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TRANSMITTAL

#3854

TO: Mr. Barney Chan Alameda County Health Care Services Department of Environmental Health 80 Swan Way, Room 200 Oakland, California 94621 DATE: June 17, 1993 PROJECT NUMBER: 69038.12 SUBJECT: ARCO Station No. 4494

John C. Young, Projec

Managér

FROM: John C. Young

WE ARE SENDING YOU:

DESCRIPTION COPIES DATED 1 Final First Quarter 1993 Groundwater Monitoring Report at 6/17/93 ARCO Station No. 4494, 566 Hegenberger Road, Oakland, California. THESE ARE TRANSMITTED as checked below: [] Approved as submitted [] Resubmit __ copies for approval [] For review and comment [] Submit__ copies for distribution [X] As requested [] Approved as noted [] Return ___ corrected prints [] For approval [] Return for corrections [X] For your files **REMARKS:** Copies: 1 to RESNA project file no. 69038.12



3315 Almaden Expressway, Suite 34 San Jose, CA 95118 Phone: (408) 264-7723 FAX: (408) 264-2435

LETTER REPORT QUARTERLY GROUNDWATER MONITORING First Quarter 1993

at ARCO Station 4494 566 Hegenberger Road Oakland, California

69038.12



3315 Almaden Expressway, Suite 34 San Jose, CA 95118 Phone: (408) 264-7723 FAX: (408) 264-2435

> June 17, 1993 0617MWHE 69038.12

Mr. Michael Whelan ARCO Products Company P.O. Box 5811 San Mateo, California 94402

Subject:

First Quarter 1993 Groundwater Monitoring Report at ARCO Station 4494,

566 Hegenberger Road, Oakland, California.

Mr. Whelan:

As requested by ARCO Products Company (ARCO), RESNA Industries Inc. (RESNA) prepared this letter report which constitutes the first quarter 1993 groundwater monitoring at the above-referenced site. Quarterly groundwater monitoring was not performed, due to ongoing construction activities at the site related to removal and replacement of underground gasoline storage tanks (USTs).

The operating ARCO Station 4494 is located on the northeastern corner of the intersection of Edes Avenue and Hegenberger Road in Oakland, California as shown on the Site Vicinity Map, Plate 1. The locations of the groundwater monitoring wells and pertinent site features are shown on the Generalized Site Plan, Plate 2.

In December 1992, groundwater monitoring well MW-2 was properly destroyed during removal activities of the former underground gasoline storage tanks (USTs) at the site. Other previous work associated with the subject site is listed in prior subsurface investigation reports listed in the references section.

Groundwater Sampling and Gradient Evaluation

Depth to water (DTW) level measurements and quarterly groundwater sampling were not performed in monitoring wells MW-1, and MW-3 through MW-7 this quarter due to ongoing construction activities at the site. These construction activities included: replacement of new



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USTs, over-excavation of gasoline impacted soils, backfilling the former UST pit, and the construction of new pump islands and an AM/PM Mini-Market/Station building. It is anticipated that the station is anticipated to open late second quarter or early third quarter 1993, at which time quarter monitoring will resume. RESNA has included Table 1, Cumulative Groundwater Monitoring Data; Tables 2 and 3, Cumulative Results of Laboratory Analyses of Water Samples; and Table 4, Approximate Cumulative Product Recovered to summarize previous quarterly groundwater monitoring events at the site.

Further discussion and results related to UST removal and replacement activities at the site will be presented in a forthcoming report.

Distribution

It is recommended that copies of this report be forwarded to:

Mr. Barney Chan
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Mr. Richard Hiett
Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612



June 17, 1993 69038.12

If you have any questions or comments, please call us at (408) 264-7723.

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Sincerely,

RESNA Industries Inc.

FRED

GEOLOGIS) JAMES LEWIS

NELSON

No. 1463 CERMFIED ENGINEERING OF CALIFORNIA GEOLOGIST

James L. Nelson

John C. Young Project Manager

Certified Engineering Geologist No. 1463

Enclosures: References

Plate 1:

Site Vicinity Map

Plate 2:

Generalized Site Plan

Table 1:

Cumulative Groundwater Monitoring Data

Table 2:

Cumulative Results of Laboratory Analyses of Water Samples--

TPHg, TPHd, BTEX, and TOG

Table 3:

Cumulative Results of Laboratory Analyses of Water Samples--

BNAs, VOCs, and Metals

Table 4:

Approximate Cumulative Product Recovered



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REFERENCES

- Applied GeoSystems. October 1, 1990. Report on Site History and Limited Environmental Records Review at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. AGS Report 69038-3.
- Applied GeoSystems. February 8, 1991. <u>Letter Report on Fourth Quarter 1990 Ground-Water Monitoring at ARCO Station 4494, 566 Hegenberger Road, Oakland, California.</u> AGS Report 69038-4.
- Applied GeoSystems. February 13, 1991. <u>Limited Subsurface Environmental Investigation at ARCO Station 4494, 566 Hegenberger Road, Oakland, California</u>. AGS Report 69038-2.
- Applied GeoSystems. April 30, 1991. <u>Letter Report on Quarterly Ground-Water Monitoring, First Quarter 1991, at ARCO Station 4494, 566 Hegenberger Road, Oakland, California</u>. AGS Report 69038-4.
- Department of Health Services, State of California. October 24, 1990. <u>Summary of California Drinking Water Standards.</u>
- Pacific Environmental Group. May 3, 1989. <u>Arco Station No. 4494, 566 Hegenberger Road, California</u>. Project 330-41.
- RESNA/Applied GeoSystems. September 12, 1991. <u>Letter Report on Quarterly Ground-Water Monitoring</u>, Second Quarter 1991, at ARCO Station 4494, 566 Hegenberger Road, <u>Oakland</u>, California. AGS Report 69038-4.
- RESNA. November 22, 1992. <u>Letter Report on Quarterly Groundwater Monitoring, Third Quarter 1991, at ARCO Station 4494, 566 Hegenberger Road, Oakland, California.</u> RESNA Report 69038.04.
- RESNA. April 8, 1992. <u>Letter Report on Quarterly Groundwater Monitoring, Fourth Quarter 1991, at ARCO Station 4494, 566 Hegenberger Road, Oakland, California.</u> RESNA Report 69038.04.
- RESNA. May 8, 1992. <u>Letter Report on Quarterly Groundwater Monitoring, First Quarter 1992 at ARCO Station 4494, 566 Hegenberger Road, Oakland, California</u>. RESNA Report 69038.11

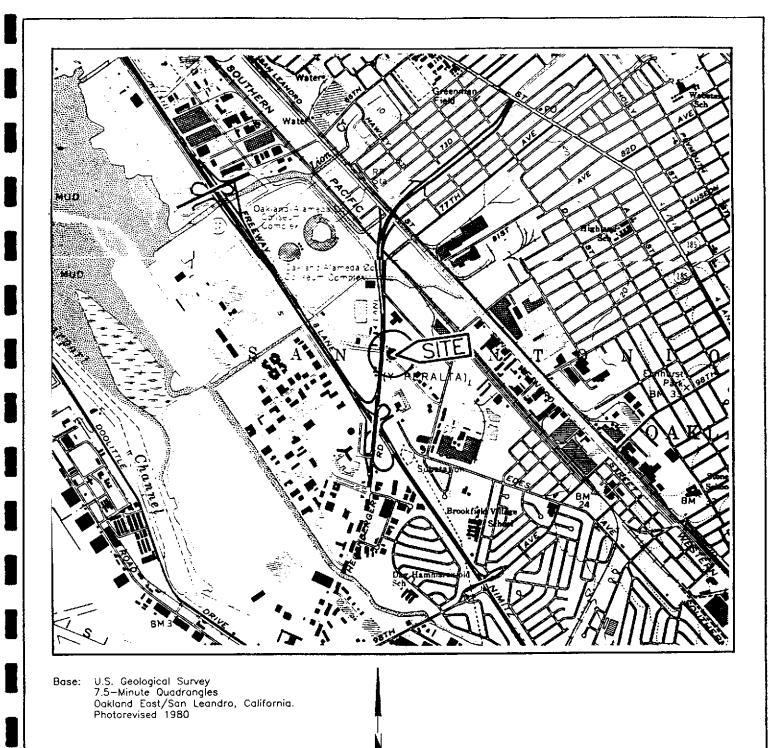


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REFERENCES

(continued)

- RESNA. September 3, 1992. <u>Letter Report on Quarterly Groundwater Monitoring, Second Quarter 1992 at ARCO Station 4494, 566 Hegenberger Road, Oakland, California.</u> RESNA Report 69038.11.
- RESNA. October 29, 1992. <u>Additional Subsurface Investigation at ARCO Station 4494, 566 Hegenberger Road in Oakland, California</u>. RESNA Report 69038.10.
- RESNA. November 30, 1992. <u>Letter Report on Quarterly Groundwater Monitoring, Third Quarter 1992 at ARCO Station 4494, 566 Hegenberger Road in Oakland, California</u>. RESNA Report 69038.11.
- RESNA. December 31, 1992. Addendum to Work Plan to Construct an Interim Slurry Wall at ARCO Station 4494, 566 Hegenberger Road in Oakland, California. RESNA Report 69038.13.
- RESNA. March 9, 1993. <u>Letter Report on Quarterly Groundwater Monitoring, Fourth Quarter 1992 at ARCO Station 4494, 566 Hegenberger Road in Oakland, California.</u> RESNA Report 69038.12.



LEGEND

Site Location

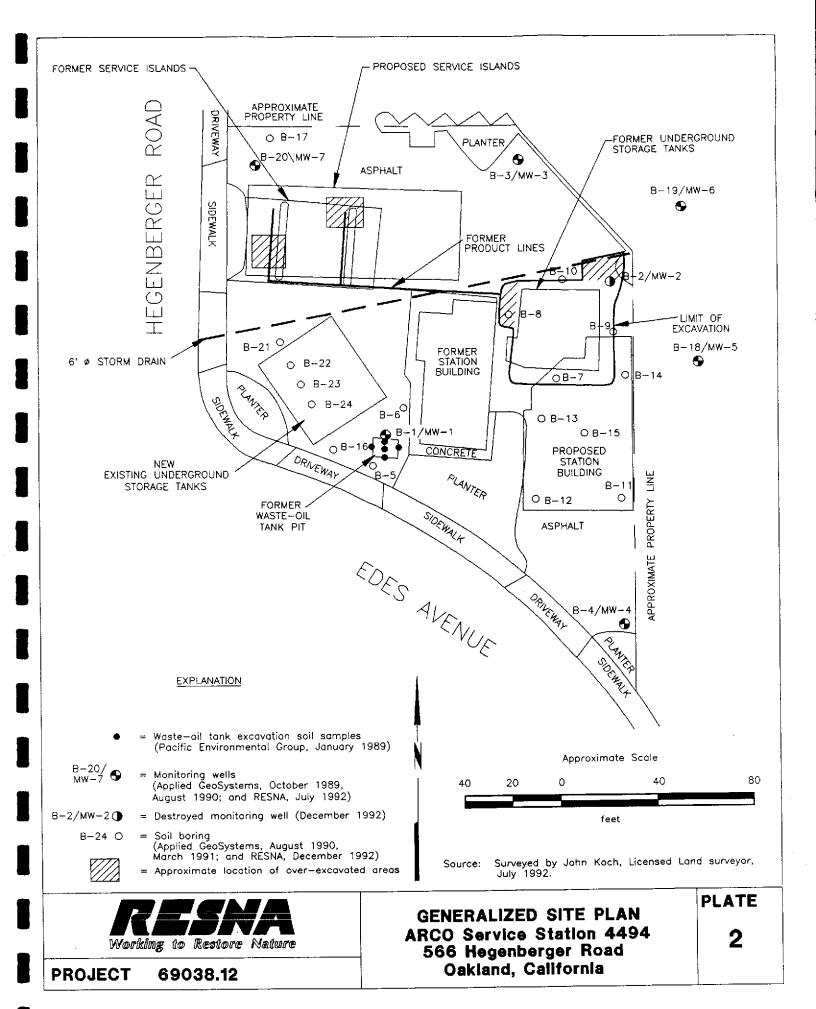
Approximate Scale
2000 1000 0 2000 4000

feet

RESNA Working to Restore Nature

PROJECT 69038.12

SITE VICINITY MAP ARCO Service Station 4494 566 Hegenberger Road Oakland, California PLATE





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TABLE 1 CUMULATIVE GROUNDWATER MONITORING DATA ARCO Station 4494 Oakland, California (Page 1 of 4)

09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	Well	Elevation	Depth	Water	Floating
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10/17/91 7.22 98.09 None 11/21/91 7.17 98.14 None 12/18/91 7.46 97.85 None 01/19/92 7.44 97.87 None 02/20/92 6.25 99.06 None 03/20/92 6.25 99.06 None 03/20/92 6.88 98.43 None 05/19/92 7.10 98.21 None 06/08/92 7.10 98.21 None 06/08/92 7.22 98.09 None 07/15/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None 11/20/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 03/26/91 8.14 96.64 Sheen 03/26/91 8.15 97.67 Sheen	08/22/91		6.85	98.46	None
11/21/91 12/18/91 7.46 97.85 None 01/19/92 7.44 97.87 None 02/20/92 6.25 99.06 None 03/20/92 6.40 98.91 None 04/20/92 6.88 98.43 None 05/19/92 7.10 98.21 None 06/08/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM NM 0.17 Black Product 11/29/90 9.20* 96.58* Heavy Sheen 11/29/90 9.20* 95.86* Heavy Sheen 12/19/90 9.91 9.92 95.86 None 01/29/91 9.91 9.91 9.91 9.91 9.91 9.91 9.91	09/30/91		7.04	98.27	None
12/18/91 12/18/91 17.46 97.85 None 01/19/92 7.44 97.87 None 02/20/92 6.25 99.06 None 03/20/92 6.40 98.91 None 04/20/92 6.88 98.43 None 05/19/92 7.10 98.21 None 06/08/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 11/23/92 8.15 97.95 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM NM 0.17 Black Product 08/21/90 99.00* 99.17* 96.61* 0.17 Black Product 09/07/90 9.10* 99.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 19.91 9.01 9.01 9.077 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen			7.22	98.09	None
01/19/92 7.44 97.87 None 02/20/92 6.25 99.06 None 03/20/92 6.40 98.91 None 04/20/92 6.88 98.43 None 05/19/92 7.10 98.21 None 06/08/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM NM 0.17 Black Product 11/29/90 9.17* 96.61* 0.17 Black Product 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen	11/21/91		7.17	98.14	None
02/20/92 6.25 99.06 None 03/20/92 6.40 98.91 None 04/20/92 6.88 98.43 None 05/19/92 7.10 98.21 None 06/08/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 9.92* 95.86* Heavy Sheen 12/19/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen	12/18/91		7.46	97.85	None
02/20/92 6.25 99.06 None 03/20/92 6.40 98.91 None 04/20/92 6.88 98.43 None 05/19/92 7.10 98.21 None 06/08/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 9.92* 95.86* Heavy Sheen 12/19/90 9.01 96.77 Sheen 01/29/91 9.01 96.64 Sheen	01/19/92		7.44	97.87	None
03/20/92 6.40 98.91 None 04/20/92 6.88 98.43 None 05/19/92 7.10 98.21 None 06/08/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 08/21/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91			6.25	99.06	None
05/19/92 7.10 98.21 None 06/08/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/26/91 8.11 97.67 Sheen			6.40	98.91	None
05/19/92 7.10 98.21 None 06/08/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	04/20/92		6.88	98.43	None
06/08/92 7.22 98.09 None 07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00° 96.78° 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17° 96.61° 0.17 Black Product 11/20/90 9.20° 96.58° Heavy Sheen 11/29/90 9.92° 95.86° Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen			7.10	98.21	None
07/15/92 7.92 97.39 None 08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen			7.22	98.09	None
08/06/92 106.10 7.29 98.81 None 10/29/92 7.34 98.76 None 11/23/92 8.15 97.95 None MW-2 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen				97.39	None
11/23/92 8.15 97.95 None MW-2		106.10	7.29	98.81	None
MW-2 None 06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	10/29/92		7.34	98.76	None
06/06/90 105.78 9.00* 96.78* 0.92 Black Product 08/16/90 NM NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen			8.15	97.95	None
08/16/90 NM NM 0.17 Black Product 08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	<u>MW-2</u>				
08/21/90 NM NM 0.17 Black Product 09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	06/06/90	105. 7 8	9.00*	96.78*	
09/07/90 9.17* 96.61* 0.17 Black Product 11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	08/16/90		NM		
11/20/90 9.20* 96.58* Heavy Sheen 11/29/90 9.92* 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen			NM	NM	0.17 Black Product
11/29/90 9.92** 95.86* Heavy Sheen 12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	09/07/90		9.17*	96.61*	0.17 Black Product
12/19/90 8.95 96.83 None 01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	11/20/90		9.20*	96.58*	
01/29/91 9.01 96.77 Sheen 02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	11/29/90		9.92*	95,86*	Heavy Sheen
02/27/91 9.14 96.64 Sheen 03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	12/19/90		8.95		
03/07/91 8.94 96.84 Sheen 03/26/91 8.11 97.67 Sheen	01/29/91		9.01		
03/26/91 8.11 97.67 Sheen					
			8.94		
05/02/91 8.72 97.06 None			8.11		
• •	05/02/91		8.72	97.06	None

See notes on page 4 of 4.



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TABLE 1 CUMULATIVE GROUNDWATER MONITORING DATA ARCO Station 4494 Oakland, California (Page 2 of 4)

Well Date	Elevation of Wellhead	Depth to Water	Water Elevation	Floating Product
	- , 	·		
MW-2 (Cont.)			0.4.50	G 1
06/27/91		9.20	96.58	Sheen
07/24/91		9.25	96.53	None
08/22/91		9.20	96.58	None
09/30/91		9.31	96.47	Sheen
10/17/91		9.39	96.39	Sheen
11/21/91		9.20	96.58	None
12/18/91		9.23	96.55	Sheen
01/19/92		9.96**	95.82	Skimmer
02/20/92		9.13**	96.65	Skimmer
03/20/92	105.78	9.31**	96 .47	Skimmer
04/20/92		9.69	96.09	Skimmer
05/15/92		9.92	95.86	Skimmer
06/08/92		9.84	95.94	Skimmer
07/15/92		10.19	95.59	Skimmer
08/06/92	106.57	10.05	96.52	Skimmer
10/29/92		10.00	96.57	Skimmer
11/23/92		9.87	96.70	0.01
MW-3				
08/16/90	105.51	8.87	96.64	None
08/21/90		8.85	96.66	None
09/07/90		8.98	96,53	None
11/20/90		9.10	96.41	None
11/29/90		9.05	96.46	None
12/19/90		8.67	96.84	None
01/29/91		8.96	96.55	None
02/27/91		8.71	96.80	None
03/07/91		8.49	97.02	None
03/26/91		7.65	97.86	None
05/02/91		8.62	96,89	None
06/27/91		8.94	96.57	None
07/24/91		8.96	96.55	None
08/22/91		8.92	96.59	None
		9.04	96.47	None
09/30/91		9.04 9.12	96.39	None
10/17/91			96.59	None
11/21/91		8.92	96.54	None None
12/18/91		8.97		None
01/19/92		8.69	96.82	None None
02/20/92		7.78	97.73	
03/20/92		8.15	97.36 94.04	None
04/20/92		8.57	96.94 97.75	None
05/15/92		8.76	96.75	None
06/08/92		8.74	96.77	None

See notes on page 4 of 4.



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TABLE 1 CUMULATIVE GROUNDWATER MONITORING DATA ARCO Station 4494 Oakland, California (Page 3 of 4)

Well Date	Elevation of Wellhead	Depth to Water	Water Elevation	Floating Product
MW-3 (Cont.)		0.13	96.39	None
07/15/92	404.00	9.12		None
08/06/92	106.29	8.95	97.34	None
10/29/92		8.78	97.51	None
11/23/92		9.91	96.38	Mone
<u>MW-4</u>				
08/16/90	106.61	8.16	98.45	None
08/21/90		8.22	98.39	None
09/07/90		8.39	98.22	None
11/20/90		8.57	98.04	None
11/29/90		8.53	98.08	None
12/19/90		8.13	98.48	None
01/29/91		8.66	97.95	None
02/27/91		8.44	98.17	None
03/07/91		8.18	98.43	None
03/26/91		7.56	99.05	None
05/02/91		8.25	98.36	None
06/27/91		7.75	98.86	None
07/24/91	106.61	8.12	98.49	None
08/22/91		7.98	98.63	None
09/30/91		8.26	98.35	None
10/17/91		8.42	98.19	None
11/21/91		8.65	97.96	None
12/18/91		8. <i>7</i> 7	97.84	None
01/19/92		8.42	98.19	None
02/20/92		7.60	99.01	None
03/20/92		7.61	99.00	None
04/20/92		8.15	98.46	None
05/15/92		8.34	98.27	None
06/08/92		8.40	98.21	None
07/15/92		8.72	97.89	None
08/06/92	107.40	8.52	98.09	None
10/29/92	107.40	8.63	98.77	None
11/23/92		8.75	98.65	None
MW-5				
08/06/92	105.19	7.19	98.00	None
10/29/92	105.47	6.99	98.20	None
11/23/92		6.90	98.29	None
11/23/92		0.20	70.a.r	
MW-6	105.00	7 0 t	98.06	None
08/06/92	105.07	7.01 4.70		None
10/29/92		6.70	98.37	NONC

See notes on page 4 of 4.



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TABLE 2 CUMULATIVE RESULTS OF LABORATORY ANALYSES OF WATER SAMPLES—TPHg, TPHd, BTEX, and TOG ARCO Station 4494 Oakland, California (Page 2 of 2)

Well Date	TPHg (ppb)	TPHd (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	TOG (ppm)
	GF-7	GF-7	GF-7	GF-7	GF-7	(FF-)	· · · · · · · · · · · · · · · · · · ·
MW-4 (Cont.)							
09/07/90	NA	NA	NA	NA	NA	NA	<5,000
11/29/90	<50	NA	< 0.50	< 0.50	< 0.50	< 0.50	NA
03/07/91	<50	NA	< 0.30	< 0.30	< 0.30	< 0.50	NA
06/27/91	< 30	NA	0.75	1.1	< 0.30	1.6	NA
09/30/91	< 30	NA	< 0.30	< 0.30	< 0.30	< 0.30	NA °
12/18/91	<30	NA	0.83	1.2	< 0.30	0.58	NA
03/20/92	< 50	NA	< 0.50	< 0.50	< 0.50	< 0.50	NA
06/08/92	<50	NA	< 0.50	< 0.50	< 0.50	< 0.50	NA
08/06/92	<50	NA	< 0.50	< 0.50	< 0.50	< 0.50	NA
10/29/92	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA
MW-5							
08/06/92	<50	NA	< 0.50	< 0.50	< 0.50	< 0.50	NA
10/29/92	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA
<u>MW-6</u>							
08/06/92	<50	NA	< 0.50	< 0.50	< 0.50	< 0.50	NA
10/29/92	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA
<u>MW-7</u>							
08/06/92	<50	NA	< 0.50	< 0.50	< 0.50	< 0.50	NA
10/29/92	< 50	NA	<0.5	< 0.5	< 0.5	< 0.5	NA
Jan. 1990							
MCLs			1.0		680	1,750	_
DWAL		_		100	_	<u> </u>	

TPHg : Total petroleum hydrocarbons as gasoline using EPA Methods 5030 and 8015.

TPHd : Total petroleum hydrocarbons as diesel using EPA Methods 3550 and 8015.

BTEX: Benzene, toluene, ethylbenzene, and total xylene isomers using EPA Method 5030 and 8020.

TOG : Total oil and grease using EPA Standard Method 503E.

NA : Not Analyzed.

MCL : State Maximum Contaminant Level (October 1990).

DWAL : State Drinking Water Action Level (October 1990).

Groundwater was not sampled during the First Quarter 1993, due to ongoing construction activities at the site.



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TABLE 3 CUMULATIVE RESULTS OF LABORATORY ANALYSES OF WATER SAMPLES-BNAs, VOCs, and Metals ARCO Station 4494 Oakland, California (Page 1 of 2)

Well Date	BNAs (ppm)	VOCs (ppb)	Total Cadmium (ppm)	Chromium (ppm)	Lead (ppm)	Nickel (ppm)	Zinc (ppm)
MW-1					•		
06/19/90	< 0.05	< 0.05	0.024	< 0.02	0.10	NA	0.049
08/16/90	NA	NA	NA	NA	NA	NA	NA
11/29/90	NA	NA	NA	NA	NA	NA	NA
03/07/91	NA	NA	NA	NA	NA	NA	NA
06/27/91	NA	NA	NA	NA	NA	NA	NA
09/30/91	NA	NA	NA	NA	NA	NA	NA
12/18/91	NA	NA	NA	NA	NA	NA	NA
03/20/92	NA	NA	NA	NA	NA	NA	NA
06/08/92	NA	NA	0.003	< 0.005	< 0.002	< 0.02	0.018
08/06/92	NA	NA.	NA	NA	NA.	NA	NA
10/29/92	NA	NA.	NA.	NA NA	NA	NA	NA
10/29/92	INE	IVA.	TACK	TVA.	146	NA	1411
MW-2							
06/08/92	NA	NA	0.214	0.402	0.658	0.434	252
08/06/92	NA	NA	0.005	0.018	0.088	0.041	4.7
10/29/92	NA	NA	NA	NA	NA	NA	NA
MW-3							
08/16/90	< 0.05	< 0.05	< 0.01	0.06	0.07	NA	0.07
11/29/90	NA	NA.	NA.	NA.	NA.	NA	NA
03/07/91	NA NA	NA.	NA NA	NA.	NA	NA	NA
06/27/91	NA.	NA NA	NA NA	NA NA	NA NA	NA.	NA.
09/30/91	NA.	NA NA	NA NA	NA NA	NA NA	NA.	NA.
	NA NA	NA NA	NA.	NA NA	NA NA	NA.	NA.
12/18/91	NA NA	NA NA	NA.	NA NA	NA NA	NA NA	NA.
03/20/92					0.016	< 0.02	0.038
06/08/92	NA	NA	< 0.003	0.012		NA	NA
08/06/92	NA	NA	NA	NA.	NA NA	NA NA	NA NA
10/29/92	NA	NA	NA	NA	NA	INA	ina.
<u>MW-4</u>							
08/16/90	< 0.05	< 0.05	< 0.01	< 0.02	< 0.02	NA	0.03
03/07/91	NA	NA	NA	NA	NA	NA	NA
11/29/90	NA	NA	NA	NA	NA	NA	NA
03/07/91	NA	NA	NA	NA	NA	NA	NA
06/27/91	NA	NA	NA	NA	NA	NA	NA
09/30/91	NA	NA	NA	NA	NA	NA	NA
12/18/91	NA	NA	NA	NA	NA	NA	NA
03/20/92	NA	NA	NA	NA	NA	NA	NA
06/08/92	NA	NA	< 0.003	< 0.005	< 0.002	< 0.02	0.013
08/06/92	NA.	NA.	NA	NA	NA	NA	NA
10/29/92	NA	NA	NA	NA	NA	NA	NA

See notes on page 2 of 2.



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TABLE 3 CUMULATIVE RESULTS OF LABORATORY ANALYSES OF WATER SAMPLES—BNAs, VOCs, and Metals ARCO Station 4494 Oakland, California (Page 2 of 2)

Well Date	BNAs	VOCs	Total Cadmium	Chromium	Lead (ppm)	Nickel	Zine
	(ppm)	(ррь)	(ppm)	(ppm) (ppm)		(ppm)	(ppm)
MW-5							
08/06/92	NA	NA	NA	NA	NA	NA	NA
10/29/92	NA	NA	NA	NA	NA	NA	NA
<u>MW-6</u>							
08/06/92	NA	NA	NA	NA	NA	NA	NA
10/29/92	NA	NA	NA	NA	NA	NA	NA
<u>MW-7</u>							
08/06/92	NA	NA	NA	NA	NA	NA	NA
10/29/92	NA	NA	NA	NA	NA	NA	NA
WALs/MCLs			0.010	0.05	0.05	NE	5.0

NA

Not Analyzed.

BNA

Base neutral and acid extractables including polynuclear aromatics concentrations are below laboratory reporting limits

for respectable compounds except as indicated. (* = naphthalene, b = 2-methylnaphthalene)

DWALs:

Drinking Water Action Levels (California Department of Health Services, Office of Drinking Water, October 1990).

MCLs

Maximum Contaminant Levels (California Department of Health Services, Office of Drinking Water, October 1990).

NE: No established DWAL or MCL.

Groundwater was not sampled during the First Quarter 1993, due to ongoing construction activities at the site.



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TABLE 4 APPROXIMATE CUMULATIVE PRODUCT RECOVERED ARCO Station 4494 Oakland, California

Date	Floating Product Removed (gallons)	Water Removed (gallons)	
MW-2			
06/19/90	2	_	
08/21/90	0.3	3.5	
09/07/90	0.1	4	
11/20/90	2	3	
11/29/90	2	•	
01/29/91	Sheen	3.4	
02/27/91	Sheen	7	
03/07/91	Sheen	7	
06/27/91	Sheen	7	
09/30/91	Sheen	7	
12/18/91	Sheen	7	
01/30/92	None present	0	
02/28/92	None present	0	
03/25/92	None present	0	
04/15/92	None Present	0	
05/14/92	None Present	0	
06/30/92	None Present	0	
07/31/92	None Present	0	
08/26/92	None Present	0	
10/26/92	Sheen	0	
11/23/92	None Present	0	
12/08/92	Well MW-2 Destroyed	•	
	Total: 6.41 Gallons	48.9 Gallons	