | 0.71 | <0.5 | --- |
| Bailer | 04/27/90 | | 110 ^c | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| Blank | 01/31/91 | | <5 | <0.5 | <0.5 | <0.5 | <0.5 | --- |
| | 10/02/92 | | ND | ND | ND | ND | ND | --- |
| DTSC MCLs | | | NE | 1 | 680 | 100 ^e | 1,750 | NA |

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 ppb

Notes:

a = Field measurement of dissolved oxygen concentration (ppb)
 b = Well inaccessible, not sampled
 c = Chromatogram contained discrete peaks; not representative of gasoline
 d = Artesian well; potentiometric surface above top-of-casing elevation
 e = DTSC recommended action level for drinking water; MCL not established

ATTACHMENT A

BLAINE TECH'S GROUND WATER MONITORING REPORT



BLAINE TECH SERVICES INC.

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

May 10, 1994

A CLUSTER OF NEARLY IDENTICAL
ANALYTICAL POSITIVES
FOUND IN EQUIPMENT RINSATE BLANKS
TAKEN WITH LABORATORY SUPPLIED
-- BUT UNTESTED AND UNCERTIFIED --
WATER

To whom it may concern:

Sequoia Analytical reports finding low level Toluene and Total Xylenes in a number of recent Equipment Rinsate Blanks, including the Equipment Blank from this site. Toluene was present in all of these Equipment Blank samples, but only in a narrow range between 0.52 ppb and 2.3 ppb. Total Xylenes were found in several of the samples in a range between 0.55 ppm and 0.71 ppb.

We reviewed our work and found no protocol or procedural errors which could have caused the contamination that was found. In fact, the contamination found in the blanks could not have come from any of the wells that were sampled *prior* to collecting the blanks since all these wells were, uniformly, none detected (as were the wells *following* the blanks). Moreover, positives were found in work performed at different sites, in work done on different days, and in work done by different personnel. These facts combined with the surprising uniformity of the results enabled us to rule out random airborne contamination such as would be detected by EPA Field Blanks. We identified the most likely source of the contamination as the unanalyzed water that the laboratory supplies to us and which we then use in collecting Equipment Rinsate Blanks and return to the laboratory.

By Friday April 22, 1994, Sequoia Analytical personnel informed us that they had reviewed their own work and found no indication of either in-lab contamination or contaminant carry-over in any particular instrument. Reshooting more sample material validated their earlier findings. On Monday April 25, 1994 Diane Lawver, Vice President of Sequoia Analytical and QA Director said she saw the water used in the blanks as a possible source, but thought the contamination was more likely to be coming from the commercially prepared sample bottles into which the commercial water was decanted. She indicated they have encountered certain batches of commercially prepared sample bottles that are contaminated with these same Toluene and Total Xylene constituents.

We conclude that these particular results are false positives which should be disregarded. However, the broader issue of Quality Control and QA on the materials used to take Equipment Rinsate Blanks will be explored further in discussions with the laboratory and Shell Oil Company.

Richard C. Blaine
President

May 3, 1994

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 1994

QUARTERLY GROUNDWATER SAMPLING REPORT 940412-F-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 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 dewateres 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 REMOVE 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 pre-frozen 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 Sequoia Analytical Laboratory in Redwood City, California. Sequoia Analytical Laboratory is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1210.

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/lp

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

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

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) |
|-----------|----------------------|---------------------------|----------------------------------|--|---|------------------------------------|-----------------------|-----------------------------|
| MW-1 | 4/12/94 | TOC | -- | NONE | -- | -- | 3.60 | 13.14 |
| MW-2 | 4/12/94 | TOC | -- | NONE | -- | -- | 4.72 | 11.51 |
| MW-3 * | 4/12/94 | TOC | ODOR | NONE | -- | -- | 3.70 | 9.02 |
| MW-4 | 4/12/94 | TOC | -- | NONE | -- | -- | 4.01 | 12.65 |
| MW-5 | 4/12/94 | TOC | -- | NONE | -- | -- | 4.18 | 15.94 |
| E-4 | 4/12/94 | TOC | -- | NONE | -- | -- | 0.00 | 34.08 |

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



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No: 940412 F2

Date: _____
Page 1 of 2

Silo Address: 29 Wildwood Avenue, Piedmont

WIC#: 204-6001-0109

Shell Engineer: Dan Kirk Phone No.: (510) 675-6168
Fax #: 675-6160

Consultant Name & Address: Blaine Tech Services, Inc.
985 Timothy Drive San Jose, CA 95133

Consultant Contact: Jim Keller Phone No.: (408) 295-5535
Fax #: 293-8773

Comments: _____

Sampled by: [Signature]

Printed Name: Tom Flisy

Analysis Required

| | | | | | | | | | |
|-------------------------|----------------------------|---------------------|------------------------------|-------------------|----------------------------------|----------|----------------|------------------|---------------|
| TPH (EPA 8015 Mod. Gas) | TPH (EPA 8015 Mod. Diesel) | BTEX (EPA 8020/802) | Volatile Organics (EPA 8240) | Test for Disposal | Combination TPH 8015 & BTEX 8020 | Asbestos | Container Size | Preparation Used | Composite Y/N |
| | | | | | | | | | |

LAB: Sequoia

| CHECK ONE (1) TOX ONLY | CI/DI | TURN AROUND TIME |
|---|-------|--|
| Quantity Monitoring <input checked="" type="checkbox"/> 441 | | 24 hours <input type="checkbox"/> |
| Site Investigations <input type="checkbox"/> 441 | | 48 hours <input type="checkbox"/> |
| Soil Classify/Disposal <input type="checkbox"/> 442 | | 16 days: <input checked="" type="checkbox"/> (Normal) <input type="checkbox"/> |
| Water Classify/Disposal <input type="checkbox"/> 443 | | Other: <input type="checkbox"/> |
| Soil/Air Rem. or Sys. O & M <input type="checkbox"/> 442 | | NOTE: Hold to lab as soon as possible at 24/48 hr. IAL. |
| Water Rem. or Sys. O & M <input type="checkbox"/> 443 | | |
| Other <input type="checkbox"/> | | |

| Sample ID | Date | Sludge | Soil | Water | Air | No. of conts. | TPH (EPA 8015 Mod. Gas) | TPH (EPA 8015 Mod. Diesel) | BTEX (EPA 8020/802) | 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 | |
|------------------|--------------|-------------|------|----------|-----|---------------|-------------------------|----------------------------|---------------------|------------------------------|-------------------|----------------------------------|----------|----------------|------------------|---------------|----------------------|----------------------------|------------|
| MW-1 <u>TIME</u> | <u>16:00</u> | <u>4/13</u> | | <u>X</u> | | <u>3</u> | | | | | | <u>X</u> | | | | | | <u>9404977-01</u> | <u>121</u> |
| MW-2 | <u>1047</u> | <u>4/13</u> | | <u>X</u> | | <u>3</u> | | | | | | <u>X</u> | | | | | | | <u>-02</u> |
| MW-3 | <u>1155</u> | <u>4/12</u> | | <u>X</u> | | <u>3</u> | | | | | | <u>X</u> | | | | | | | <u>-03</u> |
| MW-4 | <u>1115</u> | <u>4/12</u> | | <u>X</u> | | <u>3</u> | | | | | | <u>X</u> | | | | | | | <u>-04</u> |
| MW-5 | <u>1133</u> | <u>4/12</u> | | <u>X</u> | | <u>3</u> | | | | | | <u>X</u> | | | | | | | <u>-05</u> |
| E-4 | <u>1022</u> | <u>4/13</u> | | <u>X</u> | | <u>3</u> | | | | | | <u>X</u> | | | | | | | <u>-06</u> |
| DUP - | <u>-</u> | <u>4/13</u> | | <u>X</u> | | <u>3</u> | | | | | | <u>X</u> | | | | | | | <u>-07</u> |
| EB - | <u>1029</u> | <u>4/13</u> | | <u>X</u> | | <u>3</u> | | | | | | <u>X</u> | | | | | | | <u>-08</u> |

| | | | | | |
|---|--------------------------------|----------------------|--|-------------------------------------|-----------------------|
| Relinquished by (signature): <u>[Signature]</u> | Printed Name: <u>Tom Flisy</u> | Date: <u>4/13/94</u> | Received (signature): <u>[Signature]</u> | Printed Name: <u>SURIGHT</u> | Date: <u>4/13/94</u> |
| Relinquished by (signature): <u>[Signature]</u> | Printed Name: <u>SURIGHT</u> | Date: <u>4/13/94</u> | Received (signature): <u>[Signature]</u> | Printed Name: _____ | Date: _____ |
| Relinquished by (signature): _____ | Printed Name: _____ | Date: _____ | Received (signature): <u>[Signature]</u> | Printed Name: <u>KEITH E. GROSS</u> | Date: <u>04/13/94</u> |

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



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No: 940412F2

Date: _____
Page 2 of 2

Site Address: 29 Wildwood Avenue, Piedmont

WICI: 204-6001-0109

Shell Engineer: Dan Kirk
Phone No.: (510) 575-6168
Fax #: 675-6160

Consultant Name & Address: Blaine Tech Services, Inc.
985 Timothy Drive San Jose, CA 95133

Consultant Contact: Jim Keller
Phone No.: (408) 995-5535
Fax #: 293-8773

Comments:

Sampled by: *[Signature]*

Printed Name: Tom Flory

Analysis Required

| | | | | | | | | | |
|-------------------------|----------------------------|---------------------|------------------------------|-------------------|----------------------------------|----------|----------------|------------------|---------------|
| TPH (EPA 8015 Mod. Gas) | TPH (EPA 8015 Mod. Diesel) | BTEX (EPA 8020/802) | Volatile Organics (EPA 8240) | Test for Disposal | Combination TPH 8015 & BTEX 8020 | Asbestos | Container Size | Preparation Used | Composite Y/N |
| | | | | | X | | | | |

LAB: Sequoia

| CHECK ONE (1) BOX ONLY | C1/D1 | TURN AROUND TIME |
|--|-------|--|
| Quality Monitoring <input checked="" type="checkbox"/> | 441 | 24 hours <input type="checkbox"/> |
| Site Investigation <input type="checkbox"/> | 442 | 48 hours <input type="checkbox"/> |
| Soil Classify/Disposal <input type="checkbox"/> | 443 | 16 days <input checked="" type="checkbox"/> (Normal) |
| Water Classify/Disposal <input type="checkbox"/> | 444 | Other <input type="checkbox"/> |
| Soil/Air Rem. of Sp. O & M <input type="checkbox"/> | 445 | |
| Water Rem. of Sp. O & M <input type="checkbox"/> | 446 | |
| Other <input type="checkbox"/> | | |

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

| Sample ID | Date | Sludge | Soil | Water | Air | No. of conis. | TPH (EPA 8015 Mod. Gas) | TPH (EPA 8015 Mod. Diesel) | BTEX (EPA 8020/802) | 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 | |
|-----------|------|--------|------|-------|-----|---------------|-------------------------|----------------------------|---------------------|------------------------------|-------------------|----------------------------------|----------|----------------|------------------|---------------|----------------------|----------------------------|-----------------|
| TD - LAB | 4/13 | | | X | | 2 | | | | | | X | | | | | | | 9404937-09 1219 |
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| | | | | | |
|---|--------------------------------|----------------------|--|--------------------------------|----------------------|
| Relinquished by (signature): <i>[Signature]</i> | Printed Name: <u>Tom Flory</u> | Date: <u>4/13/94</u> | Received (signature): <i>[Signature]</i> | Printed Name: <u>S. WRIGHT</u> | Date: <u>4/13/94</u> |
| Relinquished by (signature): <i>[Signature]</i> | Printed Name: <u>S. WRIGHT</u> | Date: <u>4/13/94</u> | Received (signature): <i>[Signature]</i> | Printed Name: <u>S. WRIGHT</u> | Date: <u>4/13/94</u> |
| Relinquished by (signature): | Printed Name: | Date: | Received (signature): | Printed Name: | Date: |

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



Sequoia Analytical

680 Chesapeake Drive
1900 Bates Avenue, Suite L
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Concord, CA 94520
Sacramento, CA 95834

(415) 364-9600
(510) 686-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 686-9689
FAX (916) 921-0100

Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Project: 940412F2, Shell 29 Wildwood Avenue

Enclosed are the results from 9 water samples received at Sequoia Analytical on April 15, 1994. The requested analyses are listed below:

| SAMPLE # | SAMPLE DESCRIPTION | DATE OF COLLECTION | TEST METHOD |
|----------|--------------------|--------------------|-------------------------|
| 4D93701 | Water, MW-1 | 4/13/94 | EPA 5030/8015 Mod./8020 |
| 4D93702 | Water, MW-2 | 4/13/94 | EPA 5030/8015 Mod./8020 |
| 4D93703 | Water, MW-3 | 4/13/94 | EPA 5030/8015 Mod./8020 |
| 4D93704 | Water, MW-4 | 4/13/94 | EPA 5030/8015 Mod./8020 |
| 4D93705 | Water, MW-5 | 4/13/94 | EPA 5030/8015 Mod./8020 |
| 4D93706 | Water, E-4 | 4/13/94 | EPA 5030/8015 Mod./8020 |
| 4D93707 | Water, DUP | 4/13/94 | EPA 5030/8015 Mod./8020 |
| 4D93708 | Water, EB | 4/13/94 | EPA 5030/8015 Mod./8020 |
| 4D93709 | Water, TB | 4/13/94 | EPA 5030/8015 Mod./8020 |

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Suzanne Chin
Project Manager



Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: 940412F2, Shell 29 Wildwood Avenue
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 4D93701

Sampled: Apr 13, 1994
Received: Apr 15, 1994
Reported: Apr 28, 1994

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

| Analyte | Reporting Limit µg/L | Sample I.D. 4D93701 MW-1 | Sample I.D. 4D93702 MW-2 | Sample I.D. 4D93703 MW-3 | Sample I.D. 4D93704 MW-4 | Sample I.D. 4D93705 MW-5 | Sample I.D. 4D93706 E-4 |
|------------------------|-------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|
| Purgeable Hydrocarbons | 50 | N.D. | N.D. | 4,700 | N.D. | 67 | N.D. |
| Benzene | 0.50 | N.D. | 2.9 | 380 | N.D. | N.D. | N.D. |
| Toluene | 0.50 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Ethyl Benzene | 0.50 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Total Xylenes | 0.50 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Chromatogram Pattern: | | -- | C6 | C4 - C12 | -- | C8 - C12 | -- |

Quality Control Data

| | | | | | | |
|---|---------|---------|---------|---------|---------|---------|
| Report Limit Multiplication Factor: | 1.0 | 1.0 | 20 | 1.0 | 1.0 | 1.0 |
| Date Analyzed: | 4/20/94 | 4/20/94 | 4/20/94 | 4/20/94 | 4/20/94 | 4/21/94 |
| Instrument Identification: | GCHP-2 | GCHP-2 | GCHP-2 | GCHP-2 | GCHP-2 | GCHP-2 |
| Surrogate Recovery, %: (QC Limits = 70-130%) | 102 | 107 | 118 | 101 | 101 | 107 |

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Suzanne Chin
Project Manager



| | | |
|--|--|---|
| Blaine Tech Services, Inc. 985 Timothy Drive San Jose, CA 95133 Attention: Jim Keller | Client Project ID: 940412F2, Shell 29 Wildwood Avenue Sample Matrix: Water Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 4D93707 | Sampled: Apr 13, 1994 Received: Apr 15, 1994 Reported: Apr 28, 1994 |
|--|--|---|

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

| Analyte | Reporting Limit µg/L | Sample I.D. 4D93707 DUP | Sample I.D. 4D93708 EB | Sample I.D. 4D93709 TB |
|------------------------|-------------------------|-------------------------------|------------------------------|------------------------------|
| Purgeable Hydrocarbons | 50 | 3,400 | N.D. | N.D. |
| Benzene | 0.50 | 370 | N.D. | N.D. |
| Toluene | 0.50 | N.D. | 0.71 | N.D. |
| Ethyl Benzene | 0.50 | N.D. | N.D. | N.D. |
| Total Xylenes | 0.50 | N.D. | N.D. | N.D. |
| Chromatogram Pattern: | | C4 - C12 | C7 | -- |

Quality Control Data

| | | | |
|---|---------|---------|---------|
| Report Limit Multiplication Factor: | 50 | 1.0 | 1.0 |
| Date Analyzed: | 4/22/94 | 4/21/94 | 4/21/94 |
| Instrument Identification: | GCHP-2 | GCHP-17 | GCHP-2 |
| Surrogate Recovery, %: (QC Limits = 70-130%) | 97 | 83 | 106 |

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
 Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Suzanne Chin
Project Manager



Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: 940412F2, Shell 29 Wildwood Avenue
Matrix: Liquid

QC Sample Group: 4D93701-06, 09

Reported: Apr 28, 1994

QUALITY CONTROL DATA REPORT

| ANALYTE | Benzene | Toluene | Ethyl Benzene | Xylenes |
|-----------------|-----------|-----------|------------------|-----------|
| Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Analyst: | J. Minkel | J. Minkel | J. Minkel | J. Minkel |

| | | | | |
|--------------------------|---------|---------|---------|---------|
| MS/MSD | | | | |
| Batch#: | 4D93101 | 4D93101 | 4D93101 | 4D93101 |
| Date Prepared: | - | - | - | - |
| Date Analyzed: | 4/20/94 | 4/20/94 | 4/20/94 | 4/20/94 |
| Instrument I.D.#: | GCHP-2 | GCHP-2 | GCHP-2 | GCHP-2 |
| Conc. Spiked: | 10 µg/L | 10 µg/L | 10 µg/L | 30 µg/L |
| Matrix Spike | | | | |
| % Recovery: | 81 | 78 | 75 | 73 |
| Matrix Spike | | | | |
| Duplicate % | | | | |
| Recovery: | 93 | 89 | 86 | 87 |
| Relative % | | | | |
| Difference: | 14 | 13 | 14 | 18 |

| | | | | |
|--------------------------|---|---|---|---|
| LCS Batch#: | - | - | - | - |
| Date Prepared: | - | - | - | - |
| Date Analyzed: | - | - | - | - |
| Instrument I.D.#: | - | - | - | - |
| LCS % | | | | |
| Recovery: | - | - | - | - |

| | | | | |
|------------------------|--------|--------|--------|--------|
| % Recovery | | | | |
| Control Limits: | 71-133 | 72-128 | 72-130 | 71-120 |

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

Suzanne Chin
Project Manager



Blaine Tech Services, Inc.
 985 Timothy Drive
 San Jose, CA 95133
 Attention: Jim Keller

Client Project ID: 940412F2, Shell 29 Wildwood Avenue
 Matrix: Liquid

QC Sample Group: 4D93708

Reported: Apr 28, 1994

QUALITY CONTROL DATA REPORT

| ANALYTE | Benzene | Toluene | Ethyl Benzene | Xylenes |
|----------|------------|------------|---------------|------------|
| Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Analyst: | R. Vincent | R. Vincent | R. Vincent | R. Vincent |

| | | | | |
|------------------------------------|---------|---------|---------|---------|
| MS/MSD | | | | |
| Batch#: | 4D93504 | 4D93504 | 4D93504 | 4D93504 |
| Date Prepared: | 4/21/94 | 4/21/94 | 4/21/94 | 4/21/94 |
| Date Analyzed: | 4/21/94 | 4/21/94 | 4/21/94 | 4/21/94 |
| Instrument I.D.#: | GCHP-17 | GCHP-17 | GCHP-17 | GCHP-17 |
| Conc. Spiked: | 10 µg/L | 10 µg/L | 10 µg/L | 30 µg/L |
| Matrix Spike % Recovery: | 100 | 100 | 100 | 100 |
| Matrix Spike Duplicate % Recovery: | 100 | 100 | 100 | 103 |
| Relative % Difference: | 0.0 | 0.0 | 0.0 | 3.0 |

| | | | | |
|-------------------|---|---|---|---|
| LCS Batch#: | - | - | - | - |
| Date Prepared: | - | - | - | - |
| Date Analyzed: | - | - | - | - |
| Instrument I.D.#: | - | - | - | - |
| LCS % Recovery: | - | - | - | - |

| % Recovery Control Limits: | 71-133 | 72-128 | 72-130 | 71-120 |
|----------------------------|--------|--------|--------|--------|
| | | | | |

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

Suzanne Chin
 Project Manager



Blaine Tech Services, Inc.
 985 Timothy Drive
 San Jose, CA 95133
 Attention: Jim Keller

Client Project ID: 940412F2, Shell 29 Wildwood Avenue
 Matrix: Liquid

QC Sample Group: 4D93707

Reported: Apr 28, 1994

QUALITY CONTROL DATA REPORT

| ANALYTE | Benzene | Toluene | Ethyl Benzene | Xylenes |
|----------|------------|------------|---------------|------------|
| Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Analyst: | R. Vincent | R. Vincent | R. Vincent | R. Vincent |

| | | | | |
|------------------------------------|---------|---------|---------|---------|
| MS/MSD Batch#: | 4D68703 | 4D68703 | 4D68703 | 4D68703 |
| Date Prepared: | - | - | - | - |
| Date Analyzed: | 4/22/94 | 4/22/94 | 4/22/94 | 4/22/94 |
| Instrument I.D.#: | GCHP-2 | GCHP-2 | GCHP-2 | GCHP-2 |
| Conc. Spiked: | 10 µg/L | 10 µg/L | 10 µg/L | 30 µg/L |
| Matrix Spike % Recovery: | 100 | 100 | 100 | 100 |
| Matrix Spike Duplicate % Recovery: | 97 | 97 | 97 | 97 |
| Relative % Difference: | 3.0 | 3.0 | 3.0 | 3.0 |

| | | | | |
|-------------------|---|---|---|---|
| LCS Batch#: | - | - | - | - |
| Date Prepared: | - | - | - | - |
| Date Analyzed: | - | - | - | - |
| Instrument I.D.#: | - | - | - | - |
| LCS % Recovery: | - | - | - | - |

| | | | | |
|----------------------------|--------|--------|--------|--------|
| % Recovery Control Limits: | 71-133 | 72-128 | 72-130 | 71-120 |
|----------------------------|--------|--------|--------|--------|

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

Suzanne Chin
 Project Manager