Applied GeoSystems, Inc.
A RESNA Company

RESNA
Working To Restore Nature

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TRANSMITTAL

TO: MR. BARNEY CHAN
ACHCSA
DEPT OF ENVIRONMENTAL HEALTH
80 SWAN WAY, ROOM 200
OAKLAND, CA 94621

DATE: 9/3/92
PROJECT NUMBER: 69038.11
SUBJECT: ARCO STATION 4494, 566 HEGENBERGER ROAD, OAKLAND, CA.

FROM: ROBERT CAMPBELL
TITLE: STAFF GEOLOGIST

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REMARKS: PER ARCO'S REQUEST (MR MICHAEL WHELAN) THIS REPORT HAS BEEN FORWARDED FOR YOUR REVIEW.

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LETTER REPORT
QUARTERLY GROUNDWATER MONITORING
Second Quarter 1992
at
ARCO Station 4494
566 Hegenberger Road
Oakland, California

69038.11

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September 3, 1992
0629MWHE
69038.11

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

Subject: Second Quarter 1992 Groundwater Monitoring Report for ARCO Station 4494 at 566 Hegenberger Road, Oakland, California.

Mr. Whelan:

As requested by ARCO Products Company (ARCO), this letter report summarizes the results of second quarter 1992 groundwater monitoring performed by ARCO's contractor, EMCON Associates (EMCON) of San Jose, California, at the above-referenced site. The objectives of this quarterly groundwater monitoring are to evaluate changes in the groundwater flow direction and gradient, and changes in concentrations of petroleum hydrocarbons in the local groundwater associated with gasoline-storage tanks at the site. The field work and laboratory analyses of groundwater samples during this quarter was performed under the direction of EMCON and included measuring depths to groundwater, subjectively analyzing groundwater for the presence of petroleum product, collecting groundwater samples from the wells for laboratory analyses, and directing a State-certified laboratory to analyze the groundwater samples. Field procedures and acquisition of field data and field protocols is beyond RESNA Industries Inc.'s (RESNA's) scope of work. RESNA's scope of work was limited to interpretation of field and laboratory analytical data, which included evaluating trends in reported hydrocarbon concentrations in the local groundwater, the groundwater gradient, and direction of groundwater flow beneath the site.

The operating ARCO Station 4494 is located on the northeastern side of the intersection of Edes Avenue and Hegenberger Road in Oakland, California as shown on the Site Vicinity Map, Plate 1.

Prior to the present monitoring, Pacific Environmental Group (PEG) and RESNA (formerly Applied GeoSystems [AGS]) performed limited subsurface environmental investigations

related to the former underground waste-oil storage tank and existing gasoline-storage tanks at the site. In October 1989, RESNA performed a site history and records review and a limited subsurface environmental investigation at the site, which included installation of two 4-inch diameter groundwater monitoring wells (MW-1 and MW-2) (AGS, October 1, 1990). On December 16, 1989, PEG performed soil sampling and observation during removal of the waste-oil tank and excavation of the soil by Crosby & Overton (PEG, May 3, 1989). On June 6, 1990, quarterly monitoring was initiated by RESNA/AGS (AGS, February 8, 1991). On August 10, 1990, RESNA performed a limited subsurface environmental investigation, which included installation of two additional 4-inch groundwater monitoring wells (MW-3 and MW-4) and one additional soil boring (B-5) (AGS, February 13, 1991). Quarterly groundwater monitoring was performed in 1991 by AGS (AGS, April 30, 1991) and RESNA (RESNA/AGS, September 12, and November 22, 1991). The results of these investigations are presented in reports listed in the references section of this letter report. RESNA initiated an additional on and offsite subsurface investigation in July 1992. The results of this investigation will be presented in a forthcoming report. Monitoring wells installed during the additional investigation will be added to the quarterly monitoring program for this site. The locations of the groundwater monitoring wells (not including new wells) and pertinent site features are shown on the Generalized Site Plan, Plate 2.

why not yet?

Groundwater Sampling and Gradient Evaluation

Depth to water measurements (DTW) were performed by EMCON field personnel on April 20, May 15, and June 8, 1992. Quarterly sampling was performed by EMCON field personnel on June 8, 1992. The results of EMCON's field work on the site, including DTW measurements and subjective analysis for the presence of product in the groundwater in MW-1 through MW-4, are presented on EMCON's field report sheets and EMCON's Summary of Groundwater Monitoring Data. These data are included in Appendix A.

The DTW levels, wellhead elevations, groundwater elevations, and subjective observations of product in the groundwater (if present) from MW-1 through MW-4 for this quarter and previous quarterly groundwater monitoring at the site are summarized in Table 1, Cumulative Groundwater Monitoring Data. EMCON's DTW measurements were used to evaluate groundwater elevations. Evidence of product or sheen was not observed by EMCON's field personnel during this quarterly monitoring (see EMCON's field report sheets, Appendix A). Groundwater elevations in wells MW-1, MW-2, and MW-4 decreased an average of approximately 0.25 foot and increased in well MW-3 approximately 0.10 foot between April 20 and June 8, 1992. The groundwater gradients interpreted from the April, May, and June 1992 groundwater monitoring episodes are shown on the Groundwater Gradient Maps, Plates 3 through 5. The groundwater gradients interpreted from EMCON's DTW measurements are approximately 0.2 toward the northeast. The groundwater gradients for this quarter are generally consistent with previously interpreted data.

Groundwater monitoring wells MW-1 through MW-4 were purged and sampled by EMCON field personnel on June 8, 1992. EMCON's water sample field data sheets, field report sheets and Summary of Groundwater Monitoring Data, are included in Appendix A. EMCON's water sample field data sheets indicate that approximately 1.3 to 5 well volumes were purged from the wells. The purge water was removed from the site by a licensed hazardous waste hauler; the Monitoring Well Purge Water Disposal Form is also included in Appendix A.

Laboratory Methods and Results

Under the direction of EMCON, water samples collected from the wells were analyzed by Columbia Analytical Services, Inc., located in San Jose, California (Hazardous Waste Testing Laboratory Certification No. 1426). The water samples from MW-1 through MW-4 were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using Environmental Protection Agency (EPA) Methods 5030/8020. The heavy metals cadmium, chromium, lead, nickel, and zinc were also analyzed in samples from MW-1 through MW-4. All metals were analyzed using EPA Method 6010, with the exception of lead which was analyzed by EPA Method 7421.

Concentrations of TPHg and benzene in the groundwater are shown on Plate 6, Concentration of TPHg in Groundwater, and Plate 7, Concentration of Benzene in Groundwater. The Chain of Custody Records and Laboratory Analysis Reports are included in Appendix A. Results of these and previous water analyses are summarized in Table 2, Cumulative Results of Laboratory Analyses of Groundwater--TPHg, TPHd, BTEX, and TOG and Table 3, Cumulative Results of Laboratory Analyses of Groundwater--VOCs and Metals.

Results of this quarter's groundwater monitoring indicate:

- **TPHg was detected in a groundwater sample from MW-2 at a concentration of 43,000 parts per billion (ppb) and was nondetectable (<50 ppb) in groundwater** samples from wells MW-1, MW-3, and MW-4.

- **Benzene was detected in a groundwater sample from MW-2 at a concentration of 2,900 ppb, which was above the State Maximum Contaminant Level (MCL) of 1 ppb.** Benzene was nondetectable in (<0.5 ppb) in groundwater samples from wells MW-1, MW-3, and MW-4.

- Toluene was detected in a groundwater sample from MW-2 at a concentration of 940 ppb, which is above the State Drinking Water Action Level (DWAL) of 100 ppb.

Toluene was nondetectable (<0.5 ppb) in groundwater samples from wells MW-1, MW-3, and MW-4.

- Ethylbenzene and total xylenes were detected in groundwater sample MW-2 at concentrations of 2,400 ppb and 5,100 ppb, which exceeded the State MCLs of 680 ppb and 1,750 ppb, respectively. Ethylbenzene and total xylenes were nondetectable (<0.5 ppb) in groundwater samples from wells MW-1, MW-3, and MW-4.

- Concentrations of the heavy metals cadmium (Cd), chromium (Cr), lead (Pb), nickel (Ni), and zinc (Zn) in wells MW-1, MW-3, and MW-4 ranged from nondetectable (ND) to 0.038 parts per million (ppm), and were within State MCLs.

- Concentrations of Cd, Cr, Pb, Ni, and Zn in well MW-2 exceeded State MCLs at 0.214 ppm, 0.402 ppm, 0.658 ppm, and 252 ppm, respectively. Nickel was present at 0.434 ppm, but no State or Federal MCL has been established for this metal.

The concentration of TPHg and BTEX have remained nondetectable in wells MW-1, MW-3, and MW-4 during this quarter. Concentrations of TPHg and total xylenes in well MW-2 decreased during this quarter while benzene, toluene, and ethylbenzene increased during the same period.

Product Removal

Since June 1990, evidence of floating product or product sheen has been observed only in well MW-2. Floating product or product sheen and associated water were removed from well MW-2 during the December 18, 1991, quarterly sampling. Quantities of floating product and water removed during this and previous quarterly monitoring episodes are presented on Table 4, Approximate Cumulative Product Recovered. On December 24, 1991, a Horner EZY Floating Product Skimmer was installed in monitoring well MW-2 to collect floating product. The skimmer is checked for product and adjusted on a monthly basis. As mentioned previously, no product or sheen was observed during this quarter and floating product has been removed to a sheen or non-existent since November 1990.

Conclusions

Petroleum hydrocarbons have impacted the groundwater in the well (MW-2) immediately downgradient of the USTs, but have not impacted the crossgradient wells MW-3 and MW-4 or upgradient well MW-1. Quarterly groundwater monitoring, including wells installed during the recent additional investigation, should continue at this site.

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

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

Sincerely,
RESNA Industries Inc.

Robert D. Campbell
Staff Geologist

Joan E. Tierman
Registered Civil Engineer
#044600

cc: H.C. Winsor, ARCO Products Company

Enclosures: References

Plate 1, Site Vicinity Map
Plate 2, Generalized Site Plan
Plate 3, Groundwater Gradient Map, April 20, 1992
Plate 4, Groundwater Gradient Map, May 15, 1992
Plate 5, Groundwater Gradient Map, June 8, 1992
Plate 6, TPHg Concentrations in Groundwater, June 8, 1992
Plate 7, Benzene Concentrations in Groundwater, June 8, 1992

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

Appendix A: EMCON's Field Reports (2), Depth to Water/Floating Product Survey Results, Summary of Groundwater Monitoring Data, Certified Analytical Reports with Chain of Custody Record, and Water Sample Field Data Sheets

Monitoring Well Purge Water Disposal Form

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. Letter Report on Fourth Quarter 1990 Ground-Water Monitoring at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. AGS Report 69038-4.

Applied GeoSystems. February 13, 1991. Limited Subsurface Environmental Investigation at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. AGS Report 69038-2.

Applied GeoSystems. April 30, 1991. Letter Report on Quarterly Ground-Water Monitoring, First Quarter 1991, at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. AGS Report 69038-4.

Pacific Environmental Group. May 3, 1989. Arco Station No. 4494, 566 Hegenberger Road, California. Project 330-41.

RESNA/Applied GeoSystems. September 12, 1991. Letter Report on Quarterly Ground-Water Monitoring, Second Quarter 1991, at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. AGS Report 69038-4.

RESNA. November 22, 1992. Letter Report on Quarterly Groundwater Monitoring, Third Quarter 1991, at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. 69038.04.

RESNA. April 8, 1992. Letter Report on Quarterly Groundwater Monitoring, Fourth Quarter 1991, at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. 69038.04.

RESNA. May 8, 1992. Letter Report on Quarterly Groundwater Monitoring, First Quarter 1992, at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. 69038.11

Base: U.S. Geological Survey
7.5-Minute Quadrangles
Oakland East/San Leandro, California.
Photorevised 1980

LEGEND

⊙ = Site Location

N

Approximate Scale

2000 1000 0 2000 4000

feet

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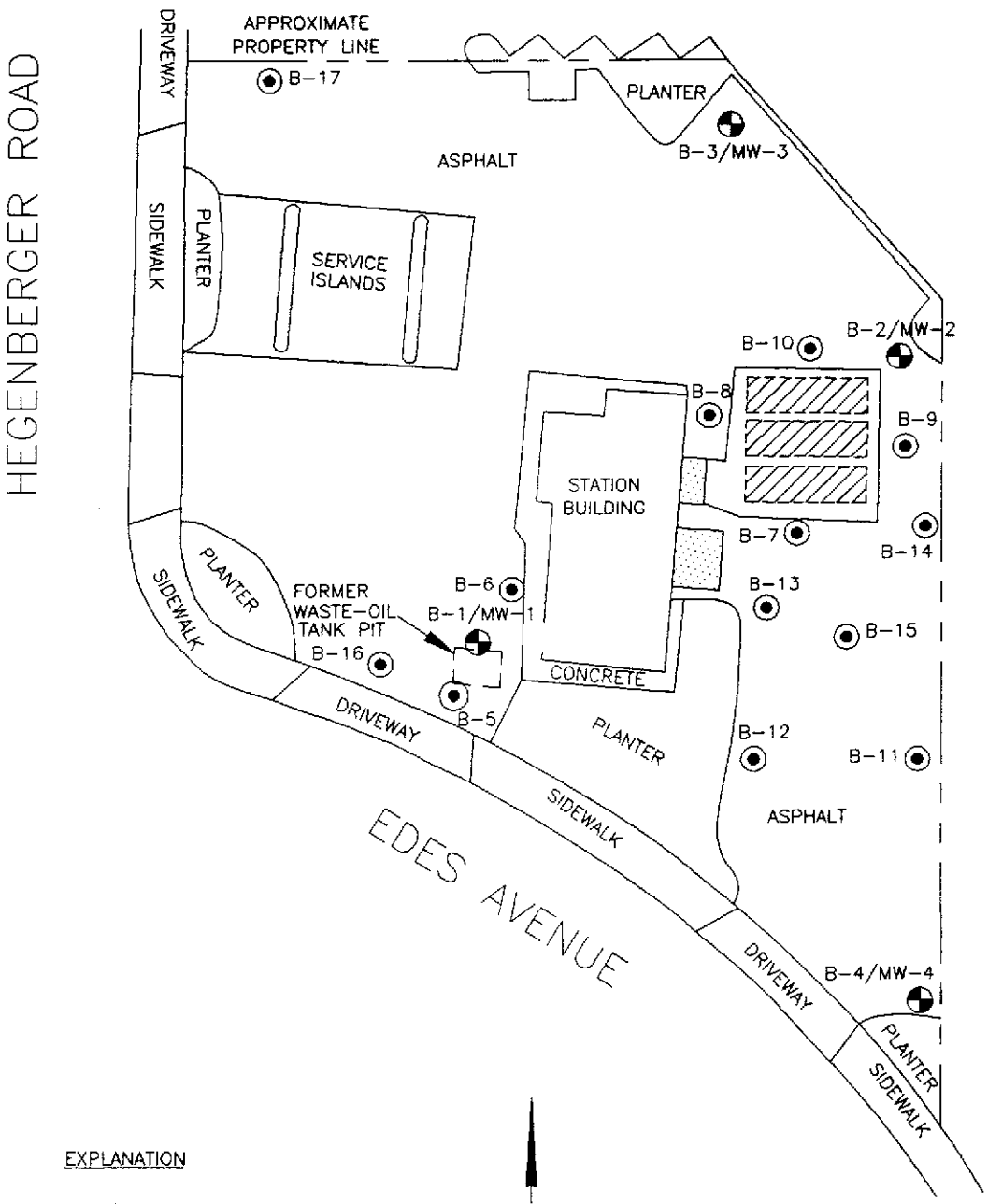
SITE VICINITY MAP
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE
1



EXPLANATION

B-17 = Soil boring (RESNA, August 1990)

B-4/MW-4 = Monitoring well (RESNA, October 1989 and August 1990)

= Existing gasoline storage tanks

= Concrete

N

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plans supplied by ARCO Products Co. (dated August 12, 1982) and City of Oakland Dept. of Public Works (dated December 19, 1961).

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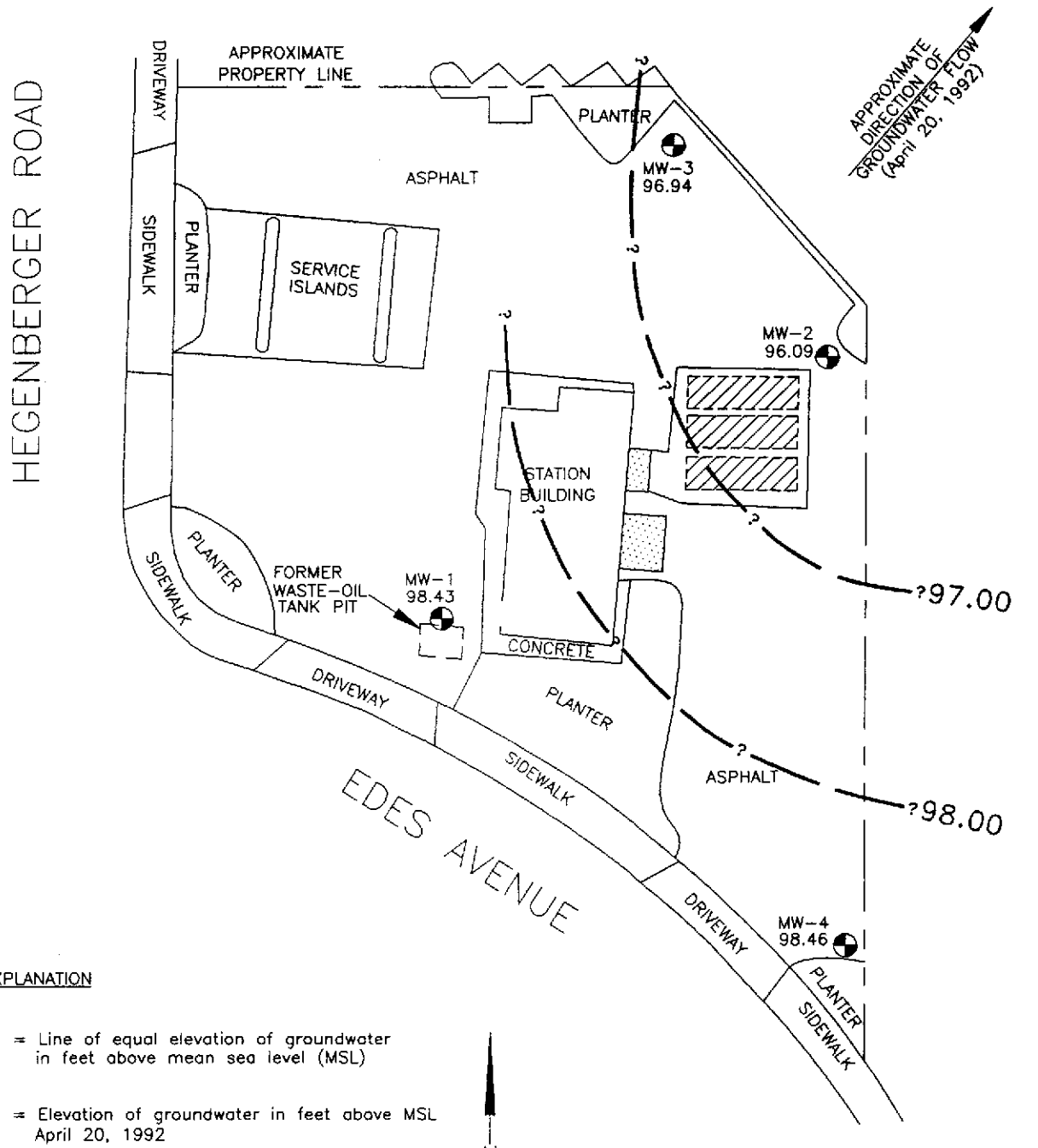
GENERALIZED SITE PLAN
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE 2



EXPLANATION

98.00 = Line of equal elevation of groundwater in feet above mean sea level (MSL)

98.46 = Elevation of groundwater in feet above MSL April 20, 1992

MW-4 = Monitoring well (RESNA, October 1989 and August 1990)

= Existing gasoline storage tanks

= Concrete

N

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plans supplied by ARCO Products Co. (dated August 12, 1982) and City of Oakland Dept. of Public Works (dated December 19, 1961).

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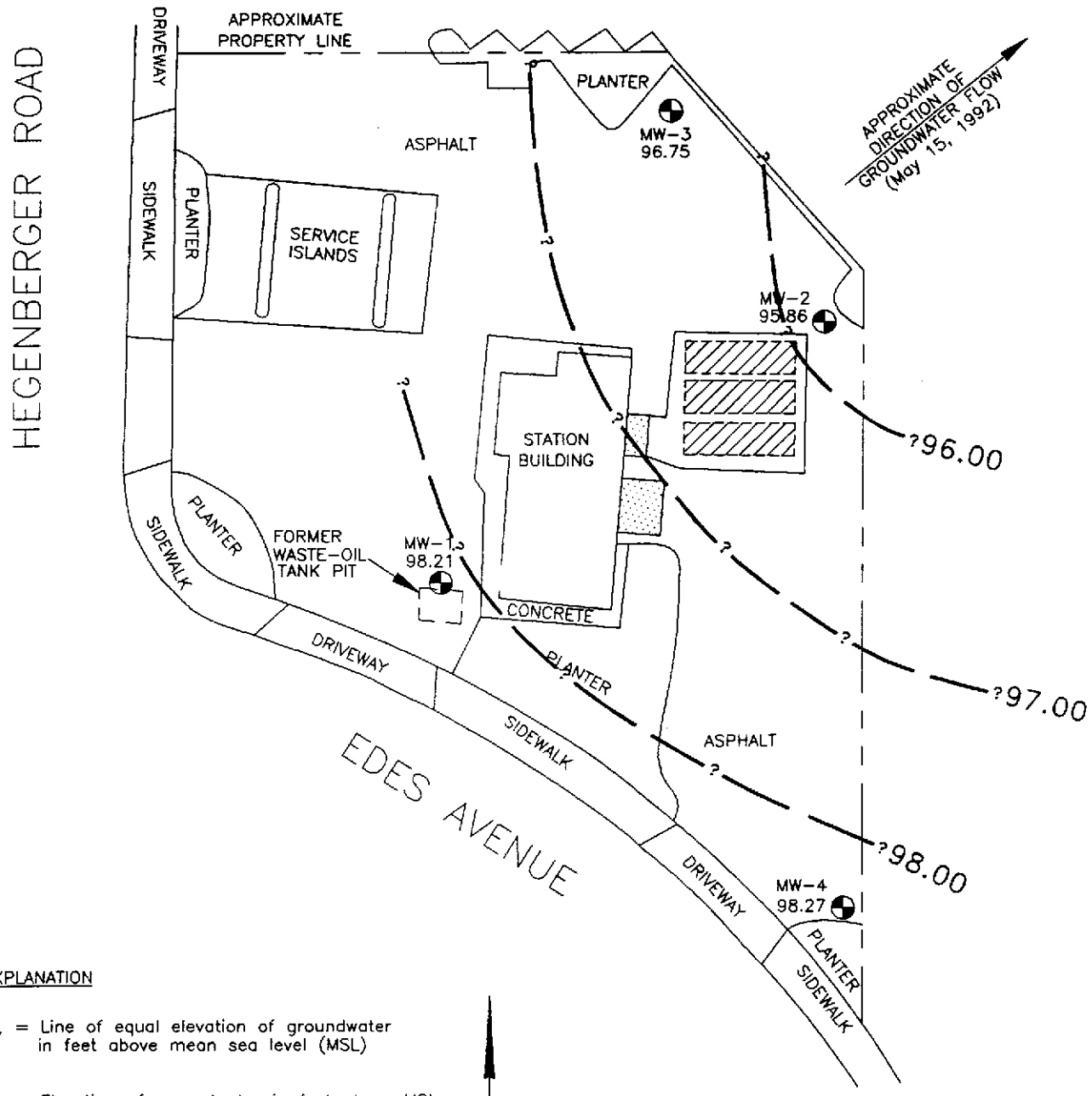
GROUNDWATER GRADIENT MAP
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE
3



EXPLANATION

98.00 = Line of equal elevation of groundwater in feet above mean sea level (MSL)

98.27 = Elevation of groundwater in feet above MSL May 15, 1992

MW-4 = Monitoring well (RESNA, October 1989 and August 1990)

= Existing gasoline storage tanks

= Concrete

N

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plans supplied by ARCO Products Co. (dated August 12, 1982) and City of Oakland Dept. of Public Works (dated December 19, 1961).

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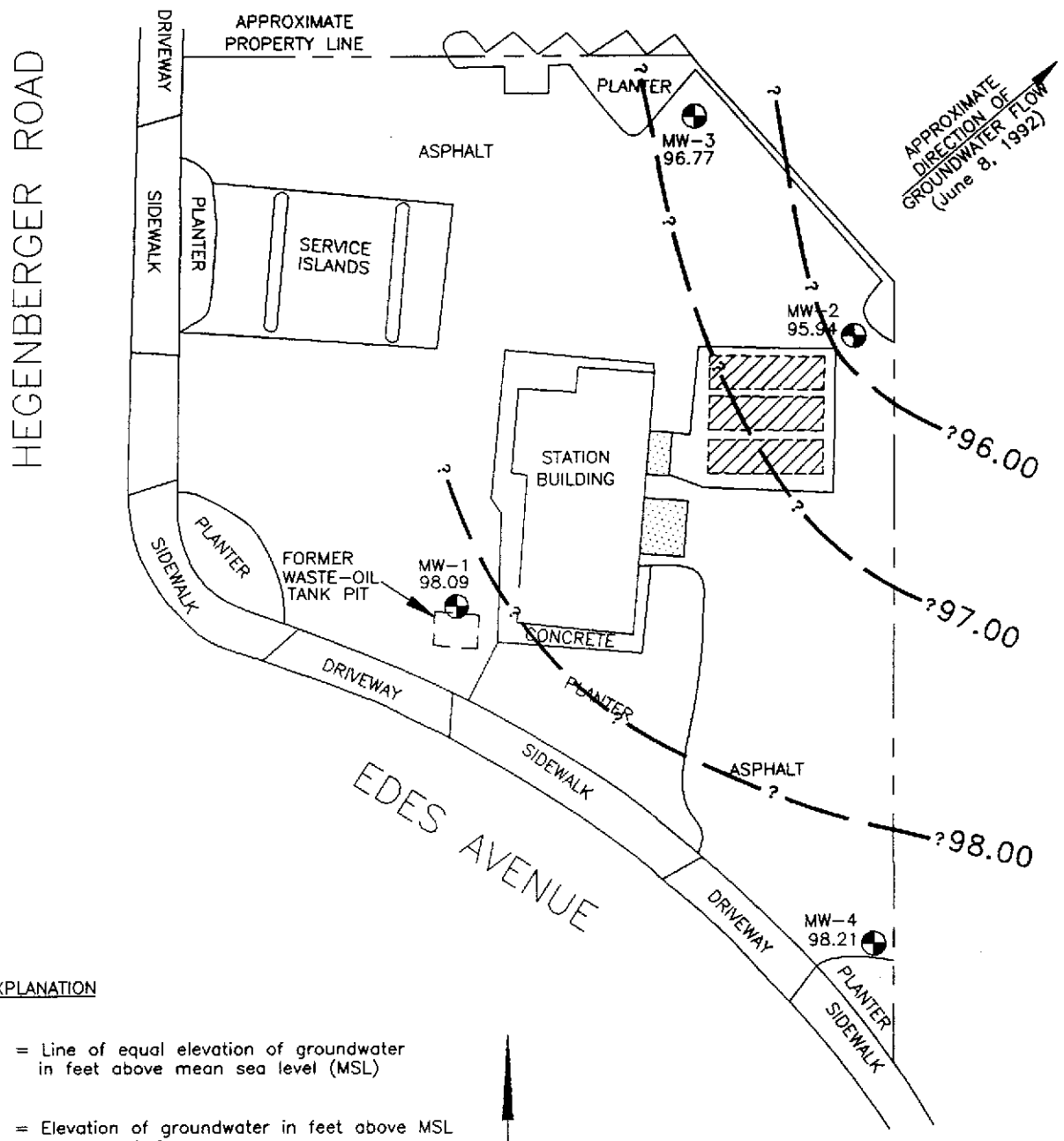
GROUNDWATER GRADIENT MAP
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE
4



EXPLANATION

98.00 = Line of equal elevation of groundwater in feet above mean sea level (MSL)

98.21 = Elevation of groundwater in feet above MSL June 8, 1992

MW-4 = Monitoring well (RESNA, October 1989 and August 1990)

= Existing gasoline storage tanks

= Concrete

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plans supplied by ARCO Products Co. (dated August 12, 1982) and City of Oakland Dept. of Public Works (dated December 19, 1961).

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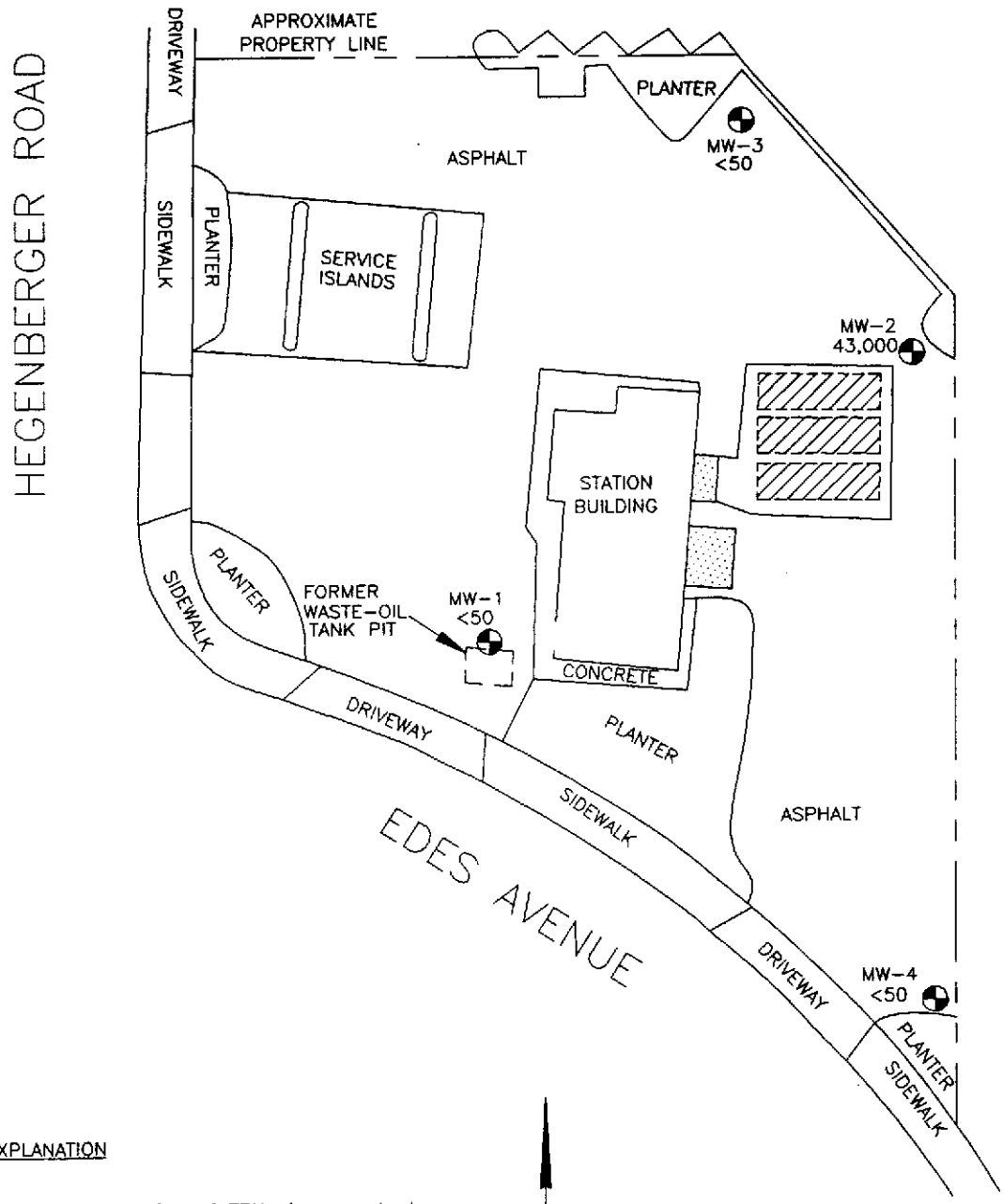
GROUNDWATER GRADIENT MAP
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE
5



EXPLANATION

43,000 = Concentration of TPHg in groundwater in ppb, June 8, 1992

MW-4 = Monitoring well (RESNA, October 1989 and August 1990)

= Existing gasoline storage tanks

= Concrete

N

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plans supplied by ARCO Products Co. (dated August 12, 1982) and City of Oakland Dept. of Public Works (dated December 19, 1961).

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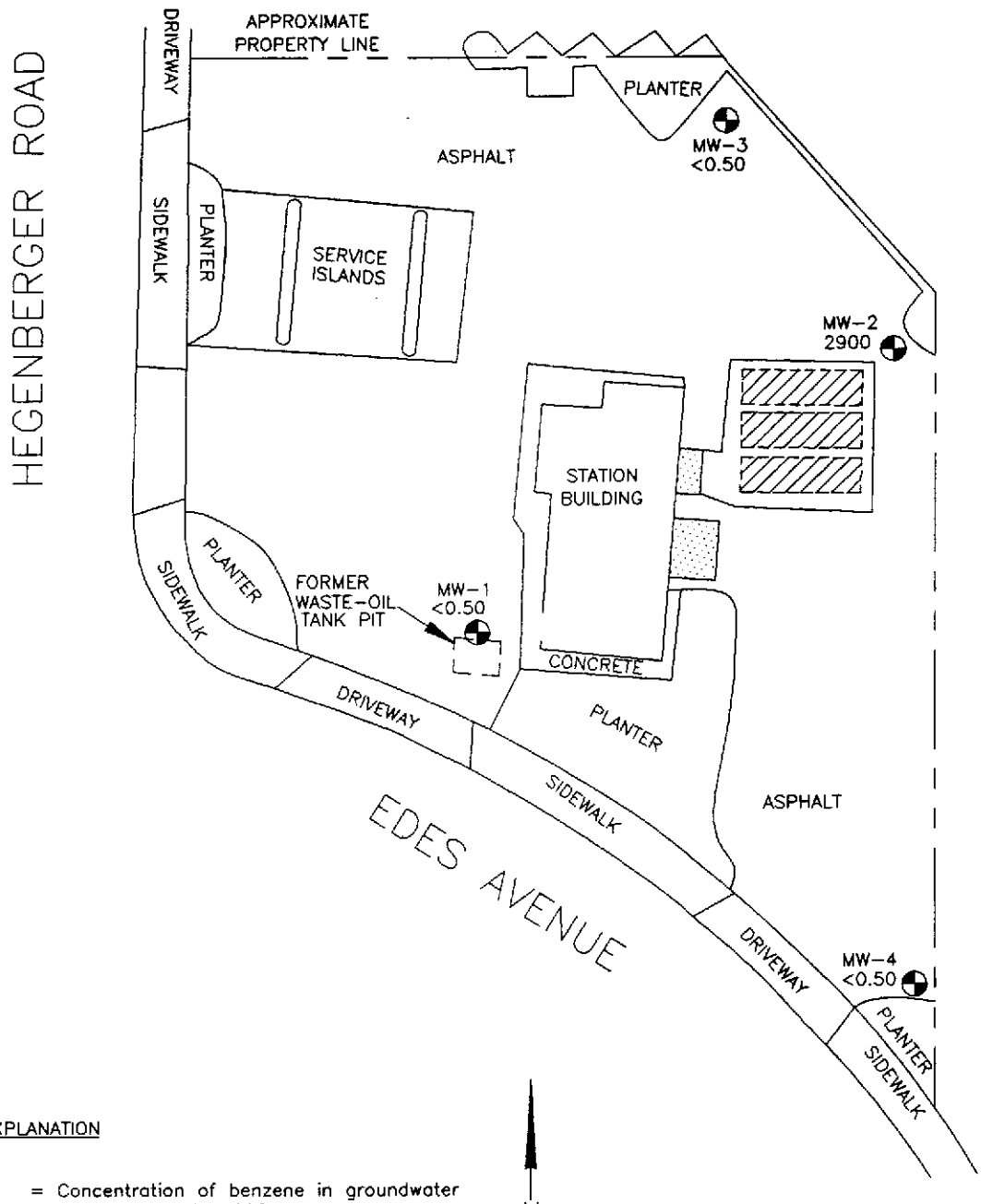
TPHg CONCENTRATIONS IN GROUNDWATER
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE 6



EXPLANATION

2900 = Concentration of benzene in groundwater in ppb, June 8, 1992

MW-4 = Monitoring well (RESNA, October 1989 and August 1990)

= Existing gasoline storage tanks

= Concrete

N

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plans supplied by ARCO Products Co. (dated August 12, 1982) and City of Oakland Dept. of Public Works (dated December 19, 1961).

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BENZENE CONCENTRATIONS IN GROUNDWATER
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE
7

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

Well Date	Elevation of Wellhead	Depth to Water	Water Elevation	Floating Product
MW-1				
06/06/90	105.31	6.65	98.66	None
08/16/90		7.00	98.31	None
08/21/90		7.05	98.26	None
09/07/90		7.24	98.07	None
11/20/90		7.46	97.85	None
11/29/90		7.40	97.91	None
12/19/90		6.99	98.32	None
01/29/91		7.23	98.08	None
02/27/91		7.45	97.86	None
03/07/91		6.96	98.35	None
03/26/91		6.02	99.29	None
05/02/91		7.04	98.27	None
06/27/91		6.71	98.60	None
07/24/91		6.91	98.40	None
08/22/91		6.85	98.46	None
09/30/91		7.04	98.27	None
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		6.40	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
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
05/02/91		8.72	97.06	None
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

See notes on page 3 of 3.

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 4494
Oakland, California
(Page 2 of 3)

Well Date	Elevation of Wellhead	Depth to Water	Water Elevation	Floating Product
MW-2 (Cont.)				
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
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
09/30/91		9.04	96.47	None
10/17/91		9.12	96.39	None
11/21/91		8.92	96.59	None
12/18/91		8.97	96.54	None
01/19/92		8.69	96.82	None
02/20/92		7.78	97.73	None
03/20/92		8.15	97.36	None
04/20/92		8.57	96.94	None
05/15/92		8.76	96.75	None
06/08/92		8.74	96.77	None
MW-4				
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

See notes on page 3 of 3.

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

Well Date	Elevation of Wellhead	Depth to Water	Water Elevation	Floating Product
MW-4 (Cont.)				
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		8.77	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

Depth measurements in feet. * = Floating Product present in well. ** = Skimmer Installed (12/24/91)
NM = Not measured.
Elevations in feet above mean sea level (plus one hundred feet to avoid negative ground-water elevations).

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES OF WATER SAMPLES–TPHg, TPHd, BTEX, and TOG
ARCO Station 4494
Oakland, California
(Page 1 of 2)

Well / Date	TPHg (ppb)	TPHd (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	TOG (ppm)
MW-1							
06/19/90	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5,000
08/16/90	<20	NA	<0.50	<0.50	<0.50	<0.50	NA
09/07/90	NA	NA	NA	NA	NA	NA	<5,000
11/29/90	<50	NA	<0.50	0.7	<0.50	<0.50	NA
03/07/91	<50	NA	<0.30	<0.30	<0.30	<0.50	NA
06/27/91	<30	NA	<0.30	<0.30	<0.30	<0.30	NA
09/30/91	<30	NA	<0.30	<0.30	<0.30	<0.30	NA
12/18/91	<30	NA	<0.30	<0.30	<0.30	<0.30	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
MW-2							
06/19/90			Not sampled–product				
08/16/90			Not sampled–product				
09/07/90			Not sampled–product				
11/29/90			Not sampled–sheen				
03/07/91			Not sampled–sheen				
06/27/91			Not sampled–sheen				
09/30/91			Not sampled–sheen				
12/18/91			Not sampled–sheen				
03/20/92	48,000	NA	2,000	580	2,300	7,000	NA
06/08/92	43,000	NA	2,900	940	2,400	5,100	NA
MW-3							
08/16/90	<20	NA	<0.50	<0.50	<0.50	<0.50	NA
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	<0.30	<0.30	<0.30	<0.30	NA
09/30/91	<30	NA	<0.30	<0.30	<0.30	<0.30	NA
12/18/91	<30	NA	<0.30	<0.30	<0.30	<0.30	NA
03/20/92	<50	NA	<0.50	<0.50	<0.50	<0.50	NA
06/08/92	<50	NA	<.50	<0.50	<0.50	<0.50	NA
MW-4							
08/16/90	<20	NA	<0.50	<0.50	<0.50	<0.50	NA
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
Jan. 1990							
MCLs	—	—	1.0	—	680	1,750	—
DWAL	—	—	—	100	—	—	—

See notes on page 2 of 2.

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

TPHg:	Total petroleum hydrocarbons as gasoline by EPA Methods 5030 and 8015.
TPHd:	Total petroleum hydrocarbons as diesel by EPA Methods 3550 and 8015.
BTEX:	Benzene, toluene, ethylbenzene, and total xylene isomers by EPA Method 5030 and 8020.
TOG:	Total oil and grease by EPA Standard Method 503E.
NA:	Not Analyzed.
MCL:	State Maximum Contaminant Level (October 1990).
DWAL:	State Drinking Water Action Level (October 1990).

TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES OF WATER SAMPLES–BNAs, VOCs, and Metals
ARCO Station 4494
Oakland, California

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
MW-2							
06/08/92	NA	NA	0.214	0.402	0.658	0.434	252
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
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	0.012	0.016	<0.02	0.038
MW-4							
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
DWALs/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. ([a] = 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.

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
Total:	6.4 Gallons	48.9 Gallons

APPENDIX A

EMCON'S FIELD REPORTS (2), DEPTH TO WATER/FLOATING PRODUCT SURVEY RESULTS, SUMMARY OF GROUNDWATER MONITORING DATA, CERTIFIED ANALYTICAL REPORTS WITH CHAIN OF CUSTODY RECORD, AND WATER SAMPLE FIELD DATA SHEETS

MONITORING WELL PURGE WATER DISPOSAL FORM

EMCON ASSOCIATES
Consultants in Wastes Management and Environmental Control

Date April 27, 1992
Project G70-31.01

To:
Mr. Joel Coffman
RESNA/ Applied Geosystems
3315 Almaden Expressway, Suite 34
San Jose, California 95118

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	April 1992 monthly water level survey, ARCO
	station 4494, 566 Hegenberger Road, Oakland, CA

For your: X Information Sent by: X Mail

Comments:
Monthly water level data for the above mentioned site are attached. Please call if you have any questions: (408) 453-2266.

Reviewed by:

Mark Knuttel MK

Robert Porter

Robert Porter, Senior Project Engineer.

1921 Junction Avenue, San Jose, California 95131-2102, (408) 453-7300, Fax (408) 453-0452

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : G70-31.01 STATION ADDRESS : 566 Hegenberger Road, Oakland DATE : 04-20-92

ARCO STATION # : 4494 FIELD TECHNICIAN : LARRY NESS DAY : MONDAY

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-1	OK	OK	OK	OK	OK	6.88	6.88	ND	ND	23.27	
2	MW-3	OK	OK	OK	OK	OK	8.57	8.57	ND	ND	18.0	-
3	MW-4	OK	OK	OK	OK	OK	8.15	8.15	ND	ND	18.1	-
4	MW-2	OK	OK	OK	OK	OK	9.69	9.69	ND	ND	17.5	-

EMCON ASSOCIATES
Consultants in Wastes Management and Environmental Control

Date May 19, 1992
Project G70-31.01

To:
Mr. Joel Coffman
RESNA/ Applied Geosystems
3315 Almaden Expressway, Suite 34
San Jose, California 95118

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	May 1992 monthly water level survey, ARCO
	station 4494, 566 Hegenberger Road, Oakland, CA

For your: X Information Sent by: X Mail

Comments:
Monthly water level data for the above mentioned site are attached. Please call if you have any questions: (408) 453-2266.

Jim Butera JB

Reviewed by: 6/30/92

Robert Porter, Senior Project Engineer.

1936 Junction Avenue, San Jose, California 95131-2132, (408) 453-[illegible] Fax (408) 453-0452

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : G70-31.01 STATION ADDRESS : 566 Hegenberger Road, Oakland DATE : 5-15-92

ARCO STATION # : 4494 FIELD TECHNICIAN : C. Clinton DAY : Friday

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-1	OK	Y	Y	Y	3259	7.10	7.09	ND	ND	23.25	—
2	MW-3	OK	Y	Y	Y	3257	8.76	8.76	ND	ND	18.0	water in box
3	MW-4	OK	Y	Y	Y	3259	8.34	8.34	ND	ND	18.1	—
4	MW-2	OK	Y	Y	Y	3259	9.92	9.92	ND	ND	17.5	SKIMMER IN THE WELL ALSO POSSIBLY A DAMAGED SKIMMER THERE WAS 600 mls OF WATER IN THE SKIMMER WATER LEVEL FOR MW-2 NOT TAKEN DO TO 600 mls IN SKIMMER

ASSOCIATES
Consultants in Wastes
Management and
Environmental Control

Date July 1, 1992
Project G70-31.01

To:
Mr. Joel Coffman
RESNA/ Applied Geosystems
3315 Almaden Expressway, Suite 34
San Jose, California 95050

We are enclosing:

Copies	Description
1	Depth To Water / Floating Product Survey Results
1	Summary of Groundwater Monitoring Data
1	Certified Analytical Reports with Chain-of-Custody
4	Water Sample Field Data Sheets

For your: X Information Sent by: X Mail

Comments:
Enclosed are the data from the second quarter 1992 monitoring event at ARCO service station 4494, 566 Hegenberger Road, Oakland, California. Groundwater monitoring is conducted consistent with applicable regulatory guidelines. Please call if you have any questions: (408) 453-2266.

Reviewed by:

REGISTERED PROFESSIONAL ENGINEER ROBERT CHRISTOPHER PORTER No. 4994 Exp. 6/30/92 INDUSTRIAL HYGIENIST STATE OF CALIFORNIA

Jim Butera JB

Robert Porter, Senior Project Engineer.

Junction Avenue, San Jose, California 95131-2102, (408) 453-7300 Fax (408) 453-0452

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : G70-31.01 STATION ADDRESS : 566 Hegenberger Road, Oakland DATE : 6-8-92

ARCO STATION # : 4494 FIELD TECHNICIAN : R. WINKER DAY : MONDAY

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-1	✓	✓	✓	3254	✓						
2	MW-3						9.84	9.83			17.5	
3	MW-4	✓	NO BOLT	✓			8.74	8.75				
4	MW-2											
	MW-1	✓	✓	✓	3254	✓	7.22	7.22		-0-	23.2	—
	MW-2	✓	✓	✓	3254	✓	9.84	9.83		-0-	17.5	—
	MW-3	✓	NO BOLTS	✓	3254	✓	8.74	8.75		-0-	18.0	—
	MW-4	✓	NO BOLTS	✓	3254	✓	8.40	8.40		-0-	18.1	—

Summary of Groundwater Monitoring Data
Second Quarter 1992
ARCO Service Station 4494
566 Hegenberger Road, Oakland, California
micrograms per liter (µg/l) or parts per billion (ppb)

Well ID and Sample Depth	Sampling Date	Depth To Water (feet)	Floating Product Thickness (feet)	TPH[1] as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)
MW-1(10)	06/08/92	7.22	ND.[2]	<50	<0.5	<0.5	<0.5	<0.5
MW-2(10)	06/08/92	9.84	ND.	43,000.	2,900.	940.	2,400.	5,100.
MW-3(10)	06/08/92	8.47	ND.	<50	<0.5	<0.5	<0.5	<0.5
MW-4(10)	06/08/92	8.40	ND.	<50	<0.5	<0.5	<0.5	<0.5
FB-1[3]	06/08/92	NA.[4]	NA.	<50	<0.5	<0.5	<0.5	<0.5

1. TPH. = Total petroleum hydrocarbons
2. ND. = Not detected
3. FB. = Field blank
4. NA. = Not applicable

Columbia
Analytical
Services inc.

June 19, 1992

Jim Butera
EMCON Associates
1921 Ringwood Avenue
San Jose, CA 95131

Re: **EMCON Project No. G70-31.01**
Arco Facility No. 4494

Dear Mr. Butera:

Enclosed are the results of the water samples submitted to our lab on June 9, 1992. For your reference, our service request number for this work is SJ92-0710.

All analyses were performed in accordance with the laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.

Carol J Klein for
Keoni A. Murphy
Laboratory Manager

Annelise J. Bazar
Regional QA Coordinator

le/KAM

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	06/09/92
Project:	EMCON Project No. G70-31.01	**Work Order #:**	SJ92-0710
	Arco Facility No. 4494	**Sample Matrix:**	Water

BTEX and TPH as Gasoline
EPA Methods 5030/8020/DHS LUFT Method
µg/L (ppb)

Sample Name:		MW-1 (10)	MW-2 (10)	MW-3 (10)
Date Analyzed:		06/17/92	06/17/92	06/17/92
Analyte	**MRL**			
Benzene	0.5	ND	2,900.	ND
Toluene	0.5	ND	940.	ND
Ethylbenzene	0.5	ND	2,400.	ND
Total Xylenes	0.5	ND	5,100.	ND
TPH as Gasoline	50	ND	43,000.	ND

TPH Total Petroleum Hydrocarbons
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Carol Klein Date 6-19-92

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	06/09/92
Project:	EMCON Project No. G70-31.01	**Work Order #:**	SJ92-0710
	Arco Facility No. 4494	**Sample Matrix:**	Water

BTEX and TPH as Gasoline
EPA Methods 5030/8020/DHS LUFT Method
µg/L (ppb)

Sample Name:		MW-4 (10)	FB-1	Method Blank
Date Analyzed:		06/17/92	06/17/92	06/17/92
Analyte	**MRL**			
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND

TPH Total Petroleum Hydrocarbons
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Carol Klein Date 6-19-92

Client: EMCON Associates
Project: EMCON Project No. G70-31.01
Arco Facility No. 4494

Date Received: 06/09/92
Work Order #: SJ92-0710
Sample Matrix: Water

QA/QC Report
Continuing Calibration Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/DHS LUFT Method
Nanograms

Date Analyzed: 06/17/92

Analyte	CCS Loaded	CCS Recovered	% CCS Recovered	Acceptance Criteria
Benzene	250.	251.	100.	85-115
Toluene	250.	273.	109.	85-115
Ethylbenzene	250.	265.	106.	85-115
Total Xylenes	750.	760.	101.	85-115
TPH as Gasoline	2,500.	2,506.	100.	90-110

TPH Total Petroleum Hydrocarbons
CCS Continuing Calibration Standard
% CCS Recovered = (CCS Recovered/CCS Loaded) x 100%

Approved by Carol Klein Date 6-19-92

1224 Bienvenue Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-0256

Client: EMCON Associates
Project: EMCON Project No. G70-31.01
Arco Facility No. 4494

Date Received: 06/09/92
Work Order #: SJ92-0710
Sample Matrix: Water

QA/QC Report
Surrogate Recovery Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/DHS LUFT Method

Sample Name	Date Analyzed	Percent Recovery α,α,α-Trifluorotoluene
MW-1 (10)	06/17/92	103.
MW-2 (10)	06/17/92	109.
MW-3 (10)	06/17/92	103.
MW-4 (10)	06/17/92	104.
FB-1	06/17/92	105.
MS	06/17/92	122.
MSD	06/17/92	118.
Method Blank	06/17/92	110.
	CAS Acceptance Criteria	70-130

TPH Total Petroleum Hydrocarbons

Approved by Carol Klein Date 6-19-92

COLUMBIA ANALYTICAL SERVICES, INC.

Client: EMCON Associates
Project: EMCON Project No. G70-31.01
Arco Facility No. 4494

Date Received: 06/09/92
Work Order #: SJ92-0710
Sample Matrix: Water

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary
TPH as Gasoline
EPA Method 5030/DHS LUFT Method
µg/L (ppb)

Date Analyzed: 06/17/92

Analytes	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	Acceptance Criteria
TPH as Gasoline	250.	ND	266.	274.	106.	110.	70-140

TPH Total Petroleum Hydrocarbons
ND None Detected at or above the method reporting limit

Approved by Carol Klein Date 6-19-92

[redacted]CO[redacted]du[redacted]Co[redacted]ny [redacted]
Division of AtlanticRichfieldCompany

Task Order No. EMCGC-92-1

Chain of Custody

ARCO Facility no.	4494
City (Facility)	OAKLAND
Project manager (Consultant)	JIM BUTERA
ARCO engineer	Kyle Christie
Telephone no. (ARCO)	415/571-2434
Telephone no. (Consultant)	(408) 453-0719
Fax no. (Consultant)	(408) 453-0452
Consultant name	EMCON ASSOCIATES
Address (Consultant)	1938 JUNCTION AVENUE SAN JOSE CA

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH G RX EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	METALS AS ON REQUEST	
MW-1(10)	1-2	2		X		X	HCl	6-8-92	1655		X											
MW-2(10)	3-4	2		X		X	HCl	↓	1735		X											
MW-3(10)	5-6	2		X		X	HCl	↓	1600		X											
MW-4(10)	7-8	2		X		X	HCl	↓	1715		X											
FB-1	9-10	2		X		X	HCl	↓	1655		X											
MW-1(10)		1		X		X	HNO_3	↓	1655												X	
MW-2(10)		1		X		X	HNO_3	↓	1735												X	
MW-3(10)		1		X		X	HNO_3	↓	1600												X	
MW-4(10)		1		X		X	HNO_3	↓	1715												X	

Laboratory name: CAS

Contract number: 07077

Method of shipment: Sampler will deliver

Special detection Limit/reporting: Lowest Possible

Special QA/QC: As normal

Remarks: 2-40ml VOA's
1-LITER HNO_3 NON-FILTERED

G70-31.01

Lab number: S092-0710

Turnaround time
- Priority Rush 1 Business Day ☐
- Rush 2 Business Days ☐
- Expedited 5 Business Days ☐
- Standard 10 Business Days ☑

Condition of sample: OK, product in MW-2

Temperature received: Cool

	Date	Time		Date	Time
Relinquished by sampler [signature]	6-9-92	1540	Received by [signature]	6-9-92	1540
Relinquished by			Received by		
Relinquished by			Received by laboratory		

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant
APPC-3292 (2-91)

ARCO Products Company — Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. EMCGC-92-1

ARCO Facility no. 4494	City (Facility) OAKLAND	Project manager (Consultant) JIM BUTERA	Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO) (415) 571-2434	Telephone no. (Consultant) (408) 453-0719	Fax no. (Consultant) (408) 453-0452	Contract number 07077
Consultant name EMCON ASSOCIATES	Address (Consultant) 1938 JUNCTION Avenue San Jose CA		Method of shipment Sampler will deliver

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1: ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
MW-2 (40)		1		X		X	HNO_3	6-8-92	1735											X		

Special detection Limit/reporting: Lowest Possible

Special QA/QC: As Normal

Remarks: 1-Liter HNO_3 From same bottle on other chain. 6-10-92

Lab number: SJ92-0710

Turnaround time

- Priority Rush 1 Business Day ☐
- Rush 2 Business Days ☐
- Expedited 5 Business Days ☐
- Standard 10 Business Days ☑

Condition of sample: 1/3 full and it has lots of product

Temperature received: cool

	Date	Time		Date	Time
Relinquished by sampler	6-9-92	1540	Received by	6-9-92	1540
Relinquished by			Received by		
Relinquished by			Received by laboratory: Ruth Allison	6-10-92	0930

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant

APPC-3292 (2-91)

Columbia Analytical Services inc.

RECEIVED
JUN 23 1992
CAS S.J.

June 22, 1992

Jim Butera
EMCON Associates
1921 Ringwood Avenue
San Jose, CA 95131

Re: **ARCO #4494 - Oakland/Project #G70-31.01**

Dear Jim:

Enclosed are the results of the samples submitted to our lab on June 9, 1992. For your reference, these analyses have been assigned our work order number K923695C.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Colin Elliott

Colin B. Elliott
Senior Project Chemist

CBE/das

Columbia Analytical Services, Inc.

Charles J. Worley, for

Lawrence J. Jacoby, Ph.D.
Quality Assurance Coordinator

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	06/09/92
Project:	ARCO #4494 - Oakland	**Work Order No.:**	K923695C
Sample Matrix:	Water		

Total Metals
µg/L (ppb)

	Sample Name:	MW-1	MW-3	MW-4
	Lab Code:	K3695-1	K3695-2	K3695-3
Analyte	**EPA Method**	**MRL**		
Cadmium	6010	3	3	ND	ND
Chromium	6010	5	ND	12	ND
Lead	7421	2	ND	16	ND
Nickel	6010	20	ND	ND	ND
Zinc	6010	10	18	38	13

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Alan Elliott Date 6/22/92

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	06/09/92
Project:	ARCO #4494 - Oakland	**Work Order No.:**	K923695C
Sample Matrix:	Water		

Total Metals
µg/L (ppb)

	Sample Name:		MW-2	Method Blank
	Lab Code:		K3695-4	K3695-MB
Analyte	**EPA Method**	**MRL**		
Cadmium	6010	3	214	ND
Chromium	6010	5	402	ND
Lead	7421	2	658	ND
Nickel	6010	20	434	ND
Zinc	6010	10	252,000	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Chris Elliott Date 6/22/92

APPENDIX A

LABORATORY QC RESULTS

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO #4494 - Oakland

Date Analyzed: 06/14/92
Work Order No.: K923695C

Initial Calibration Verification (ICV) Summary*
µg/L (ppb)

Analyte	EPA Method	True Value	Result	Percent Recovery
Cadmium	6010	516	495	96
Chromium	6010	514	503	98
Lead	7421	98.4	98.0	100
Nickel	6010	504	495	98
Zinc	6010	3,052	2,960	97

* Prepared using a separate source of target parameters as compared to the calibration standards.

Approved by Glenn Elliott Date 6/22/92

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO #4494 - Oakland
Sample Matrix: Water

Date Received: 06/09/92
Work Order No.: K923695C

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals
µg/L (ppb)

Sample Name: MW-1
Lab Code: K3695-1

						Percent Recovery			
Analyte	**MRL**	**Spike Level**	**Sample Result**	**Spiked Sample Result**	**Duplicate Spiked Sample Result**	Spiked Sample	Duplicate Spiked Sample	CAS Acceptance Criteria	**Relative Percent Difference**
Cadmium	3	50	3	50	47	94	88	75-125	6
Chromium	5	200	ND	178	181	89	90	75-125	2
Lead	2	20	ND	20	19	100	95	75-125	5
Nickel	20	500	ND	432	441	86	88	75-125	2
Zinc	10	500	18	469	472	94	94	75-125	<1

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Gina Elliott Date 6/22/92

Rev. 2, 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: G70-31.01 SAMPLE ID: MW-1 (10')

PURGED BY: RW CLIENT NAME: ARCO 4494

SAMPLED BY: RW LOCATION: OAKLAND

TYPE: Ground Water X Surface Water ____ Treatment Effluent ____ Other ____

CASING DIAMETER (inches): 2 ____ 3 ____ 4 X 4.5 ____ 6 ____ Other ____

CASING ELEVATION (feet/MSL): ____ VOLUME IN CASING (gal.): 10.5

DEPTH TO WATER (feet): 7.72 CALCULATED PURGE (gal.): 52

DEPTH OF WELL (feet): 23.7 ACTUAL PURGE VOL. (gal.): 22

DATE PURGED: 6-8-97 Start (2400 Hr) 1522 End (2400 Hr) 1655

DATE SAMPLED: 6-8-97 Start (2400 Hr) 1655 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1524	10	6.94	8500	72.4	CLR/BRN	LOW
1528	20	6.82	10390	69.4	"	"
1531	22	6.75	17120	69.4	"	"
1655	22	6.62	OFF SCALE	68.8	"	"

D. O. (ppm): NR ODOR: NONE NR (COBALT 0 - 100) NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): FB-1

PURGING EQUIPMENT

- ____ 2" Bladder Pump
- X Centrifugal Pump
- ____ Submersible Pump
- ____ Well Wizard™
- ____ Bailer (Teflon®)
- ____ Bailer (PVC)
- ____ Bailer (Stainless Steel)
- ____ Dedicated

Other: ____

SAMPLING EQUIPMENT

- ____ 2" Bladder Pump
- ____ DDL Sampler
- ____ Dipper
- ____ Well Wizard™
- X Bailer (Teflon®)
- ____ Bailer (Stainless Steel)
- ____ Submersible Pump
- ____ Dedicated

Other: ____

WELL INTEGRITY: GOOD LOCK #: 3259

REMARKS: WELL DRIED AFTER PURGING 22 GAL
RETURNED AND SAMPLED AT 1655

Meter Calibration: Date: 6-8-97 Time: A.M. Meter Serial #: ____ Temperature °F: ____

(EC 1000 ____ / ____) (DI ____) (pH 7 ____ / ____) (pH 10 ____ / ____) (pH 4 ____ / ____)

Location of previous calibration: GTE-3B1

Signature: [signature] Reviewed By: JB Page 2 of 4

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 470-31.01 SAMPLE ID: MW-2 (10')

PURGED BY: RW CLIENT NAME: ARCO 4494

SAMPLED BY: RW LOCATION: OAKLAND

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 5.07

DEPTH TO WATER (feet): 9.84 CALCULATED PURGE (gal.): 25.1

DEPTH OF WELL (feet): 17.5 ACTUAL PURGE VOL. (gal.): 6.0

DATE PURGED: 6-9-97 Start (2400 Hr) 1635 End (2400 Hr) 1637

DATE SAMPLED: 6-9-97 Start (2400 Hr) 1735 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1635	6	6.51	814	69.5	BRN	LOW
	12					
1730	6	5.93	1184	67.2	BLACK	HIGH

D. O. (ppm): NR ODOR: STRONG NR (COBALT 0 - 100) NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NONE

PURGING EQUIPMENT			SAMPLING EQUIPMENT		
___ 2" Bladder Pump	___ Bailer (Teflon®)		___ 2" Bladder Pump	X Bailer (Teflon®)	
X Centrifugal Pump	___ Bailer (PVC)		___ DDL Sampler	___ Bailer (Stainless Steel)	
___ Submersible Pump	___ Bailer (Stainless Steel)		___ Dipper	___ Submersible Pump	
___ Well Wizard™	___ Dedicated		___ Well Wizard™	___ Dedicated	
Other: ___			Other: ___		

WELL INTEGRITY: GOOD LOCK #: 3259

REMARKS: WELL DRIED AFTER PURGING 6 GALLONS RETURNED AND SAMPLED AT 1735

SLIGHT PRODUCT SHEEN ON PURGE WATER

Meter Calibration: Date: 6-9-97 Time: AM Meter Serial #: ___ Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: AGE - 321

Signature: [signature] Reviewed By: JB Page 2 of 2

EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: G70-31.01 SAMPLE ID: MW-3 (10')

PURGED BY: RW CLIENT NAME: ARCO 4494

SAMPLED BY: RW LOCATION: OAKLAND

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 6.07

DEPTH TO WATER (feet): 8.74 CALCULATED PURGE (gal.): 30.1

DEPTH OF WELL (feet): 18.0 ACTUAL PURGE VOL. (gal.): 32

DATE PURGED: 6-8-92 Start (2400 Hr) 1543 End (2400 Hr) 1558

DATE SAMPLED: 6-8-92 Start (2400 Hr) 1600 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1545	8	7.28	3860	71.0	CLR	LOW
1549	16	7.41	2570	71.3	"	"
1553	24	7.21	4350	71.0	"	MED
1558	32	7.17	5220	70.7	"	"

D. O. (ppm): NR ODOR: SLIGHT NR (COBALT 0 - 100) NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NONE

PURGING EQUIPMENT

- ___ 2" Bladder Pump
- ___ Bailer (Teflon®)
- X Centrifugal Pump
- ___ Bailer (PVC)
- ___ Submersible Pump
- ___ Bailer (Stainless Steel)
- ___ Well Wizard™
- ___ Dedicated

Other: ___

SAMPLING EQUIPMENT

- ___ 2" Bladder Pump
- X Bailer (Teflon®)
- ___ DDL Sampler
- ___ Bailer (Stainless Steel)
- ___ Dipper
- ___ Submersible Pump
- ___ Well Wizard™
- ___ Dedicated

Other: ___

WELL INTEGRITY: GOOD LOCK #: 3259

REMARKS: WELL LID IS MISSING 2 DIVERSIFIED HEX BOLTS

Meter Calibration: Date: 6-8-92 Time: AM Meter Serial #: ___ Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: 6-TE-311

Signature: R. Wall Reviewed By: JB Page 3 of 4

EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: G70-31.01 SAMPLE ID: MW-4 (10')

PURGED BY: RW CLIENT NAME: ARCO 4494

SAMPLED BY: RW LOCATION: OAKLAND

TYPE: Ground Water X Surface Water ____ Treatment Effluent ____ Other ____

CASING DIAMETER (inches): 2 ____ 3 ____ 4 X 4.5 ____ 6 ____ Other ____

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 6.36

DEPTH TO WATER (feet): 8.40 CALCULATED PURGE (gal.): 31.8

DEPTH OF WELL (feet): 18.1 ACTUAL PURGE VOL. (gal.): 20

DATE PURGED: 6-8-92 Start (2400 Hr) 1613 End (2400 Hr) 1623

DATE SAMPLED: 6-8-92 Start (2400 Hr) 1715 End (2400 Hr) ____

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1615	8	6.91	8660	70.2	CLR	LOW
1619	16	6.90	7460	70.2	"	"
1623	20	6.80	8360	71.0	"	"
1715	20	6.98	8650	67.4	"	"

D. O. (ppm): NR ODOR: NONE NR (COBALT 0 - 100) NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NONE

PURGING EQUIPMENT

- ____ 2" Bladder Pump
- X Centrifugal Pump
- ____ Submersible Pump
- ____ Well Wizard™
- ____ Bailer (Teflon®)
- ____ Bailer (PVC)
- ____ Bailer (Stainless Steel)
- ____ Dedicated

Other: ____

SAMPLING EQUIPMENT

- ____ 2" Bladder Pump
- ____ DDL Sampler
- ____ Dipper
- ____ Well Wizard™
- X Bailer (Teflon®)
- ____ Bailer (Stainless Steel)
- ____ Submersible Pump
- ____ Dedicated

Other: ____

WELL INTEGRITY: GOOD LOCK #: 3259

REMARKS: WELL LID IS MISSING, 2 DIFFSIZED HEX BOLTS
WELL DRIED AFTER PURGING 20 GALLONS
RETURNED AND SAMPLED AT 1715

Meter Calibration: Date: 6-8-92 Time: AM Meter Serial #: ____ Temperature °F: ____

(EC 1000 ____ / ____) (DI ____) (pH 7 ____ / ____) (pH 10 ____ / ____) (pH 4 ____ / ____)

Location of previous calibration: 9TE-301

Signature: [signature] Reviewed By: JB Page 4 of 4

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: G70-31.01 | SAMPLE ID: MW-1 (10')

PURGED BY: RW | CLIENT NAME: ARCO 4494

SAMPLED BY: RW | LOCATION: OAKLAND

TYPE: Ground Water X | Surface Water ___ | Treatment Effluent ___ | Other ___

CASING DIAMETER (inches): 2 ___ | 3 ___ | 4 X | 4.5 ___ | 6 ___ | Other ___

CASING ELEVATION (feet/MSL): ___ | VOLUME IN CASING (gal.): 10.5

DEPTH TO WATER (feet): 7.22 | CALCULATED PURGE (gal.): 52

DEPTH OF WELL (feet): 23.2 | ACTUAL PURGE VOL. (gal.): 22

DATE PURGED: 6-8-97 | Start (2400 Hr) 1322 | End (2400 Hr) 1655

DATE SAMPLED: 6-8-97 | Start (2400 Hr) 1655 | End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1524	10	6.94	8500	72.4	CLR/IRN	LOW
1538	20	6.82	10390	69.4	"	"
1531	22	6.75	17120	69.4	"	"
1655	22	6.62	OFF SCALE	69.8	"	"

D. O. (ppm): NR | ODOR: NONE | COLOR: NR (COBALT 0 - 100) | TURBIDITY: NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): FB-1

PURGING EQUIPMENT

___ 2" Bladder Pump
___ Bailer (Teflon®)
X Centrifugal Pump
___ Bailer (PVC)
___ Submersible Pump
___ Bailer (Stainless Steel)
___ Well Wizard™
___ Dedicated
Other: ___

SAMPLING EQUIPMENT

___ 2" Bladder Pump
X Bailer (Teflon®)
___ ODL Sampler
___ Bailer (Stainless Steel)
___ Dipper
___ Submersible Pump
___ Well Wizard™
___ Dedicated
Other: ___

WELL INTEGRITY: GOOD | LOCK #: 3759

REMARKS: WELL DRIED AFTER PURGING 22 GAL RETURNED AND SAMPLED AT 1655

Meter Calibration: Date: 6-8-97 Time: A.M. Meter Serial #: ___ Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: GTE-3B1

Signature: D. Wik | Reviewed By: JB | Page 1 of 4

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: G70-31.01 SAMPLE ID: MW-2 (10')

PURGED BY: RJ CLIENT NAME: ARCO 4494

SAMPLED BY: RJ LOCATION: OAKLAND

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 5.02

DEPTH TO WATER (feet): 9.84 CALCULATED PURGE (gal.): 25.1

DEPTH OF WELL (feet): 17.5 ACTUAL PURGE VOL. (gal.): 6.0

DATE PURGED: 6-3-97 Start (2400 Hr) 1635 End (2400 Hr) 1637

DATE SAMPLED: 6-3-97 Start (2400 Hr) 1735 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1637	6	6.51	8140	69.5	BRN	LOW
	12					
1735	6	5.93	11810	67.2	BLACK	HIGH

D. O. (ppm): NR ODOR: STRONG NR (COBALT 0 - 100) NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NONE

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
X Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: GOOD LOCK #: 3259

REMARKS: WELL DRIED AFTER PURGING 6 GALLONS RETURNED AND SAMPLED AT 1735

SLIGHT PRODUCT SHEEN ON PURGE WATER

Meter Calibration: Date: 6-3-97 Time: AM Meter Serial #: ___ Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: IGE-321

Signature: RJ Reviewed By: JB Page 2 of 4

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 670-316.1 | SAMPLE ID: MW-3 (10')

PURGED BY: RW | CLIENT NAME: ARCO 4494

SAMPLED BY: RW | LOCATION: OAKLAND

TYPE: Ground Water X | Surface Water ___ | Treatment Effluent ___ | Other ___

CASING DIAMETER (inches): 2 ___ | 3 ___ | 4 X | 4.5 ___ | 6 ___ | Other ___

CASING ELEVATION (feet/MSL): NR | VOLUME IN CASING (gal.): 6.07

DEPTH TO WATER (feet): 5.74 | CALCULATED PURGE (gal.): 30.1

DEPTH OF WELL (feet): 18.0 | ACTUAL PURGE VOL. (gal.): 32

DATE PURGED: 6-8-92 | Start (2400 Hr) 1543 | End (2400 Hr) 1558

DATE SAMPLED: 6-8-92 | Start (2400 Hr) 1600 | End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1545	8	7.23	3866	71.0	CLR	LOW
1549	16	7.41	2570	71.3	"	"
1553	24	7.21	4350	71.0	"	MED
1558	32	7.17	5220	70.7	"	"

D. O. (ppm): NR | ODOR: SLIGHT | NR (COBALT 0 - 100) | NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NONE

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
X Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: GOOD | LOCK #: 3759

REMARKS: WELL LID IS MISSING 2 DIVERSIFIED HEX BOLTS

Meter Calibration: Date: 6-8-92 | Time: AM | Meter Serial #: ___ | Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: GATE-311

Signature: R. Wall | Reviewed By: JB | Page 3 of 4

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 670-31.01 SAMPLE ID: MW-4 (10')

PURGED BY: RW CLIENT NAME: ARCO 4494

SAMPLED BY: RW LOCATION: OAKLAND

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 6.36

DEPTH TO WATER (feet): 8.40 CALCULATED PURGE (gal.): 31.8

DEPTH OF WELL (feet): 18.1 ACTUAL PURGE VOL. (gal.): 20

DATE PURGED: 6-3-92 Start (2400 Hr) 1613 End (2400 Hr) 1623

DATE SAMPLED: 6-3-92 Start (2400 Hr) 1715 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1605	8	6.91	8660	70.2	CLR	LOW
1619	16	6.90	7460	70.2	"	"
1623	20	6.80	8360	71.0	"	"
1715	20	6.98	8650	67.4	"	"

D. O. (ppm): NR ODOR: NONE

COLOR (COBALT 0 - 100): NR TURBIDITY (NTU 0 - 200): NR

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NONE

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
✓ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: GOOD LOCK #: 3259

REMARKS: WELL LID IS MISSING, 2 DIVERSIFIED HEX BOLTS
WELL DRIED AFTER PURGING 20 GALLONS
RETURNED AND SAMPLED AT 1715

Meter Calibration: Date: 6-3-92 Time: A.M Meter Serial #: ___ Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: GE-301

Signature: R Wilt Reviewed By: JTS Page 4 of 4

{TF1046} TF NUMBER: 1046 GIB-92-055

MONITORING WELL PURGE WATER TRANSPORT FORM

GENERATOR INFORMATION

NAME: ARCO PRODUCTS

ADDRESS: P.O. BOX 5811

CITY,STATE,ZIP: SAN MATEO, CA 94402 PHONE #: (415) 571-2434

DESCRIPTION OF WATER: PURGE WATER GENERATED DURING SAMPLING OR DEVELOPMENT OF MONITORING WELLS LOCATED AT VARIOUS SITES. AUGER RINSATE GENERATED DURING THE INSTALLATION OF MONITORING WELLS AT VARIOUS SITES. THE WATER MAY CONTAIN DISSOLVED HYDROCARBONS.

THE GENERATOR CERTIFIES THAT THIS WATER AS DESCRIBED IS NON-HAZARDOUS

Kyle Christie by Jon DeZao 6/26/92
(Typed or printed full name & signature) (Date)

SITE INFORMATION

	STA #	JOB #	ADDRESS	GALS
1	A-2092	20636	5498 MONTEREY RD., SAN JOSE, CA	56
2	A-2089	20704	2104 N. CAPITOL AVE., SAN JOSE, CA	422
3	A-749	20691	1998 UNIVERSITY AVE., PALO ALTO, CA	141
4	A-1326	20727	840 SAN ANTONIO RD., PALO ALTO, CA	30
5	A-4494	20652	566 HEGENBERGER RD., OAKLAND, CA	61
6	A-1319	20624	365 JACKSON ST., HAYWARD, CA	32
7	A-4931	20684	731 W. MACARTHUR BLVD., OAKLAND, CA	425
8	A-313	20644	3600 ALAMEDA DELAS, MENLO PARK, CA	94
9	A-2152	20653	22141 CENTER ST., CASTRO VALLEY, CA	131
10	A-2153	20720	2800 HOMESTEAD RD., SANTA CLARA, CA	10
11	A-601	20654	712 LEWELLING BLVD., SAN LEANDRO, CA	17
12	A-5387	20655	20200 HESPERIAN BLVD., HAYWARD, CA	3
			TOTAL GALLONS:	1,422

TRANSPORTER INFORMATION

NAME: BALCH PETROLEUM

ADDRESS: 930 AMES AVE.

CITY,STATE,ZIP: MILPITAS, CA 95035 PHONE #: (408) 942-8686

TRUCK ID #: ALLIED JERRY DRAKE 6-26-92
(Typed or printed full name & signature) (Date)

TSD FACILITY INFORMATION

NAME: GIBSON OIL & REFINING

ADDRESS: 475 SEAPORT BLVD

CITY,STATE,ZIP: REDWOOD CITY, CA 94063 PHONE #: (415) 368-5511

RELEASE #: 11320 BILL LEDINI 6-26-92
(Typed or printed full name & signature) (Date)