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TRANSMITTAL

TO: Mr. Barney Chan
ACHCSA
Dept. of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

DATE: November 30, 1992
PROJECT NUMBER: 69038.11
SUBJECT: ARCO Station 4494, 566
Hegenberger Road, Oakland, California.

FROM: Robert Campbell
TITLE: Staff Geologist

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REMARKS:

Per ARCO's request (Mr. Michael Whelan), this report has been forwarded to you for your review.

Copies: 1 to RESNA project file no. 69038.11



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

69038.11



Working To Restore Nature

3315 Almaden Expressway, Suite 34
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November 30, 1992
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69038.11

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

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

Mr. Whelan:

As requested by ARCO Products Company (ARCO), RESNA Industries Inc. (RESNA) prepared this letter report summarizing the results of third 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. 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 corner 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 underground gasoline-storage tanks (USTs) at the site. In October 1989, RESNA performed a site history and

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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 AGS (AGS, February 8, 1991). On August 10, 1990, AGS performed a limited subsurface environmental investigation, which included installation of two additional 4-inch diameter 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/AGS (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. A Horner EZY Floating Product Skimmer was installed in MW-2 in December 1991. RESNA initiated an additional on and offsite subsurface investigation in July 1992. The results of this investigation are presented in the additional subsurface report (RESNA, October 27, 1992). Offsite monitoring wells MW-5 and MW-6, and onsite well MW-7, installed during the additional investigation between July 9 and 10, 1992, were initially monitored and sampled during this quarter. The locations of the groundwater monitoring wells, including the newly installed wells MW-5 through MW-7, and pertinent site features are shown on the Generalized Site Plan, Plate 2.

Groundwater Sampling and Gradient Evaluation

During this quarter, depth to water levels (DTW) were measured by EMCON field personnel on July 15 and August 6, 1992. Quarterly sampling was performed by EMCON field personnel on August 6, 1992. The results of EMCON's field work on the site, including measuring DTW levels and subjective analysis for the presence of product in the groundwater in MW-1 through MW-7, are presented on EMCON's Field Reports and EMCON's Summary of Groundwater Monitoring Data Sheets. The DTW levels, wellhead elevations, groundwater elevations, and subjective observations of product in the groundwater (if present) from MW-1 through MW-7 for this quarter and previous quarterly groundwater monitoring at the site are summarized in Table 1, Cumulative Groundwater Monitoring Data. These data are included in Appendix A.

EMCON's DTW measurements were used to evaluate groundwater elevations. Groundwater elevations in wells MW-1 through MW-4 increased an average of approximately 0.30 foot between July 15 and August 6, 1992. Because wells MW-5 through MW-7 were monitored for the first time in August, no general trends could be established. The groundwater gradients interpreted from the July and August 1992 groundwater monitorings are shown on Plates 3 and 4, Groundwater Gradient Maps. The groundwater gradients interpreted from the DTW levels are approximately 0.01 with flow directions

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

toward the north-northeast. The groundwater gradients for this quarter are generally consistent with previously interpreted data. Evidence of product or sheen was not observed by EMCON's field personnel during this quarter.

Groundwater monitoring wells MW-1 through MW-7 were purged and sampled by EMCON field personnel on August 6, 1992. EMCON's Water Sample Field Data Sheets, Field Reports and Summary of Groundwater Monitoring Data are included in Appendix A. EMCON's Water Sample Field Data Sheets indicate that approximately 1 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 Transport 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 (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 DHS LUFT Method. The heavy metals cadmium (Cd), chromium (Cr), lead (Pb), nickel (Ni), and zinc (Zn) were also analyzed in samples from MW-2. All metals were analyzed using EPA Method 6010, with the exception of lead which was analyzed using EPA Method 7421.

Concentrations of TPHg and benzene in the groundwater are shown on Plate 5, TPHg/Benzene Concentrations 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 Water Samples--TPHg, TPHd, BTEX, and TOG and Table 3, Cumulative Results of Laboratory Analyses of Water Samples--BNAs, 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 78,000 parts per billion (ppb) and was nondetectable (<50 ppb) in groundwater samples from wells MW-1, and MW-3 through MW-7.
- Benzene was detected in a groundwater sample from MW-2 at a concentration of 2,500 ppb, which is greater than the State Maximum Contaminant Level (MCL) of

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

- 1 ppb benzene in drinking water. Benzene was nondetectable (<0.5 ppb) in groundwater samples from wells MW-1, and MW-3 through MW-7.
- Toluene was detected in a groundwater sample from MW-2 at a concentration of 6,700 ppb, which is greater than the State Drinking Water Action Level (DWAL) of 100 ppb toluene in drinking water. Toluene was nondetectable (<0.5 ppb) in groundwater samples from wells MW-1, and MW-3 through MW-7.
 - Ethylbenzene and total xylenes were detected in a groundwater sample from MW-2 at concentrations of 2,900 ppb and 16,000 ppb, respectively, which are greater than the State MCLs of 680 ppb ethylbenzene and 1,750 ppb total xylenes in drinking water. Ethylbenzene and total xylenes were nondetectable (<0.5 ppb) in groundwater samples from wells MW-1, and MW-3 through MW-7.
 - Concentrations of Cd (0.005 ppm), Cr (0.018 ppm), and Zn (4.77 ppm) in well MW-2 are less than the State MCLs of 0.01 ppm, 0.05 ppm, and 5.0 ppm, respectively. Concentration of Pb (0.88 ppm) is greater than the State MCL of 0.05 ppm. Concentration of nickel is 0.041 ppm; however, State or Federal hazardous levels for nickel have not been established.

The concentration of TPHg and BTEX have remained nondetectable in wells MW-1, MW-3, and MW-4 since quarterly monitoring began at the site in June 1990. Monitoring wells MW-5 through MW-7 were installed during this quarter and no general trends have been established. The concentration of benzene in well MW-2 decreased during this quarter while TPHg, toluene, ethylbenzene, and total xylenes increased. Concentrations of metals in MW-2 have significantly decreased since last quarter.

Product Removal

Since the initial monitoring in 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 December 18, 1991, quarterly sampling. Quantities of floating product and water removed during previous quarterly monitorings 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 monthly. As mentioned previously, no product or sheen was observed in MW-2 during this quarter; also, interim remediation has resulted in removal of floating product or heavy sheen since November 1990, with only occasional sheen present during subsequent monitoring.

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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, MW-4 and MW-7, upgradient well MW-1, or downgradient offsite wells MW-5 and MW-6. Quarterly groundwater monitoring, including recently installed wells MW-5 through MW-7, should continue at this site. Concentrations of metals Cr, Cd, Ni, Pb, and Zn have significantly decreased in MW-2 since last quarter.

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 Hiatt
Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

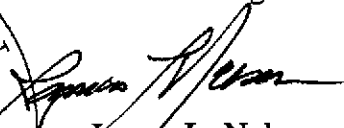
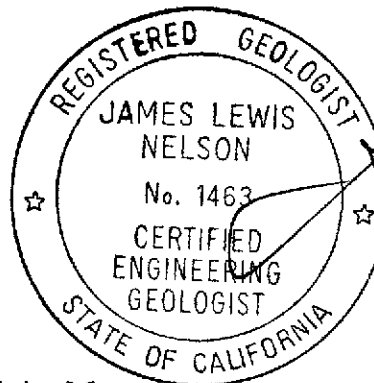
Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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

Sincerely,
RESNA Industries Inc.



Robert D. Campbell
Staff Geologist



James L. Nelson
Certified Engineering
Geologist No. 1463

Enclosures: References

Plate 1, Site Vicinity Map
Plate 2, Generalized Site Plan
Plate 3, Groundwater Gradient Map, July 15, 1992
Plate 4, Groundwater Gradient Map, August 6, 1992
Plate 5, TPHg/Benzene Concentrations in Groundwater, August 6, 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, Summary of Groundwater Monitoring
Data, Certified Analytical Reports with Chain of Custody
Record, and Water Sample Field Data Sheets

Monitoring Well Purge Water Transport Form

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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.
- Applied GeoSystems. May 15, 1991. Addendum One to Work Plan to Perform Underground Tank Replacement Investigation, Preliminary Offsite Investigation, and Interim Product Recovery at ARCO Station 4494, 566 Hegenberger Road in Oakland, California. AGS Report 69038-6.
- 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. RESNA Report 69038.04.
- RESNA. April 8, 1992. Letter Report on Quarterly Groundwater Monitoring, Fourth Quarter 1991, at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. RESNA Report 69038.04.

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

REFERENCES
(Continued)

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

RESNA. September 3, 1992. Letter Report on Quarterly Groundwater Monitoring, Second Quarter 1992 at ARCO Station 4494, 566 Hegenberger Road, Oakland, California. RESNA Report 69038.11.

RESNA. October 27, 1992. Additional Subsurface Investigation Report at ARCO Station 4494, 566 Hegenberger Road in Oakland, California. RESNA Report 69038.10.

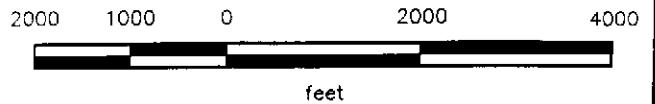


Base: U.S. Geological Survey
 7.5-Minute Quarrangles
 Oakland East/San Leandro, California.
 Photorevised 1980

LEGEND

● = Site Location

Approximate Scale



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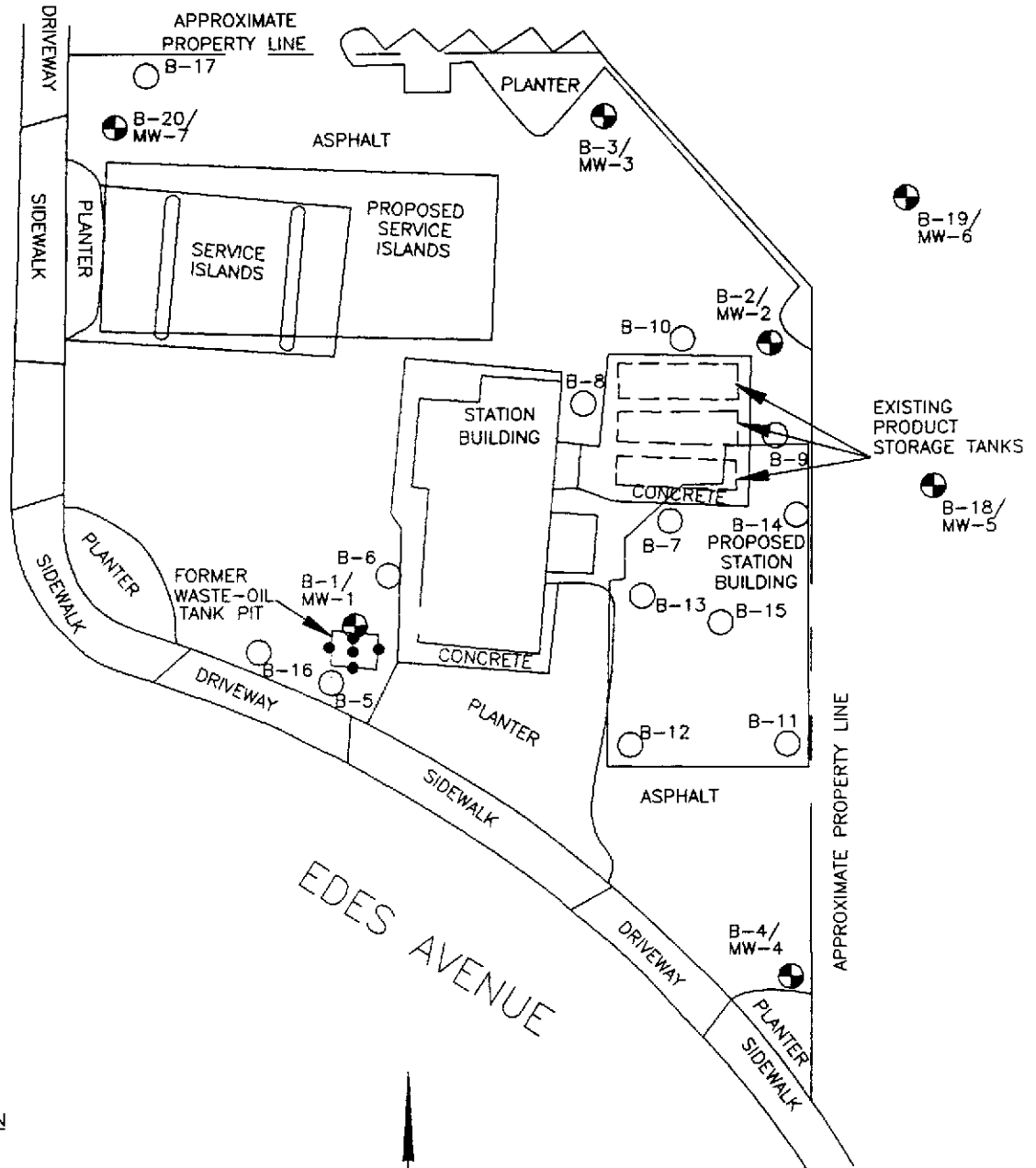
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**SITE VICINITY MAP
 ARCO Service Station 4494
 566 Hegenberger Road
 Oakland, California**

PLATE

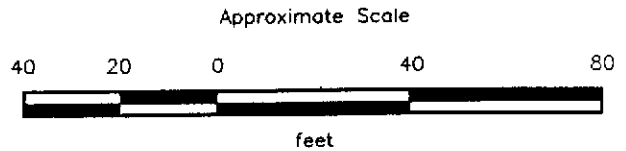
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HEGENBERGER ROAD



EXPLANATION

- = Waste-oil tank excavation soil samples (Pacific Environmental Group, January 1989)
- B-20/MW-7 ● = Monitoring wells (Applied GeoSystems, October 1989, August 1990 and July 1992)
- B-10 ○ = Soil boring (Applied GeoSystems, August 1990 and March 1991)



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).

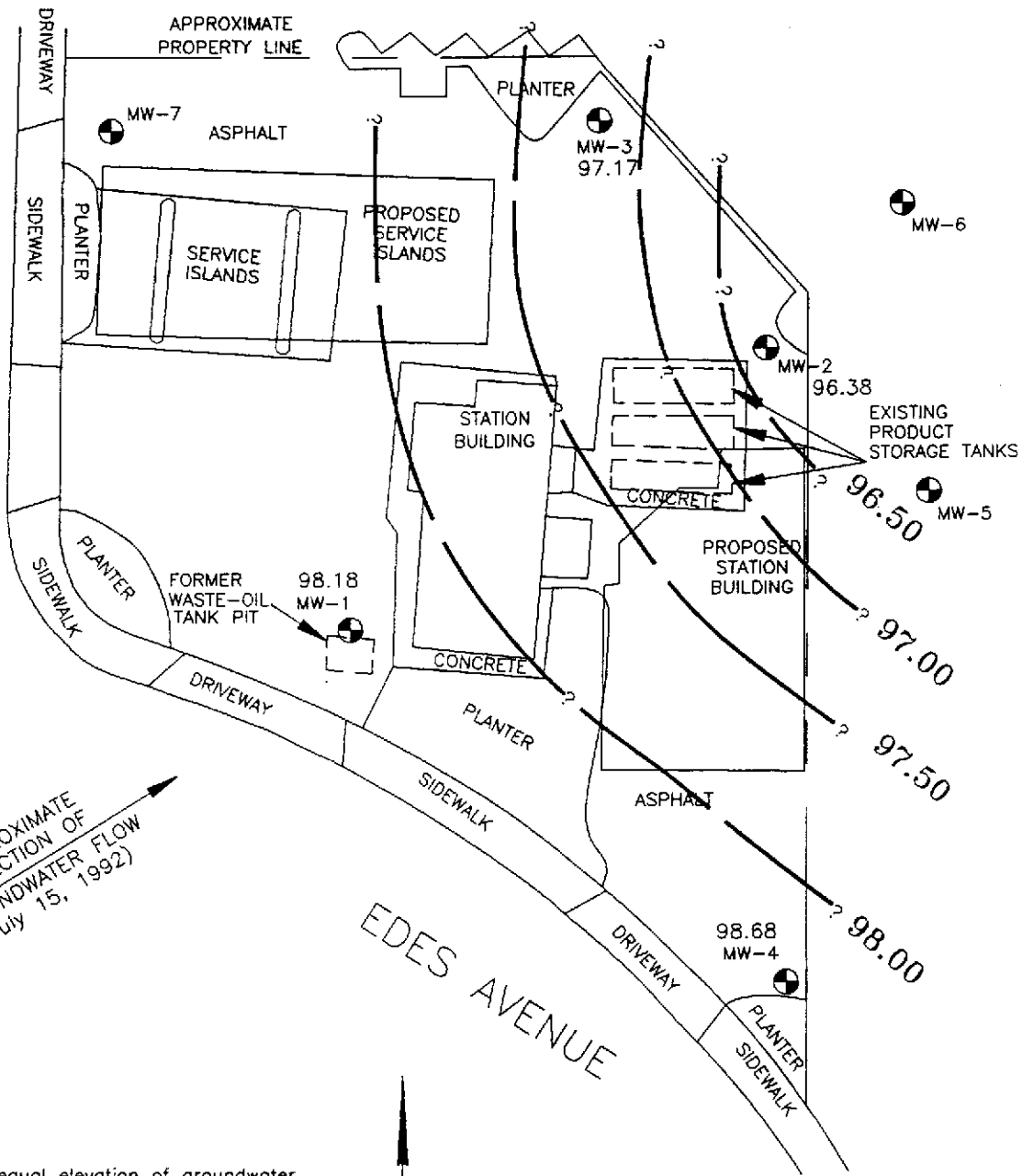
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GENERALIZED SITE PLAN
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE
2

HEGENBERGER ROAD



EXPLANATION

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

98.68 = Elevation of groundwater in feet MSL July 15, 1992

B-4/MW-4 = Monitoring wells (Applied GeoSystems, October 1989 August 1990) and July 1992)

Approximate Scale



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).

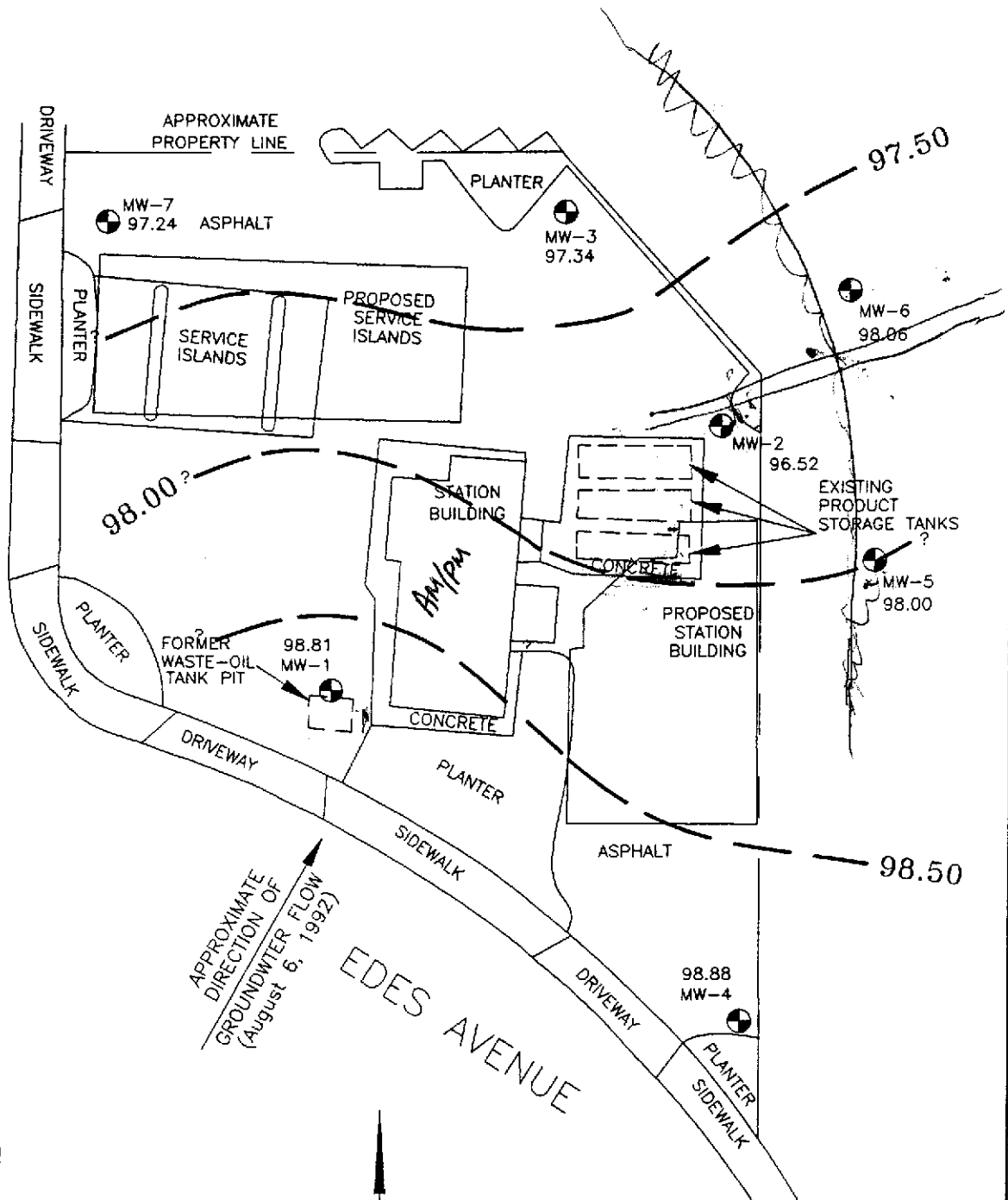
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GROUNDWATER GRADIENT MAP
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE
3


HEGENBERGER ROAD



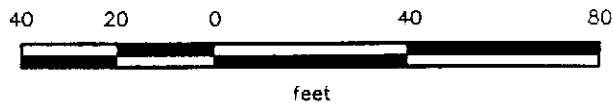
EXPLANATION

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

98.88 = Elevation of groundwater in feet MSL August 6, 1992

MW-7  = Monitoring wells (Applied GeoSystems, October 1989 August 1990 and July 1992)

Approximate Scale



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).

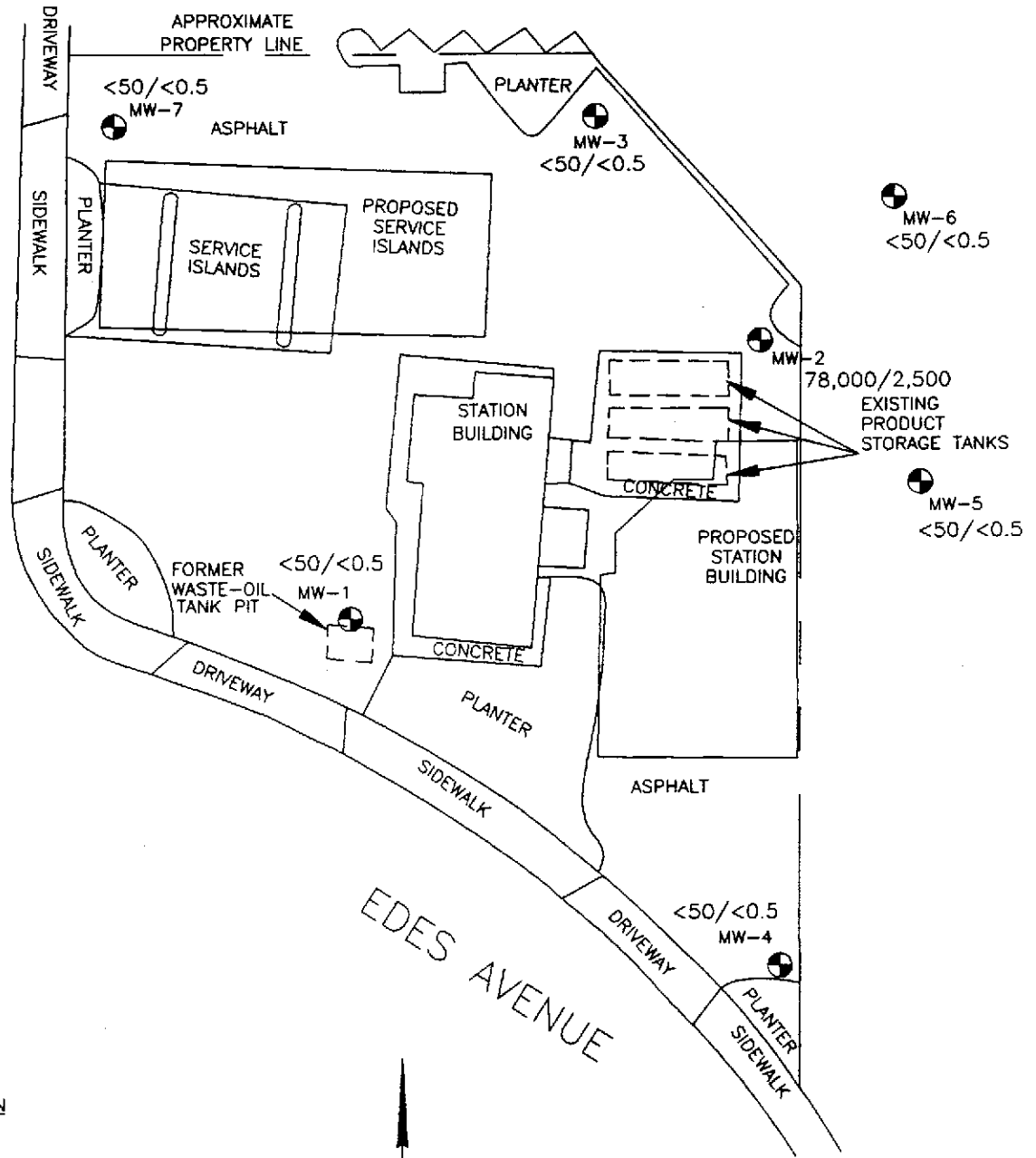
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GROUNDWATER ELEVATION MAP
ARCO Service Station 4494
566 Hegenberger Road
Oakland, California

PLATE
4


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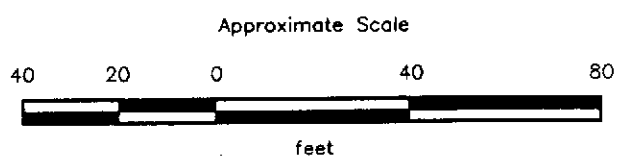
HEGENBERGER ROAD



EXPLANATION

78,000/2,500 = Concentration of TPHg/Benzene in groundwater in parts per billion (ppb), Aug. 6, 1992

MW-7  = Monitoring wells (Applied GeoSystems, October 1989 August 1990 and July 1992)



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).



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

**PLATE
5**

PROJECT 69038.11

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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
<u>MW-1</u>				
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
07/15/92	106.10	7.92	98.18	None
08/06/92		7.29	98.81	None
<u>MW-2</u>				
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

See notes on page 3 of 3.

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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

<u>Well Date</u>	<u>Elevation of Wellhead</u>	<u>Depth to Water</u>	<u>Water Elevation</u>	<u>Floating Product</u>
<u>MW-2 (Cont.)</u>				
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	106.57	10.19	96.38	Skimmer
08/06/92		10.05	96.52	Skimmer
<u>MW-3</u>				
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
07/15/92	106.29	9.12	97.17	None
08/06/92		8.95	97.34	None

See notes on page 3 of 3.

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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
<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		8.77	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
07/15/92	107.40	8.72	98.68	None
08/06/92		8.52	98.88	None
<u>MW-5</u>				
08/06/92	105.19	7.19	98.00	None
<u>MW-6</u>				
08/06/92	105.07	7.01	98.06	None
<u>MW-7</u>				
08/06/92	105.52	8.28	97.24	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).

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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)	Ethylbenzene (ppb)	Total Xylenes (ppb)	TOG (ppm)
<u>MW-1</u>							
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
08/06/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA
<u>MW-2</u>							
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
08/06/92	78,000	NA	2,500	6,700	2,900	16,000	NA
<u>MW-3</u>							
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	<0.50	<0.50	<0.50	<0.50	NA
08/06/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA
<u>MW-4</u>							
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

See notes on page 2 of 2.

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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

<u>Well</u> Date	TPHg (ppb)	TPHd (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	TOG (ppm)
<u>MW-4 (Cont.)</u>							
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	<0.5	<0.5	<0.5	<0.5	NA
<u>MW-5</u>							
08/06/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA
<u>MW-6</u>							
08/06/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA
<u>MW-7</u>							
08/06/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA
<u>Jan. 1990</u>							
MCLs	—	—	1.0	—	680	1,750	—
DWAL	—	—	—	100	—	—	—

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.

DWAL: State Drinking Water Action Level.

Quarterly Groundwater Monitoring
 ARCO Station 4494, Oakland, California

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)
<u>MW-1</u>							
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
<u>MW-2</u>							
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	4.77
<u>MW-3</u>							
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
08/06/92	NA	NA	NA	NA	NA	NA	NA
<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
<u>MW-5</u>							
08/06/92	NA	NA	NA	NA	NA	NA	NA

See notes on page 2 of 2.

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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 (ppm)	VOCs (ppb)	Total Cadmium (ppm)	Chromium (ppm)	Lead (ppm)	Nickel (ppm)	Zinc (ppm)
<u>MW-6</u> 08/06/92	NA	NA	NA	NA	NA	NA	NA
<u>MW-7</u> 08/06/92	NA	NA	NA	NA	NA	NA	NA
DWALs/MCLs	NA	NA	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.

Quarterly Groundwater Monitoring
ARCO Station 4494, Oakland, California

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

Date	Floating Product Removed (gallons)	Water Removed (gallons)
<u>MW-2</u>		
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
Total:	6.4 Gallons	48.9 Gallons

APPENDIX A

**EMCON'S FIELD REPORTS,
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

RECEIVED
JUL 27 1992

RESNA
SAN JOSE

Date July 20, 1992
Project G70-31.01

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

We are enclosing:

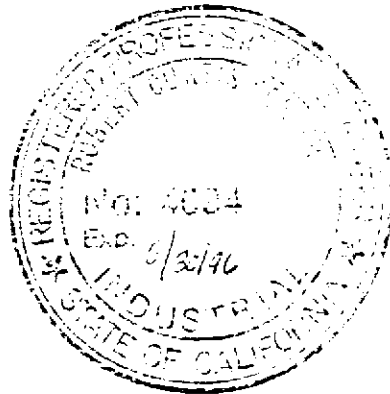
Copies	Description
<u>1</u>	<u>Depth To Water/Floating Product Survey Results</u>
<u> </u>	<u>July 1992 monthly water level survey, ARCO</u>
<u> </u>	<u>station 4494, 566 Hegenberger Road, Oakland, CA</u>

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:



Jim Butera J.B.

Robert Porter

Robert Porter, Senior Project
Engineer.



RECEIVED

1992

RESNA



EMCON
ASSOCIATES

Consultants in Wastes
Management and
Environmental Control

Date August 25, 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
<u>1</u>	<u>Depth To Water / Floating Product Survey Results</u>
<u>1</u>	<u>Summary of Groundwater Monitoring Data</u>
<u>1</u>	<u>Certified Analytical Reports with Chain-of-Custody</u>
<u>7</u>	<u>Water Sample Field Data Sheets</u>

For your: X Information Sent by: X Mail

Comments:

Enclosed are the data from the third 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.

Jim Butera J.B

Reviewed by:



Robert Porter

Robert Porter, Senior Project Engineer.



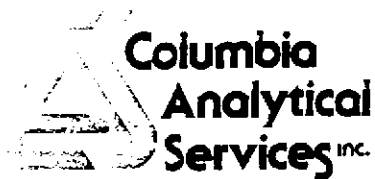
Summary of Groundwater Monitoring Data
 Third Quarter 1992
 ARCO Service Station 4494
 566 Hegenberger Road, Oakland, California
 micrograms per liter (µg/l) or parts per billion (ppb)

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(23)	08/06/92	7.29	ND ²	<50	<0.5	<0.5	<0.5	<0.5
MW-2(17)	08/06/92	10.05	ND	78,000	2,500	6,700	2,900	16,000
MW 3(19)	08/06/92	8.95	ND	<50	<0.5	<0.5	<0.5	<0.5
MW 4(17)	08/06/92	8.52	ND	<50	<0.5	<0.5	<0.5	<0.5
MW 5(16)	08/06/92	7.19	ND	<50	<0.5	<0.5	<0.5	<0.5
MW 6(17)	08/06/92	7.01	ND	<50	<0.5	<0.5	<0.5	<0.5
MW 7(14)	08/06/92	8.28	ND	<50	<0.5	<0.5	<0.5	<0.5
FB 1 ³	08/06/92	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

Summary of Groundwater Monitoring Data
Third Quarter 1992
ARCO Service Station 4494
566 Hegenberger Road, Oakland, California
micrograms per liter ($\mu\text{g/l}$) and milligrams per liter (mg/l)

Well ID and Sample Depth	Sampling Date	Cadmium ($\mu\text{g/l}$) (ppb)	Chromium ($\mu\text{g/l}$) (ppt)	Lead ($\mu\text{g/l}$) (ppb)	Nickel ($\mu\text{g/l}$) (ppb)	Zinc ($\mu\text{g/l}$) (ppb)
MW-2(17)	08/06/92	5	18	88	41	4,770



August 17, 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:

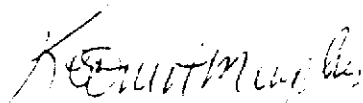
Enclosed are the results of the water samples submitted to our lab on August 7, 1992. For your reference, our service request number for this work is SJ92-0991.

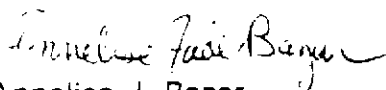
All analyses were performed in accordance with the laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.


Keoni A. Murphy
Laboratory Manager


Annelise J. Bazar
Regional QA Coordinator

le/KAM

Analytical Report

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

Date Received: 08/07/92
Work Order #: SJ92-0991
Sample Matrix: Water

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

Sample Name: MW-1 (23) MW-2 (17) MW-3 (19)
Date Analyzed: 08/11/92 08/12/92 08/11/92

Analyte	MRL			
Benzene	0.5	ND	2,500.	ND
Toluene	0.5	ND	6,700.	ND
Ethylbenzene	0.5	ND	2,900.	ND
Total Xylenes	0.5	ND	16,000.	ND
TPH as Gasoline	50	ND	78,000.	ND

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

Approved by *Kevin Murphy* Date August 17, 1992

Analytical Report

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

Date Received: 08/07/92
Work Order #: SJ92-0991
Sample Matrix: Water

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

Sample Name: MW-4 (17) MW-5 (16) MW-6 (17)
Date Analyzed: 08/11/92 08/11/92 08/11/92

<u>Analyte</u>	<u>MRL</u>			
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 [Signature] Date August 17, 1992

Analytical Report

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

Date Received: 08/07/92
Work Order #: SJ92-0991
Sample Matrix: Water

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

Sample Name: MW-7 (14) FB-1 Method Blank
Date Analyzed: 08/11/92 08/11/92 08/11/92

<u>Analyte</u>	<u>MRL</u>			
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

[Handwritten Signature]

Date

August 17, 1992

Analytical Report

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

Date Received: 08/07/92
Work Order #: SJ92-0991
Sample Matrix: Water

BTEX and TPH as Gasoline
EPA Methods 5030/8020/DHS LUFT Method
 $\mu\text{g/L}$ (ppb)

Sample Name: Method Blank
Date Analyzed: 08/12/92

<u>Analyte</u>	<u>MRL</u>	
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Total Xylenes	0.5	ND
TPH as Gasoline	50	ND

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

Approved by

[Signature]

Date

August 18, 1992

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

Date Received: 08/07/92
Work Order #: SJ92-0991

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

Date Analyzed: 08/11/92

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
Benzene	250.	273.	109.	85-115
Toluene	250.	275.	110.	85-115
Ethylbenzene	250.	264.	106.	85-115
Total Xylenes	750.	775.	103.	85-115
TPH as Gasoline	2,500.	2,352.	94.	90-110

Date Analyzed: 08/12/92

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
Benzene	250.	273.	109.	85-115
Toluene	250.	278.	111.	85-115
Ethylbenzene	250.	268.	107.	85-115
Total Xylenes	750.	824.	110.	85-115
TPH as Gasoline	2,500.	2,582.	103.	90-110

TPH Total Petroleum Hydrocarbons

Approved by

[Signature]

Date

August 17, 1992

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

Date Received: 08/07/92
Work Order #: SJ92-0991
Sample Matrix: Water

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

<u>Sample Name</u>	<u>Date Analyzed</u>	<u>Percent Recovery</u> <i>a,a,a</i> -Trifluorotoluene
MW-1 (23)	08/11/92	105.
MW-2 (17)	08/12/92	111.
MW-3 (19)	08/11/92	113.
MW-4 (17)	08/11/92	112.
MW-5 (16)	08/11/92	109.
MW-6 (17)	08/11/92	112.
MW-7 (14)	08/11/92	109.
FB-1	08/11/92	110.
MW-1 (23) MS	08/11/92	121.
MW-1 (23) DMS	08/11/92	124.
Method Blank	08/11/92	107.
Method Blank	08/12/92	107.

CAS Acceptance Criteria 70-130

TPH Total Petroleum Hydrocarbons

Approved by

K. E. W. H. M. ...

Date

August 17, 1992

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

Date Received: 08/07/92
Work Order #: SJ92-0991
Sample Matrix: Water

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

Sample Name: MW-1 (23)
Date Analyzed: 08/11/92

Percent Recovery

<u>Analytes</u>	<u>Spike Level</u>	<u>Sample Result</u>	<u>Spike Result</u>		<u>Percent Recovery</u>		<u>Acceptance Criteria</u>
			<u>MS</u>	<u>DMS</u>	<u>MS</u>	<u>DMS</u>	
TPH as Gasoline	250.	ND	281.	274.	112.	110.	70-140

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

Approved by *[Signature]* Date August 17, 1992

ARCO Facility no. **4494** City (Facility) **OAKLAND**
 ARCO engineer **Kyle Christie** Telephone no. (ARCO) **(415) 571-2434**
 Consultant name **EMCCO ASSOCIATES** Address (Consultant) **1938 JUNCTION AVE SAN JOSE**

Project manager (Consultant) **JIM BUENA** Telephone no. (Consultant) **(415) 453-0719** Fax no. (Consultant) **(415) 453-0452**

Laboratory name **CAS**
 Contract number **07077**

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX EPA 802	BTEX/TPH/GAS EPA M602/6020/6015	TPH Modified 8015 Gas <input type="checkbox"/> Diesel <input type="checkbox"/>	Oil and Grease 413.1 <input type="checkbox"/> 413.2 <input type="checkbox"/>	TPH EPA 418.1/SM503E	EPA 601/601C	EPA 624/624C	EPA 625/627C	TCMP Metals <input type="checkbox"/> VOA <input type="checkbox"/> VOA <input type="checkbox"/>	SEM Metals <input type="checkbox"/> VOA <input type="checkbox"/> VOA <input type="checkbox"/>	CAN Metals EPA 60107000 TLC <input type="checkbox"/> STLC <input type="checkbox"/>	Lead Org./DHS Lead EPA 74207421 <input type="checkbox"/>	TOTAL METALS Pb Cd Cu Fe Mn Ni Zn			
			Soil	Water	Other	Ice	Acid																		
MW 1 (13)	1-2	2		X		X	HCl	8-6-92	1318	X	X														
MW 2 (17)	3-4	2		X		X	HCl	↓	1544	X	X														
MW 3 (19)	5-6	2		X		X	HCl		1358	X	X														
MW 4 (12)	7-8	2		X		X	HCl		1503	X	X														
MW 5 (16)	9-10	2		X		X	HCl		1638	X	X														
MW 6 (17)	11-12	2		X		X	HCl		1733	X	X														
MW 7 (19)	13-14	2		X		X	HCl		1901	X	X														
FD-1	15-16	2		X		X	HCl		1915	X	X														
MW 8 (17)		1		X			HNO3		↓	1753													X		

Method of shipment
Sampler will deliver

Special detection Limit/reporting
Lowest Possible

Special QA/QC
As Normal

Remarks
2-40 ml VOA's

**METALS:
 NON-FILTERED
 1-500 ml HNO3
 670-3101**

Lab number
SJ92-0991

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

Condition of sample: **4 bottles in MW 1, MW 2, 3, 4, 5, 6 packed in MW 2**
 Relinquished by sampler **[Signature]** Date **8-7-92** Time **9:33**
 Relinquished by **[Signature]** Date **8-7-92** Time **9:33**
 Relinquished by _____ Date _____ Time _____

Temperature received: **cool**
 Received by **AA** Date **8-7-92** Time **0933**
 Received by _____ Date _____ Time _____
 Received by laboratory _____ Date _____ Time _____



August 19, 1992

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

Re: **ARCO #4494 - Oakland/Project #G70-31.01/SJ920991**

Dear Jim:

Enclosed are the results of the sample submitted to our lab on August 7, 1992. For your reference, these analyses have been assigned our work order number K924932C.

All analyses were performed in accordance with our laboratory's quality assurance program. Reproduction of reports is allowed only in whole, not in part. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

A handwritten signature in cursive script, appearing to read "Colin B. Elliott".

Colin B. Elliott
Senior Project Chemist

CBE/do

Columbia Analytical Services, Inc.

A handwritten signature in cursive script, appearing to read "Lawrence J. Jacoby, Ph.D.". The signature is written in a fluid, somewhat stylized cursive.

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

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 08/07/92
 Work Order No.: K924932C

Total Metals
 µg/L (ppb)

Sample Name:
 Lab Code:

MW-2
 K4932-1

Method Blank
 K4932-MB

Analyte	EPA Method	MRL		
Cadmium	6010	3	5	ND
Chromium	6010	5	18	ND
Lead	7421	2	88	ND
Nickel	6010	20	41	ND
Zinc	6010	10	4,770	ND

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

Approved by *Ann Elliott* Date 5/10/92

000 1

APPENDIX A
LABORATORY QC RESULTS

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 08/07/92
 Work Order No.: K924932C

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

Sample Name: MW-2
 Lab Code: K4932-1

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	5	52	54	94	98	75-125	4
Chromium	5	200	18	204	213	93	98	75-125	4
Lead	2	20	88	106	107	90	95	75-125	< 1
Nickel	20	500	41	484	496	89	91	75-125	2
Zinc	10	500	4,770	5,290	5,400	NA	NA	75-125	2

MRL Method Reporting Limit

NA Not Applicable because of the sample matrix. Accuracy of the spike recovery value is reduced, since the sample concentration was greater than four times the amount spiked.

Approved by Date 5/19/92

606 3

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO #4494 - Oakland

Date Analyzed: 08/14/92
Work Order No.: K924932C

Initial Calibration Verification (ICV) Summary
 $\mu\text{g/L}$ (ppb)

Analyte	EPA Method	True Value	Result	Percent Recovery
Cadmium	6010	1,250	1,270	102
Chromium	6010	500	508	102
Lead	7421	98.4	104	106
Nickel	6010	1,250	1,300	104
Zinc	6010	1,250	1,280	102

ICV Source: EPA ICV

Approved by

Chris Elliott

Date

5/14/92

000-4

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. **EMCGC-92-1**

Chain of Custody

ARCO Facility no. **4494** City (Facility) **OAKLAND** Project manager (Consultant) **JIM BUIERA**
 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 AVE SAN JOSE**

Laboratory name **CAS**
Contract number **07077**

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH/GAS EPA 1602/8020/8015	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	TCPLP Metals VOA VOA	Semi Metals VOA VOA	CAM Metals EPA 601/8010 TTLC STLC	Lead Org./DHS Lead EPA 7420/7421	TOTAL METALS REQUEST	
			Soil	Water	Other	Ice	Acid																
MW-1(23)		2		X		X	HCl	8-6-92	1318	X	X												
MW-2(17)		2		X		X	HCl		1544	X	X												
MW-3(18)		2		X		X	HCl		1358	X	X												
MW-4(12)		2		X		X	HCl		1505	X	X												
MW-5(16)		2		X		X	HCl		1638	X	X												
MW-6(17)		2		X		X	HCl		1733	X	X												
MW-7(24)		2		X		X	HCl		1901	X	X												
FB-1		2		X		X	HCl		1915	X	X												
MW-2(17)		1		X			HNO3		1953													X	

Method of shipment
Sampler will deliver

Special detection Limit/reporting
Lowest Possible

Special QA/QC
As Normal

Remarks
2-40 uM VOA!

**METALS:
NON-FILTERED
1-500 uM HNO
670-310!**

Lab number
SJ92-09

Turnaround time
**Priority Rush
1 Business Day**

**Rush
2 Business Days**

**Expedited
5 Business Days**

**Standard
10 Business Days**

Condition of sample: **4.50 lbs in MW-1, MW-2, 3, 4, 5, 6 product in MW-2** Temperature received: **cool**
 Relinquished by sampler **[Signature]** Date **8-7-92** Time **9:33** Received by **[Signature]** Date **8-7-92** Time **0933**
 Relinquished by **[Signature] CAS/ST** Date **8/7/92** Time **1600** Received by **[Signature]** Date **8/8/92** Time **0930**
 Relinquished by **[Signature]** Date **8/7/92** Time **1600** Received by laboratory **[Signature]** Date **8/8/92** Time **0930**



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON
ASSOCIATES

PROJECT NO: G70-31.01

SAMPLE ID: MW-1

PURGED BY: J Williams

CLIENT NAME: ARCO 4494

SAMPLED BY: J Williams

LOCATION: Onkland-ca

TYPE: Ground Water Surface Water Treatment Effluent Other

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

CASING ELEVATION (feet/MSL): <u>110</u>	VOLUME IN CASING (gal.): <u>10.63</u>
DEPTH TO WATER (feet): <u>729</u>	CALCULATED PURGE (gal.): <u>53.16</u>
DEPTH OF WELL (feet): <u>23.5</u>	ACTUAL PURGE VOL (gal.): <u>21</u>

DATE PURGED: <u>08-06-97</u>	Start (2400 Hr) <u>1256</u>	End (2400 Hr) <u>1301</u>
DATE SAMPLED: <u>08-06-97</u>	Start (2400 Hr) <u>1316</u>	End (2400 Hr) <u>1318</u>

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1301</u>	<u>11</u>	<u>7.00</u>	<u>7260</u>	<u>74.4</u>	<u>Lt BROWN</u>	<u>SMOOTH</u>
<u>1302</u>	<u>22</u>	<u>7.01</u>	<u>7260</u>			
<u>1303</u>	<u>33</u>	<u>7.33</u>	<u>7700</u>	<u>72.5</u>	<u>Lt BROWN</u>	<u>HEAVY</u>
	<u>47</u>					
	<u>53</u>					

D. O. (ppm): ND ODCR: None (CCBALT 0 - 100) (NTU 0 - 200)

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

PURGING EQUIPMENT

SAMPLING EQUIPMENT

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> 2" Bladder Pump | <input type="checkbox"/> Bailer (Teflon®) | <input type="checkbox"/> 2" Bladder Pump | <input checked="" type="checkbox"/> Bailer (Teflon®) |
| <input checked="" type="checkbox"/> Centrifugal Pump | <input type="checkbox"/> Bailer (PVC) | <input type="checkbox"/> ODL Sampler | <input type="checkbox"/> Bailer (Stainless Steel) |
| <input type="checkbox"/> Submersible Pump | <input type="checkbox"/> Bailer (Stainless Steel) | <input type="checkbox"/> Dipper | <input type="checkbox"/> Submersible Pump |
| <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated | <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated |
- Other: _____ Other: _____

WELL INTEGRITY: OK LOCK #: 2250

REMARKS: DRIPED AFTER 21 GALLONS TOOK 1305-

Meter Calibration: Date: 8-6-92 Time: 1030 Meter Serial #: _____ Temperature °F: 77.9
 (EC 1000 1022/1000) (DI _____) (pH 7 7.02/7.00) (pH 10 10.25/10.00) (pH 4 4.00)

Location of previous calibration: 916-1

Signature: J Williams Reviewed By: JL Page 1 of 7



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: B70-31-01
PURGED BY: S. Williams
SAMPLED BY: S. Williams

SAMPLE ID: MW-7
CLIENT NAME: ARCO 4404
LOCATION: OAKLAND CA.

TYPE: Ground Water Surface Water Treatment Effluent Other
CASING DIAMETER (inches): 2 3 4 4.5 6 Other

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 4.90
DEPTH TO WATER (feet): 10.05 CALCULATED PURGE (gal.): 24.50
DEPTH OF WELL (feet): 17.53 ACTUAL PURGE VOL (gal.): 5.5

DATE PURGED: 08-06-92 Start (2400 Hr) 1530 End (2400 Hr) 1535
DATE SAMPLED: 08-06-92 Start (2400 Hr) 1550 End (2400 Hr) 1553

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1525</u>	<u>5</u>	<u>7.49</u>	<u>244.6</u>	<u>73.9</u>	<u>GREY</u>	<u>HEAVY</u>

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): Partial metal

PURGING EQUIPMENT

SAMPLING EQUIPMENT

- | | | | |
|--|---|--|---|
| <input type="checkbox"/> 2" Bladder Pump | <input type="checkbox"/> Bailer (Teflon®) | <input type="checkbox"/> 2" Bladder Pump | <input type="checkbox"/> Bailer (Teflon®) |
| <input checked="" type="checkbox"/> Centrifugal Pump | <input type="checkbox"/> Bailer (PVC) | <input type="checkbox"/> DDL Sampler | <input type="checkbox"/> Bailer (Stainless Steel) |
| <input type="checkbox"/> Submersible Pump | <input type="checkbox"/> Bailer (Stainless Steel) | <input type="checkbox"/> Dipper | <input type="checkbox"/> Submersible Pump |
| <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated | <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated |
- Other: _____ Other: _____

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: DRIP FROM 5th BALLONS TIME 1525
NO RECOVER COND.

Meter Calibration: Date: _____ Time: 12:30 Meter Serial #: _____ Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: _____

Signature: _____ Reviewed By: _____ Page 2 of 7



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 670-31.01
PURGED BY: SW H. Sims
SAMPLED BY: SW H. Sims

SAMPLE ID: 1110-3
CLIENT NAME: ARCO 4494
LOCATION: ORR (120) C.H.

TYPE: Ground Water Surface Water Treatment Effluent Other
CASING DIAMETER (inches): 2 3 4 4.5 6 Other

CASING ELEVATION (feet/MSL): N.R. VOLUME IN CASING (gal.): 592
DEPTH TO WATER (feet): 8.90 CALCULATED PURGE (gal.): 20.68
DEPTH OF WELL (feet): 18 ACTUAL PURGE VOL (gal.): 30

DATE PURGED: 08-06-92 Start (2400 Hr) 1335 End (2400 Hr) 1352
DATE SAMPLED: 08-06-92 Start (2400 Hr) 1357 End (2400 Hr) 1358

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1338</u>	<u>6</u>	<u>7.39</u>	<u>3985</u>	<u>73.7</u>	<u>GEN4</u>	<u>None</u>
<u>1340</u>	<u>15</u>	<u>7.14</u>	<u>1065</u>	<u>72.0</u>	<u>11</u>	<u>11</u>
<u>1347</u>	<u>18</u>	<u>7.18</u>	<u>9490</u>	<u>70.4</u>	<u>11</u>	<u>11</u>
<u>1349</u>	<u>24</u>	<u>7.19</u>	<u>9750</u>	<u>71.5</u>	<u>11</u>	<u>11</u>
<u>1353</u>	<u>30</u>	<u>7.22</u>	<u>9300</u>	<u>70.4</u>	<u>11</u>	<u>11</u>

D. O. (ppm): N.R. ODOR: N.A.N.Z. 110 N.R.
(CCBALT 0 - 100) (NTU 0 - 200)

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

PURGING EQUIPMENT

SAMPLING EQUIPMENT

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> 2" Bladder Pump | <input type="checkbox"/> Bailer (Teflon®) | <input type="checkbox"/> 2" Bladder Pump | <input checked="" type="checkbox"/> Bailer (Teflon®) |
| <input checked="" type="checkbox"/> Centrifugal Pump | <input type="checkbox"/> Bailer (PVC) | <input type="checkbox"/> DDL Sampler | <input type="checkbox"/> Bailer (Stainless Steel) |
| <input type="checkbox"/> Submersible Pump | <input type="checkbox"/> Bailer (Stainless Steel) | <input type="checkbox"/> Dipper | <input type="checkbox"/> Submersible Pump |
| <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated | <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated |
| Other: _____ | | Other: _____ | |

WELL INTEGRITY: OK LOCK #: 3250

REMARKS: WATER IN BOX

Meter Calibration: Date: _____ Time: 1334 Meter Serial #: _____ Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)
Location of previous calibration: _____

Signature: [Signature] Reviewed By: JH Page 3 of 7



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 670-3101

SAMPLE ID: M10-4

PURGED BY: J.W. Williams

CLIENT NAME: APCO 4494

SAMPLED BY: J.W. Williams

LOCATION: OAKLAND

TYPE: Ground Water Surface Water Treatment Effluent Other

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

CASING ELEVATION (feet/MSL): N/A VOLUME IN CASING (gal.): 6.33

DEPTH TO WATER (feet): 8.52 CALCULATED PURGE (gal.): 31.65

DEPTH OF WELL (feet): 18.17 ACTUAL PURGE VOL (gal.): 19.5

DATE PURGED: 08-06-92 Start (2400 Hr) 1435 End (2400 Hr) 1440

DATE SAMPLED: 08-06-92 Start (2400 Hr) 1503 End (2400 Hr) 1515

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	EC. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1441	6.5	7.07	9220	73.8	BROWN	HEAVY
1445	13	7.08	9220	71.9	11	11
1450	19	7.45	9580	70.0	11	11
1505	Purge	7.12	9990	76.5	11	11

D. O. (ppm): 1.0 ODOR: None (COBALT 0 - 100) 1.0 (NTU 0 - 200) 1.0

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

PURGING EQUIPMENT

SAMPLING EQUIPMENT

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> 2" Bladder Pump | <input type="checkbox"/> Bailor (Teflon®) | <input type="checkbox"/> 2" Bladder Pump | <input checked="" type="checkbox"/> Bailor (Teflon®) |
| <input checked="" type="checkbox"/> Centrifugal Pump | <input type="checkbox"/> Bailor (PVC) | <input type="checkbox"/> DDL Sampler | <input type="checkbox"/> Bailor (Stainless Steel) |
| <input type="checkbox"/> Submersible Pump | <input type="checkbox"/> Bailor (Stainless Steel) | <input type="checkbox"/> Dipper | <input type="checkbox"/> Submersible Pump |
| <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated | <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated |
- Other: _____ Other: _____

WELL INTEGRITY: OK LOCK #: 3059

REMARKS: Dried After 19.5 Gallons @ 1450

Meter Calibration: Date: _____ Time: 1000 Meter Serial #: _____ Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: APCO

Signature: _____ Reviewed By: JWS Page 1 of 2



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 070-31.01

SAMPLE ID: MW-5

PURGED BY: J.W. Williams

CLIENT NAME: ARCO 4494

SAMPLED BY: J.W. Williams

LOCATION: ORLANDO CA.

TYPE: Ground Water Surface Water Treatment Effluent Other

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

CASING ELEVATION (feet/MSL): ARR VOLUME IN CASING (gal.): 160

DEPTH TO WATER (feet): 7.19 CALCULATED PURGE (gal.): 8.04

DEPTH OF WELL (feet): 17.0 ACTUAL PURGE VOL (gal.): 8

DATE PURGED: 08-01-97 Start (2400 Hr) 1618 End (2400 Hr) 1631

DATE SAMPLED: 08-04-97 Start (2400 Hr) 1631 End (2400 Hr) 1635

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1622	15	6.97	1420	74.7	GREY	HEAVY
1625	8	7.16	1282	74.9	11	11
1627	45 45	7.19	1247	75.5	11	11
1629	6	7.26	1106	73.4	11	11
1631	8	7.26	1091	73.1		

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

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

PURGING EQUIPMENT

SAMPLING EQUIPMENT

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> 2" Bladder Pump | <input type="checkbox"/> Bailer (Teflon®) | <input type="checkbox"/> 2" Bladder Pump | <input checked="" type="checkbox"/> Bailer (Teflon®) |
| <input checked="" type="checkbox"/> Centrifugal Pump | <input type="checkbox"/> Bailer (PVC) | <input type="checkbox"/> ODL Sampler | <input type="checkbox"/> Bailer (Stainless Steel) |
| <input type="checkbox"/> Submersible Pump | <input type="checkbox"/> Bailer (Stainless Steel) | <input type="checkbox"/> Dipper | <input type="checkbox"/> Submersible Pump |
| <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated | <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated |

WELL INTEGRITY: OK LOCK #: 2259

REMARKS: _____

Meter Calibration: Date: _____ Time: 10:20 Meter Serial #: _____ Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: ORLANDO CA.

Signature: J.W. Williams Reviewed By: JB Page 5 of 3



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: G70-31C1

SAMPLE ID: MW-6

PURGED BY: J. Williams

CLIENT NAME: ARCO 4494

SAMPLED BY: J. Williams

LOCATION: OAKLAND CA

TYPE: Ground Water Surface Water Treatment Effluent Other

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 103

DEPTH TO WATER (feet): 7.02 CALCULATED PURGE (gal.): 9.16

DEPTH OF WELL (feet): 18.20 ACTUAL PURGE VOL (gal.): 10

DATE PURGED: 08-06-92 Start (2400 Hr) 1717 End (2400 Hr) 1729

DATE SAMPLED: 08-06-92 Start (2400 Hr) 1730 End (2400 Hr) 1733

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	EC. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1719</u>	<u>2</u>	<u>6.87</u>	<u>6690</u>	<u>72.2</u>	<u>GRN</u>	<u>Hazy</u>
<u>1721</u>	<u>4</u>	<u>6.90</u>	<u>5840</u>	<u>72.4</u>	<u>11</u>	<u>11</u>
<u>1723</u>	<u>2</u>	<u>6.92</u>	<u>5840</u>	<u>72.3</u>	<u>11</u>	<u>11</u>
<u>1725</u>	<u>5</u>	<u>6.93</u>	<u>5830</u>	<u>72.3</u>	<u>11</u>	<u>11</u>
<u>1727</u>	<u>8</u>	<u>6.95</u>	<u>5830</u>	<u>72.1</u>	<u>11</u>	<u>11</u>

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

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

PURGING EQUIPMENT

SAMPLING EQUIPMENT

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> 2" Bladder Pump | <input type="checkbox"/> Bailer (Teflon®) | <input type="checkbox"/> 2" Bladder Pump | <input checked="" type="checkbox"/> Bailer (Teflon®) |
| <input checked="" type="checkbox"/> Centrifugal Pump | <input type="checkbox"/> Bailer (PVC) | <input type="checkbox"/> DDL Sampler | <input type="checkbox"/> Bailer (Stainless Steel) |
| <input type="checkbox"/> Submersible Pump | <input type="checkbox"/> Bailer (Stainless Steel) | <input type="checkbox"/> Dipper | <input type="checkbox"/> Submersible Pump |
| <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated | <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated |
- Other: _____ Other: _____

WELL INTEGRITY: OK LOCK #: RE 89

REMARKS: _____

Meter Calibration: Date: 8-6-92 Time: 1646 Meter Serial #: _____ Temperature °F: 74.5
(EC 1000 2.5 / 1.000) (DI _____) (pH 7 7.12 / 1.000) (pH 10 0.5 / 1.000) (pH 4 9.1 / 1.000)

Location of previous calibration: ARCO

Signature: _____ Reviewed By: JL Page 6 of 7

{1110317} Rob

IF NUMBER: _____

MONITORING WELL PURGE WATER TRANSPORT FORM

RECEIVED
OCT 32 1992
RESNA
SAN JOSE

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 RINSEATE 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

Stephen Marshall for Kyle Christie for ARCO 8-20-92
(Typed or printed full name & signature) (Date)

SITE INFORMATION

	STA #	JOB #	ADDRESS	GALS
1	A-4314	20862-RP	2200 EL CAMINO REAL, SACRAMENTO, CA	39
2	A-2124	20825-PW	4400 FREEPORT BLVD., SACRAMENTO, CA	97
3	A-1334	20892-PW	1632 DOUGLAS BLVD., ROSEVILLE, CA	102
4	A-5332	20853-PW	705 RUSSELL BLVD., DAVIS, CA	89
5	A-489	20852-PW	525 COLUSA AVE., YUBA CITY, CA	391
6	A-6159	20981-OW	6140 GREEN BACK LANE, CITRUS HEIGHTS, CA	35
7	A-6023	20950-PW	1801 WOODSIDE RD., REDWOOD CITY, CA	287
8	A-2112	20955-PW	1260 PARK ST., ALAMEDA, CA	284
9	A-4494	20890-PW	566 HEGENBERGER RD., OAKLAND, CA	103
10	A-414	20778-PW	3000 SHATTUCK AVE., BERKELEY, CA	65
11	A-6073	20979-BW	2300 WESTBOROUGH BLVD., SO. S. F., CA	
TOTAL GALLONS:				<u>1492</u>

TRANSPORTER INFORMATION

NAME: BALCH PETROLEUM

ADDRESS: 930 AMES AVE.

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

TRUCK ID #: PETERBILT HURSCHEL WARD
(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 Shawn R. Ziegler Shawn R. Ziegler 8-20-92
(Typed or printed full name & signature) (Date)

Ger. 1296